Ministry of Health
Malawi

GUIDELINES FOR MATERNAL AND NEWBORN HEALTH SERVICES INCLUDING FAMILY PLANNING DURING THE COVID-19 PANDEMIC

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FOREWORD

The Maternal and Newborn Health (MNH) and Family Planning (FP) Service Delivery Guidelines during the novel Coronavirus Disease 2019 (COVID-19) pandemic in Malawi are written for health professionals including nurses, midwives, clinicians, health surveillance assistants, and health managers at all health facilities in Malawi. The guidelines have been developed in response to the outbreak of the COVID-19 in the country. The outbreak poses a threat to all populations but has serious implications for those who are vulnerable, i.e. those that have underlying medical conditions like diabetes, hypertension, heart disease and the elderly. Given the highly infectious nature of the virus and its ability to efficiently and adversely affect large numbers of people quickly; and its detrimental impact on the health system due to its known and unknown complications, everyone's attention is on how to deal with the outbreak. Women will, however, continue to need FP services, get pregnant and also give birth. It will be important that routine MNH and FP services are provided safely with stringent infection prevention measures in place within the context of the COVID-19 pandemic.

Pregnant women with suspected, probable or confirmed COVID-19 should be managed with optimal care, taking into account the immunologic and physiologic adaptations during and after pregnancy. The health care providers and facilities need to be adaptive to the dynamic needs for controlling COVID-19 and ensure that adverse outcomes of the COVID-19 on the women and newborns are mitigated. Healthcare providers need to be protected while providing the care.

Health care systems everywhere in the world are under pressure. It is a fact that we are dealing with an unknown pathogen that is creating the pressure, which is compounded by trying to keep our health workers safe, heavy workloads, redistribution of limited resources and shutting down essential services. The situation is potentially alarming in sub-Saharan Africa including Malawi where the health system is overburdened and continues to struggle with the scarcity of human and material resources.

Maternal and Newborn Health services are among the essential health services that should be maintained during the COVID-19 pandemic. If these services are compromised, more mothers and newborns will die from pregnancy and birth related complications than of the pandemic. These guidelines offer practical considerations for both preventive and clinical aspects of provision of MNH and FP services during the COVID-19 pandemic in Malawi.

This guide is based on a combination of available evidence, good clinical practice and expert advice from reputable organizations within the health sector. These include World Health Organisation (WHO), United Nations Population Fund (UNFPA), United Nations International Children's Emergency Fund (UNICEF), International Confederation of Midwives (ICM), Royal College of Obstetricians and Gynaecologists (RCOG), American College of Obstetricians and Gynaecologists (ACOG), Royal College of Midwives (RCM), and International Federation of Gynaecology and Obstetrics (FIGO). However, they are simplified and made user friendly for Malawian context including considerations for realistic attainment of necessary resources while not compromising optimal care and safety of both patients and health care providers.

The situation with COVID-19 is evolving rapidly and the guidelines will continue to be updated periodically when new information or evidence become available.

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LIST OF ACRONYMS

Acronym/abbreviation	
ANC	Antenatal Care
BLM	Banja La Mtsogolo
CEmONC	Comprehensive Emergency Obstetric and Neonatal Care
CMA	Community Midwife Assistant
COVID-19	Coronavirus Disease 2019
CTG	Cardiotocograph
EPI	Expanded Program on Immunization
FP	Family Planning
HCW	Health Care Worker
HSA	Health Surveillance Assistant
ICM	International Confederation of Midwives
IPC	Infection Prevention and Control
ISUOG	International Society of Ultrasound in Obstetrics and Gynaecology
IUCD	Intrauterine Contraceptive Device
DMPA-SC	Medroxyprogesterone-acetate subcutaneous
LAM	Lactational Amenorrhea method
LARC	Long-acting reversible contraceptive
MNH	Maternal and New-born Health
MOH	Ministry of Health and Population
MVA	Manual Vacuum Aspiration
NGO	Nongovernmental Organisation
PAC	Post-Abortal Care
POP	Progestin Only Pills
RAM	Rapid Assessment and Management
RCM	Royal College of Midwives
RCOG	Royal College of Obstetricians and Gynaecologists
SDM	Standard Days Method
SRHR	Sexual Reproductive Health and Right
UNFPA	United Nations Population Fund
WHO	World Health Organisation

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1.0 COVID-19 AND PREGNANCY

1.1 Introduction

The novel coronavirus also known as severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2) is a new strain of coronavirus causing coronavirus disease 2019 (COVID-19). The virus was first identified in Wuhan City, China in December 2019[1]. There are different kinds of coronaviruses, some of which include Severe Acute Respiratory Syndrome (SARS) and Middle Eastern Respiratory Syndrome (MERS). The outbreak of COVID-19 has become a global public health threat.

1.2 Transmission

Globally, most cases of COVID-19 have evidence of human-to-human transmission. The virus can be readily isolated from respiratory secretions, faeces and fomites[1]. There are two routes by which COVID-19 can be spread: directly from close contact with an infected person (within 2 metres) where respiratory secretions can enter the eyes, mouth, nose or airways. This risk increases the longer someone has close contact with an infected person who has symptoms; and secondly a surface, object or the hand of an infected person that has been contaminated with respiratory secretions and then touching own mouth, nose, or eyes[2,3,4,5].

There is no clear evidence of transmission of the virus to the foetus in utero. Studies to date do not show coronavirus in amniotic fluid or cord blood. Though one case of pregnancy loss found coronavirus in the placenta, there was no evidence of the virus in the foetus[6]. However, emerging evidence now suggests that vertical transmission is probable, although the proportion of pregnancies affected and the significance to the neonate have yet to be determined[6,7]. At present, there are no recorded cases of vaginal secretions and breast milk being tested positive for COVID-19.

However, since SARS-CoV-2 has been detected in stools, this might pose a risk to the neonate during birth where there is physical proximity to perianal region[8, 9, 10].

1.3 Effect of COVID-19 in Pregnancy

Pregnancy is a physiological state that alters the body's immune system and response to viral infections in general, which can occasionally cause more severe symptoms. However, pregnant women do not appear more likely to contract the infection than the general population[11]. Currently, there is no scientific evidence about the increased susceptibility of pregnant women to COVID-19.

There are case reports of preterm birth in women with COVID-19 but causal relationship between preterm birth and COVID-19 is not proven[12]. Nevertheless, pregnant women are potentially at increased risk of complications from any respiratory disease due to the physiological changes that occur in pregnancy. These physiological changes include reduced lung function, increased oxygen consumption and changed immunity.

COVID-19 in pregnancy might pose challenges with adequate ventilation in severe disease. While a majority of those with COVID-19 are experiencing mild disease as seen in the general population, those who become ill with severe disease may require preterm delivery to optimize maternal ventilation and circulation.

Furthermore, there is increased risk of mental health illnesses, gender based violence and poverty particularly among pregnant women during the COVID-19 pandemic.

1.4 Effect of COVID-19 on the Foetus

There are currently no data suggesting an increased risk of adverse pregnancy outcomes. There is no evidence of miscarriage or second trimester loss in relation to COVID-19[13]. Additionally, there is no evidence that the virus is teratogenic. COVID-19 infection is currently not an indication for medical termination of pregnancy. Babies born to mothers with COVID-19 can potentially become infected with the virus after birth (through droplet exposure). However, the risk of transmission can be minimized through general infection prevention and control practices.

1.5 Prevention

Currently, there are no effective drugs to treat or vaccines to prevent COVID-19. However, there are several interventions that can prevent spread of the virus and confer protection from acquiring the virus such as physical distancing, hand hygiene, and respiratory hygiene.

2.0 RATIONALE FOR THE NATIONAL MNH AND FAMILY PLANNING SERVICE DELIVERY GUIDELINES DURING THE COVID-19 PANDEMIC

Sexual and reproductive health is a significant public health issue during epidemics. Contraception, safe pregnancy and safe childbirth depend on functioning health systems and clear guidelines. Maternal and Newborn Health and Family Planning guidelines are essential to ensure that the reproductive health needs of women and girls are met and that all pregnant women and their new-born babies receive optimal care during the COVID-19 pandemic.

With the emergence of the COVID-19 pandemic, as declared by WHO, there is a focus on adjusting health programming to respond to the pandemic. Evidence from the WHO shows that when routine practices come under threat due to competing demands, contextualized guidelines can mitigate outright system failure. The Ministry of Health (MOH) through the Reproductive Health Directorate has therefore developed these guidelines for health workers about the care of women and their babies during the childbirth continuum. The guidelines address the organization and provision of essential MNH and FP services during the COVID-19 pandemic.

3.0 MANAGEMENT OF COVID-19 INFECTION IN PREGNANCY

3.1 General advice for health professionals to share with pregnant Women

a) The evidence to date is that pregnant women are no more likely to contract the COVID-19 infection than the general population.
b) Pregnant women have been placed in a "vulnerable" or at-risk population, due to other risks such as gender based violence, poverty, mental health.
c) Most healthy pregnant women who get infected with COVID-19 will most likely have no symptoms or a mild illness from which they will make a full recovery.
d) If pregnant women develop symptoms, these might include fever, dry cough, difficulty breathing or shortness of breath among other common COVID-19 symptoms.
e) If pregnant women develop more severe symptoms or their recovery is delayed, this may be a sign that they are developing a more significant chest infection that requires enhanced care.

f) If pregnant women who are infected with COVID-19 feel that their symptoms are worsening or if they have any danger signs of pregnancy, they should contact "Chipatala Cha pa phone" on 54747 / 0887371288/ 321 or the district rapid response team or their local health facility.
g) All pregnant women should stringently observe physical distancing; maintaining at least 1-1.5m separation from others and infection prevention and control measures to reduce the risk of infection, including frequent handwashing.
h) Antenatal care (ANC) is essential to ensure women have a healthy pregnancy and so women should attend ANC.
i) Pregnant women should contact their local health facility if they experience any danger signs of pregnancy.
j) Pregnant women are permitted to come with one asymptomatic companion to the ANC appointments or hospital.

3.2 Advice for health workers providing obstetric and midwifery services

Health workers should acknowledge that COVID-19 pandemic increases the risk of perinatal anxiety, depression, and domestic violence. It is therefore important that support for women and families is strengthened as far as possible, and that women are asked about mental health at every contact.

3.3 Protective measures for patients and health workers

3.3.1 Reducing the transmission of COVID-19 in maternity settings

Women might be at increased risk of contracting COVID-19 while attending MNH and FP services. Healthcare providers should make every effort to protect themselves, as well as the women from contracting COVID-19 while providing MNH and FP services, by following Infection Prevention and

Control (IPC) measures and including appropriate use of Personal Protective Equipment (PPE). **Refer to Appendix I for detailed guidance on IPC and appropriate use of PPE.**

3.3.2 Advice for pregnant health workers

Because COVID-19 is a novel disease, there is not enough data yet to predict whether pregnant health workers might contract the virus at a higher rate than their non-pregnant counterparts, nor is it known what the morbidity or mortality might be. As a precautionary measure, pregnant health workers have been included in the high-risk groups for COVID-19. Therefore, pregnant health workers should be allocated to clinical areas where patients have already been screened out for COVID-19.

3.3.3 Screening and Triage

Health facilities should have one designated COVID-19 screening point for patients including those accessing MNH and FP services to ensure that everyone has been appropriately screened for COVID-19.

For areas with direct access such as labour and delivery units, additional designated COVID-19 screening areas should be created to ensure everyone including birth companions are screened.

a) Health workers should ensure that women attending MNH and FP services maintain stringent physical distancing. For example, the waiting benches should be marked to ensure spacing of at least 1.0 – 1.5 meter between patients. If chairs are used, they should be spaced with the above recommended physical distancing.
b) The screening and triage area should have the following:
    - Screening questionnaire of COVID-19 related symptoms
    - Hand hygiene station

- Waste bins
- Cleaning and disinfection supplies
- Post-signage
- An infrared thermometer
- Non-sterile gloves
- Medical masks for patients who may require a medical mask e.g. a suspected COVID-19 patient. (Refer Appendix I for which patients may require medical masks)
- Personal protective equipment for health workers

Health workers who are screening should put on the following PPE in line with the Malawi Personal Protective Equipment Guidelines for COVID-19.

  - Surgical scrubs which should be used only at work place and taken off before going home
  - Medical mask or face visor

c) At the screening desk, apart from screening questions for all patients, health workers should do a quick and brief medical and obstetric history to identify pregnant women who may have other medical conditions and obstetric complications which may put them at risk of severe COVID-19 disease.

d) Women identified with other medical conditions (e.g. asthma, hypertension, diabetes, chronic obstructive pulmonary disease) should be provided with a medical mask during hospital visits, and be given priority in the queue.
   - Their status should be clearly noted in the health passport and at any handover.

e) All health workers providing MNH and FP services must know how screening is to be conducted, and know the definition of: **Suspected**

Case, Probable Case, and Confirmed case of COVID-19. **(Refer Appendix II for the definitions)**

f) Health workers must orient all women and their companions accessing MNH and FP services on IPC.

g) All women must wash their hands with soap and water or use hand sanitizer upon arrival to the waiting area, upon entering clinical rooms, upon leaving clinical rooms and after sneezing and coughing. They should also be instructed to cough/sneeze into elbow and avoid touching their face and mouth with unwashed hands.

3.4 Women who develop symptoms of COVID-19 during admission (antenatal, intrapartum or postnatal)

a) There is an estimated incubation period of 0-14 days; an infected woman may therefore present asymptomatically, developing symptoms later during an admission[14]. Health workers should be aware of this possibility, particularly those who regularly measure patient vital signs.

b) In the event of new onset of respiratory symptoms with/without unexplained fever, which meet the case definition for suspected COVID-19, the woman should be isolated and appropriate IPC precautions initiated in line with Malawi Infection Prevention and Control Guidance and the COVID-19 Clinical Case Management Manual.

c) In the event that a patient in the wards fits the criteria for a suspected case, follow the procedure described in the Screening section and isolate that patient as quickly as possible.

3.5 Frequency of antenatal visits

Maternity care is an essential service. If women do not attend ANC they are at increased risk of maternal death, stillbirth, and other adverse perinatal outcomes.

The situation in Malawi is likely to change, and the delivery of services may be reconfigured with time. ANC and Postnatal Care (PNC) are based on years of evidence to keep women and babies safe in pregnancy and birth. Women should be encouraged to attend; despite being advised to otherwise engage with physical distancing measures. Women should also be reassured that health workers are making changes needed to ensure physical distancing, limiting time of potential exposure, and otherwise working to diminish risk of infection.

Health workers working in the antenatal clinics should consider the following:

a) Limiting ANC bookings to a specific number of clients that will allow for recommended physical distancing in waiting areas and during any group counselling sessions.
b) Pregnant women can be accompanied by one asymptomatic companion to the ANC appointments.
c) Pay attention to IPC measures when conducting clinical examination.
d) Increasing number of ANC clinic days and/or the opening hours in order to reduce congestion.
e) Health workers must perform hand hygiene before and after consultation with each woman.
f) Integrating components of care to minimize frequency of visits primarily for investigations (e.g. obstetric ultrasound scans, blood tests and vaccines all done during one visit).

g) Women must be advised to bring their own cup to use for taking directly observed treatment (DOT).

3.6 Pre-referral management pathways

a) Women attending ANC at health centres, district/central hospitals should be given appointments to avoid overcrowding.
b) Coordination between health workers working at the health centres and those working in the district hospitals is key to ensure the referral process runs smoothly.

Community Level

a) Health Surveillance Assistants (HSA) and Community Midwifery Assistants (CMA) should be equipped with adequate knowledge to educate the public on symptoms and preventive measures for COVID-19.
b) HSAs / CMAs should continue to provide community MNH and FP services and should receive appropriate training on COVID-19 and IPC measures.
c) Women should contact the district COVID-19 response team if they experience symptoms, or if they come into contact with a person suspected to have or confirmed to have COVID-19.

Health Centre Level

a) Health Centre must keep an updated record of all suspected, probable or confirmed cases of women who are asymptomatic or have mild disease, and have regular communication with the HSAs and CMAs of that particular area to follow up on such patients.
b) Health Centre must make arrangements to have a designated area to keep suspected, probable or confirmed COVID-19 cases who are waiting for testing or transfer to the appropriate referral facility.

c) Health Centres must make arrangements to have a designated area to keep suspected, probable or confirmed COVID-19 cases who need emergency care (e.g. imminent delivery).
d) Health workers must alert the next level of care about their plans to transfer any suspected, probable or confirmed COVID-19 patients, so that the referral centre is aware and ready to receive the patient.

District Level

a) District hospitals must have a designated COVID-19 area/room where patients with suspected, probable or confirmed to have COVID-19 are cared for, including a fully equipped labour and delivery room.
b) District hospitals must have ongoing communication with central hospitals for advice on management of pregnant patients with COVID-19 who may have complications arising from the pregnancy, labour and delivery, or those complications from co-morbid / pre-existing medical conditions.

Central Hospital Level

a) Central hospitals must have a designated COVID-19 area/room where suspected, probable or confirmed COVID-19 patients are cared for, including a fully equipped labour and delivery room.
b) Central hospitals must have an ongoing communication with other lower levels of health care for advice on management of pregnant patients with COVID-19 who may have complications arising from the pregnancy, labour and delivery, or those complications from co-morbid/pre-existing medical conditions.

3.7 Management of a patient suspected to have COVID-19 in the antenatal clinic or antenatal wards

All health workers must familiarize themselves with the National Plan for Management and referral of COVID-19 patients, the communication lines, contact numbers and persons at the district level. Health facilities should have a designated area or side room where such patients will be kept, pending referral to COVID-19 isolation centres.

If a patient or guardian fits the criteria for a suspected COVID-19 case definition, the following must be followed:

a) Give the woman a medical mask, health worker don appropriate PPE and take her to the side room designated for such patients. Avoid shared waiting areas.
b) Patients requiring admission must be nursed in an isolation area.
c) Once in the isolation room, make a quick assessment of the patient before transfer/ referral to the COVID-19 isolation centre.

3.8 Management of asymptomatic, suspect, probable or confirmed COVID-19 patients with mild disease

a) Women who are asymptomatic or who have mild disease and are able to self-isolate should stay at home.
b) Women who have no symptoms or with mild disease, should be provided transport back home to avoid using public transport.
c) If public transport cannot be avoided, medical mask should be supplied for way home with adequate health education.
d) Women who are unable to self-isolate due to lack of space in their households should be admitted to the designated institutional COVID-19 quarantine centres.

e) As part of the health education, all women should be given information on infection prevention and control measures such as hand hygiene and correct use of medical masks both in the clinic/ward and at home.
f) Patients should be provided with a phone number for the rapid response team to allow patients to communicate on any new or worsening symptoms.

Refer to Appendix III, IV and V respectively for detailed guidance on management of suspected, probable or confirmed women with COVID-19 in public health facility with ANC services.

3.9 Management of symptomatic probable or confirmed COVID-19 patients with severe disease

For women who have symptoms of COVID-19 and are experiencing any pregnancy related complications, health workers looking after them should consider the following:

a) Women should be seen separately from others in an isolated room at the beginning or end of clinic when no other patients remain, to lower the chance of transmission to the maternity care provider and other women attending for care.
b) Women with symptoms must wear a medical mask and health workers must wear PPE as per National recommendations (Refer Appendix I).
c) Women with severe disease must be admitted into an isolation area/unit. All care must continue in the same isolation area/unit for the entirety of the woman's stay.
d) Health workers must continuously reassess symptomatic woman and consider differential diagnoses.
e) Patients' vital signs must be regularly monitored and acted upon in a timely manner. Once oxygen saturation levels fall below 95% provide

high flow oxygen. A rise in respiratory rate even with normal oxygen saturations warrants administration of high flow oxygen.

f) Critically ill patients should be admitted to the designated COVID-19 treatment centre and managed accordingly. A multidisciplinary team including critical care specialists, obstetricians, paediatricians, physicians, and other specialists must be involved.

g) The COVID-19 treatment centre must be equipped to provide CEmONC services

h) Induction of labour or caesarean section may be considered for patients requiring mechanical ventilation, it may be difficult to ventilate a pregnant woman due to pressure of the gravid uterus on the diaphragm.

i) Health workers must familiarize themselves with clinical management of COVID-19 patients as outlined by the COVID-19 Clinical Case Management Manual.

j) Other diagnosis of bacterial infection / pneumonia must be considered in patients with a raised white cell count.

k) Sufficient IPC and PPE supplies must be available in the unit at all times.

l) Environmental cleaning must be done in accordance with IPC guidelines.

m) Health workers must adhere to hand hygiene practices.

Refer Appendix V: Algorithm for Pregnant Women with Suspected, Probable or Confirmed COVID-19 during antenatal Care

3.10 Management of suspected, probable or confirmed COVID-19 patients requiring ultrasound scanning

This section aims to provide guidance on the steps that must be taken to minimize the transmission risk of the virus between the patient and the health worker during ultrasound examinations.

3.10.1 Risk of transmission during ultrasound

Performing an ultrasound examination has several unique factors that are likely to increase the risk of transmission between patients and ultrasound operators. These include, but are not limited to the following: the surfaces of the ultrasound machine, especially the keyboard, touch screen and trackball, are touched frequently and very close proximity between the operator and the patient, the length of the examination more than 5 minutes, ultrasound room or enclosed area is typically small; the woman may be asked to inhale or exhale deeply, and hold her breath; therapeutic and interventional procedures may increase the risk of exposure to bodily fluids.

The international Society of Ultrasound in Obstetrics and Gynaecology (ISUOG) recommends the following:

a) The scan room should be well ventilated.
b) All patients with suspected, probable or confirmed COVID-19 disease should be scanned with a specially designated ultrasound machine, in a single dedicated room. The practitioner should don appropriate PPE. In the absence of a dedicated ultrasound machine, ensure the ultrasound machine is thoroughly cleaned between patients.
c) The patient must wear a medical mask if they are symptomatic or have confirmed COVID-19 infection.

4.0 INTRAPARTUM CARE DURING COVID-19 PANDEMIC

4.1 General advice regarding intrapartum services

a) A single asymptomatic birth partner that has been screened for COVID-19 and well informed on the risks should be permitted to stay with the woman through labour and birth. They should be asked to remain by the woman's bedside, not walk around the ward/hospital and should wear a cloth mask. Having a trusted birth partner present throughout labour is known to make a significant difference to the safety and well-being of women in childbirth[15,16,17].

b) Restrictions on other visitors must be maintained and prevent swapping of birth companions.

c) All women should be treated with compassion, dignity and respect. Women have the right to receive information, provide consent, refuse treatment and to have choices and decisions respected and upheld.

d) Do not perform medical interventions such as induction of labour, caesarean section delivery and forceps births without obstetric indication as these will increase the likelihood of maternal and new-born complications, increase the length of hospital stay and add to health workers' burdens in hospitals, all of which will increase the possibility of exposure to COVID-19 and reduce the positive experience of birth for mothers and their families[18].

4.2 Care for the suspected, probable or confirmed COVID-19 woman in labour

4.2.1 Normal labour and delivery

a) Where women do not have access to a single room, it is still essential to find a way of separating probable/confirmed women from well women within a shared room or bay to reduce the risk of virus transmission.

b) All care should continue in the same isolation unit/area for the entirety of the woman's stay.
c) If a patient is delivering within the maternity unit, the isolation room must have its own designated medical equipment / utilities and medications, in order to limit movement of health workers and equipment. Where this is not feasible, health workers must ensure that medical equipment is disinfected between patients.
d) The health workers attending to the patient must follow COVID-19 Treatment Guidelines, be restricted in number, and wear appropriate PPE as per national guidelines for handling of labouring pregnant women with COVID-19. Refer to appendix I for recommended PPE.
e) When a pregnant woman with suspected, probable or confirmed COVID-19 is admitted to the delivery suite, the following members must be informed as appropriate: midwife-in-charge, obstetrician, anaesthetist, neonatologist, and infection control team.
f) Assessment of obstetric condition and severity of COVID-19 symptoms must be done by midwife and clinician. The number of personnel involved must be restricted as much as possible.
g) Mode of birth should be discussed with the woman, taking into consideration her preferences and any obstetric indications for intervention.
h) Use a cardiotocograph (CTG) for continuous foetal monitoring where available[16]. If intermittent auscultation is used, monitor foetal heart rate according to the intrapartum national guidelines preferably using a Doppler foetoscope or MOYO foetal heart rate monitor.
i) Women with moderate to severe symptoms of COVID-19 should be monitored using hourly fluid input and output charts in order to avoid the risk of fluid overload and dehydration[19].
j) An individualised decision should be made regarding shortening the length of the second stage of labour with elective instrumental

birth in a symptomatic woman who is becoming exhausted or hypoxic.

k) In case of deterioration in the woman's symptoms, make an individualised assessment regarding the risks and benefits of continuing the labour versus proceeding to emergency caesarean birth if this is likely to assist efforts to resuscitate the woman.

l) All new-borns without complications must be kept on skin-to-skin contact with their mothers during the first hour after birth to prevent hypothermia, promote bonding and breastfeeding. Rooming in, skin-to-skin care and Kangaroo Mother Care (KMC) are recommended even for suspected, probable and confirmed COVID-19 mothers.

m) Delayed cord clamping (performed after 1-3 minutes after birth) is still recommended following birth[18], provided there are no contraindications. The baby should be cleaned and dried as normal, while the cord is still intact.

n) Initiate breastfeeding immediately after birth, following breast hygiene.

(Refer Appendix VI: Algorithm for management of suspect, probable or confirmed women with COVID-19 in public health facility during intrapartum care)

4.2.2 Elective and emergency caesarean birth

a) Where women with suspected, probable or confirmed COVID-19 have scheduled appointments for pre-operative care and elective caesarean birth, an individual assessment should be made to determine whether it is.

b) Safe to delay the appointment to minimise the risk of infectious transmission to other women, health workers and, to her infant postnatally.

c) World Health Organisation surgical safety checklist should be used for all caesarean deliveries.
d) In cases where elective caesarean birth cannot safely be delayed, in suspected, probable or confirmed COVID-19 patients COVID-19 precautions must be followed.
e) Provide the patient with a medical / mask, at all times.
f) Regional anaesthesia is preferred unless contraindicated.
g) Restrict number of health workers assigned to patient and control movement in and out of theatre.
h) Use a separate designated COVID-19 theatre for CEASARIAN SECTION where feasible.
i) In the case of an urgent caesarean section, the theatre must be cleaned using a disinfectant immediately after the procedure is completed.

If general anaesthesia is required, prior to intubation all health workers in the operating room must don full PPE with N-95 masks. If masks are in short supply, the fewest number of health workers should be around during intubation or extubation.

4.2.3 Induction of labour

a. Make an individual assessment regarding the urgency of planned induction of labour for women with mild symptoms and suspected, probable or confirmed COVID-19.
b. If induction of labour cannot safely be delayed, the general advice for services providing care to women admitted to hospital when affected by suspected, probable or confirmed COVID-19 should be followed.

5.0 POSTNATAL CARE DURING THE COVID-19 PANDEMIC

This section applies to healthcare provision for all postnatal women and neonates during the first six weeks post birth. Health workers should ensure that;

a) The risk of spreading and contracting COVID-19 infection is minimized.
b) All postnatal women and neonates continue to receive appropriate postnatal care.
c) Postnatal women with complications or emergencies are identified and managed appropriately.
d) Risk of a new-born acquiring infection from suspected, probable and confirmed COVID-19 mother is reduced.

Refer Appendix VII: Algorithm for Postnatal Care in COVID-19 Pandemic

5.1 Inpatient postnatal care

Individualize postnatal care according to Malawi National Reproductive Health Service guidelines.

5.1.1 Specific standard precautions to be strengthened during postnatal care

In order to reduce the risk of local transmission of COVID -19 infection within the ward, standard precautions must be applied in the postnatal ward in accordance with the National IPC guidelines on COVID-19. The following standard precautions must be strengthened specifically for postnatal care:

a) Hand hygiene - strict handwashing and breast hygiene before and after handling and breastfeeding the infant.
b) Respiratory hygiene: cough etiquette, avoid touching eyes, nose and mouth. Avoid coughing or sneezing on the baby while feeding, medical mask.

c) Environmental cleaning- routinely clean surfaces around mother and baby with soap and water or 0.5% chlorine.
d) Physical distancing-1.0-1.5 metres between in-patients' beds and ensure routine ward decongestion.
e) Isolation of suspected, probable and confirmed COVID-19 cases.
f) All suspected, probable and confirmed COVID-19 women should be managed separate from other mothers according to COVID-19 Clinical Case Management Manual.

5.1.2 Discharge, readmission and follow up

a) Conduct immediate postpartum contraceptive counselling and provide an appropriate method prior to discharge from the hospital.
b) Conduct daily ward rounds to ensure timely discharge in keeping with national guidelines. Avoid premature discharge of high risk or unstable patients.
c) On discharge, suspected, probable and confirmed COVID-19 cases should be given facility telephone number for advance facility notification in case of need to return to the hospital. The patient should also be appropriately linked with local rapid response team for follow up on COVID-19.
d) Upon discharge from hospital, women with probable or confirmed COVID-19 should have one asymptomatic guardian to help with care of the newborn.
e) If need for re-admission, the level of care will depend on the condition of the postnatal mother. All postnatal mothers requiring readmission need to be screened and triaged appropriately for COVID-19 postnatal complications.
f) If need for referral to a higher-level facility, ensure pre-referral patient discussion with the receiving facility.

5.1.3 Level of care

To reduce overcrowding in all level facilities, women should continue to receive postnatal care at the appropriate level of care for their condition. Follow levels of care.

a) Low risk women who have had normal vaginal delivery or uncomplicated caesarean section delivery should be followed up at a primary level of care within their locality. Home visits should be preferable to community clinic visits however, community nurse health workers' levels and resources should be taken into consideration.
b) Women who had complicated operative delivery and all high risk women irrespective of mode of delivery should be attended to at a CEmONC facility.
c) Women with postpartum complications should be attended to at a CEmONC facility.

5.1.4 Postnatal care and breastfeeding counselling

a) All postnatal women should be provided with necessary information and counselling on safe infant feeding and appropriate IPC measures to prevent COVID-19 transmission.
b) Health care facilities and their communities must make necessary arrangements to enable all postnatal women access routine postpartum care as appropriate, while applying necessary IPC measures.
c) Women's choices and rights to sexual and reproductive health care should be respected irrespective of COVID-19 status, including access to contraception and post-abortion care.
d) Breastfeeding has far-reaching benefits throughout infancy and childhood, and protects against infectious diseases. Infants born to mothers with suspected, probable or confirmed COVID-19 infections

should be breastfed as per national feeding guidelines, while applying necessary precautions for IPC.

e) Breastfeeding counselling, psychosocial support and practical feeding support should be provided to all suspected, probable and confirmed COVID-19 mothers.

6.0 CARE FOR NEW-BORNS DURING THE COVID-19 PANDEMIC

Limited data shows that there are relatively few cases of confirmed COVID-19 in infants, and that the illnesses are mild. So far, there are no reports of mother to child transmission of COVID-19, including through breastmilk[20,21].

Thus, evidence for management of newborn during the COVID-19 pandemic remains scanty. However, it is essential that the guidelines for newborn care uphold the rights of both women and their new-borns. Newborn care should be individualized and ensure that it meets the new-born's needs.

6.1 Care of the newborn immediately after birth

For all newborn babies including preterm babies and those born from suspected, probable or confirmed COVID-19 mothers, the usual routine essential care is recommended according to condition with respecting IPC and usage of appropriate PPE[22,23].

6.2 Subsequent care of the new-born

Postnatal care should generally be the same for all newborns with individualized care where required to meet the newborn's needs following the established protocols and respecting IPC rules with special focus on COVID-19[22,23].

6.3 Newborn immunization

a) All infants including those born from suspected, probable and confirmed COVID-19 women should receive their immunization as per national Expanded Program on Immunization (EPI) schedule for childhood immunizations[22, 24] and follow any EPI guidance in response to COVID-19.

b) All health workers involved in providing immunization services should apply necessary precautions for IPC including hand washing before and after contact with the newborns, respiratory hygiene, and use of medical masks during the COVID-19 pandemic. The National Guidance on the Conduct during outreach immunization clinics should be followed.

6.4 Special consideration for suspected, probable and confirmed COVID-19 newborns

COVID-19 infection has a strong human-to-human transmission. As such, newborns are also vulnerable to this disease. However, the incidence and clinical presentations of COVID-19 infection in newborns are varied, differ from those found in adult patients, and generally the cases tend to be mild in severity. The atypical clinical presentations in newborns have led to diagnostic and management challenges.

a) Suspected, probable and confirmed COVID-19 newborns requiring admission must be managed in isolation units away from other neonates.

b) Limited data indicate that children with COVID-19 have prolonged faecal viral shedding for several weeks after clinical recovery. However, there is no evidence that this viral shedding can lead to transmission of disease. Therefore, proper handling and disposal of diapers with stool or other secretions (especially respiratory) is potentially an important measure for decreasing the possibility of disease spread both within the unit and after discharge.

7.0 FAMILY PLANNING SERVICES DURING THE COVID-19 PANDEMIC

Family planning including post abortion care remain essential reproductive health service during the COVID-19 pandemic. Health facilities should therefore ensure that access to family planning information and services continues at all times including outreach. Providing rights-based contraception prevents unintended pregnancies which result in negative health outcomes including unsafe abortions and additional pressure on an already stretched health system. Therefore, voluntary family planning services and contraceptive supplies are core elements of essential health care and need to be maintained during the COVID-19 response. In addition, unavailability of condoms fuels sexually transmitted diseases. Priorities in the provision of family planning services during the COVID-19 pandemic must include prevention of transmission of COVID-19 and easy access to family planning information and services.

7.1 Advice for family planning providers

7.1.1 General considerations

a) Family planning providers should observe IPC measures including screening and triaging clients for COVID-19.
b) Suspected, probable or confirmed COVID-19 clients should be managed in a designated isolation area.
c) Group counselling of clients need to respect IPC measures where facilities cannot afford individualized counselling.
d) COVID-19 messages should be integrated with the FP counselling.
e) Clients should be provided with FP methods that do not require frequent face to face visits to facilities such as Long-Acting Reversible Contraceptive (LARC) methods (i.e. contraceptive implant and IUCD) including use of DMPA-SC self-injection.

f) Integration of all MNH and FP services must continue and facilities must consider extending clinic days and operating hours to reduce congestion.

g) Every encounter with a reproductive aged woman should be an opportunity to ascertain contraceptive needs and provide voluntary FP services.

h) Contraceptive counselling should, include discouraging discontinuation or premature method switches. To realize this, facilities must put in place method discontinuation mitigation measures. These include:
   - Providing additional cycles/doses of clients' contraceptive methods of choice to reduce need frequent clinic visits.
   - For DMPA-SC users, initiate self-injection and provide up to 3 units for the client to take home, which would give her coverage for a year.
   - Using existing health hotlines for FP counselling and follow up consultations with respect to side effects or other concerns and/or refer to NGO outreach services.

i) Adolescents and young people including people with disabilities and special needs must be given a priority in accessing FP services during the COVID-19 pandemic.

j) Sensitisation and special encouragement needs to be given to potential new clients and women with unmet needs for FP.

7.1.2 Specific considerations

1. Short acting contraceptive methods including self-care contraceptive products

a) Self-care contraceptive products reduce contact between providers and clients, and should be encouraged. These products include condoms, combined oral contraceptive pill, mini pill, emergency contraception pill and DMPA-SC (Sayana Press®).

b) Self-care contraceptive products should be available over the counter. Apart from condoms and emergency pills, initiation of contraceptive self-care products should be done by FP providers including community health workers who have been trained to provide FP Services.

c) Community FP providers must be provided with adequate stocks of self-care products for distribution.
   - Continuing clients should be given a supply of self-care products for 6 months. For DMPA-SC users, initiate self-injection and provide up to 3 units for the client to take home, which would give her coverage for a year.

d) Expand availability of fertility awareness methods such as the Lactational Amenorrhea Method (LAM) and the Standard Days Method (SDM) that don't require commodities, resupply, or continued contact with FP providers. This includes access to Cycle Beads.

e) Suspected, probable and confirmed COVID-19 clients must be provided with FP methods that require less contact time with the health care provider such as condoms, oral contraceptive pills and DMPA and should be advised to return once they are fully recovered.

2. Long acting reversible contraception (LARC)

a) LARC methods should be promoted during the COVID-19 pandemic as they minimize frequent face – to - face clinic visits.

b) Women who are on LARC and are due for removal should be provided with the required services including continuation of the same method if desired.

3. Postpartum contraception

a) Antenatal care education should strengthen counselling on postpartum contraception.

b) Immediate postpartum IUCDs, implants as well as Progestin Only Pills (POPs) must be offered to eligible clients at time of delivery and before discharge from the hospital.
c) Immediate postpartum tubal ligation should be offered to eligible clients, where feasible, prior to discharge from the health facility.

4. Permanent interval surgical contraceptive methods

To minimize contact between clients and health workers, and also to help relieve the pressure from the health services, the following are recommended.

a) Provision of interval surgical methods should be continued observing IPC precautions and official communications will be made for any changes
b) LARC method should be promoted for high risk clients who need permanent contraceptive methods during the COVID-19 pandemic and appropriate arrangements should be made to minimize loss to follow up.

7.1.3 Advice for clients

a) Any contact with a health professional is an opportunity to seek contraceptive services.
b) At delivery or Post-Abortal Care (PAC), ask your doctor or nurse about contraception.
c) For contraceptive information, contact your local family planning providers including Banja La Mtsogolo **1131** toll line on Airtel and TNM networks and Chipatala chapa phone.
d) Use of condoms prevents both unintended pregnancy and sexually transmitted infection including HIV, and should be used in addition to non-barrier methods.

7.1.4 Commodity Supply

Ensure continuity of contraceptive commodity supply for FP programs. At the central and district levels, FP managers, policy makers and lawmakers should make sure that FP commodities are available during the COVID-19 pandemic.

8.0 POST-ABORTION CARE

8.1 Manual Vacuum Aspiration (MVA) and Post-abortion Care

Women who have experienced abortion need to receive necessary post-abortal care in accordance with Post-Abortion Care (PAC) guidelines irrespective of COVID-19 status. COVID-19 preventive measures must be adhered to in post-abortal care service provision.

9.0 GUIDANCE FOR PATIENT TRANSFER /AMBULANCE SERVICES

9.1 Inter hospital transfers/Referrals – COVID-19 positive pregnant women

a. Any transfer/referral of pregnant women with probable or confirmedCOVID-19 should:
    i. notify the receiving Obstetric unit prior to transfer
    ii. ensure patient is stabilized for transfer
b. Dedicated ambulance service for COVID-19 (available at Isolation area) to move suspect, probable or confirmed patients from the designated health facility to the referring health facility. Ensure that IPC measures are always adhered to during patient retrieval and transport.
c. Receiving Obstetric unit must notify their IPC/ Obstetric response team.
d. The number of health workers accompanying a referred probable or confirmed COVID-19 pregnant patient must be kept to a minimum.
e. Self-referral of a probable or confirmed COVID-19 positive patient must call health facility in advance.

f. Ambulances must be equipped with emergency obstetric drugs and transfer equipment.
g. Probable or confirmed COVID-19 pregnant patient must have a wedge for left lateral tilt position or during transfer.

10.0 APPENDICES

APPENDIX I: INFECTION PREVENTION AND CONTROL STANDARD PRECAUTIONS FOR COVID-19 AT MATERNITY UNITS AND CLINICS

Standard precautions are designed to protect staff and patients from contact with infectious agents, wherever healthcare is delivered. Standard precautions are to be used all the time whether infection is known or not, in order to prevent infection in patients and staff[24, 25].

The main standard precautions applicable to COVID-19 pandemic are the following:

1. Hand Hygiene:

Hand hygiene practices at point of care

a) Avoid embracing, shaking hands with colleagues and patients
b) Patients must observe hand washing prior to entering the maternity unit or clinic area and prior to departure.

Health workers must observe WHO five moments of hand hygiene using the following principles

a) Hand Hygiene must be performed at point of care
b) Hands may be cleaned with either an alcohol-based hand rub solution (where available) or soap and water.
c) If hands are visibly soiled wash with soap and water
d) Appropriate hand washing technique should be used and correct time duration should be observed

Hand hygiene stations and practices

a) Hand washing stations should be strategically placed to ensure ease of access for both health workers and patients where there is no running tap water. They should be located at the point of entry into the health facility, each patient care area and entrance to toilet facilities.
b) Patients and clients must wash hands before entering and prior to departing from the maternity unit or clinic area.

c) Liquid soap is preferred over bar soap. In absence of these 0.05% chlorinated water can be used to wash hands. However, ensure proper reconstitution, concentration and dissolving of all chlorine granules prior to use.
d) Handwashing stations should be appropriately and regularly supervised, cleaned and refilled.

2. Droplet precautions -Respiratory Hygiene:

Respiratory hygiene must be practised by both health workers and patients

a) Cover nose and mouth when coughing or sneezing and perform hand hygiene immediately afterwards.
b) Cough into elbow flexure and use disposable tissue or single use cloth to contain respiratory secretions where applicable.
c) Discard disposable tissue or single use cloth with respiratory secretions into waste bins immediately and perform hand hygiene.
d) Encourage coughing persons to be seated away from others in common waiting areas (ideally, at least 3 feet/1meter from others) or wait outside and provide a medical mask.
e) Ensure availability of waste bins throughout the maternity unit and clinic area for used tissues.

Environmental cleaning

a) SARS-CoV-2 can survive for up to 9 days in the environment on surfaces. Therefore, it is important to appropriately, regularly and adequately clean the health facility.
b) Surfaces that are frequently overlooked are:
    - patient beds, drip stands, cupboards, sinks and water basins, common medical equipment such as thermometers, blood pressure machines, reusable containers, computer key boards and telephones.

When cleaning surfaces ensure:

a) Cleaning schedule should be developed and supervision done according to frequency of area usage, isolation requirements, amount of environment contamination and client hygiene.
b) Appropriate PPE is donned.
c) 0.5% chlorine is the most common affordable and widely used disinfectant. Use of spray disinfectant is discouraged.
d) Large amounts of body fluids should be mopped up with tissue or cloth and safely disposed. The surface can then be cleaned with 0.5% chlorine (do not throw granules of chlorine on spilled body fluids)
    - Let it stand for 10 minutes and then surface can continue being cleaned with routine detergent.
e) Increase the frequency of cleaning throughout the healthcare facility. Develop a cleaning schedule for isolation areas of the HCF with COVID-19 patients. More cleaners may need to be hired to meet the cleaning demand
f) Surfaces must be cleaned from outer to inner, top to bottom
g) Damp dusting with 0.5% chlorine followed by cleaning is recommended
h) Isolation area with COVID-19 suspect, probable and confirmed cases, must have dedicated cleaning/disinfection supplies and must be cleaned last.
i) Waste from isolation area must be handled, processed and disposed of as contaminated waste.
j) Cleaners/housekeeping staff should ensure they are wearing the appropriate PPE when cleaning an isolation room or area.

3. *Personal Protective Equipment (PPE):*

Rationalization of PPE is of paramount importance. (Malawi personal protective equipment guidelines for COVID 19 for full PPE guidance)

Use of PPE with poor infection prevention and clinical practice may result in increased risk of infection.

a) The use of personal protective equipment (PPE) by healthcare workers requires a risk evaluation of the level of care. Prior to use always inspect PPE to ensure it is in good condition and appropriate size.

b) Always perform hand hygiene before and after you use PPE

c) Always put the appropriate PPE on before patient contact.

- Once PPE is on and patient care activities have commenced, PPE CAN'T BE ADJUSTED OR TOUCHED, especially:
    - Never touch your face while wearing PPE.
    - If PPE becomes contaminated or breached, immediately leave the patient care area when safe to do so, and take off the PPE correctly and replace it with new PPE.
    - Always remove PPE carefully, slowly, and in the correct order to avoid self-contamination.
        - Many HCW infections occur during the doffing/PPE removal process, especially when taking off a medical and/or N-95 mask.

RECOMMENDATIONS FOR PPE USE DURING COVID-19 PANDEMIC

(Adapted from WHO and Malawi PPE guideline).

SETTING	TARGET PERSONNEL OR PATIENTS	ACTIVITY	PPE
HEALTH CARE FACILITIES			
OUTPATIENT FACILITIES			
Screening and triaging at entrance and exit of clinics: ANC, Family Planning and Postnatal care clinics.	Health care workers/HAS or other delegated cadres	Preliminary screening not involving direct contact as clients enter the unit	• Face shield or Medical Mask
	Cleaners	When cleaning any area	• Medical Mask • Heavy duty apron • Heavy duty gloves • • Boots or closed work shoes
		When cleaning after a COVID_19suspect	• Face shield • Medical Mask • Heavy duty gloves • Heavy duty apron • Gown • Head cap • Boots or closed work shoes
	Suspect COVD-19 Pregnant women with or without respiratory symptoms	Any	• Medical Mask
	All other Pregnant women	Any	• Maintain spatial distance of at least 1 m
ANC Consultation, postnatal care and family planning services	Healthcare workers	Physical examination of COVID-19 suspect, probable or confirmed woman	• Medical Mask • Long Sleeved Gown • Gloves • Eye protection • Boots or covered work shoes • headcap

	Health care workers	Physical examination general patient	• Face shield or Medical Mask • Uniform or scrubs if available • Disposable apron
	Suspect, probable or confirmed COVID 19 patients	Any	• Medical Mask
	General patients	Any	• Cloth mask
	Cleaners	After and between consultations with COVID-19 suspect, probable or confirmed	• Medical Mask • Long Sleeved Gown • Heavy duty gloves • Heavy duty apron • Head cap • Eye protection • Boots or closed work shoes
	Guardians	Of suspect, probable or confirmed COVID-19 patients	• Medical mask
Labour Room	Healthcare workers	Providing direct care to a suspect, probable or confirmed COVID-19 patients	• Medical Mask • Long sleeved waterproof gown • Heavy duty apron (if gown not waterproof) • Gloves • Eye protection • Head cap • Boots or closed work shoes
	Healthcare workers	Aerosol generating procedure or delivery of a suspect, probable or confirmed COVID-19 patients	• N-95 mask • Long sleeved waterproof gown • Heavy duty apron (if gown not waterproof) • Gloves • Eye protection • Head cap • Boots or closed work shoes
	Suspect, probable or confirmed COVID-19 patients	Any	• Provide medical Mask if tolerated

	Other Pregnant woman	Any	• Cloth mask
	Labouring woman	Suspect, probable or confirmed COVID-19	• Medical mask
	Birth companion	Looking after a Suspect, probable or confirmed COVID-19	• Medical mask • Apron • Gloves (when handling bodily fluids)
	Birth companion	For any other labouring woman	• Cloth mask
	Cleaners	Cleaning the room of COVID-19 patients	• Medical mask • Long Sleeved Gown • Head cap • Heavy duty gloves • Face Shield or Goggles • Gumboots or closed work shoes
	Visitors	Entering the room of a COVID-19 patient	• Visitors not allowed
	Cleaners	Cleaning the room of COVID-19 patients	• Medical mask • Long Sleeved Gown • Head cap • Heavy duty gloves • Face Shield or Goggles • Gumboots or closed work shoes
	Guardians to general patients	No guardian allowed except paediatric or special care patients like mentally sick, pregnant women Only one guardian allowed All guardians coming in and out will need to be tested for COVID-19	• Cloth mask

COMMUNITY			
Setting	**Target personnel or patients**	**Activity**	**PPE**
Home visit (for example antenatal or postnatal care)	Health care workers	Any	• Medical Mask when in direct contact • Wear gloves only if exposure is expected to blood, body fluids, secretions, excretions mucus membrane or broken skin
	Healthcare worker	Any activity involving direct physical contact with a person with suspected or confirmed COVID-19	• Medical Mask • Gown • Gloves • Eye protection
	Caregiver	Providing direct care or when handling stool, urine, or waste from COVID-19 patient being cared for at home	• Gloves • Medical Mask • Apron • Eye protection
	Health care workers	Any activity not involving physical contact (including entering the room of a person with suspected or confirmed COVID-19, but not providing direct care)	• Medical Mask • Gown • Gloves • Eye protection • Maintain physical distance of at least 1m • When possible, conduct interviews outdoors • Disposable apron
	patient suspected or confirmed COVID-19	Any	• Medical Mask if tolerated
Outreach activities	Health care Workers	When not performing any procedures or not providing direct care to patients/clients	• Uniform/designated hospital attire

	Health care workers	When doing general procedures or providing direct care to patients.	• Medical Mask or face shield • Uniform • apron
Ambulance or transfer vehicle	Healthcare workers	Transporting suspected COVID-19 patients to the referral health care facility	• Medical Mask • Gown • Gloves • Eye protection • Head cap
	Driver	Involved only in driving the patient with suspected COVID-19disease and the driver's compartment is separated from the COVID-19 patient.	• No PPE required
		Assisting with loading or unloading patient with suspected COVID-19.	• Medical mask • Gowns • Gloves • Eye protection
		No direct contact with patient with suspected COVID-19, but no separation between driver's and patient's compartments.	• Medical Mask
	Pregnant woman with suspected COVID-19	Transport to the referral health care facility	• Medical Mask if tolerated
	Cleaners	Cleaning after and between transportation of patients with suspected COVID-19 to the referral health care facility	• Medical mask • Gown • Heavy duty gloves • Eye protection • Boots or closed work shoes

Standard Precaution # 4: Managing soiled linen:

Appropriate handling of soiled linen is crucial as both patient and health worker safety is dependent on it.

a) Do not throw away linen because it is soiled, even if used by suspect, probable or confirmed COVID-19. Throwing away linen leads to financial loss that could have been diverted to other hospital needs.
b) Always perform risk assessment prior to handling linen and wear appropriate PPE, all skin and mucous membranes that could potentially be exposed to soiled linen must be covered.

All LINEN FROM COVID-I9 SUSPECT, PROBABLE OR CONFRIMED CASES should be managed as heavily soiled linen.

Handling of soiled linen

a) Wash hands before wearing gloves.
b) Remove all non-linen items from the bed, gauze, tubings, syringes
    a. Remove any gross bodily fluids or faeces with a gloved hand or firm flat object, never shake used linen in the air or place on the floor, patient locker or another patient bed.
c) Fold linen into itself starting from the corner of the bed and carry away from your body/ scrubs/ uniform. Place linen into a clearly labelled leak proof container or a plastic leak-proof bag within the patient care area. Bag should be filled two thirds to leave space to tie it up avoid over filling as it may become heavy and tear spilling biohazard liquids. Never walk with linen in your hands out of patient care area.
d) Decontaminate linen in 0.05% chlorine for 10 minutes. Rinse thoroughly with water.
e) Replace linen into leak proof container/bag labelled clearly as infectious linen. Tie up and transport to laundry.

Laundry Area

a) Set schedule for processing soiled linen.
b) All laundry service providers should be donned in appropriate PPE, inclusive of a medical mask when processing soiled linen. Doff appropriately and perform hand hygiene after processing soiled linen.
    - Linen may be processed and washed in three main ways (use washing machine with a water temperature of 60-90 degrees C with regular detergent.
    - If a washing machine is not available, place all soiled linen in a large drum with hot water and soap/detergent. Stir with a large stick/spoon.
    - If hot water is not available, place linen in a drum of 0.05% chlorine solution for 30 minutes. Rinse with clean water and let dry in the sun.

HCW uniforms:

- Uniforms/ scrubs must be washed as per the above 3 possible methods at the hospital.

Standard Precaution # 5: Waste Management

Considerations for waste management in healthcare facility for COVID-19.

a) Principle of "from cradle to grave" (generation to final disposal) during waste management should always be applied.
b) Maternity and clinical areas should have clear written policies and standard operating procedures for segregation, transport, storage and disposal of waste.
c) Cleaners should don appropriate PPE when handling waste.
d) Use of colour coded three bin system is encouraged for segregation of waste at point of collection, and segregation should be maintained during transportation and disposal.
e) A three-bin system may be difficult to establish, thus two bins (general waste and infectious waste) should be differentiated and set-up. Ensure that the bins are clearly marked.
f) Sharps should always have a separate container.
g) Never carry a waste bag up against the body or over the shoulder.
h) Waste from COVID-19 care area should be handled and disposed as infectious waste.

CHLORINE PREPARATION AND USES

	0.05% Chlorine solution	**0.2% Chlorine solution**	**1% Chlorine solution**	**2% Chlorine Solution**
Preparation (HTH 70%)	1 Table spoon in 20 litres of water	4 Tablespoons in 20 litres of water	22 Tablespoons in 20litres of water	44 Tablespoons in 20 litres of water
Use	Hands disinfection Clothes disinfection (soak for 15 minutes) Skin disinfection	Disinfection of: Beds, Floors, Utensils, Latrines, Walls, Plastic buckets, etc.	Use as stock solution for safe drinking water (add 20litres of water to 1 teaspoon).	Vomitus & stools Dead Bodies - clean or spray the corpse with this solution
To be used for how long after preparation	Within 24 hours	Within 3 days	Can be kept for 14 days	Can be kept for 7 days

Preparation:

- Add the number of spoons of HTH to 20 litres of water
- Mix them thoroughly by stirring
- Wait for 30 minutes for the sediments to settle and for the powder to dissolve well
- Decant the solution to separate it from the sediments
- Dispose of the sediments properly by burying
- Use the solution within to people for pot chlorination

To Make Stock Solution of Chlorine (1% Chlorine Solution) - Alternative

Using chlorine of lime (35%):

- Add 11 table spoons of chloride of Lime to 5 litres of water
- Mix them thoroughly by stirring
- Wait for 30 minutes for the sediments to settle and for the powder to dissolve well
- Decant the solution to separate it from the sediments
- Dispose of the sediments properly by burying
- Distribute the solution to people for pot chlorination.

Dilution to obtain 1% stock solution

Brand or bleach % chlorine	**To obtain a 1% chlorine solution**
Jik 3.5 chlorine	2 parts jik to 6 parts water
Household bleach 5% chlorine	2 parts household bleach to 9 parts water
Eau de Javel 5% chlorine	2 parts Eau de Javel bleach to 9 parts water
Chloros 10% chlorine	2 parts chloros bleach to 19 parts
Chloros 15% chlorine	2 parts chloros bleach to 29 parts water

APPENDIX II: CASE DEFINITIONS

1. Suspect case:

A patient with acute respiratory illness (fever and at least one sign/symptom of respiratory disease (e.g. cough, shortness of breath), AND with no other etiology that fully explains the clinical presentation AND a history of travel to or residence in a country/area or territory reporting local transmission of COVID-19 disease during the 14 days prior to symptom onset.

OR

A patient with any acute respiratory illness AND having been in contact with a confirmed or probable COVID19 case (see definition of contact) in the last 14 days prior to onset of symptoms;

OR

A patient with severe acute respiratory infection (fever and at least one sign/symptom of respiratory disease (e.g., cough, shortness breath) AND requiring hospitalisation even with the presence of another etiology that fully explains the clinical presentation.

2. Probable case:

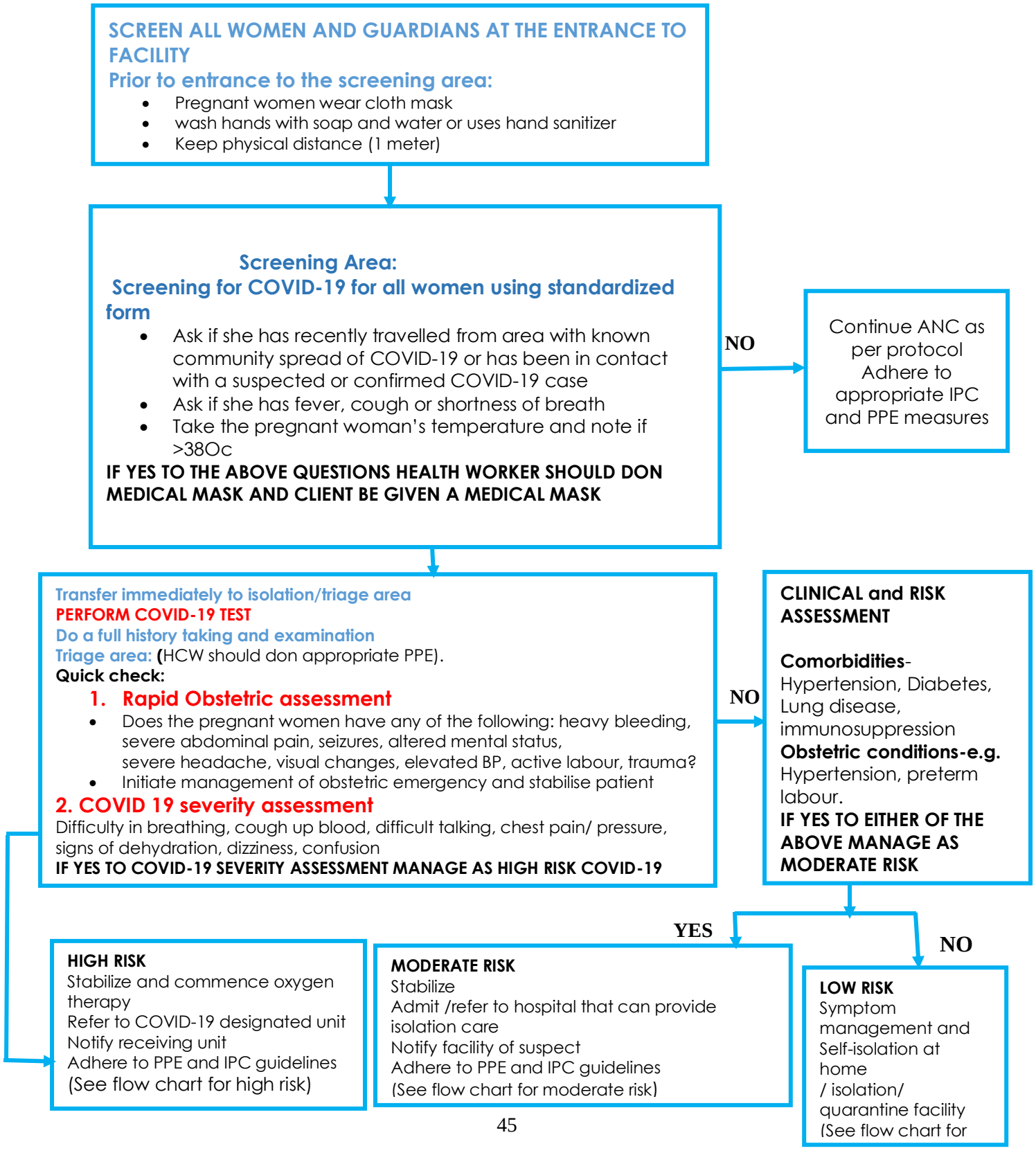
A suspect case for whom testing for COVID-19 is inconclusive.

* *Inconclusive being the result of the test reported by the laboratory*

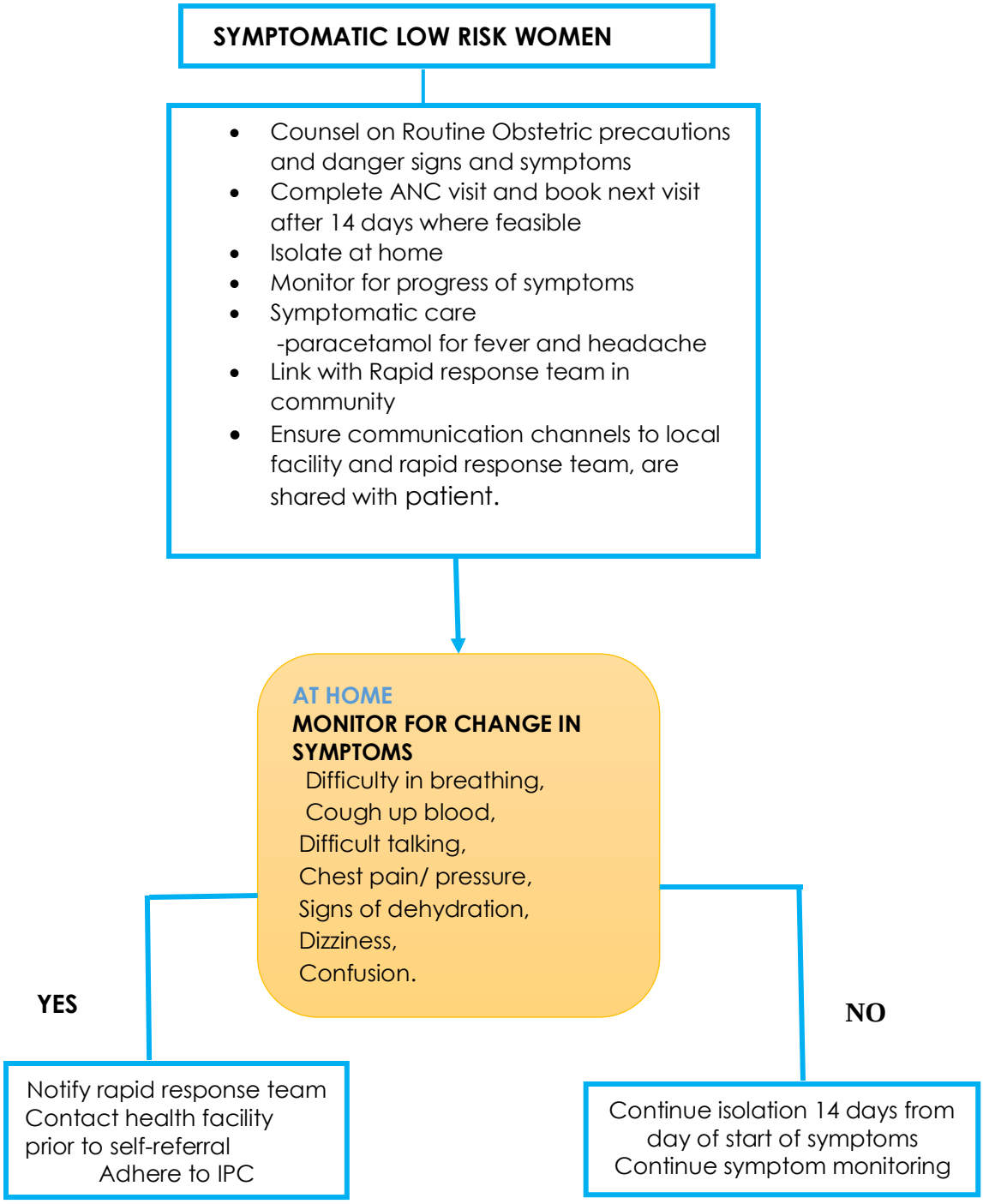
3. Confirmed case:

A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.

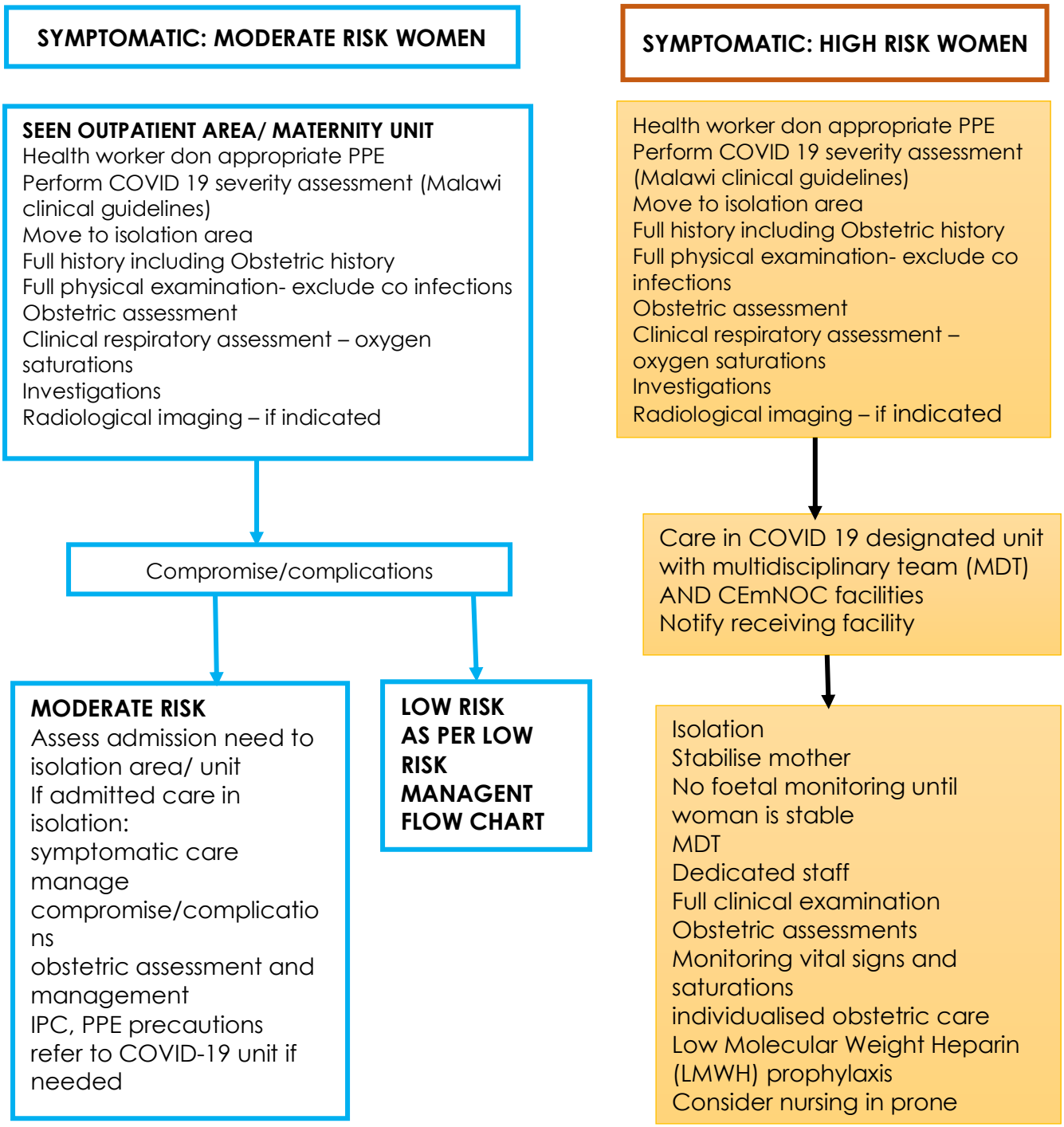
APPENDIX III: ALGORITHM FOR PREGNANT WOMEN WITH SUSPECTED, PROBABLE OR CONFIRMED COVID-19 DURING ANTENATAL CARE



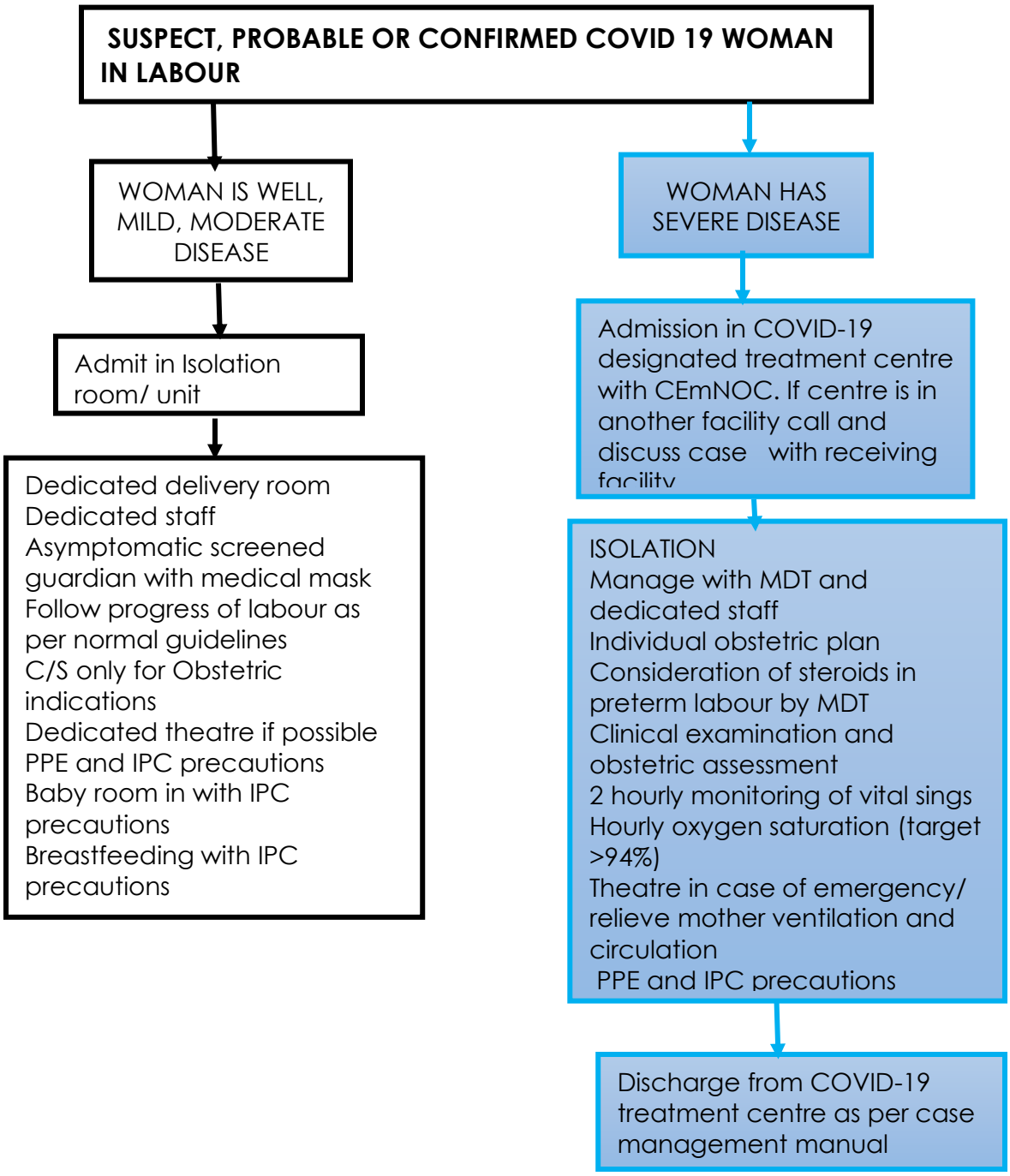
APPENDIX IV: ALGORITHM FOR MANAGEMENT OF SUSPECT, PROBABLE OR CONFIRMED WOMEN WITH COVID-19 IN PUBLIC HEALTH FACILITIES PROVIDING ANTENATAL CARE



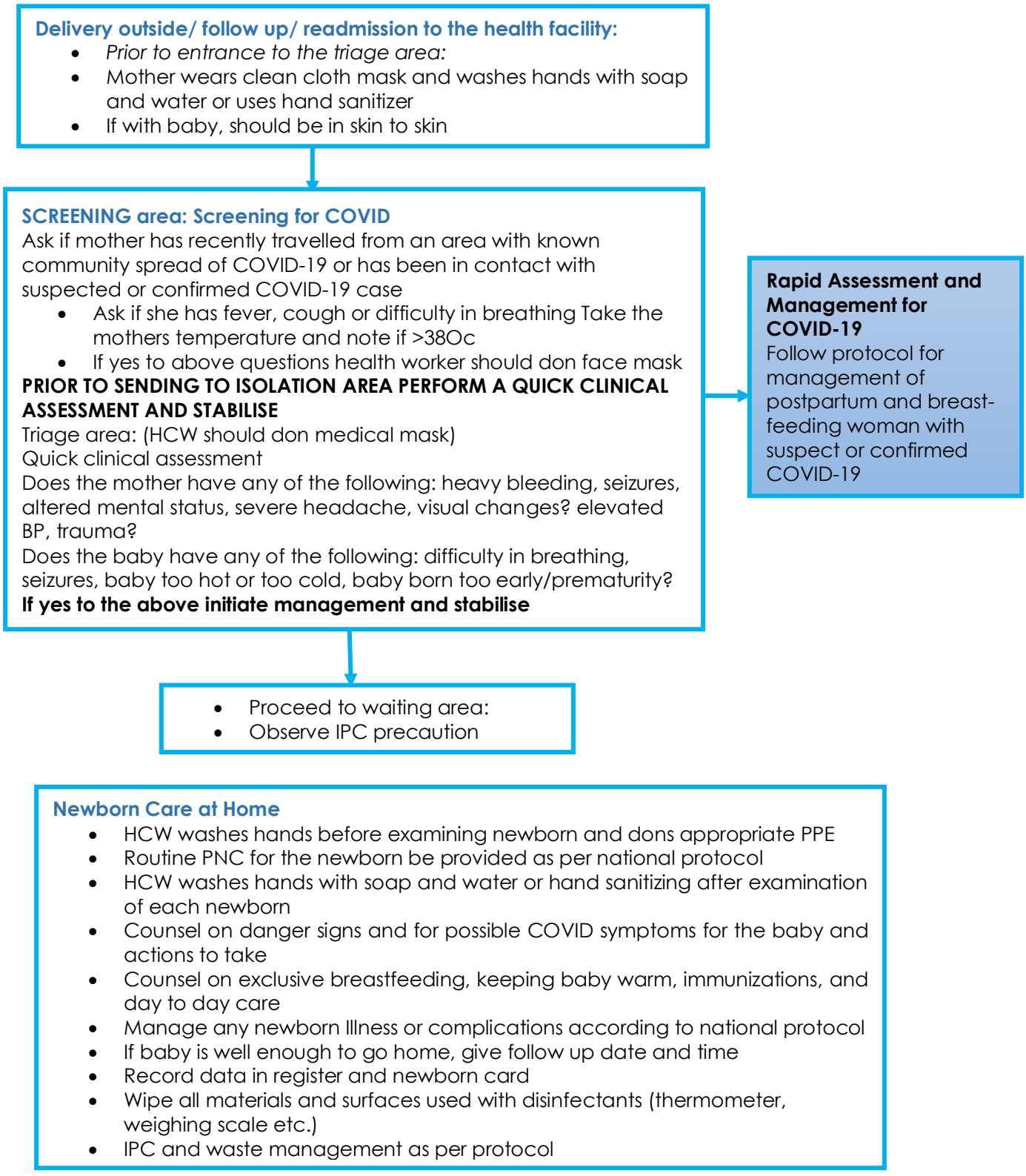
APPENDIX V: ALGORITHM FOR MANAGEMENT OF SUSPECT, PROBABLE OR CONFIRMED WOMEN WITH COVID 19 IN PUBLIC HEALTH FACILITY WITH ANTENATAL CARE



APPENDIX VI: ALGORITHM FOR MANAGEMENT OF SUSPECT, PROBABLE OR CONFIRMED WOMEN WITH COVID 19 IN PUBLIC HEALTH FACILITY DURING INTRAPARTUM CARE



APPENDIX VII: ALGORITHM FOR POSTNATAL CARE SCREENING AND TRIAGING DURING COVID 19 PANDEMIC



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