Republic of Botswana

MINISTRY OF HEALTH & WELLNESS

Botswana COVID-19 Guideline 8:

Management of COVID-19 in pregnancy in Botswana

UNIVERSITY of BOTSWANA

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Foreword

On January 30, 2020, the International Health Regulations Emergency Committee of the World Health Organization (WHO) declared the Severe Acute Respiratory Syndrome due to novel coronavirus (SARS CoV-2) outbreak a "Public Health Emergency of International Concern" (PHEIC) and the WHO declared the outbreak of Coronavirus Disease (COVID-19) a pandemic on 12th March 2020.

Botswana announced the first positive case in the country on 30th March and the first death the following day on 31st March 2020. This document serves to aid healthcare facilities as they prepare themselves to screen individuals for COVID-19 as well as outlining how to handle suspected and confirmed cases.

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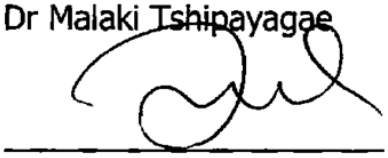

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Abbreviations and acronyms

COVID-19	Coronavirus disease-19
CS	Caesarean section
CTG	Cardiotocogram
DHMT	District Health Management Team
ECMO	Extracorporeal membrane oxygenation
FBC	Full Blood Count
GA	Gestational age
IUFD	Intrauterine fetal demise
LFTs	Liver function tests
LMWH	Low molecular weight heparin
MERS CoV	Middle East Respiratory Syndrome Coronavirus
MoHW	Ministry of Health and Wellness
NNU	Neonatal unit
PMH	Princess Marina Hospital
PPE	Personal Protective Equipment
RFTs	Renal function tests
SARS-CoV	Severe Acute Respiratory Syndrome Coronavirus
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronarvirus-2
SKMTH	Sir Ketumile Masire Teaching Hospital
SRH	Sexual and reproductive health
VD	Vaginal delivery

1. Background

Thus far in the COVID-19 pandemic, pregnant women have not suffered worse disease than non-pregnant patients. Alarm was raised early in the course of the SARS-CoV-2 (COVID-19) pandemic regarding the risk for more severe disease in pregnant women than other affected persons based on experience with SARS-CoV and MERS-CoV epidemics. In contrast to SARS-CoV and MERS-CoV, evolving data and experience with SARS-CoV-2 has demonstrated that pregnant women are NOT more susceptible to infection, do NOT have higher risk of progression to severe disease NOR do they have worse outcomes than non-pregnant persons with COVID-19.

Pregnant women, however, who do progress to severe disease in the third trimester often have a dramatic clinical presentation and decisions around obstetric and COVID-19 management cannot be isolated. This guidance is meant to complement the existing MOHW guidelines on clinical and public health management to provide specific guidance on the management of pregnant women with suspected or confirmed COVID-19. This guideline was developed in consideration of the available evidence on COVID-19 in pregnancy through 30 April 2020, World Health Organization recommendations, and other international guidelines for COVID-19 in pregnancy. The evidence base is currently limited and much of the guidance is based on expert opinion. As experience and evidence with COVID-19 in pregnancy grows, these guidelines will be updated accordingly.

2. Clinical characteristics and pregnancy outcomes

Pregnant women are not at higher risk of severe disease than the general population. Although data are limited, there are two case series of women that provide insight into the clinical characteristics. In a series of 147 women in Wuhan province, China, pregnant women had lower rates of severe or critical disease (8%) than the general population (estimated to be ~15% of diagnosed cases).[1,2] The majority of women with severe disease developed disease in the postpartum period. Only one required noninvasive mechanical ventilation and there were no deaths. In a series of 43 women in New York City, approximately 14% of diagnosed pregnant women had severe or critical disease - 9% had severe disease with hypoxemia and 4.7% had critical disease.[3] Similar to what was seen in Wuhan province, the majority of severe cases in New York City developed in the postpartum period.

The predominant clinical characteristics of pregnant women are similar to the general population. In a systematic review of 108 pregnant women with COVID-19, the predominant symptoms were fever and cough, followed by shortness of breath, myalgia, sore throat and malaise.[4] Laboratory findings included lymphocytopenia (59%) and elevated C-reactive protein (70%). D-dimer is physiologically elevated in pregnancy and its significance in the context of COVID-19 is not clear. In this series

there were 3 ICU admissions and no reported maternal deaths. There has been at least one reported indirect maternal mortality from COVID-19.[5]

An important note is that one-third of pregnant women who were diagnosed with COVID-19 during their peripartum course initially presented to labour ward for obstetric indications and were asymptomatic for COVID-19. Such presentations pose a risk of exposure to health workers. It is therefore essential that all patients who present to labour ward are considered potential asymptomatic carriers of SARS-CoV-2. Appropriate standard precautions must be adhered to, including donning of personal protective equipment (PPE) and maintaining strict environmental infection control standards.

There is no clear evidence that COVID-19 leads to worse pregnancy outcomes.[6] There has been no association seen between COVID-19 and preeclampsia. There is a slightly higher rate of preterm birth in pregnant women with COVID-19, however, that is largely related to iatrogenic preterm delivery due to concerns about COVID-19 disease in pregnancy. There has been one reported intrauterine fetal demise (IUFD), however, that was in a pregnant patient on extracorporeal membrane oxygenation (ECMO); ECMO alone carries a 35% risk of IUFD.

3. Facility preparation for managing COVID-19 in pregnancy

3.1 Screening all pregnant patients for COVID-19

Labour ward and Sexual and Reproductive Health (SRH) clinics should be considered a site of potential exposure to patients with asymptomatic COVID-19 disease. All pregnant patients should be screened according to MOHW facility guidelines prior to entering labour ward, obstetric clinics or any other clinical area. Patients should be spaced 2 meters apart and seated in a well-ventilated area while waiting for their clinical encounter.

3.2 Isolation of suspected and confirmed COVID-19 pregnant patients

All facilities offering delivery should identify isolation rooms on their antepartum ward, labour ward and postnatal ward. Suspect cases (as defined by the Botswana clinical guidelines) should be placed in their own isolation room while undergoing testing and awaiting test results. Testing of suspects should be performed according to DHMT / facility protocol. Confirmed positive cases who continue to require admission can be cohorted together in a shared isolation area.

3.3 Personal protective equipment

All pregnant patients who are suspected or confirmed COVID-19 should wear a surgical mask at all times. A surgical mask can be placed over nasal prongs or a face mask if the patient is on oxygen.

While caring for all patients on obstetric services, providers should wear the following PPE:

- For screening all patients when entering unit:

  Surgical mask + eye protection

- Non-COVID suspect

  Surgical mask

- COVID-19 confirmed or suspect:

  Surgical mask + eye protection + water resistant gown + gloves

- COVID-19 confirmed or suspect in the second stage of labour or for general anesthesia:

  N95 mask + eye protection + water resistant gown + gloves

  * Note that the second stage of labour is considered a *potentially* aerosolizing procedure

3.4 Preparations to receive a patient with suspected COVID-19

The following procedure should be followed for **referral of and unit preparation to receive** a COVID-19 confirmed or suspect patient to a maternity unit:

- Notify the receiving hospital in advance
- Patient should wear surgical mask during transport and arrival
- The supervising midwife at the receiving unit should make the following preparations:
    - One midwife should be exclusively assigned to care for COVID-19 cases
    - Designate an isolation room for the patient(s) to occupy. The room **must** have:
        - Access to oxygen source (either wall oxygen or full oxygen tank)
        - Hand washing facilities stocked with soap

        - A sign placed on the door that clearly and boldly reads **"COVID-19"**
    - The room should be supplied with one of the following:
        - Nasal prongs for each patient
        - Face mask for each patient
        - Dedicated stethoscope
        - Dedicated doppler
        - A bedpan or bucket with red bag for voiding and defecation for each patient

        * These items **must** stay inside the room to avoid contamination of labour ward

        * Unnecessary items should be removed from the room prior to patient arrival
    - Appropriate supply of PPE is placed within close access to the entry to the room

The following procedure should be followed during **admission** of a COVID-19 confirmed or suspect patient to obstetric units:

- Ensure patient is wearing a surgical mask prior to entry into unit
- Assigned midwife dons appropriate PPE
- Clear other patients and/or staff from entry pathway, ensure 2 meters distance maintained between COVID-19 confirmed or suspect patient
- Take patient directly to her assigned isolation room
- Notify the doctor on call
- Midwife takes vital signs immediately, including temperature and oxygen saturation
    - Oxygen should be placed to maintain an oxygen saturation $\geq$95%
    - Check fetal heartrate
    - Midwife collects FBC, RFTs, LFTs, coagulation profile
- If testing for COVID-19 has not yet been performed, call facility COVID-19 team or DHMT testing team to come to collect nasopharyngeal/oropharyngeal swabs
- If the patient is in labour, notify paediatricians so they can make appropriate preparations

3.5 Infection Control Measures specific to delivery units

Pay attention to the following to prevent contamination of obstetric units:

- Patient file and pen for documentation should remain in the patient's room so as not to contaminate other surfaces on labour ward
    - Ideally close to the exit of the room (away from the patient)
- Stethoscope and doppler should be sterilized if being taken out of room
- When the health worker leaves the room, he/she should remove gloves and gown inside room, and wash hands before touching any other surface on the unit
- The midwife assigned to COVID-19 patients for the day should keep her mask and goggles on for her entire shift, except when eating. Masks must be changed after a maximum of 6 hours of use.
- Cleaning staff should decontaminate travelled area and equipment thoroughly

4. Management of COVID-19 in pregnancy

4.1 Where to manage COVID-19 confirmed and suspect pregnant patients

Triage of patients to various isolation units depends on severity of COVID-19 disease, gestational age, and obstetric indications. Below is specific guidance for where to manage COVID-19 suspected and confirmed pregnant patients.

Patients <28 weeks gestational age (GA)

Pregnant patients **< 28 weeks GA** with **mild disease**, **not in labour, do not require hospital admission:**

- Depending on current operational guidance, isolate at a suitable facility or at home. Please refer to Guideline 5: Quarantine and Isolation.
    - Notify **SKMTH OB COVID consult team** with patient name and phone number to track all patients and facilitate monitoring
- If clinical deterioration, transfer to SKMTH or designated COVID-19 treatment hospital (via DHMT, notify **SKMTH OB COVID consult team**)

Pregnant patients **< 28 weeks GA** with **moderate-severe disease**, **not in labour, must be admitted to hospital:**

- Send to SKMTH or designated COVID-19 treatment hospital (via DHMT, notify **SKMTH OB COVID consult team** prior to transfer)

Pregnant patients **<28 weeks GA** with a **miscarriage**, **OB complication** or **preterm labour** while in COVID-19 isolation facility:

- Patients with mild COVID-19 at designated isolation facility should be transferred to closest district/primary hospital for management
- Patients with moderate-severe disease at SKMTH or a designated COVID-19 treatment hospital may be managed there or transferred to a referral hospital, depending on the clinical situation
- Consult the **SKMTH OB COVID consult team** for guidance

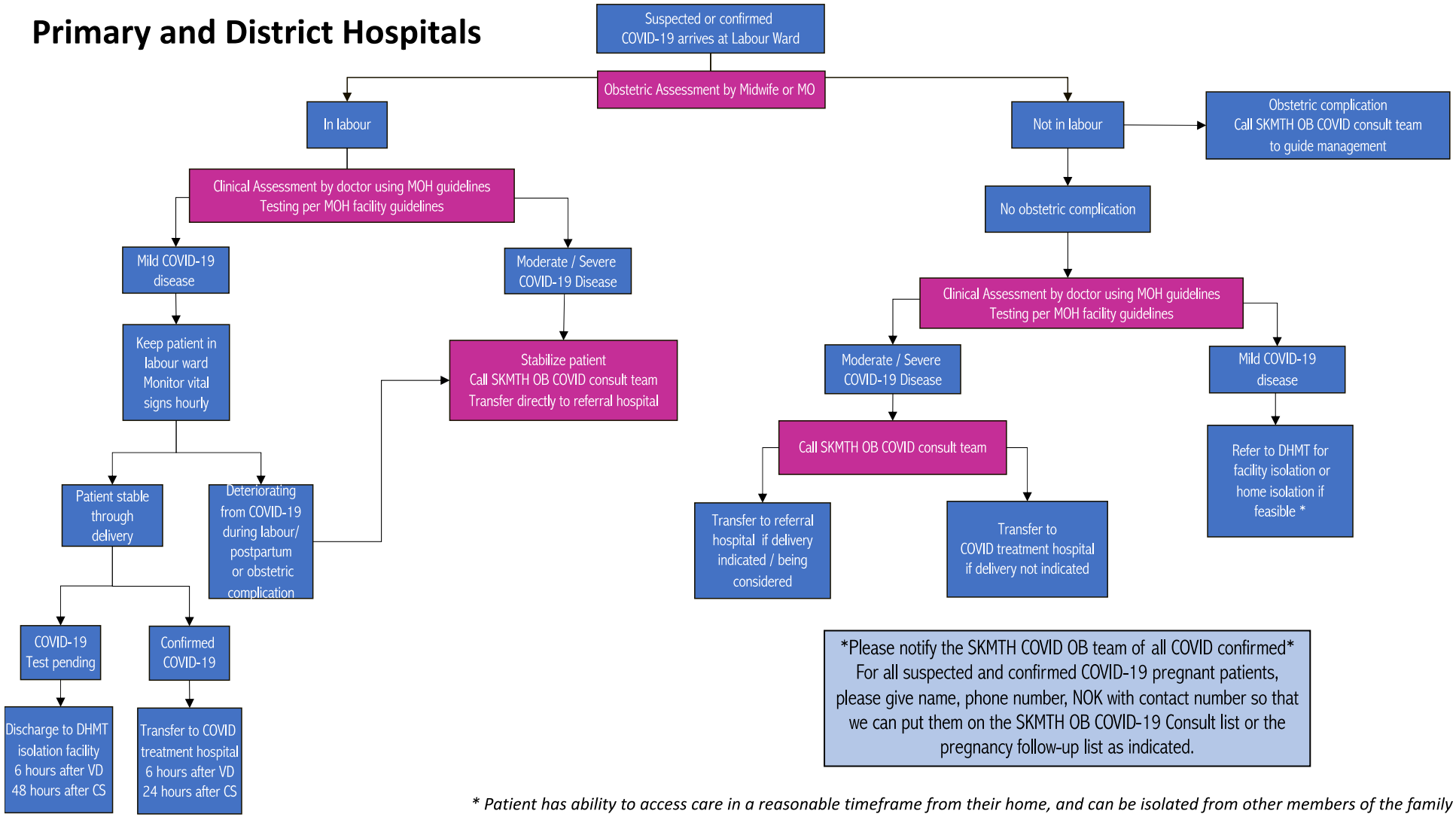
Pregnant patients ≥28 weeks GA

Pregnant patients ≥ **28 weeks GA need fetal heart checks** and should be cohorted as follows:

- **Not in labour**
    - Mild COVID-19 disease=> designated isolation facility capable of performing fetal heart checks
        - Notify **SKMTH OB COVID consult team** who can provide phone consult and will collect patient name and phone number to track all patients and facilitate monitoring
    - Moderate/Severe COVID-19 disease => SKMTH or designated COVID-19 treatment hospital via DHMT
        - Notify **SKMTH OB COVID consult team** prior to transfer to evaluate need for delivery
- **Labour or antenatal complication**
    - Patients with mild COVID-19 at designated isolation facility should be transferred to closest primary/district hospital for management
    - Moderate/severe COVID-19 disease at SKMTH or a designated COVID-19 treatment hospital should be managed there if feasible or transferred to a referral hospital depending on the clinical situation
        - Notify **the Referral hospital OB specialist on-call** prior to transfer

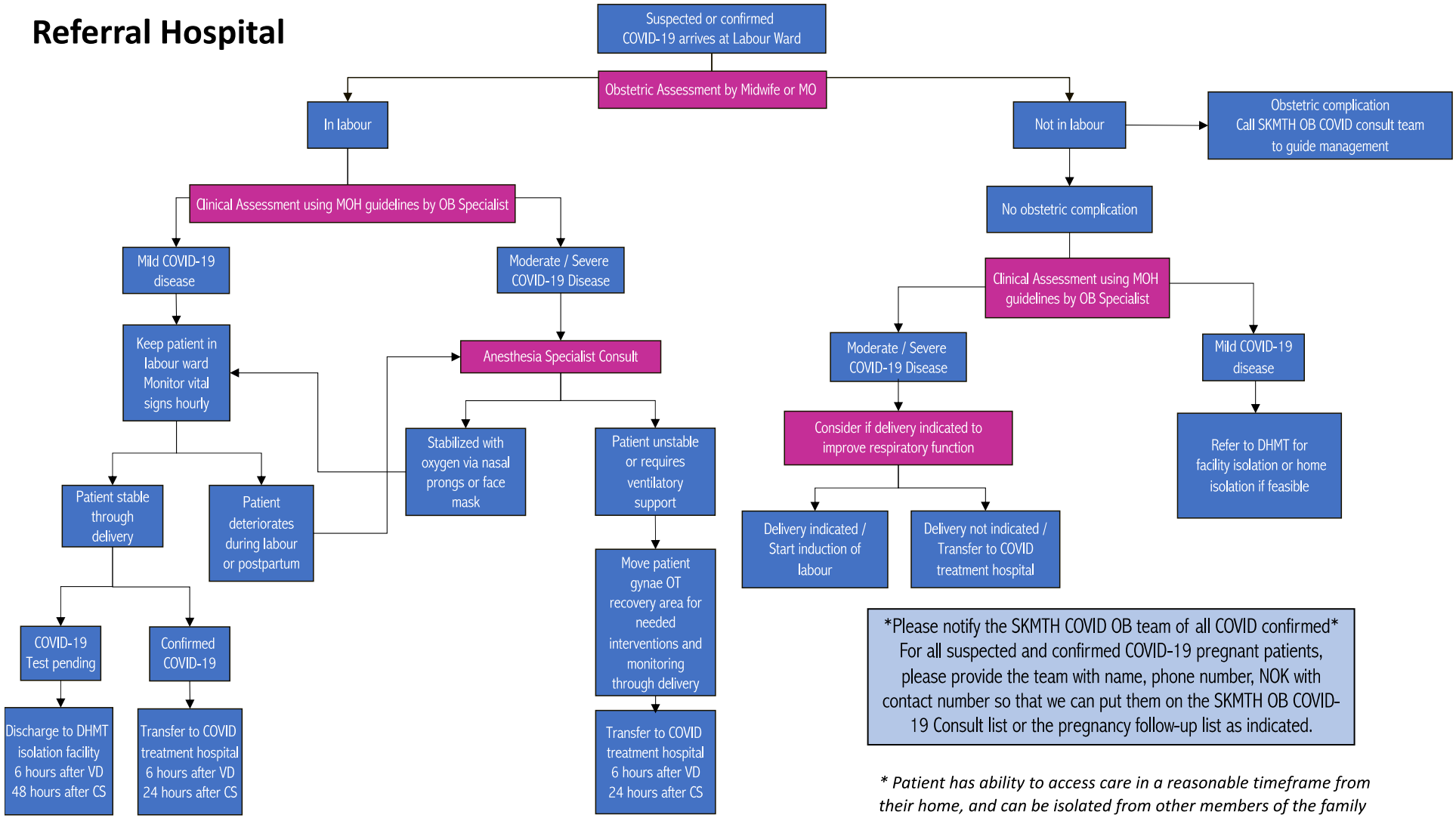
SKMTH does not have a labour ward nor operating theatre and so management of labour at SKMTH will only be considered in exceptional circumstances.

Figure 1: Algorithm for patient assessment and management in primary and district hospitals



** Patient has ability to access care in a reasonable timeframe from their home, and can be isolated from other members of the family*

Figure 2: Algorithm for patient assessment and management in referral hospital



** Patient has ability to access care in a reasonable timeframe from their home, and can be isolated from other members of the family*

4.2 COVID-19 management considerations in pregnant patients

Providers should follow the MOHW clinical management guidelines, with a few notes specific to the care of pregnant patients:

- Pregnant patients can get Chest X-Rays if clinically indicated
- Supplemental oxygen or respiratory support
    - **O2 saturation** $\geq$ **95%** to maintain placental oxygen perfusion
- Left lateral decubitus position to optimize placental blood flow
- Prone position (bolstered by pillows) can improve maternal oxygenation
- Prescribe LMWH prophylaxis (40mg SC OD) during antepartum and postpartum periods
    - Stop 12 hours before planned delivery
    - Restart 6 hours after VD and 12 hours after caesarean section, unless specific bleeding risk
    - Encourage mobilisation and use of compression stockings
- Provide supportive care:
    - Ensure adequate rest and sleep
    - Ensure enough caloric intake
    - Maintain fluid and electrolyte balance (neutral fluid balance is the goal)
- Monitor the fetus with a baseline CTG and consider additional monitoring
- Antenatal corticosteroids for fetal lung maturity may be given in cases of mild maternal COVID-19 disease if there is a good clinical indication. Corticosteroids should be withheld in severe maternal disease.

4.3 Consideration of expedited delivery in COVID-19 pregnant patients

The need to expedite delivery should be considered on a case-by-case basis, in consultation with the SKMTH OB COVID Consult team.[7] Delivery may improve maternal oxygenation status

- Consider urgent obstetric indications
- Deteriorating severe COVID-19 disease not improved by supportive care
- Critical COVID-19 disease: Respiratory failure and mechanical ventilation required, or shock, or combined with other organ failure and requiring ICU monitoring and treatment

- If cardiovascular collapse, and mother not resuscitated in 4 minutes, consider rapid CS in the ward

Expedited delivery does not necessarily require CS. The risks and benefits of an induction of labour versus caesarean section should be considered on a case by case basis. It may be difficult for women with severe disease to lie flat and/or push effectively without causing dangerous levels of desaturation. It is therefore reasonable to have a lower threshold for caesarean section if maternal or fetal compromise in the setting of COVID-19.

5. Antenatal and Postpartum Care

The goal is to ensure safe care while limiting exposure of patients to potential infection.

5.1 Antenatal Care

Consider safe spacing of Antenatal visits for all pregnant women to decongest clinics:

- Initial booking visit before 16 weeks, refer for Ultrasound
- Visits every 6 weeks until 32 weeks if they are well
- Visits every 2 weeks > 32 weeks if they are well

* Schedule should be altered if maternal or fetal issues arise

Care for COVID-19 suspect or confirmed patients should take into account the following:

COVID-19 suspect

- Routine ANC suspended until test results back
- If negative PCR results, can resume routine ANC

COVID-19 confirmed

- Prescribe prophylactic LMWH during isolation and for 14 days of recovery
- Postpone routine antenatal visits until after recovery
- Ultrasound to assess growth of the fetus two weeks after recovery

Women with suspected/confirmed COVID-19 can continue taking aspirin if it has been prescribed for an obstetric indication, such as preeclampsia prophylaxis

Providers may consider delivering COVID-19 confirmed cases at term. The **SKMTH OB COVID Consult team** is available to discuss particular cases.

5.2 Sexual and reproductive health clinics

While extreme social distancing measures are in place, SRH clinics should in general not accept walk-in patients. All patients should be referred by a provider to the referring facility through a direct phone conversation with a healthcare provider at the SRH clinic. Where possible phone consultations will replace in-person visits. Examples include:

- Repeat caesarean section bookings can be done over the phone
- Consults for big baby, Rh negative status, bad obstetric history, congenital anomalies can be initiated with a phone consult
- Stable gestational hypertension or chronic hypertension without symptoms, proteinuria or other problems, can be initiated with a phone consult

Patients that merit in-person consultation and should be seen by SRH or in labour ward:

- Patients with pre-eclampsia and symptoms
- Patients at 41 weeks GA to be admitted directly for induction (confirm dates prior to sending)
- TOLAC patients from remote facilities
    - Send for admission at 39 weeks for 1 prior c/s or at 38 weeks for 2 prior c/s

5.3 Postpartum care

Following uncomplicated deliveries, in-facility postnatal care can be safely expedited as follows:

- Normal spontaneous vaginal deliveries observed for 6 hours and discharged
- Caesarean sections (CS) who are stable can be discharged on day 2

  Advance to sips when alert after CS, and to normal diet 6 hours after CS

  Collect FBC on day 1 post-op in preparation for discharge

Patients should be seen 4-8 weeks postpartum for routine PNC. Opportunities for additional services to be provided in one visit should be maximised, including cervical cancer screening with either a Pap smear or HPV testing.

6. References

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