COVID-19 Clinical and Operational Guideline for Mothers, Newborns and Children





National Department of Health
South Africa
March 2022

health
Department:
Health
REPUBLIC OF SOUTH AFRICA

2030 NDP

FOREWORD

On 31 December 2019, the World Health Organization (WHO) China country office reported a cluster of pneumonia cases in Wuhan City, Hubei Province of China. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has been confirmed as the causative virus of Coronavirus disease 2019 (COVID-19). COVID-19 was declared a pandemic by the WHO on 11 March 2020.

Recognising that the best prevention strategy against COVID-19 is reducing and disrupting transmission between people and communities, including those who visit health facilities, South Africa put measures in place to contain the spread of the SARS-CoV-2 virus, and the President announced a country-wide lockdown from midnight of 26 March 2020, extended once until midnight of 30 April 2020.

Screening, testing and isolation of possible or confirmed COVID-19 cases, together with hand hygiene, respiratory etiquette, social distancing and wearing of face masks in public, are all essential national strategies to “flatten the curve” of the epidemic surge in cases.

This guideline complements the National Institute of Communicable Diseases (NICD) guidelines published as “CLINICAL MANAGEMENT OF SUSPECTED OR CONFIRMED COVID-19 DISEASE”, which are updated regularly. It incorporates guidance on COVID-19 from the WHO, professional bodies and current literature on how patients are managed elsewhere.

Although many drugs are under investigation, current therapeutic strategies to manage confirmed infection are largely supportive. While significant efforts have been made to deal with the effects of COVID-19 and to prevent a health systems collapse, the provision of essential routine maternal, infant and child health services for women and children needs to be continued and prioritised, including effective and timely emergency services so as not to allow deterioration in the maternal, neonatal and child mortality rates.

Although the vast majority of COVID-19 infected individuals who present for medical care are adults, it is important to make sure that the needs of pregnant women and children are not forgotten and that adequate provision is made to care for COVID-19 exposed and infected newborn babies and children while maintaining optimal routine care of children.

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Director-General: Health

Date: 24 / 03 / 2022

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ABBREVIATIONS AND ACRONYMS

ABHR	Alcohol-based Hand Rub
AGP	Aerosol Generating Procedure
Ag-RDT	SARS-Cov-2 Antigen Rapid Diagnostic Test
ANC	Antenatal Care
APC	Adult Primary Care (Guideline)
ARI	Acute Respiratory Infection
BANC Plus	Basic Antenatal Care Plus
BMI	Body Mass Index
CPAP	Continuous positive airway pressure
CHC	Community Health Centre
CHW	Community Health Worker
COPD	Chronic Obstructive Pulmonary Disease
COVID-19	Coronavirus Disease 2019
CRP	C-Reactive Protein
CS	Caesarean Section
CT	Computerised Tomography
CVD	Cardiovascular Disease
CXR	Chest X-ray
DEBM	Donated Expressed Breast Milk
DHIS	District Health Information System
DOH	Department of Health
EC	Emergency Centre
ECMO	Extracorporeal Membrane Oxygenation
EMS	Emergency Medical Services
ENT	Ear, Nose and Throat
EPI	Expanded Programme of Immunisations
ESR	Erythrocyte Sedimentation Rate
FAMSA	Family and Marriage Society of South Africa
FBC	Full Blood Count
FiO2	Fraction of inspired oxygen
HCW	Health Care Worker
HCU	High Care Unit
HFNC	High Flow Nasal Cannula
HIV	Human Immunodeficiency Virus
GA	General Anaesthesia
GBV	Gender-Based Violence
ICU	Intensive Care Unit
ID	Identification Document
IL-6	Interleukin 6
iMMR	In-facility Maternal Mortality Ratio
IOL	Induction of Labour
IPV	Intimate Partner Violence
IPPV	Intermittent Positive Pressure Ventilation
IVIG	Intravenous Immunoglobulin
KMC	Kangaroo Mother Care
LDH	Lactate Dehydrogenase
LLETZ	Large Loop Excision of the Transformation Zone
LISA	Less Invasive Administration of Surfactant
MCH	Maternal and Child Health
MDI	Metered Dose Inhaler
MERS	Middle East Respiratory Syndrome
MIS-C	Multisystem Inflammatory Syndrome
MRC	Medical Research Council
mRNA	Messenger Ribonucleic Acid
MWH	Maternity Waiting Homes
NCDs	Non-Communicable Diseases
NGO	Non-Governmental Organisation
NICD	National Institute for Communicable Diseases
NIV	Non-invasive Ventilation
NPA	Nasopharyngeal Aspirate
NPO2	Nasal Prong Oxygen
NPO	Not-for-profit Organisation
OPA	Oropharyngeal Aspirate
OPD	Outpatients Department
PCT	Procalcitonin
PCR	Polymerase Chain Reaction
PEP	Post Exposure Prophylaxis
PHC	Primary Health Care
PICU	Paediatric Intensive Care Unit
PNC	Postnatal Care
POWA	People Opposing Women Abuse
PPE	Personal Protective Equipment
PPHN	Persistent Pulmonary Hypertension of the Newborn
PPIP	Perinatal Problem Identification Programme
Pro BNP	Pro B-type Natriuretic Peptide
PTB	Pulmonary Tuberculosis
PT	Prothrombin Time
PTSD	Post-traumatic Stress Disorder
PTT	Prothromboplastin Time
PUI	Person Under Investigation
RCSA	Resuscitation Council of Southern Africa
RMC	Respectful Maternity Care
rRT	Real-time Reverse Transcription
RTHB	Road to Health Book
RSV	Respiratory Syncytial Virus
SADAG	South African Depression and Anxiety Group
SAPS	South African Police Service
SARS	Severe Acute Respiratory Syndrome
SARS-CoV-2	Severe Acute Respiratory Syndrome Coronavirus 2
SASA	South African Society of Anaesthesiologists

SASSA	South African Social Security Agency
SDG	Sustainable Development Goals
SpO2	Peripheral Capillary Oxygen Saturation
SSRI	Selective Serotonin Reuptake Inhibitor
STG	Standard Treatment Guidelines
TB	Tuberculosis
Trop T	Troponin T
UP	University of Pretoria
VITT	Vaccine-induced Thrombosis and Thrombocytopenia
WHO	World Health Organisation

KEY TERMS

Definition of key terms	
Coronavirus	A group of viruses common in humans and animals. Some coronaviruses produce the common cold; SARS and MERS are also both caused by coronaviruses. COVID-19 is a disease caused by a new type of coronavirus.
SARS-CoV-2	The specific coronavirus that causes COVID-19 disease.
COVID-19	An acronym for Coronavirus disease 2019, the clinical syndrome caused by the SARS-CoV-2 virus.
Possible COVID-19 case	A person who meets the NICD case definition of a possible COVID-19 infection: • Any symptomatic person presenting with an acute (≤10 days) respiratory tract infection or other clinical illness compatible with COVID-19.
Close contact	Contact with a current confirmed COVID-19 infected person in one of the following contexts: • Face-to-face contact (within 1 meter) without wearing masks for 15 minutes or more • Being together in a closed environment (e.g. in a meeting room) without wearing masks for 15 minutes or more • Living in the same household
A person under investigation (PUI)	A person under investigation: • meets the case definition of a possible COVID-19 infection; and • has been tested for COVID-19 infection, and • still awaits their test results

Isolation / Home-isolation	This applies to an individual with confirmed or possible COVID-19 infection or to a PUI, until a COVID PCR test result is obtained. This entails:
	• For symptomatic cases:
	  • Staying at home/in isolation for 7 days from the time the symptoms start (or as per most recent national guidelines, as the recommended duration may change);
	  • As far as possible using separate bedroom and bathroom;
	  • Minimising contact with other household members;
	  • Not sharing any household items that haven't been washed/sanitised;

Quarantine	Applies to asymptomatic close contacts of a person with confirmed COVID-19. Quarantine is no longer considered of public health benefit for the general population in terms of COVID-19 epidemic control in South Africa, nor for pregnant women or mothers discharged home. However, quarantine may have value to prevent local outbreaks in inpatient settings, including women admitted to KMC wards or mother lodger facilities. This would entail cohorting for 5 days from the time of the most recent close contact, minimising contact with others, strict face mask-wearing, not sharing household items and ventilation of rooms.
Self-monitor	Applies to COVID-19 exposed individuals. Involves looking out for early symptoms and signs of COVID-19 infection such as: • Respiratory illness – rhinitis; cough; sore throat; shortness of breath; • General ill health – fatigue; muscle aches and pains; fever; diarrhoea. If any of these symptoms develop, COVID testing is recommended
PPE	An acronym for personal protective equipment. It describes the special masks, clothing and gloves worn by care providers to shield them from contagious illnesses.

1. INTRODUCTION AND EPIDEMIOLOGY

1.1. Are pregnant women more likely to become infected with the SARS-CoV-2 virus?

- Compared to other persons of reproductive age with the same exposure risk, pregnant women are not at an increased risk of becoming infected with SARS-CoV-2, the virus which causes COVID-19.

1.2. If a pregnant woman becomes infected with SARS-CoV-2, does the disease present differently from non-pregnant women?

- There is **no difference in the clinical manifestation** of COVID-19 in pregnant women and other adults of reproductive age.
- Most pregnant women infected with SARS-CoV-2 will be asymptomatic.[1]
- Most symptomatic pregnant women experience only mild or moderate cold/flu-like symptoms, including cough, fever, sore throat, dyspnoea, myalgia, loss of sense of taste and diarrhoea.
- Pregnant women with symptomatic COVID-19 may be at **higher risk of severe disease and mortality** than non-pregnant women, especially in the **third trimester.** They may have:
  - higher rates of intensive care unit (ICU) admission;
  - higher needs for ventilation;
  - increased risk of complications in the third trimester compared to earlier in pregnancy.[2]
  - overall worse maternal outcomes if hospitalisation is required, including an increased risk of death, although the risk of death remains very low.
- The risk factors for developing severe disease are:
  - BMI above 30 kg/m^2
  - Pre-pregnancy co-morbidities (e.g. diabetes or hypertension)
  - Maternal age of 35 years or older
  - Socio-economic deprivation

1.3. What are the effects of maternal COVID-19 on the fetus?

- There is no reported increase in congenital anomalies because of COVID-19 infection
- Vertical transmission is rare
- The risk of stillbirth is increased[3]
- There is an increased incidence of small-for-gestational-age babies
- The preterm birth rate appears to be two to three times higher than the background rate (these are primarily iatrogenic preterm births) [3]
- More caesarean sections are done in COVID-19 infected mothers

1.4. What are some indirect effects of the pandemic on women?

- Whether a woman has contracted COVID-19 or not, she may be affected by the following indirect effects of the pandemic:
    - Reduced access to reproductive and other health services, including contraception, termination of pregnancy, antenatal, delivery, and postnatal services caused by a combination of lockdown measures and worsened economic circumstances[3]
    - Higher rates of perinatal mental health disorders such as anxiety and depression (see section 7.7.5)
    - Increased rates of gender-based violence(see section 7.7.3)

According to South African data, COVID-19 in pregnancy has an in-facility maternal mortality ratio (iMMR) of at least 16/100,000 live births (equivalent to the effects of hypertensive disorders of pregnancy or obstetric haemorrhage on maternal mortality). **Maternal mortality has increased by at least 30% and the stillbirth rate by 10% since the pandemic started.**[3]

1.5. What are the effects of COVID-19 on newborns and children

Although most COVID-19 clinical cases occur in the adult population, newborns and children may also be infected, and provision must be made to cater to those with possible and confirmed COVID-19.

- As of 28 August 2021, individuals aged ≤19 years made up 14.2% of SARS-CoV-2 tests, 11.8% of laboratory-confirmed COVID-19 cases, 4.7% of all COVID-19-associated admissions and 0.7% of COVID-19 associated in-hospital deaths.[4]

Children have less severe disease than adults, and current data[5,6] suggest that:

- 35% are asymptomatic;
- 60% have mild disease;
- <6% require oxygen
- <1% have critical disease requiring ventilation;

Up to August 2021, there have been 565 deaths in South Africa in children under 19 years, equating to a mortality rate of 0.2%.[4]

2. OBSTETRIC CARE

2.1. Summary of key recommendations

Box 1 Summary of key health systems recommendations for maternity care during the COVID-19 pandemic

- Non-emergency, but **essential health services** need to be fully functioning and remain accessible to all women throughout the COVID-19 pandemic (see Box 2 below)
- **Vaccination** against COVID-19 must be integrated into the antenatal care (ANC) service, on an opt-out basis.
- All designated birthing (delivery) sites should be able to **screen** for COVID-19 cases, **test** for COVID-19, **identify patients with severe COVID-19 disease** and be able to **manage intrapartum care for COVID-19 patients with mild disease**.
- Pregnant women who are PUIs or have confirmed COVID-19, and who need admission for obstetric reasons or because of the severity of the COVID-19, are best **managed primarily by the maternity team** in a designated section of the maternity unit, (not in a general COVID-19 section of the facility), unless the woman's condition is so severe as to require ICU admission.
- The COVID-19 section of the maternity unit at all levels of hospital must have a reliable and **ample oxygen supply**, with equipment to deliver the oxygen to patients up to the level of at least high-flow nasal oxygen.
- All maternity units should have capacity to **conduct on-site rapid antigen testing** for COVID-19 (in the maternity unit), so that admission testing can be done and results obtained without delay.

Box 2 Essential and emergency services that must continue during a pandemic

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

- Contraception services (there may be a need to postpone some sterilization procedures; where this is the case, reliable contraception must be offered)
- Termination of pregnancy services
- Antenatal care, including BANC Plus and high-risk antenatal clinics
- Elective caesarean sections
- Postnatal care (PNC) (includes review of both mother and baby)
- Gynaecological oncology services including colposcopy and LLETZ procedures, surgery for gynaecology cancers
- Immunisations (including influenza and COVID-19 vaccines for pregnant mothers and routine immunisations for babies)

All emergency services need to continue at the usual level of care throughout the COVID-19 pandemic

2.2. Overview of the screening, testing, and management process in pregnant and postpartum women

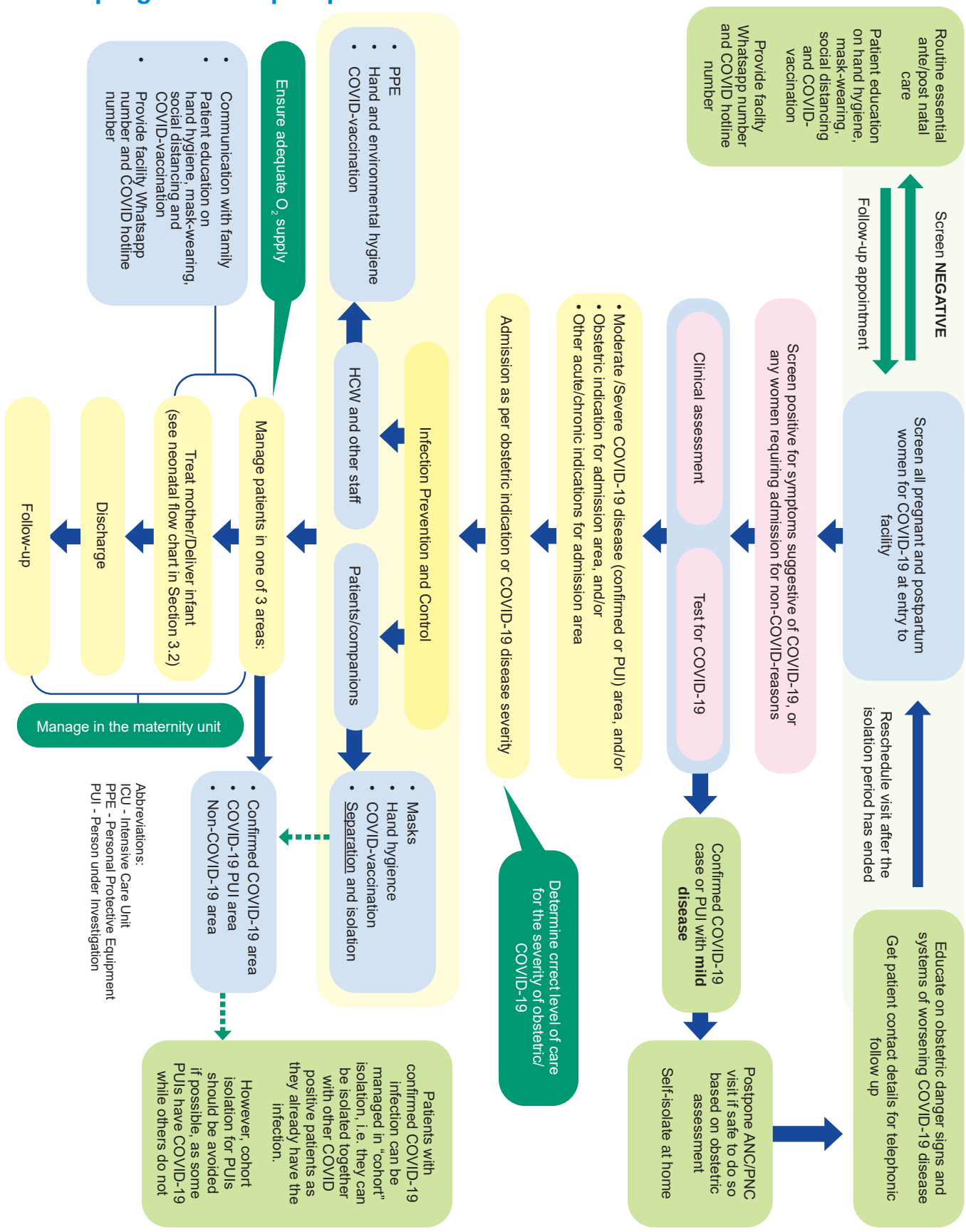

Figure 1 Overview of the screening, diagnosis, and management in pregnant and postpartum women

2.3. How can COVID-19 infection in women be prevented?

2.3.1 What are the routine COVID-19 preventative measures that pregnant women should practice?

The routine infection prevention and control (IPC) measures for pregnant women are the same as in the general population and include:

- Wearing a face mask
- Practising social distancing
- Maintaining good hand hygiene by frequently washing hands or using hand sanitiser
- Isolating themselves from others if they have symptoms suggestive of COVID-19
- Calling their local health facility or the National COVID-19 helpline (0800 029 999) to inquire whether they should be tested for COVID-19
- Abiding by national "lockdown" regulations
- Getting a COVID-19 vaccination (see Section 2.3.2 below)

2.3.2 What is the vaccination policy for pregnant women?

2.3.2.1. Who should be offered the COVID-19 vaccine in pregnancy and postpartum?

- **All pregnant and breastfeeding women are eligible** for the COVID-19 vaccination regardless of the stage of their pregnancy
- Breastfeeding women can receive a COVID-19 vaccine without having to stop breastfeeding
- All women planning a pregnancy should ideally get vaccinated against COVID-19 before falling pregnant
- Women planning a pregnancy or fertility treatment can receive the COVID-19 vaccine and do not need to delay conception
- Partners of pregnant and breastfeeding women should also be actively encouraged to vaccinate, as well as planned birth companions
- A special set of messages has been developed to support vaccine uptake for all pregnant and breastfeeding women. These are available in Appendix 3 and are available on MomConnect

Box 3 Promoting access to COVID-19 vaccination for pregnant and breastfeeding women

- All pregnant women who are not already vaccinated against COVID-19 should be vaccinated as a routine part of antenatal care on an opt-out basis.
- This implies that COVID-19 vaccination must be integrated into antenatal care, as with other vaccines (tetanus toxoid and influenza).
- Both tetanus toxoid and the COVID-19 vaccine should be given to the COVID-19 unvaccinated pregnant woman during antenatal care. COVID-19 vaccines can be administered on the same day as other vaccines.
- During the influenza season, unvaccinated pregnant women should be vaccinated against COVID-19 as well as against influenza. The two vaccines can be given on the same day.
- Education about COVID-19 vaccination must be incorporated into antenatal care education provided at all antenatal clinics. This needs to include the need for COVID-19 vaccination of partners and planned birth companions.
- Unvaccinated pregnant women and postnatal women who are admitted to a health facility for non-COVID-19-related reasons should be offered the COVID-19 vaccine before they are discharged.

2.3.2.2. What are the benefits of getting the COVID-19 vaccine during pregnancy?

- The vaccines are effective at preventing severe COVID-19 disease and mortality.
- The vaccine may reduce the risk of preterm birth and stillbirth associated with COVID-19.
- Protective antibodies may be transferred to the fetus or neonate, which may decrease the chance of a neonate getting COVID-19.
- Vaccinated women are less likely to transmit COVID-19 to vulnerable household members, as well as within the hospital setting, for instance, if the mother is admitted into a lodger mother facility or kangaroo mother care unit with her sick or small newborn.

2.3.2.3. What are the possible side effects of COVID-19 vaccination in pregnant and breastfeeding women?

- **No additional safety concerns** have been reported for vaccinated pregnant women or their newborns.
- Pregnant women receiving a COVID-19 vaccine have similar minor adverse effects to the non-pregnant population.
- The rare syndrome (incidence of 1 in 100 000) of vaccine-induced thrombosis and thrombocytopenia (VITT) is an unpredictable reaction not associated with any of the usual risk factors for venous thromboembolism.
- There is no evidence that pregnant or postpartum women are at higher risk of VITT.

Box 4 Vaccine-induced thrombosis and thrombocytopaenia

When should VITT be suspected?

- Side-effects that persist or recur > 4 days after vaccination with Astra Zeneca or Janssen COVID-19 vaccine
- Neurological symptoms, e.g., severe or persistent headache, seizures, focal symptoms, or blurred vision
- Thrombosis symptoms like severe abdominal pain, leg pain or swelling, shortness of breath, or chest pain
- Thrombocytopenia (<150 x 10^9/L), or at least 50% decrease in platelet count
- High D-dimer (>0.25mg/L)
- Low fibrinogen (<2g/L)

If VITT is suspected, refer immediately to a tertiary center where the woman can receive appropriate care from a multidisciplinary specialist team. Avoid heparin, warfarin and platelet transfusion

2.4. What is the COVID-19 case definition in pregnant and breastfeeding women?

The NICD case definition of possible COVID-19 is the same regardless of pregnancy, breastfeeding, or age.

Possible COVID-19 case definition

- Any **symptomatic** woman presenting with an acute (≤10 days) respiratory tract infection or other clinical illness compatible with COVID-19. Symptoms include ANY of the following:
  - Cough;
  - sore throat;
  - shortness of breath, anosmia (loss of sense of smell) or dysgeusia (alteration of the sense of taste);
  - these symptoms may occur *with or without* other symptoms, such as fever, weakness, myalgia or diarrhoea.

2.5. How should antenatal and postnatal contacts be conducted during the COVID-19 pandemic?

- Antenatal care, including BANC Plus and high-risk antenatal clinics, are considered **essential services** and should be continued at the usual level of care throughout a pandemic.
- **General preventative measures** for COVID-19 must be emphasised at all interactions, including handwashing, social distancing and wearing of a face mask. If the woman does not have a mask, she should be provided with a surgical mask on entering the facility. Remind the woman that she should also wear a mask during transfer to the facility, whether by ambulance or private transport.
- 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 for their facility** 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 (send Hi to 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 website (www.sidebyside.co.za) or the Perinatal Mental Health Project (https://pmhp.za.org).
- Women should be asked about their **mental health** at every contact.
- Health workers should be aware of the increased risk of **domestic abuse** in pregnancy.
- Screening is the process of identifying those who have symptoms suggestive of COVID-19 disease. Women who screen positive (i.e. have symptoms) need to be tested for COVID-19.
- All women attending antenatal, postnatal health services should be screened for symptoms suggestive of COVID-19 and TB on arrival at the health facility before joining the antenatal or postnatal clinic queue.
- Women who **screen negative**, i.e., have **no clinical symptoms** suggestive of COVID-19, do not need to be tested and should receive routine care as per BANC Plus and the Maternity Care Guidelines.

2.6. What is the immediate management for pregnant or postpartum women who screen positive for COVID-19?

Women who **screen positive** for symptoms of COVID-19 become a "person under investigation" (PUI) and need to be:

1. assessed by an experienced maternity health care provider and
2. tested for COVID-19.

2.6.1 Clinical assessment

- For those with symptoms, an experienced maternity health care provider must assess whether there are any **medical or obstetric problems** needing urgent attention or admission.
- If there is any concern that the woman may have severe COVID-19 or other obstetric problems requiring urgent assessment, she should be assessed in an isolation room at the appropriate level health facility. If a referral is required, the woman should continue to wear a face mask during the transfer to the receiving health facility.
- **Criteria for admission** to a health facility:
    - Obstetric complications needing admission
    - Moderate or severe COVID-19 disease
    - Mild COVID-19 disease, but monitoring by teleconsultation or other similar means is not available

Note: Pregnant women in labour or with obstetric risk factors and complications must be managed at the **appropriate level of care** according to existing obstetric referral criteria. Additionally, the following guidelines related specifically to COVID-19 infection will need to be taken into account when deciding on the site where the woman should be managed:

- Patients with mild COVID-19 can be managed at home or in a designated isolation facility.
- Pregnant women with moderately severe COVID-19 requiring oxygen by mask to maintain O_2 saturations above 95% must be managed in a hospital with a maternity service and a doctor full-time on-site.
- Pregnant women with severe COVID-19 requiring ICU care should be managed at a hospital that has such services available (regional, tertiary, central or private hospital).

2.6.2 Testing when urgent attention or admission is not required

- A COVID-19 PCR test should be done on all symptomatic women
- The out-patient visit should be postponed, and the woman can be sent home (or to an isolation facility) to isolate until the PCR results come back. The results can be communicated to the woman by phone.
- If the **woman is well** (not short of breath and can conduct her normal household activities), and home circumstances allow, advise her to isolate at home until her test result comes back negative, or if positive, until 7 days (or as per most recent national guidelines) after the onset of symptoms.
- If home circumstances do not allow self-isolation at home, contact the local isolation centre to discuss admission for isolation (as per local/district availability).
- She can resume her routine antenatal visits after her isolation period has been completed.
- The outpatient visit can be provisionally rescheduled 7 days after the onset of symptoms but can be moved earlier if the test result is negative or if deemed medically more urgent.

2.6.3 Testing when urgent attention or admission is required

- During times of high local prevalence of COVID-19 (i.e. during a COVID-19 wave), all pregnant women who need admission must be **tested for COVID-19 using a rapid antigen test**, conducted on arrival, on-site in the maternity admissions area, so that a result is available within 15-30 minutes of arrival. Further management will depend on
    - the rapid antigen test result and
    - the presence or absence of symptoms suggestive of COVID-19 as follows:

	Symptoms of COVID-19 present	Symptoms of COVID-19 absent
COVID-19 rapid antigen test positive	Admit to designated COVID-19 section of the maternity unit at the appropriate level of care	Admit to designated COVID-19 section of the maternity unit at the appropriate level of care
COVID-19 rapid antigen test negative	Do COVID-19 PCR test. Admit to PUI* cubicle of maternity unit until PCR result available	Admit and manage as COVID-19 negative patient. Daily screening for COVID-19 symptoms

*Person under investigation for COVID-19

- During times when the prevalence of COVID-19 in the local population is low (i.e. there is no COVID-19 wave), women needing admission who screen negative for COVID-19 symptoms and who can provide evidence that they are fully vaccinated against COVID-19 do not need a COVID-19 admission test and can be managed as COVID-19 negative. They must be screened daily for COVID-19 symptoms.
- See also section 5.1 Testing for COVID-19

For confirmed COVID-19 cases and PUIs: once the severity of the women's medical and obstetric condition has been assessed and the appropriate level of care has been identified, she will need to be isolated within the selected level of care.

2.7. Who needs to isolate, who needs to quarantine, where and for how long?

Isolation is for people who have either been diagnosed as currently having COVID-19 infection (the test has confirmed the diagnosis, i.e., she is a confirmed case) or are suspected of currently having COVID-19 infection (test results awaited, i.e., she is a person under investigation (PUI)).

2.7.1 Isolation period

Isolation for symptomatic COVID-19 infection is currently recommended for 7 days as indicated below. Due to the ever evolving body of knowledge on the Corona virus and the pandemic, these recommendations may change in the future. HCWs should be sure to align the isolation period with the most recent national guidelines.

- The current required period of isolation is as follows:
  - Confirmed and symptomatic case: until 7 days after the onset of symptoms (mild disease) or 7 days from the date on which they no longer require oxygen therapy (severe disease)
  - Confirmed and asymptomatic case not admitted to hospital: No isolation is required, but they should do self-observation, practice enhanced precautions, including avoiding places where people gather, mask-wearing and social distancing.
  - Confirmed and asymptomatic cases admitted to hospital: Cohorting with enhanced precautions, including mask-wearing and social distancing, are required for 5 days from the positive test result
  - PUI: until clinical features exclude COVID-19 and the COVID-19 test result is available
- Wherever possible, mothers and their newborns should be isolated together. However, isolation of the mother-baby pair, and care of the baby at the mother's bedside, may not be possible if the baby is ill and requires admission (see Section 3.8). In these circumstances, the mother may need to be isolated separately from her baby.

2.7.2 Place of isolation

If feasible, based on **mild symptoms** and suitable home circumstances, it is best for confirmed cases and PUIs to isolate at home. For mild cases, where home circumstances do not allow home isolation, there may be locally accessible facilities specifically designated for COVID-19 isolation.

- If the COVID-19 symptoms are severe enough to warrant **admission to hospital,** or if there are non-COVID-19 reasons for admission (e.g. obstetric complications), then pregnant confirmed cases and PUIs will need to be admitted as follows:

COVID-19 status and disease severity	Suitable site for admission of a pregnant woman
COVID-19 confirmed case with asymptomatic, mild or moderate disease	A designated COVID-19 section of the maternity ward, where patients can be isolated from the rest of the patients in the maternity unit and attended to by dedicated staff on a particular shift. When there is more than one COVID-19 patient admitted at the same time, they can be managed in "cohort" isolation, i.e. it is not necessary to isolate each COVID-19 patient from the other COVID-19 patients
PUI mild to moderate disease	An isolated bed or cubicle in the maternity unit. Cohort isolation should be avoided if possible, as some PUIs have COVID-19 while others do not
COVID-19 confirmed case or PUI with severe or critical disease	These patients should ideally be transferred to an ICU where specialist multi-disciplinary care can be provided

NOTE: Pregnant women with COVID-19 (including PUIs) should, whenever possible, be managed within the maternity unit by staff who are experienced in diagnosing, monitoring and managing obstetric and neonatal problems. This staff can be supplemented by additional staff deployed or contracted to care for COVID-19 patients. Avoid admitting pregnant women with COVID-19 (including PUIs) to general COVID-19 wards.

2.7.3 Quarantine period

Persons who had no symptoms of COVID-19 but were in close contact with someone with confirmed COVID-19 (during their infectious period) were previously expected to quarantine. However, a history of close contact is no longer an indication for quarantine or testing as long as the patient remains asymptomatic. Those exposed to COVID-19 should focus on monitoring for symptoms and complying with infection prevention measures, including mask-wearing, regular hand washing/sanitising, and social distancing.

2.8. What should the specific medical management of COVID-19 be in pregnant women?

Box 5 Respectful care

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. Despite staff themselves experiencing significant stress, their engagement with women should always be respectful and empathic.

2.8.1 Asymptomatic or mild disease

- Confirmed cases with asymptomatic or mild disease can be isolated at home with healthcare facility surveillance by telemonitoring/SMS/WhatsApp unless other obstetric risk factors, co-morbidities, or social circumstances require admission.
- 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. 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)
- Provide supportive care / symptomatic treatment as per standard protocols:
  - Paracetamol for fever and headache
  - Hydration and rest
- Women should monitor themselves for worsening symptoms and obstetric danger signs during home isolation, as indicated in Box 6. If present, she should call a local facility or the Helpline 0800 029 999 as discussed in Section 2.5
- The emergency services and the receiving facility should be informed that the woman tested positive for COVID-19 so that IPC measures can be adhered to

Box 6 Danger signs that indicate the need to seek urgent medical attention

Danger signs that require a woman with mild disease to seek emergency medical care:

- difficulty breathing or shortness of breath
- difficulty talking
- coughing blood
- chest pain/pressure, or pleuritic chest pain
- signs of dehydration and unable to tolerate oral hydration and medications
- dizziness
- confusion
- obstetric warning signs such as pain, bleeding, rupture of membranes, or decreased fetal movement.
- unremitting fever >39°C despite appropriate use of paracetamol

2.8.2 Moderate or severe disease

- The priority for medical care should be to stabilise the woman's condition with standard supportive therapy
- Her obstetric management plan should be individualised according to her specific needs
- The woman should be admitted to a dedicated COVID-19 hospital/ward as per local availability and in consultation with a multidisciplinary team and the intensive care unit if necessary
- Radiographic investigations should be performed as indicated for the non-pregnant adult; this includes a chest X-ray or CT of the chest. Abdominal shielding can be used to protect the fetus from radiation

Provide supportive care and symptomatic treatment:

- Oxygen therapy:
  - Maintain saturation >92%. Awake prone positioning if feasible and acceptable.
  - Escalate oxygen therapy as appropriate from nasal cannula, through face mask, venturi mask, non-rebreather mask, non-invasive positive airway pressure (e.g., continuous positive airway pressure [CPAP]), intubation and intermittent positive-pressure ventilation (IPPV), and extracorporeal membrane oxygenation (ECMO)
- Antibiotics for superimposed infection
  - The choice of antibiotic should be informed by local antimicrobial resistance patterns and clinical findings and should be commenced at presentation if there is clinical suspicion of bacterial infection or sepsis
  - Exclude malaria and other infectious diseases as possible diagnoses, as appropriate
- Corticosteroid therapy:
  - Women with severe disease should be given corticosteroids for 10 days or up to discharge in those with severe COVID-19 and requiring oxygen or ventilatory support
  - If steroids are *not* indicated for fetal lung maturity, treatment should be with:
    - Dexamethasone 6mg/day oral or intravenous or
    - Oral prednisolone 40 mg once a day, or
    - Intravenous hydrocortisone 80 mg twice daily
  - If steroids are indicated for fetal lung maturity, offer
    - Intramuscular dexamethasone 6 mg every 12 hours for four doses (2 days), followed by one of the following options for 8 more days to complete a total of 10 days, or until discharge, whichever is sooner
    - Dexamethasone 6mg/day oral or intravenous
    - Oral prednisolone 40 mg once a day or
    - Intravenous hydrocortisone 80 mg twice daily
- Venous thromboembolism prophylaxis:
  - The following women should be offered thromboprophylaxis:
    - Women admitted for confirmed COVID-19 during pregnancy and the puerperium.
    - Be cautious in women where delivery might be expected in the next 12 hours. If in doubt, discuss with an expert
  - The following women *should not* be offered thromboprophylaxis
    - Women at significant risk of haemorrhage or who have any other contraindication to thromboprophylaxis
    - Women with mild or asymptomatic disease who present in labour and who are expected to have an uncomplicated delivery and a short hospital stay

- Women eligible for thromboprophylaxis should receive:
  - Low molecular weight heparin/unfractionated heparin for 10 days following hospital discharge, if practical and feasible
  - The dose may need to be individualised for women with severe complications of COVID-19 (e.g., enoxaparin 40 mg once daily or dalteparin 5000 IU once daily).
  - A longer duration of thromboprophylaxis should be considered for women with persistent morbidity.

- Baricitinib
  - Recommended for non-pregnant patients who are hospitalised and require supplemental oxygen therapy. There is insufficient data to assess the risk of baricitinib in pregnant and breastfeeding women. For pregnant women with confirmed COVID-19 and who require supplemental oxygen therapy, the place of baricitinib should be discussed with a specialist unit, and a risk/ benefit assessment should be made on an individual basis.

- Fluid balance:
  - Caution should be applied to fluid balance and intravenous fluid management. Hourly fluid input/output charts should be recorded in women with moderate to severe symptoms of COVID-19

- Hydroxychloroquine, lopinavir/ritonavir, azithromycin, doxycycline or convalescent plasma therapy should not be used as they are ineffective for treating COVID-19 infection

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No emergency management or referral should be delayed because of the lack of a COVID-19 test.

Pending PCR results should not obstruct access to appropriate ICU/HCU care for critically ill women

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2.8.3 What is the role of corticosteroids for preterm labour in women with COVID-19?

- If a symptomatic, COVID-19 infected woman presents with spontaneous preterm labour, tocolysis should not be used to delay delivery to administer antenatal corticosteroids.
- If steroids are indicated for fetal lung maturity, offer
  - Intramuscular dexamethasone 6 mg every 12 hours for four doses (2 days) (see also section 2.8.2)

- If on oxygen or ventilation, give an additional 8 days of either:
  - Dexamethasone 6 mg/day oral or intravenous, or
  - Oral prednisolone 40 mg once a day, or
  - Intravenous hydrocortisone 80 mg twice daily

2.9. Should family, friends and partners be allowed to visit pregnant women admitted to hospital during the COVID-19 pandemic?

- Yes, as long as the visitor has been screened on arrival and is asymptomatic for COVID-19. COVID vaccination status should be checked, and vaccination encouraged in those who are unvaccinated.
- Only one visitor per patient at a time should be allowed (during COVID-19 waves), and this should be during designated visiting hours
- The visitor must comply with infection prevention precautions, including those put in place because of the COVID-19 pandemic (wearing a mask etc.)

- If the patient is still in the infectious period of a COVID-19 infection, a visitor can only be allowed by prior agreement with the doctor and nurse in charge of the ward. Appropriate personal protective equipment (PPE) will have to be worn by the visitor
- The pregnant woman's partner may accompany her during her antenatal clinic visits, taking into account individual facility infrastructure. Remember that partner attendance at antenatal visits is an important opportunity to encourage and offer COVID vaccination for partners and planned birth companions
- NB: All recommendations are subject to local adaptation based on any directives issued by the Provincial DOH, taking into account the current COVID-19 pandemic situation (i.e. should differ depending on whether or not a current COVID-19 wave is being experienced). In addition, staffing and infrastructural constraints may influence individual facility policy

2.10. Where should pregnant women with possible or confirmed COVID-19 deliver?

- Pregnant women with confirmed COVID-19 infection should be managed at the appropriate level of care, as determined by the severity of their COVID-19 disease and her obstetric indications.
- 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 manage deliveries with asymptomatic or mild COVID-19 disease.
- Pregnant women with COVID-19 who need admission either because of obstetric problems or because of the severity of the COVID-19 should be managed within a designated section of the **maternity department, under the care of midwives and doctors competent in maternity/obstetric care,** rather than in a general COVID-19 ward, unless ICU care is required. Adequate **O_2 supply** and the equipment to deliver O_2 will be required within the maternity unit, as well as space to isolate the COVID-19 infected women (single or cohort isolation).
- For women with symptomatic COVID-19 disease, consider the availability of **continuous electronic fetal monitoring** at the delivery site. Symptomatic women may be at an increased risk of fetal compromise in active labour and caesarean birth and should be advised to receive intrapartum care and deliver in an obstetric unit with continuous electronic fetal monitoring. This is not required for asymptomatic infection (see Section 2.11.3).
- A multidisciplinary team should manage women with severe COVID-19 disease within specialised COVID-19 services (see Section 2.12).
- Senior obstetric and medical input for a woman with severe or critical COVID-19 should be sought, particularly for birth-related decisions.
- At every level of care, intrapartum care, delivery, and immediate postnatal care for confirmed COVID-19 cases and PUIs should be conducted in an appropriate **isolation room** by staff wearing appropriate PPE
- If a woman who delivers in a non-COVID-19 facility is found to be COVID-19 positive, she should be referred to a COVID-19 dedicated facility/ward based on the needs of the mother and baby.

2.11. What should the mode and timing of delivery be for women with possible or confirmed COVID-19?

- The timing and mode of delivery in pregnant women with COVID-19 should be individualised and based on the disease severity, obstetric indications, associated co-morbidities, complications, and gestational age.
- The multidisciplinary team should make an individualised assessment of the woman 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, fetal condition, potential improvement after elective delivery, and the pregnancy's gestation. The priority is always to stabilise the mother's condition first, as it is in other obstetric emergencies.

2.11.1 Timing of delivery

- COVID-19 infection is not an indication for delivery unless delivery is required for maternal resuscitation to improve maternal oxygenation or restore haemodynamic stability. Pregnancy may be continued if there is no imminent threat to maternal and fetal life.
- For women who are self-isolating because of possible COVID-19, an individualised assessment should take place to determine whether it is beneficial to delay a planned caesarean birth or induction of labour
- In asymptomatic/mild disease, delivery should be reserved for appropriate obstetric indications and should not be delayed/expedited solely due to COVID-19 positive status.
- In severe disease, a multi-disciplinary team should assess the situation to make a decision. Delivery is indicated if it is expected to improve maternal respiratory failure and optimise clinical status.
- If urgent delivery is indicated for fetal reasons, birth should be expedited as normal, as long as the maternal condition is stable.
- Where possible, it would be better to avoid labour and delivery until the woman has recovered from COVID-19

2.11.2 Mode of delivery

- The mode of delivery in pregnant women with COVID-19 should be **guided by obstetric indications** and the physiological stability of the women and fetus (cardiorespiratory status and oxygenation).
- The clinical team should discuss the mode of delivery with the woman and her family. Consideration should be given to her preferences and any obstetric or fetal indications for intervention.
- COVID-19 infection is not an indication for **caesarean delivery.** Women with COVID-19 infection should be allowed a normal vaginal delivery unless clear obstetric indications for caesarean section exist.
    - If the woman is critically ill with refractory hypoxemia, a caesarean section may be indicated for better management of respiratory failure and support.
- There is no evidence that **epidural or spinal analgesia or anaesthesia** is contraindicated in the presence of COVID-19.
- **Induction of labour** is not routinely indicated for women with COVID-19 but should be performed for appropriate obstetric indications. The decision to induce labour should involve an experienced obstetric doctor to ensure that the induction is indicated.
- Shortening the second stage by **assisted vaginal delivery** can be considered if the woman is exhausted or has respiratory distress.
- **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.
- **PPE and infection prevention control** measures should be adhered to at all times.

2.11.3 Should fetal monitoring for COVID-19 positive women be done during delivery?

- The frequency and suitability of fetal heart rate monitoring should be considered individually, considering the gestational age of the fetus and the maternal condition.
- For asymptomatic women or those with mild disease, standard fetal monitoring guidelines apply, taking into consideration any obstetric risk factors
- Women with symptomatic COVID-19 disease may have an increased risk of fetal compromise in active labour and caesarean birth. Women with symptomatic possible or confirmed COVID-19 disease should be advised to receive intrapartum care and deliver in an obstetric unit with continuous electronic fetal monitoring. This is not required for asymptomatic infection.
- In a woman with **severe** COVID-19 disease, the priority is stabilising the mother's condition. The presence of the fetal heart can be checked intermittently in such cases. This should be done after appropriate counselling of the patient and family.

2.12. Management of women with severe COVID-19 during labour

- Irrespective of whether COVID-19 has been confirmed yet or not, 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 by ambulance straight to a **specialised COVID-19 facility.**
- Women with severe disease should be managed by a **multidisciplinary team** consisting of a specialist obstetrician, specialist anaesthetist, specialist physician, midwife-in-charge, specialist neonatologist and neonatal nurse in charge and infectious disease specialist if available. When the woman is admitted to the designated labour ward, members of the multi-disciplinary team should be informed immediately.
- Regardless of the mode of delivery, all staff caring for the patient should use **appropriate PPE** and follow the infection prevention control guidances.
- 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. **Oxygen saturation should be maintained at >94%**, titrating oxygen therapy accordingly
- The presence of COVID-19 should not influence the **mode or timing of birth** unless the woman's respiratory or haemodynamic condition demands urgent delivery to improve oxygenation (see section 2.11.1 and section 2.11.2).
- **Instrumental delivery** to shorten the second stage of labour in a symptomatic woman who is becoming exhausted or has respiratory distress can be considered on an individual basis.
- **Delayed cord clamping** is still recommended following birth, provided there are no other contraindications.

2.13. Should women in labour be allowed to have a companion of their choice accompanying them during labour during the COVID-19 pandemic?

- Yes, one companion of the woman's choice is strongly recommended for every woman in labour, as long as the companion has been screened on arrival and is asymptomatic for COVID-19. Vaccination status should be checked, and vaccination encouraged in those who are unvaccinated.
- Prior testing of the companion for COVID-19 is not mandatory
- The companion must comply with infection prevention precautions, including those put in place because of the COVID-19 pandemic (wearing a mask, etc.).
- If the patient is still in the infectious period of a COVID-19 infection, a companion can only be allowed by prior agreement with the doctor and nurse in charge of the ward. Appropriate PPE will have to be worn by the companion.
- NB: All recommendations are subject to local adaptation based on any directives issued by the Provincial DOH, considering the current COVID-19 pandemic situation. In addition, staffing and infrastructural constraints may influence individual facility policy.

2.14. How should elective induction of labour (IOL) and caesarean sections (CS) be managed?

- All pregnant women who come to hospital for admission for non-emergency procedures (e.g. elective caesarean section or induction of labour) must be **screened for symptoms** suggestive of COVID-19 on arrival at the maternity unit admissions area.
- For those with symptoms, an **experienced maternity health care provider must assess** whether there are any urgent medical or obstetric reasons for admission, how long the elective procedure can be delayed, and what maternal and fetal monitoring is required if the procedure is delayed.
    - If it is safe to send the woman home, a COVID-19 PCR test should be done, the elective procedure **postponed**, and the woman can be sent home (or to an isolation facility) to isolate until the PCR results come back. The results can be communicated to the woman by phone.

  - The procedure can be provisionally rescheduled on day 8 after the onset of symptoms (when her 7-day isolation period is complete) but can be moved earlier if the **test result is negative** and her symptoms have resolved
  - If possible, women scheduled for elective caesarean sections or IOL who have a **positive COVID-19 test** should have the caesarean section, or IOL postponed until 8 days after the onset of COVID-19 symptoms

- In cases where elective caesarean delivery cannot safely be delayed (i.e. there is now an urgent or emergency need for caesarean section, do a COVID-19 test prior to admission as outlined in section 2.6, and follow the guidelines provided in section 2.15
- If labour induction cannot safely be delayed, do a COVID-19 test prior to admission as outlined in section 2.6, and follow the guidelines provided in section 2.10 and section 2.11
- Women should be admitted into an isolation room, in which they should ideally be cared for the entirety of their hospital stay.
- Healthcare workers should follow national recommendations on PPE use in clinical settings.

2.15. How should a caesarean section be conducted in a woman with COVID-19?

- **Platelet count** should always be checked in preparing for the CS, as thrombocytopenia may have implications both for the anaesthetic and surgery
- **Early warning** for the anaesthetist of an impending caesarean section is essential to facilitate the preparation of theatre and PPE
- Where possible, a **senior anaesthetist** should administer the anaesthesia. This aims to reduce theatre time, reduce the incidence of failed spinal anaesthesia, and potentially reduce aerosol generation during intubation if required
- Where possible, a **senior surgeon** should operate to reduce the risk of operative complications and prolonged surgery, and thereby reducing the incidence of conversion from spinal anaesthesia to general anaesthesia
- The number of staff in the operating theatre should be kept to a minimum
- The surgeon, surgical assistant, scrub nurse and midwife (receiving baby) should wear full PPE, including an N95 mask and goggles or visor (see Section 5.2)
- Anaesthesia for COVID-19 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 viral contamination of the theatre. If the anaesthesia machine is used either for a GA or the administration of supplemental oxygen, a hydrophobic filter should be used to prevent the machine from being contaminated with the virus (≤ 0.05 µm pore size)
- **Spinal anaesthesia remains the anaesthetic of choice** in the absence of contraindications. The patient should be wearing a surgical facemask for the duration of the perioperative period.
- The airway theatre trolley should be prepared for a GA where spinal anaesthesia is used. 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 sanitiser should be available. PPE should be donned before the initiation of spinal anaesthesia.
- Donning **full PPE is mandatory for tracheal intubation**; double glove if intubating the patient and remove the outer gloves once the endotracheal tube is secured.
- 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 the first-line approach. Avoid face mask ventilation unless needed.
- 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 minimise the unnecessary use of PPE (see Section 3.6)

2.15.1 What arrangements will the operating theatre have to make when a pregnant woman with COVID-19 requires a caesarean section?

- At facilities where infrastructure and staffing numbers allow it, COVID-19 and non-COVID-19 patients should be cohorted to two different operating theatre areas, with independent staff cohorts to reduce the risk of transmission. For full guidance on anaesthesia during the COVID-19 pandemic, including for caesarean section, please go to the South African Society of Anaesthesiologists website: https://sasaCOVID19.com/

2.15.2 What are the postoperative analgesic options post caesarean section delivery in women with COVID-19?

- A combination of paracetamol and an opiate should be routinely used as the first-line for postoperative pain relief in women with COVID-19.
- Local anaesthetic around the incision is an additional option.
- Non-steroidal anti-inflammatories may be used in the absence of other contraindications on an individual patient basis.

2.16. Should the woman's partner accompany the pregnant woman in theatre during caesarean section?

- This can be considered as long as the partner has been screened on arrival and is asymptomatic for COVID-19. Vaccination status should be checked, and vaccination encouraged in those who are unvaccinated.
- Due to the complex arrangements involved, the couple would have to make specific arrangements with the relevant doctor(s) and theatre team in advance, particularly if the woman is a confirmed COVID-19 case or PUI.
- NB: Any policy on partners attending the caesarean birth is subject to local adaptation based on any directives issued by the Provincial DOH, taking into account the current COVID-19 pandemic situation. In addition, staffing and infrastructural constraints may influence individual facility policy.

2.17. What is the discharge policy for women with possible or confirmed COVID-19?

- When a mother with confirmed, symptomatic COVID-19 and her baby are both fit for discharge, they can be discharged home as long as home circumstances allow the mother-baby pair's self-isolation. If this is not possible, referral to an alternative isolation unit may be necessary.
- After discharge, no further isolation is required if the mother has been asymptomatic throughout her infection, but standard infection control should be practised at home.
- For PUIs, every attempt should be made to obtain a COVID-19 test result before discharge to clarify isolation requirements post-discharge.
- The postnatal visit schedule should be arranged before discharge, taking into account the isolation period of the mother (if applicable).
- A senior team member should authorize discharge. On discharge, the mother with COVID-19 should 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.

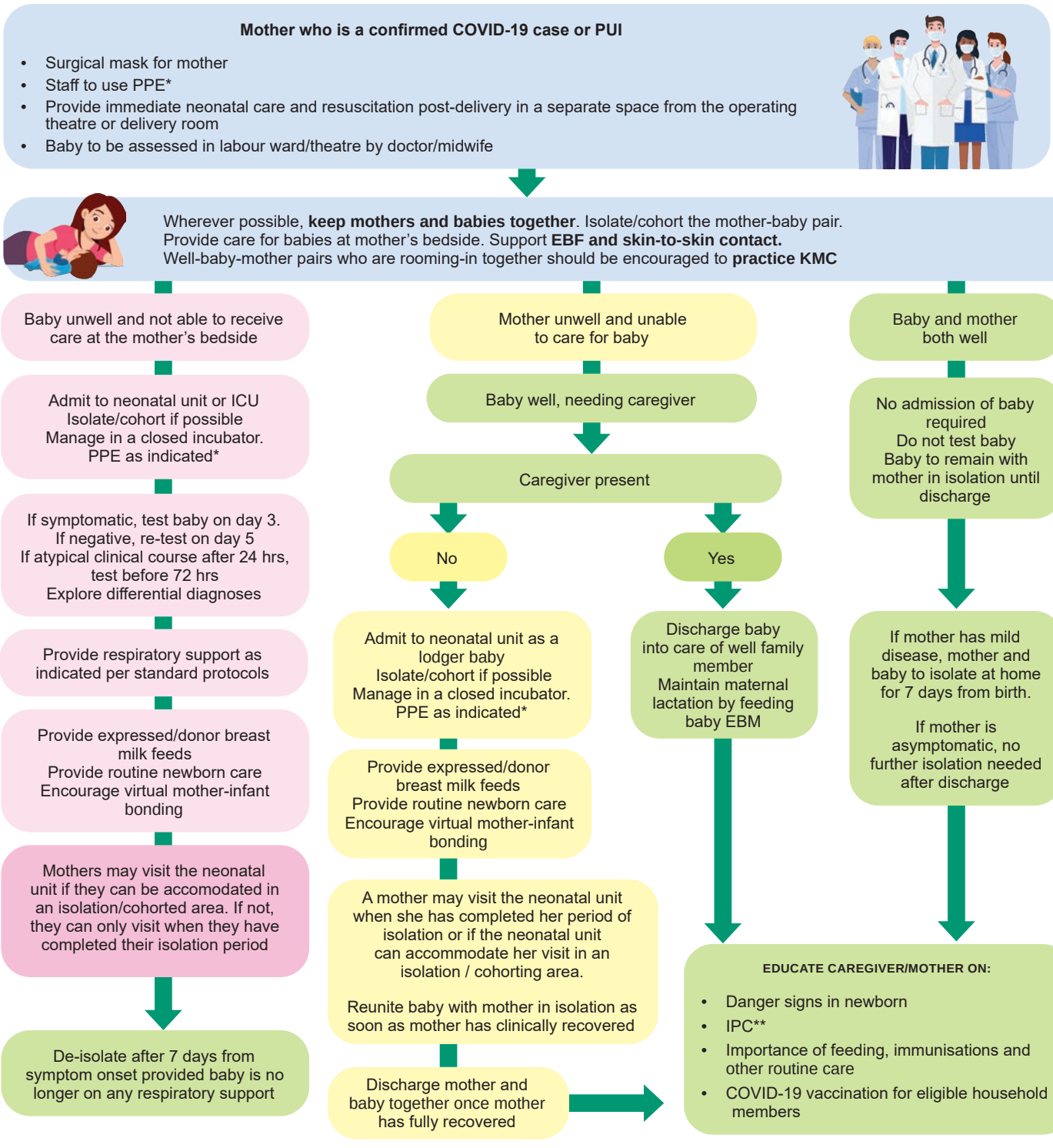
3. NEONATAL CARE

3.1. Summary of key recommendations

Box 7 Summary of key recommendations for neonatal care during the COVID-19 pandemic

- The presentation of COVID-19 disease may be **atypical** in neonates, and a high index of suspicion should be maintained. Only test the baby on day 3 if symptoms develop. If negative, retest on day 5.
- Wherever possible, **keep mothers and babies together**.
- Isolate/cohort the mother and baby as a pair, and provide care for the baby at the mother's bedside wherever possible.
- Support **exclusive breastfeeding** and **skin-to-skin** contact.
- Well-baby-mother pairs who are rooming-in together should be encouraged and empowered to **practice KMC**, emphasising good infection control.
- In all circumstances where a COVID-19 exposed or infected baby cannot be cared for at the mother's bedside and connot be discharged home, care should be provided in a **closed incubator with staff using appropriate PPE**. If space allows, these babies can be isolated or cohorted together.
- In all cases where the mother is not rooming-in with her baby and is not permitted to visit due to isolation, encourage, educate and assist mothers in **expressing breast milk** for her baby.

3.2. Overview of the management process for babies born to mothers with possible or confirmed COVID-19



Abbreviations:
EBF - Exclusive breastfeeding
EBM - Exclusive breast milk
ICU - Intensive Care Unit
IPC - Infection Prevention and Control
KMC - Kangaroo Mother Care
PPE - Personal Protective Equipment
PUI - Person Under Investigation

*PPE:
Standard PPE (Gloves, surgical mask, apron) is used by staff for routine patient care
Full PPE (Gloves, gown, hair cover, N95 ventilator, goggles/ visor) is used by staff during aerosol generating procedures

**IPC Routine IPC practices in the home include hand hygiene, regular cleaning of high-touch surfaces, social distancing and mask-wearing (in children over 5 years). Babies should not wear masks due to the risk of suffocation.

Figure 2 Overview of the screening, diagnosis, and management in neonates

3.3. How can COVID-19 in neonates be prevented?

- Maternal COVID-19 vaccination protects the neonate from acquiring COVID-19 disease. Transfer of protective antibodies may be potentiated if the mother receives the vaccine before the baby's birth.
- The COVID vaccination status of all mothers should be checked and documented, and unvaccinated mothers and mothers requiring vaccination boosters should be offered these as soon as they come into contact with the health service.

3.4. In neonates, what is the case definition for COVID-19 and which babies should be tested?

- The case definition for COVID-19 is the same as for children and adults (see Section 4.4). However, neonates may present without the typical influenza-like illness and do not usually have a fever. A high index of suspicion should be maintained in this group.

3.5. Which neonates should be tested for COVID-19?

- Only test for COVID-19 if the baby becomes symptomatic
- Consider testing babies with signs suggestive of neonatal pneumonia or sepsis (respiratory distress, temperature instability, apnoeas and/or signs of shock) or neonates who present atypically with clinical signs not easily explained by non-COVID-19 pathology, e.g. a preterm baby not following the normal course for respiratory distress syndrome.
- If the baby is symptomatic, test on day 3 and if negative, repeat on day 5 or at another time if clinically indicated.
- PCR testing for SARS- CoV-2 is the gold standard; nasopharyngeal (NPS) and/or oropharyngeal swabs (OPS) may be sent (nasopharyngeal swab is preferred).
- Tests done before 72 hours of age may give a false negative result.
- The value of repeat testing is not known. However, delaying and repeating a test reduces the false-negative rate.
- Neonates from home may present for medical care after initial discharge from the birthing facility. COVID-19 infection should be included in the differential diagnosis of any neonate presenting with acute respiratory disease, pneumonia or sepsis, particularly with known exposure to a confirmed COVID-19 case. On presentation, such neonates should be tested for COVID-19 and managed as potentially infected while awaiting COVID-19 results.

3.6. What is the immediate post-delivery management for any neonate born to a mother with possible or confirmed COVID-19?

- Where possible, neonatal staff should be given prior warning to prepare for the baby's delivery.
- Staff attending to the neonate should don appropriate PPE outside the theatre or delivery room as appropriate (see Section 5.2.1).
- Consider neonatal management and resuscitation in a side cubicle or space separate from the operating theatre or delivery room, if possible. This will reduce maternal exposure of the staff attending to the newborn and potentially minimise the unnecessary use of PPE as the greatest risk to staff is secondary to maternal exposure.
- Standard resuscitation guidelines are to be followed as per the Resuscitation Council of Southern Africa (RCSA).
- Senior presence at delivery is recommended to minimise unnecessary staff exposure, where possible.
- Delayed cord clamping for one minute is recommended for both preterm and term babies not requiring resuscitation.
- Preterm babies less than 32 weeks should be placed in a plastic bag without being dried and stimulated as per standard recommendations.

3.7. Should the mother and baby be separated if the mother has possible or confirmed COVID-19?

- There should be **no routine separation of mothers and babies**.
- Wherever possible, mothers and babies should be kept together, emphasising breastfeeding, kangaroo mother care (KMC), regular hand hygiene, and infection control practices, including maternal mask-wearing.
- If possible, the mother/baby pair should continue to occupy the same isolation room used during labour and delivery. In some medical facilities, the mother/baby pair may need to be transferred to an alternative postnatal isolation ward with appropriate postnatal and neonatal care. Follow local hospital guidelines.
- Any facility that conducts deliveries or admits newborns should provide a **postnatal isolation ward** for possible or confirmed COVID-19 positive mothers. This ward should enable rooming-in of well newborns with their mothers. All postnatal care, including additional interventions for the newborn that do not require admission, should be delivered at the mother's bedside in the postnatal ward.
- If either the mother or the baby is severely ill, separation may sometimes be necessary, with expressed breastmilk or donor breast milk feeding.

3.8. What are some unavoidable situations whereby the mother/baby pair may need to be separated after birth?

3.8.1 If the severity of the mother's clinical condition prevents care of the baby at the mother's bedside:

- Severe medical or psychiatric illness may prevent a mother from caring for her baby at her bedside, e.g., maternal encephalopathy, haemodynamic instability and/or severe respiratory distress requiring advanced respiratory support and high care or intensive care unit admission.
- Mothers who are mildly ill requiring oxygen via face mask or nasal cannula can adequately care for their babies and should be supported and encouraged to do so with the assistance of nursing staff.

3.8.2 If the severity of the baby's clinical condition prevents care at the mother's bedside:

- Premature babies < 34 weeks gestational age or < 1800 grams often have an immature suck reflex. For this reason, they may require neonatal unit admission for nasogastric or orogastric tube feeding and/or the initiation of a respiratory stimulant (e.g. caffeine) to reduce apnoea risk, even if they are clinically well. Follow local guidelines for birth weight and gestation age limits at which routine neonatal unit admission is required.
- Term and preterm babies with respiratory distress requiring any form of respiratory support such as nasal prong oxygen, high flow nasal cannula (HFNC), continuous positive airway pressure (CPAP) and ventilation.
- Babies with recurrent severe hypoglycaemia (blood glucose `≤ 1.7 mmol/L).
- Babies who require intensive care admission.
- Babies with severe congenital anomalies, e.g., congenital diaphragmatic hernias and congenital cardiac lesions.
- Babies with neonatal encephalopathy and/or intrapartum hypoxia requiring observation and/or the initiation of therapeutic hypothermia.

3.8.3 Relative indications for admission that may prevent the baby from receiving care at the mother's bedside:

- Follow local hospital guidelines for managing common newborn conditions while making every effort to provide newborn care at the bedside and **keep mothers and babies together.**

- **Antibiotics and glucose monitoring:** Late preterm and term babies who are clinically well but require antibiotics may receive antibiotics at the mother's bedside if hospital policy allows. The same applies to low birth weight babies, infants of diabetic mothers, or large for gestational age babies requiring regular glucose monitoring. Some obstetric units may be unable to provide antibiotics or glucose monitoring at the mother's bedside, in which case neonatal unit admission may be needed.
- **Phototherapy for neonatal jaundice:** Well babies requiring phototherapy may be adequately managed at the bedside without separating them from their mothers.

3.9. What is the feeding policy for neonates born to mothers with possible or confirmed COVID-19?

- Wherever possible, rooming-in is recommended for the well-baby-mother pair. **Exclusive breastfeeding should be encouraged and supported.** In all cases, formula feeding should only be a last resort, with this being even more important in HIV-exposed infants (avoidance of mixed feeding if at all possible).
- Separation of the mother-infant pair negatively affects breastfeeding and bonding, and all possible measures should be considered to enable a mother to breastfeed her infant admitted in the neonatal unit.
- Mothers with confirmed or suspected COVID-19 whose infants are admitted in the neonatal unit may be allowed to visit to breastfeed and practice skin-to-skin under the following conditions:
    - The infrastructure within the neonatal unit allows the mother to breastfeed her baby in an isolation cubicle without putting others at significant risk, and
    - The mother adheres to infection control practices, including mask-wearing, hand-washing, breast hygiene, etc.
    - The mother's clinical condition allows her to breastfeed
- If infrastructure in the unit does not allow the mother to breastfeed her baby in an appropriate isolation cubicle, the mother may only visit the neonatal unit when she has completed her 7 day isolation period (5 days if she was asymptomatic throughout).
- **In all cases where the mother is not rooming-in with her baby and is not permitted to visit due to isolation, encourage, educate and assist mothers in expressing breast milk in a sterile manner;** expressed breast milk may be delivered to the neonatal unit in a sterile jar or container by a well family member who is not currently in isolation, or a member of staff if the mother is still admitted to the hospital.
- Visiting policies should take into consideration whether or not a COVID-wave is occurring or not.
- Donated expressed breast milk (DEBM) may be given with parental consent as dictated by local institutional protocols.
- All women expressing breast milk should wash their hands before expressing. Women using dedicated breast pumps or milk cups should follow recommendations for breast pump cleaning after each use. All equipment used for expressing milk should be rinsed in clean, running water before sterilising. A well staff member can feed the expressed breast milk to the baby after the mother decants the milk from her container into a clean container to prevent transmission via the surface of the container.
- Support mother to re-lactate/resume breastfeeding when reunited with her baby.

3.10. Should Kangaroo Mother Care be practised in neonates born to mothers with possible or confirmed COVID-19?

- In general, well-baby-mother pairs who are rooming-in together should be encouraged and empowered to **practice KMC**, emphasising good infection control.
- KMC should occur in a postnatal isolation ward until the mother has completed her period of isolation.
- These infants do not need to be nursed in an incubator if they remain isolated with their mother. They can be in a crib next to the mother's bed when not doing skin-to-skin.
- All mothers should use a **surgical mask and practice hand and breast hygiene** (see Section 3.9).
- Follow local guidelines for KMC practises in COVID-19 exposed or infected mothers.

3.11. What is the management for mother and infant pairs in lodger facilities or Kangaroo Mother Care (KMC) during a pandemic situation?

- It is recommended that mother lodger facilities and KMC units remain open during the pandemic.
- Follow local guidelines regarding criteria for which mothers are admitted to the lodger/boarder facility or KMC ward.
- COVID-19 vaccination status of all mothers in the KMC ward and mother lodger facilities should be checked and documented. Unvaccinated mothers and mothers requiring vaccination boosters should be offered these.
- The following actions are recommended:

    - Enforce appropriate spacing between beds in the boarder mother's lodge to 1.5-2m;
    - Enforce strict hand hygiene amongst boarders - handwashing or use of alcohol-based hand rub (ABHR);
    - Enforce the wearing of face masks by all boarders at all times except when bathing, eating or sleeping;
    - Stagger meal times to limit close contact when not wearing masks;
    - Restrict their movement to walking between their accommodation and their child's ward;
    - Avoid unnecessary interaction with other patients (including other people's babies);
    - Pay close attention to ventilation (e.g., opening of windows). Encourage spending time outdoors if safe and feasible;
    - Identify a mother's champion to orientate new lodgers and oversee implementation of and compliance with the above measures;
    - Implement 12 hourly symptom screening of all boarders – in or outside the mother's lodge.

3.11.1 What is the management of a mother in lodger facilities or Kangaroo Mother Care (KMC) who screens positive for COVID-19?

- Mothers who screen positive for COVID-19 symptoms should all be tested. A rapid antigen test can be of value to speed up the process. It adds value if the test is positive, but negative rapid tests should be confirmed with a PCR test.
- Mothers (PUIs and confirmed cases) cannot be re-admitted into the general KMC ward or lodger facility. They need to be separated from uninfected persons.
- Options for isolating/cohorting PUIs until their results become available are as follows (in order of preference):

    - Isolation of a PUI in hospital in a single room if the facility allows, or
    - Cohorting of PUIs a separate KMC ward, emphasising strict infection control practices.
    - Isolation at home if the facility cannot accommodate her.

- Options for isolating/cohorting confirmed cases are as follows (in order of preference):

    - Cohorting of any mother-infant pairs with confirmed infection together in a separate KMC ward, emphasising strict infection control practices, or
    - Isolation of the mother-infant pair in hospital in a single room if the facility allows, or
    - Isolation of the mother at home if the facility cannot accommodate her.

- Mothers who are PUIs or confirmed cases and who require hospital admission for their clinical condition will need to be isolated and managed as per guidelines for the maternal admission ward area (See section 2.6)
- Mothers who test negative using a PCR test may be re-admitted to the lodger facility provided they are asymptomatic and well.
- Mothers who test positive for COVID-19 may be re-admitted to the lodger facility/non-COVID KMC ward when they have completed their 7 day period of isolation (5 days if asymptomatic throughout) (see section 2.7).
- See Section 2.7.1 for the period of isolation in mothers who test positive for COVID-19 and are unwell for more than 7 days in hospital.

3.11.2 What is the management for babies admitted in KMC with their mothers and whose mothers screen positive for COVID-19?

- Babies who are well and ready for discharge may be discharged home with their PUI mother. Both mother and baby will isolate at home while awaiting maternal test results.
- Babies of PUI mothers who are not ready for discharge or situations whereby the mother requires admission and is too unwell to care for her baby will need admission to the neonatal unit:
  - Isolate/cohort if possible.
  - Manage baby in a closed incubator with standard PPE for the duration of the baby's isolation (currently 5 days).
- Do not test the baby for COVID-19 if the baby is well. Test only if the baby develops signs of COVID-19.
- The mother-baby pair can be re-admitted to the KMC ward when the mother has completed her 7 day period of isolation, pending the mother's clinical condition and ability to care for her infant and the baby having no symptoms.

3.11.3 What is the management for mothers and babies admitted to KMC who are exposed to a mother who screens positive for COVID-19?

- All well mothers and well mother/baby pairs admitted in the same room or cubicle as a mother who screens positive for COVID-19 should be **cohorted together if the facility allows** while awaiting the results of the mother who screened positive.
- Alternatively, they can be **discharged** home, provided their babies are ready for discharge and the mothers screen negative for COVID-19.
  - Contact numbers should be taken for all discharged mothers and babies to communicate results and for clinical follow-up
  - Education should be given regarding hand hygiene, mask-wearing and general danger signs.
- If any babies of the mother/baby pairs rooming in with the mother who screened positive for COVID-19 are **not ready for discharge,** and the facility does not allow for isolation/cohorting of the mother-infant pairs, discharge the mother only and **isolate the baby** (see section 3.11.2) while awaiting the result of the mother who screened positive for COVID-19. Potentially exposed babies may be cohorted together.
- If the mother who screened positive tests negative for COVID-19, all other mothers and mother/baby pairs may be re-admitted to the lodger facility or KMC ward, provided they are well and asymptomatic.
- Should the screened mother test positive for COVID-19, all mother/baby pairs and mothers already discharged should be contacted regarding the results and educated regarding symptoms of COVID-19.
- Mother/baby pairs may be re-admitted to the lodger facility/KMC ward after 5 days, provided they have not developed any symptoms.

3.12. How and where should babies born to mothers with possible or confirmed COVID-19 at the time of delivery be managed?

Transmission of SARS-CoV-2 infection to newborns generally occurs horizontally through close postnatal contact with a mother (or other caregiver) who has COVID-19 and not through in-utero vertical transmission.[9]

3.12.1 Well babies or mildly ill babies able to receive care at the bedside with well mothers able to care for their babies

- The baby should **remain with the mother in isolation.**
- Do not admit the baby to the neonatal unit unless other compelling indications exist.
- Wherever possible, administer any treatment at the mother's bedside (to avoid admission).
- Encourage **skin-to-skin contact and breastfeeding**.
- Provide routine newborn care.
- Do not test baby for COVID-19 if the baby is well.
- Staff to use **standard PPE** while caring for the mother-baby pair.
- The baby should be discharged with the mother as soon as possible with education regarding general **danger signs** (respiratory distress/fever) and **referral pathways** for where to present should she or the baby become unwell.
- Advise the **mother to adhere to strict infection control practices** (hand hygiene, cough etiquette and mask use) while caring for her baby and especially while breastfeeding. Other family members should ideally avoid coming close to or touching the baby until this period is over.
- Provide mothers with advice regarding the importance of breastfeeding, immunisations, and routine newborn care.
- If the mother was symptomatic at any point during her infection, the mother and baby should isolate at home for seven days from birth. If the mother was asymptomatic throughout her infection, no further isolation is required after discharge, but she should continue standard infection control practices.

3.12.2 Well baby, needing a caregiver, whose mother is unwell and no alternate caregiver is available

- Admit to the neonatal unit PUI ward (if available) as a **lodger baby.**
- **Isolate/cohort** if possible.
- Transfer to admission ward and **manage in a closed incubator with standard PPE** for the duration that the baby requires isolation (currently 5 days).
- If baby needs referral to another hospital with mother, transport in a closed incubator with staff using standard PPE.
- The baby should receive **standard postnatal care.**
- **Do not test baby for COVID-19** if the baby is well.
- Test only if the baby develops signs of COVID-19.
- A mother may only visit the neonatal unit when she has completed her period of isolation or if the neonatal unit can accommodate her visit in an isolation/cohorting area
- Follow local hospital visiting policy for other visitors to the neonatal unit.
- Maintain and encourage **virtual infant-mother bonding** through daily communication (video/telephonic).
- Encourage the mother to **express breast milk** using standard precautions; breast milk can be delivered by a well family member or staff member or source donor breast milk if possible. The use of formula milk should be a last resort, especially in HIV-exposed infants.
- If a well **caregiver** becomes available, the baby can be discharged into their care with education regarding general danger signs (respiratory distress/fever > 38^{o}C) and referral pathways for where to present should the baby become unwell. See Appendix 5.
- If the mother clinically recovers before 7 days from symptom onset, the baby may be transferred back to her in isolation in the postnatal ward. Staff should use standard PPE as indicated.
- **Support the mother to re-lactate/resume breastfeeding** when reunited with her baby. This is crucial for bonding and infant nutrition, and should receive intensive clinical support from the staff.
- If possible, the mother and baby should be discharged together once the mother has fully recovered.
- If a baby who has tested positive for COVID-19 is discharged before their seven-day isolation period is complete, both the mother/**caregiver and baby should isolate at home for seven days from the baby's symptom onset.**

3.12.3 Unwell baby born to a COVID-19 positive mother or PUI needing admission or any baby needing care that cannot be safely provided at the the mother's bedside

- Admit all very sick babies or any premature or low birth weight baby needing admission for additional care that cannot be provided at the mother's bedside (see Section 3.8).
- **Isolate/cohort** if possible.
- Transfer to admission ward and **manage in a closed incubator with PPE** as indicated, for the duration that the baby requires isolation. If baby needs referral to another hospital with mother, transport in a closed incubator with staff using PPE as indicated.
- **Only test for COVID-19 if the baby meets the case definition**
- If case definition is met, test on day 3 and if negative, repeat on day 5 or at another time if clinically indicated (see section 3.5).
- If the clinical course is atypical after 24 hours of birth (e.g., preterm baby not following the normal course for respiratory distress syndrome or late preterm/term baby not following the normal course for transient tachypnoea of the newborn), then consider testing before 72 hours of age, with repeat testing on day 5 if negative.
- Provide **routine newborn care.**
- **Explore differential diagnoses** and manage according to standard neonatal guidelines. This includes indications and use of nasal CPAP/IPPV if required.
- If in respiratory distress, treat any other respiratory pathology as per standard guidelines.
- **Staff to use PPE as indicated** with an N95 mask for AGPs.
- Mothers may visit the neonatal unit if they can be accommodated in an isolation/cohorted area. If not, they can only visit when they have completed their 7 day isolation period (see Section 3.16).
- If the mother is discharged but still within the 7 day isolation period from symptom onset (or 5 days if asymptomatic throughout) and no isolation lodger facilities exist, the mother should continue self-isolation at home. She may visit and breastfeed her baby after her isolation is complete.
- See Section 3.17 for discharge planning, advice on infection control and breastfeeding support for mothers.

3.12.4 Unwell baby with possible COVID-19 or confirmed infection needing intensive care or special care

- **Routine neonatal criteria for admission** to the neonatal unit/NICU will apply.
- All exposed and infected babies requiring admission to the neonatal unit should be nursed in a **closed incubator** for the entire duration that the baby requires isolation and while on any form of respiratory support (see Section 3.15).
- The preferred option is for newborns requiring a closed incubator to be cohorted together or be admitted to an isolation cubicle if available, although this does depend on available capacity.
- Staff caring for babies born to mothers with possible or confirmed COVID-19 should use **standard PPE.**

3.13. What is the specific management of neonates confirmed COVID-19 positive?

3.13.1 Asymptomatic neonates who test positive for COVID-19:

- Well babies born to mothers with possible or confirmed COVID-19 should remain with their mother in isolation until discharge. However, some babies may require admission for non-COVID-19 related reasons, including elective surgery. In these circumstances, asymptomatic babies may test positive for COVID-19 on routine screening tests done at the time of admission.

- The baby will require isolation for 5 days from the positive test result.
- If it is not possible for the baby to be nursed at the mother's bedside, manage the baby in a closed incubator with PPE as indicated for the entire isolation period, which is 5 days from the positive test.
- After 5 days, the baby may be de-isolated and nursed in an open cot.

3.13.2 Sick/admitted neonates who test positive for COVID-19

- Admit all very sick babies or any premature or low birth weight baby needing admission for additional care that cannot be provided at the bedside (see Section 3.8).
- Nurse these babies in a closed incubator with PPE for 7 days from symptom onset or longer if symptoms persist and while the baby remains on respiratory support.
- Admit into an isolation cubicle or a cohorted area if possible.
- There are currently no specific treatment modalities for COVID-19 infection in babies.
- Clinical investigations should be kept to a minimum.
- Treat and manage associated diagnoses as per standard treatment guidelines.
- When respiratory support is required, consider methods to reduce viral spread into the neonatal unit, including placing the expiratory limb of the CPAP into the incubator.
- If the baby is on a ventilator, the use of closed-loop suctioning is encouraged.

3.14. How should a baby in the neonatal unit be managed who has had postnatal contact with a clinically possible or confirmed case of COVID-19 (other than the baby's mother)?

- Postnatal contact is defined as physical contact (within 1 metre) of at least 15 minutes duration with any person who develops possible or confirmed COVID-19 within the following 24 hours.
- Nurse the baby in a **closed incubator** and observe for signs of respiratory distress or other features that might suggest neonatal COVID-19 for the next 5 days or until discharge, whichever occurs first.
- If the baby develops clinical signs, test for COVID-19
- If the source patient tests positive for COVID-19, and the baby remains asymptomatic, the baby can be de-isolated after 5 days and may then be nursed in an open cot, weight and gestational age permitting.
- If the source patient is negative and the result is accepted as such, continue routine newborn care; the baby can be de-isolated and may be nursed in an open cot, weight and gestational age permitting.

3.15. When can admitted babies who tested positive for COVID-19 or are exposed to COVID-19 de-isolate and/or move out of a closed incubator?

- All babies should be managed in a closed incubator for the entire isolation period, after which they may be de-isolated and/or moved into an open cot if appropriate for weight and gestational age.
- **Exposed babies:** If the source patient tests positive for COVID-19 and the baby remains asymptomatic, the baby can be de-isolated 5 days after the exposure to the confirmed case.
- **Asymptomatic babies:** Babies can be de-isolated 5 days after the positive test result
- **Symptomatic babies:** De-isolate 7 days after symptom onset, provided the baby is no longer on any respiratory support.

3.16. When can mothers with COVID-19 infection visit the neonatal unit?

- Separation of the mother-infant pair negatively affects breastfeeding and bonding, and all possible measures should be considered to enable a mother to breastfeed her infant admitted in the neonatal unit.
- Mothers with confirmed COVID-19 whose infants are admitted in the neonatal unit may be allowed to visit to breastfeed and practice skin-to-skin under the following circumstances:

- The infrastructure within the neonatal unit allows the mother to breastfeed her baby in an isolation cubicle or cohorting area without putting others at significant risk, and
- The mother adheres to infection control practices, including mask-wearing, hand-washing, breast hygiene, etc.
- The mother's clinical condition allows her to visit her baby.

- If infrastructure in the unit does not allow the mother to breastfeed her baby in an appropriate isolation cubicle/cohorting area, the mother may only visit the neonatal unit when she has completed her 7 day isolation period from symptom onset (if symptomatic) or 5 days from her positive test result (if asymptomatic).
- Mothers with moderate to severe COVID-19 disease who are symptomatic for longer than seven days from symptom onset will need to continue isolation until seven days from when they no longer require oxygen.
- The COVID vaccination status of all mothers visiting the neonatal unit should be checked and documented, and unvaccinated mothers and mothers requiring vaccination boosters should be offered these.

3.17. What is the discharge policy for neonates born to women with possible or confirmed COVID-19 infection?

The following recommendations apply to babies who test positive for COVID-19 and those who are exposed to COVID-19:

- Babies can be discharged once well and if they meet the discharge criteria as per local hospital guidelines.
- Be aware that certain investigations may be restricted or difficult to perform once the baby is discharged and particularly if the mother and baby are still in their isolation period; therefore, where possible, investigations and tests should be performed before discharge from the maternity or neonatal unit.
- All babies born to COVID-19 positive mothers should have **follow-up and ongoing surveillance** after discharge.
- Follow-up will be based on the severity of illness and associated co-morbidities as per neonatal unit protocol for high, medium and low-risk babies.
- Family members should be educated about the steps to take **to reduce the risk of transmission to the baby** (reduce social contact, emphasise handwashing and mask-wearing, COVID-vaccination of household members), and the important interventions to prevent other diseases should be optimised (e.g. immunisations and breastfeeding).
- **Educate the mother regarding danger signs** (e.g., fever, respiratory distress) and how, when and where care should be accessed should the baby get sick. See Appendix 5.
- Family members should be advised to first seek telephonic advice if possible before entering a health facility; provide mothers with the necessary contact information on discharge.
- Continue to **encourage and support breastfeeding**
- Mask wearing of neonates should be discouraged.

3.18. What is the immunisation policy for neonates with possible or confirmed COVID-19 infection?

- Continue immunisations as per the South Africa Expanded Programme of Immunisations (EPI) at chronological age.
- There are no contraindications to vaccinations as per the routine EPI schedule.
- Currently, newborns are not being vaccinated against COVID-19; the emphasis should be on actively encouraging mothers and all other household contacts eligible for vaccination to be vaccinated.

3.19. Visiting policy during the pandemic for well mothers whose neonate required admission and where mother-infant separation is not due to COVID-19

- This section applies to mother-infant pairs separated due to neonatal illness requiring admission, but the cause of separation is not COVID-19.
- It is recommended that maternal access to the neonatal unit is not restricted during the pandemic.
- Mothers require a negative symptom screen for COVID-19 before being allowed access to the neonatal ward.
- Mothers should be supported to visit the neonate as regularly as possible (at least once daily) to encourage bonding, practice KMC and breastfeeding.

4. CARE OF THE CHILD WITHIN THE CONTEXT OF THE COVID-19 PANDEMIC

4.1. Summary of key recommendations for children

Box 8 Summary of key recommendations for children during the COVID-19 pandemic

- The clinical manifestations and management of COVID-19 in children are very similar to those in adults.
- For any symptomatic child, remember to consider alternative diagnoses.
- Continue to provide routine care, focusing on nutritional support, stimulation and love, and acute care for minor and major ailments as required.
- Childhood is a period of physical, psychological and social vulnerability and newborns and children are not little adults. Illness and admission to hospital are traumatic events with the potential for physical, emotional and social harm to young children. To minimise the possibility of such harm, health services for children need to be separate from those for adults with child-friendly facilities, staff and systems.
- In the context of the COVID-19 pandemic, health facilities need to make provision for three (3) categories of children within the service:
  - Non-COVID-19 children (negative COVID-19 test);
  - COVID-19 infected children (positive COVID-19 test);
  - Possible COVID-19 infected children (unknown COVID-19 status – PUI).
- Within the current COVID-19 pandemic context, every child must be screened for COVID-19 symptoms at every encounter with the health service, and those who screen positive, as well as every child who is admitted, must be tested for COVID-19.
- COVID-19-vaccination history of the child (if applicable) and all household members should be sought and documented in the clinical notes.
- Provision must be made to ensure that children admitted to hospital have uninterrupted access to their primary caregiver, especially during the COVID-19 pandemic.

4.2. Overview of the screening, testing, and management process in children

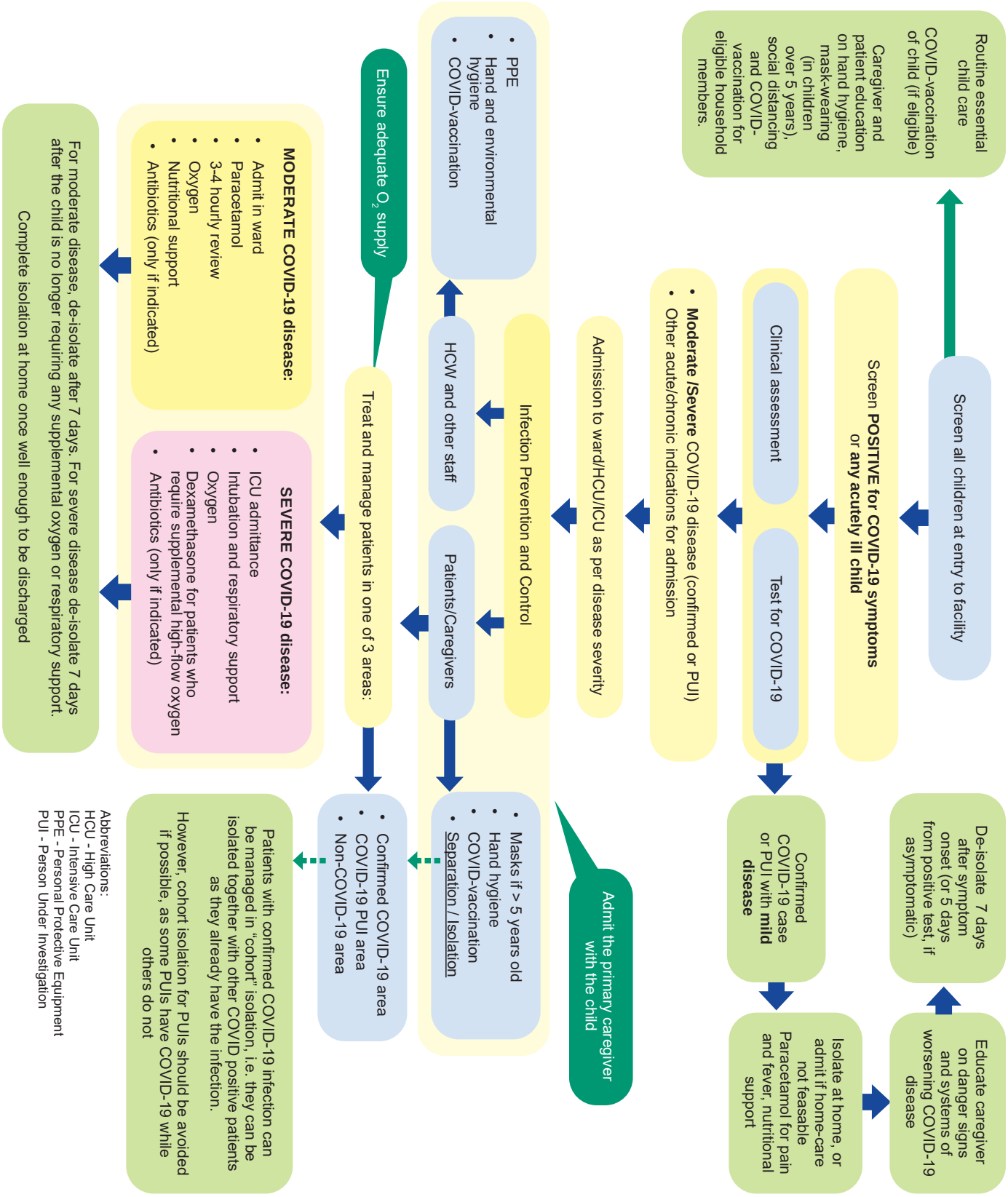


Figure 3 Overview of the screening, diagnostic and management process in children

4.3. How can COVID-19 infection in children be prevented?

- COVID-vaccination should be promoted for children eligible under the national COVID-vaccination programme, as well as all eligible household members.
- Ensure environmental hygiene, including opening of windows and disinfection of high-touch surfaces
- Promote appropriate IPC practices, including
  - hand hygiene (water and soap preferred);
  - masks for children over five years of age;
  - respiratory etiquette;
  - social distancing.
- Continue to address the child's holistic needs in terms of HIV status, TB risk, nutritional assessment, immunisations as per routine EPI schedule, Vitamin A, deworming, etc.

4.4. What is the COVID-19 case definition in children?

Definition: Possible COVID-19 case

- Any **symptomatic** child presenting with an acute (≤10 days) respiratory tract infection or other clinical illness compatible with COVID-19. Symptoms include ANY of the following symptoms:
  - Cough;
  - sore throat;
  - shortness of breath, anosmia (loss of sense of smell) or dysgeusia (alteration of the sense of taste);
  - gastrointestinal symptoms such as diarrhoea or abdominal pain;
  - these symptoms may occur *with or without* other symptoms, such as fever > 38°C, weakness, or myalgia.

Children with confirmed COVID-19 likely acquired the infection at home or in the community, most commonly from their mother/primary caregiver or other close contacts.

An infected child (or neonate) may be infectious and can transmit the infection to their household, other contacts, as well as to other users of health services.

4.5. How should children be screened for COVID-19?

Screening is the process of identifying children and newborns who meet the COVID-19 case definition. These children may have COVID-19 and need to be tested.

Promoting appropriate IPC practices for clients and staff in the screening area is essential, as described above in section 4.3.

Within the current COVID-19 pandemic context (especially during COVID-19 waves), the following children need to be screened:

- Every child attending any health facility as an outpatient or inpatient. Screening should occur at the point of entry to the facility
- All children present during routine household visits by a community health worker (CHW) or community testing

Children who **screen negative,** i.e. have **no clinical symptoms** suggestive of COVID-19 should receive other care as per their clinical condition and routine age-appropriate care as outlined in the Road-to-Health book (RTHB).

Children who **screen positive** should be:

- Given a surgical mask, provided they are over 5 years of age;
- Moved to a designated PUI/COVID-19 area in the PHC clinic or hospital;
- Assessed and managed in that designated area
- Tested for COVID-19, as explained in section 4.6 below.

4.6. Which children should be tested for COVID-19?

- Every child who screens positive for COVID-19, i.e. is **symptomatic** should be tested for COVID-19. These children become "persons under investigation" (PUI).
- Many children with COVID-19 will have no respiratory symptoms or fever. Therefore, clinicians should consider COVID-19 in all **acutely ill patients**, especially those requiring admission.[7] Children presenting with new-onset diabetes mellitus and/or diabetic ketoacidosis should also be tested for COVID-19.

4.7. Which test should be used to test for COVID-19 disease?

- A SARS-CoV-2 antigen rapid diagnostic test (Ag-RDT) should be done if available. Although less sensitive than a PCR test, they can rapidly confirm the diagnosis if positive.
  - Ag-RDTs are likely to perform well within the first 5-7 days of illness when viral loads are high.
  - Patients presenting more than 5-7 days after illness onset are likely to have lower viral loads, and false-negative results may occur.
- If the clinical picture continues to suggest COVID-19, or if the patient is presenting more than 5-7 days after illness onset, a negative Ag-RDT result should be followed up by a PCR test.
- Post-mortem COVID-19 testing should be done, as per current Department of Health guidance.
- See also section 5.1 Testing for COVID-19

Early diagnosis and appropriate supportive management improve the outcomes of COVID-19 infected individuals and allow for isolation of infected cases. Early testing is therefore important.

4.7.1 While waiting for the COVID-19 test results:

- If available, place the child in an isolation room/**separate** area in the outpatient department (OPD) or emergency centre (EC)
  - If a separate area is not available, keep apart from other patients
  - Ensure appropriate IPC practices for clients and staff as described in section 4.3
- **Assess the severity** of the child's respiratory disease and classify it as mild, moderate or severe (see section 4.8)
- Until the test result is available, **manage the child as a possible COVID-19 case** (PUI) and according to the severity of their disease:
  - Children with asymptomatic or mild disease can isolate at home if the home circumstances allow; if not, they should be admitted to the "possible COVID-19" area in the children's ward;
  - Children with moderate disease need to be admitted to the "possible COVID-19" area of the children's ward;
  - Children with severe disease need to be admitted to the "possible COVID-19" area of the paediatric intensive care unit (PICU) or high care unit (HCU) as outlined in section 4.13. Possible COVID-19 infection, including the period awaiting COVID-19 test results, should never constrain or delay the admission of children to ICU or HCU if the severity of their clinical condition warrants this. All PICUs and HCUs need to find ways to safely accommodate children without COVID-19 infection, with possible COVID-19 infection and with proven COVID-19 infection.
- Systems should be established to **fast track the processing of laboratory tests** for children with possible COVID-19 who are classified as having severe disease.
- Ensure that the results are checked and provided to the child's family.

4.7.2 Children who test negative for COVID-19

- Symptomatic children cared for at home who test negative for COVID-19 (i.e. the cause of symptoms is likely due to an alternative diagnosis) should receive ongoing routine care.
- Admitted children who test negative for COVID-19, may be moved to the general ward while continuing strict IPC practices and symptom monitoring.

4.7.3 Children who test positive for COVID-19

- If either the SARS-CoV-2 antigen test or the PCR test is positive, the child is managed as a confirmed case and according to the severity of their disease (see section 4.8)

Box 9 Which children require quarantine or isolation and for how long?

Quarantine:

- Persons who had no symptoms of COVID-19 but were in close contact with someone with confirmed COVID-19 (during their infectious period) were previously expected to quarantine. However, a history of close contact is no longer regarded as an indication for quarantine or testing as long as the person remains asymptomatic. The focus in those exposed to COVID-19 should be on monitoring for symptoms and complying with infection prevention measures including mask wearing, regular hand washing/sanitising, and social distancing.

Isolation:

- Any child who has tested positive for COVID-19;
- The duration of isolation depends on the individual child's condition:
  - Asymptomatic child not requiring admission: no isolation period if an outpatient
  - Asymptomatic child admitted to hospital: cohorting with enhanced precautions, including mask-wearing (if child > 5 years old) and social distancing, are required for 5 days from the positive test result
  - Child with mild disease - 7 days from onset of symptoms;
  - Child with moderate or severe disease - 7 days after they are clinically stable, i.e., after they no longer need oxygen.

Isolation is currently recommended for 7 days. Due to the ever-evolving body of knowledge on the Corona virus and the pandemic, these recommendations may change in the future. HCWs should be sure to align the isolation period with the most recent national guidelines.

4.8. How is the severity of a child's COVID-19 determined?

As per the criteria in Table 1, each child should be assessed clinically and classified as either mild, moderate, or severe disease.

Only one of the qualifying criteria is needed to classify a child as having moderate or severe disease.

NB. Visualisation of the oropharynx (during routine ear, nose and throat [ENT] examination) should be minimised, and if required, should be performed with the healthcare worker in PPE.

Table 1 Classification of mild, moderate and severe COVID-19 disease

	Mild	Moderate	Severe
Mental status	Normal	Restless	Irritable/lethargic
Feeding	Finishes feed	Does not finish feed	Unable to feed
Talking	Full sentences	Interrupted sentence	Unable to talk
Respiratory rate /min	<40/min if < 1yr <30/min if 1 – 5 years <20/min if over 5 years	40-60/min if < 2 months 40-50/min if 2 – 12 months 30-40/min if 1 – 5 years 20-30/min if over 5 years	>60/min if < 2 months >50/min if 2 – 12 months >40/min if 1 – 5 years >30/min if over 5 years
Respiratory signs	No distress	Chest wall indrawing	Grunting and/or severe chest wall indrawing
Pulse oximetry (SpO_2)	≥95% in room air	<92% in room air	<92% in room air Central cyanosis

4.9. How does the severity of a child's COVID-19 disease influence the level at which they should receive care?

- Children with asymptomatic or mild disease can isolate at home when home circumstances allow; if not, they should be admitted to the "confirmed COVID-19" area in the children's ward.
- Children with moderate COVID-19 disease need to be admitted to the "confirmed COVID-19" area of the children's ward (see below for admitted children). Admitted children must be assessed daily and should be referred to the next level of care if any of the following features are present:
  - Requires FiO_2 >0.6;
  - Clinical deterioration;
  - Evolving multisystem disease:
    - Skin rash or conjunctivitis;
    - Hypotension or shock;
    - Myocardial dysfunction;
    - Neurological involvement;
    - Gastrointestinal involvement;
    - Coagulopathy -↑PT, PTT or D-dimer;
    - Increased inflammatory markers.

- Children with severe disease need to be admitted to the "confirmed COVID-19" area of the paediatric intensive care unit (PICU) or high care unit (HCU), as outlined in section 4.13.
- It is critical that the COVID-19 classification of each child is established and communicated prior to transfer to facilitate placement in the appropriate component of the referral facility: COVID-19, non-COVID-19 or PUI component.

4.10. What does isolation of a child with COVID-19 at home entail for the child, the caregiver and the household?

In circumstances where a child has mild symptoms and is not clinically in need of hospital admission, the child can be cared for at home. The child needs social, psychological and physical support. For this reason, ongoing interaction with the mother or primary caregiver is important. The purpose of isolation is to limit spread beyond the mom/primary caregiver-child pair, but not between them.

Basic principles/assumptions:

- Most household members will have been exposed to SARS-CoV-2 when the child's positive COVID-19 status is confirmed.
- There should be an identified adult household member to care for and support the COVID-19 exposed/ infected child.
- Healthier individuals (without symptoms/unknown status) should care for those children who are not confirmed positive.
- Since the elderly (e.g., grandparents) are at the highest risk for severe COVID-19, they should, as far as possible, not provide care for those with possible or confirmed disease.
- The HCW needs to determine who lives in the household: the number of people, their ages, who has confirmed/possible disease or is asymptomatic, the physical arrangements (how many rooms, bathrooms, spaces etc.), and the COVID-vaccination status of all household members.
- The health care worker who decides that isolation at home is correct for a child who is confirmed or has possible COVID-19 should inform the mother/ caregiver who will be taking care of the child what is expected of them, both through a verbal explanation and a written care plan and leaflet (see Appendix 5).

Box 10 Requirements for home-isolation

- If possible – use separate bedrooms and bathrooms;
- If not possible – occupancy should be restricted to household members only;
- Occupants should maintain a 1 – 2 meter distance from child;
- The child needs to wear a face mask if older than 5 years;
- Windows should be opened to facilitate ventilation where possible;
- Child needs to have own/dedicated household items (cup; eating utensils, etc);
- The household members should all practice strict hand hygiene and have the resources to support these practices;
- All high touch surfaces should be cleaned frequently – at least twice a day;
- Family has the means to contact or return to health facility if the child deteriorates.

If this is not possible then the child should be admitted to a health facility.

4.11. How should inpatient facilities, resources and spaces be organised to accommodate children who need admission for moderate COVID-19 disease

- Children with moderate COVID-19 disease should be admitted for in-patient care.
- Children need to be cohorted together with children of the same COVID-19 classification and kept apart from the other categories.
- Each hospital should be able to **accommodate three categories** of patients in three separate areas:
  - Non-COVID-19 children
  - Children with possible COVID-19 infection (PUIs)
  - Confirmed COVID-19 infected children (positive COVID-19 test)
- Ideally, each area needs to be separate with **dedicated equipment and staff.** Ablutions should ideally be separate or bedpans used if separation is not possible.

Box 11 Options for organisation of in-patients areas during the COVID-19 pandemic situation

Options for creating three areas include:

- Dedicated cubicles in a children's ward – if the ward has cubicles:
  - 1 cubicle for COVID-19 positive children
  - 1 cubicle for COVID-19 negative children
  - The bulk of the cubicles for possible COVID-19 (PUI) children
- Dedicated children's wards – if the hospital has 2 or more children's wards it is suggested that, in the current COVID-19 pandemic situation:
  - A smaller ward is used as a COVID-19 negative ward;
  - A larger ward is split into two sections:
    - Possible COVID-19 (PUI) cubicles – these should be the majority of the cubicles
    - COVID-19 positive cubicle – 1 with the possibility of expanding to 2 if needs be
- Dedicated hospital COVID-19 ward for both adults and children. In this circumstance it is important that:
  - The children's ward is used for possible COVID-19 (PUI) children, with a dedicated cubicle for COVID-19 negative children;
  - Only COVID-19 positive children are admitted to the hospital COVID-19 ward where:
    - Children are placed in the female ward; or
    - Are accommodated together in a single cubicle/corner/section of the ward
    - Have access to care to staff who are experienced in paediatric clinical care provision
- The relative size and number of beds in each area will change as the local epidemic evolves. The preferred option will therefore be dictated by the structures of the facility and the number of children needing accommodation.

NB! Child admissions may fluctuate depending on seasonal conditions (e.g. RSV, diarrheal season) and other factors independent of the COVID-19 pandemic. Therefore, any impulse to use underutilized children's wards for adult services should be avoided.

4.12. Should the mother/caregiver accompany the child during admission?

- Hospital admission, isolation procedures and PPE will be very frightening for a child, and thus, the primary caregiver needs to be admitted with their child (see also Section 7.7.2 Separation from caregivers).
- Children primarily acquire COVID-19 infection at home, so when a child and mother/caregiver live together, they are likely to have a similar COVID-19 status, i.e. both negative or both positive. Therefore, the child and mother/caregiver should be considered and managed as a single dyad (pair) rather than as two separate individuals.
- A mother/regular caregiver who had been looking after the child before admission has probably already been infected:
  - Test the mother/caregiver immediately
  - Give the mother PPE
  - The mother/caregiver would also need to be regularly assessed for possible clinical deterioration needing treatment
- A caregiver who is not a regular caregiver should ideally not accompany the child for the hospital admission, as this person will be at risk of becoming infected by caring for the child. The case of a mother who is not the child's regular caregiver but who brings the child to a hospital for medical attention might also arise and would need to be handled individually, with shared decision-making between the parents/caregivers and the medical staff.
- Based on the COVID-19 status of the child and the mother/caregiver on admission, there are three categories of dyad:
  - **COVID-19 negative dyad:** both child AND mother/caregiver have negative COVID-19 tests;
  - **COVID-19 positive dyad:** either child OR mother/caregiver has a positive COVID-19 test;
  - **PUI dyad:** unknown COVID-19 status of child and mother/caregiver.
- Members of each category or dyad should be accommodated together, and every hospital needs to assess where to accommodate each category and which category should have access to the mother's lodge, if available. Rooming-in of the primary caregiver together with the child will be the preferred option. See also Section 3.11.

4.13. How should inpatient facilities, resources and spaces be organised to accommodate COVID-19 infected children who need ICU admission for severe disease

Children with severe COVID-19 are eligible for admission to high care (HCU) and/or intensive care units (ICU), as per clinical need. HCUs and ICUs need to provide services for children **with and without** COVID-19 infection.

- **Children with probable and confirmed COVID-19 infection need to be accommodated apart from those without the infection.**
- Existing ICUs should be configured to cater for both requirements. Increased spacing in the high care or cubicles should be considered.
- All children ill enough to be requiring admission to the ICU or HCU should receive an immediate SARS-CoV-2 rapid antigen test, if available.
- **A positive SARS-CoV-2 rapid antigen test confirms infection.** The child should be managed as a confirmed case and admitted to the ICU/HCU assigned for confirmed COVID-19 cases.
- **A negative SARS-CoV-2 antigen test in a child with clinical symptoms and signs compatible with COVID-19 does not rule out infection.** The result should be checked using a PCR test to determine if the child is infected with SARS-CoV-2.
  - PUIs awaiting PCR results and who require care in the paediatric ICU/HCU should be managed in the Paediatric ICU (PICU), preferably in an isolation space, if available, or in a separate area. Standard PPE and infection control practices should be applied at all times.

- Children who require CPAP while awaiting their PCR results (PUI) should be managed in the PICU, preferably in an isolation space, if available, or in a separate area. Filters should be routinely added to CPAP systems throughout the hospital.

No emergency management or referral should be delayed because of the lack of a COVID-19 test.

Pending PCR results should not obstruct access to appropriate ICU/HCU care for critically ill children

Box 12 Coordination of high care/ICU services

Provinces and regions should identify all existing or potential paediatric high-care (HICU) and intensive care (PICU) beds in tertiary and central hospitals. Some regional hospitals may also be able to provide longer-term ventilation, or short term interim ventilation for 1 or 2 children pending transfer to a PICU (as a holding unit).

A provincial "bed manager" is strongly advised to support any hospital with a child who is considered eligible for admission to a PICU by:

- monitoring the use and availability of ICU beds for children across the province
- contacting the receiving hospital
- arranging transport for the patient
- if no bed is available, facilitating advice on supportive or palliative care, whichever is most appropriate.

4.14. What special investigations should be done in children with moderate and severe cases of COVID-19 disease?

Table 2 Investigations in children admitted with moderate or severe COVID-19 disease

Investigation	Typical findings
FBC	WCC normal or reduced with reduced neutrophil and lymphocyte counts. Platelets reduced.
CRP/PCT	Normal
LDH	Increased
LFTs	Elevated liver enzymes in severe disease
CXR	Bilateral patchy nodular/speckled ground-glass opacities
Investigations to exclude alternate causes of acute illness	
Blood culture	
Other bacterial cultures (as per clinical presentation)	
HIV test	
GeneXpert for TB	
Malaria antigen and smears (if applicable)	
Other respiratory viruses	Tests for RSV and Influenza virus should be conducted if possible, feasible and affordable

4.15. What is the specific management for children with COVID-19?

There is no specific treatment for COVID-19. Supportive treatment depends on the severity of the disease.

4.15.1 Treatment for mild disease

Provide supportive care / symptomatic treatment as per standard protocols:

- Paracetamol for pain and fever
- Maintenance fluids and feeds with additional rehydration solution if the child has diarrhoea.
- AVOID: Nebulising (potentially aerosol producing) – if necessary, use a metered-dose inhaler (MDI) with a spacer.

The mother/caregiver should be given information verbally by the HCW and a leaflet on home care and preventing transmission of COVID-19 (see Annexure 5). The leaflet should include a care plan and appropriate information to detect deterioration in the condition of their child and details of whom to contact / how to respond should the child's condition deteriorate.

4.15.2 Treatment for moderate disease

Children with moderate disease need to be admitted for in-patient care.

Supportive care:

- Monitor 3 - 4 hourly for respiratory deterioration; reduce frequency once the child is improving
- Provide supplementary oxygen to keep SpO_2 >92%. Progress from nasal cannula to other means of O_2 delivery when needed, as outlined in Box 11.
- If unable to keep SpO_2 > 92% using a face mask with a reservoir bag, contact the nearest PICU.
- Provide normal maintenance fluids and feeds with additional rehydration solution if the child has diarrhoea.

Box 13 Oxygen therapy

- If unable to maintain SpO_2 > 92% in room air, add nasal prong oxygen (NPO_2) at 2 litres/min
- If unable to maintain SpO_2 > 92% on NPO_2 at 2 litres/min, then change to 40% face mask (pink) oxygen at 8 litres/min
- If unable to maintain SpO_2 > 92% on 40% face mask (pink) oxygen at 8 l/min, then change to 60% face mask (orange) at 10 litres/min
- If unable to maintain SpO_2 > 92% on 60% face mask oxygen at 10 litres/min, change to face mask oxygen with reservoir bag (non-rebreather face mask) at 15 litres/min and contact the nearest PICU
- Use high flow oxygen in the paediatric ward setting, as available in terms of equipment, staff and expertise
- If unable to maintain SpO_2 > 92% on face mask oxygen with reservoir bag (non-rebreather face mask) at 15 litres/min and high flow oxygen not available locally, organise transfer to nearest PICU if bed available

PICU would consider the use of HFNC and non-invasive ventilation (NIV)

Treatment:

- Provide symptomatic relief – paracetamol as required for pain and fever.
- Treat possible co-infection as per standard protocols for community-acquired pneumonia.[8] Antibiotics should not be given routinely if bacterial infection is unlikely:
  - Amoxicillin 45 mg/kg/dose 12 hourly per os for five days;
    OR
  - Ampicillin 50 mg/kg/dose IV 6 hourly AND Gentamicin 6 mg/kg IV daily for 5–10 days;
    OR
  - Amoxicillin/clavulanate, oral, 45 mg/kg/dose of amoxicillin component 12 hourly to complete 10 days total.
- Corticosteroids
  - Dexamethasone (0,15mg/kg/day for ten days)[9] is recommended for the following indications:
    - Patients with COVID-19 who require supplemental high-flow oxygen but who are not mechanically ventilated;
    - Patients with COVID-19 who are mechanically ventilated.
  - **Dexamethasone for the treatment of COVID-19 is not recommended in patients who do not require supplemental oxygen or mechanical ventilation.**[10] However, systemic corticosteroids should not be withheld from patients who require them for another reason, such as an acute exacerbation of asthma.
  - In HIV-positive patients, special care should be taken to exclude tuberculosis and Pneumocystis jirovecii pneumonia coinfection.
- AVOID
  - Unnecessary/repeated ENT examinations
  - Nebulising (potentially aerosol producing) - if necessary, use a metered-dose inhaler (MDI) with a spacer
  - Azithromycin, remdesivir, lopinavir/ritonavir, hydroxychloroquine, tocilizumab, type I Interferon, convalescent plasma, colchicine and rivaroxaban are not recommended by the National Essential Medicines List Committee. Repositories of rapid reviews are available at *https://www.health.gov.za/COVID-19-rapid-reviews/*

4.15.3 Treatment for children with severe disease

Children with severe disease are eligible for possible admission to ICU/HCU.

The child should be discussed with the nearest paediatric ICU or high-care unit for:

- Possible transfer
- Advice on interim management pending transfer, including what should and should not be done
- Ongoing care, if for any reason, they are unable to accept, or it is not possible to transfer the child

Intubation and respiratory support

- Should be in consultation with the nearest paediatric ICU/HCU
- Should be undertaken by the most senior member of staff on site
- Use PPE with eye protection as appropriate for AGP
- Rapid sequence intubation is preferred
- Cuffed tubes should be used if possible. Orotracheal is preferred to nasotracheal placement. A filter needs to be placed on the tube or in the ventilator limb.
- Further ICU management is similar to that for any other child.

4.16. What is the discharge policy for children with possible or confirmed COVID-19?

De-isolation

Children need to be isolated until they are no longer likely to be shedding the virus. Isolation is currently recommended for 7 days, as indicated below. Due to the ever-evolving body of knowledge on the Coronavirus and the pandemic, these recommendations may change in the future. HCWs should align the isolation period with the most recent national guidelines.

Table 3 Criteria for de-isolation in children

Disease severity	Criteria for de-isolation
Asymptomatic children	Although testing is only recommended for symptomatic children, this scenario may occur if asymptomatic children are tested before elective surgical procedures. Consider discharging the child and postponing the elective procedure for 5 days from the initial positive COVID-19 test. National policy does not mandate isolation for asymptomatic patients. However, in the inpatient setting, cohorting of these children with other positives with enhanced infection control practices would be appropriate. De-isolation can occur after 5 days. If the child is discharged before 5 days, they do not need to continue isolation at home but should continue standard infection control practices
Mild disease	7 days from onset of symptoms
Moderate / severe disease	7 days after they are clinically stable, i.e. no longer require supplemental oxygen

Discharge

Children admitted to the hospital can complete their isolation at home once they are well enough to be discharged and provided their home circumstances support isolation.

4.17. What is the immunisation policy for children with possible or confirmed COVID-19?

- Continue routine immunisations as per EPI at chronological age
- There are no contraindications to vaccinations as per the routine EPI schedule
- Currently, COVID-19 vaccination is available on the national COVID-vaccination programme for children 12 years of age and older (with additional changes likely to the eligibility criteria in future).

4.18. What is Multisystem Inflammatory Syndrome (MIS-C), and how should it be diagnosed and managed?

- MIS-C is a multi-system disease and is one of the most severe manifestations of SARS-CoV-2 infection in children.
- MIS-C may be life-threatening, but with recognition, it is rapidly treatable with good outcomes.
- It occurs after acute (symptomatic or asymptomatic) COVID-19 and occurs in children and adolescents of any age.

4.18.1 Clinical presentation

4.18.1.1. History

MIS-C occurs 2-6 weeks after (often asymptomatic) SARS-CoV-2 infection in a child or adolescent. There may be a history of a recent COVID-19 contact in the family or community, although most patients have no documented/ reported contact.

4.18.1.2. Symptoms/signs

The most common presenting features are[11]:

- Fever
- Tachycardia
- Rash
- Non-purulent conjunctivitis
- Abdominal pain

Children with MIS-C are often irritable, may have pain and swelling of their extremities, arthritis and mucositis. They may have poor feeding, headache, vomiting and diarrhoea. They may be fatigued and have poor effort tolerance. They may have neurological signs with a decreased level of consciousness or seizures. A high index of suspicion is required in patients presenting in shock or with hypotension.

4.18.1.3. Investigation

a) Children presenting to hospital with fever, abdominal pain, gastrointestinal, respiratory, or neurological symptoms who are stable and have no other clear cause for their symptoms should have the following initial blood tests to help to identify whether they have MIS-C:

- Full blood count with differential blood count
- CRP
- Renal function
- Liver function
- Blood culture and other tests for infection (including lumbar puncture) as indicated by local protocol and clinical presentation

b) If the diagnostic criteria for MIS-C are met, and it remains a differential diagnosis, the following investigations are recommended in addition:

- SARS-CoV-2 PCR or antigen and SARS-CoV-2 serology
- D-dimer, clotting profile
- Pro-BNP or Trop T (pro-BNP preferred but Trop T if only available)
- ESR, IL-6 and PCT (optional, if available and applicable)
- Chest X-ray
- Echocardiogram
- Abdominal ultrasound (if severe abdominal pain, and appendicitis or surgical cause suspected).

4.18.2 Laboratory features

Although clinically established cut off levels of laboratory parameters do not exist, meta-analyses of MIS-C cases reflect:

- Raised C-reactive protein (CRP) – raised in 88% of cases (often >160 mg/L)
- Neutrophilia and lymphopenia
- Raised pro-Brain natriuretic peptide (BNP) – (often >800 ng/ml)
- Raised D-dimer (often >2.4 ng/L)
- Low albumin (often <32 g/L)
- Low sodium (often <133 mmol/L)

4.18.3 Diagnostic criteria

Table 4 Diagnostic criteria for MIS-C

WHO case definition (2020) [12]
All six criteria should be met:
1. Age 0 to 19 years
2. Fever >3 days
3. Clinical signs of multisystem involvement (**at least 2** of the following): • Rash, bilateral non-purulent conjunctivitis, or mucocutaneous inflammation signs (oral, hands, or feet) • Hypotension or shock • Cardiac dysfunction, pericarditis, valvulitis, or coronary abnormalities (including echocardiographic findings or elevated troponin/BNP) • Evidence of coagulopathy (prolonged PT or PTT; elevated D-dimer) • Acute gastrointestinal symptoms (diarrhoea, vomiting, or abdominal pain)
4. Elevated markers of inflammation (e.g. ESR, CRP, or procalcitonin)
5. No other obvious microbial cause of inflammation, including bacterial sepsis and staphylococcal/ streptococcal toxic shock syndromes
6. ANY evidence of SARS-CoV-2 infection • Positive SARS-CoV-2 RT-PCR OR serology OR antigen test OR likely contact (in our context, this may include periods of widespread community transmission, e.g. during a wave of SARS-CoV-2 if there is no proven direct contact)

4.18.4 Differential diagnosis

- MIS-C is a diagnosis of exclusion. Sepsis and infections should be excluded and treated until they are disproven. However, the diagnosis of MIS-C should not be delayed while awaiting culture results.
- In local data, the presence of conjunctivitis, tachycardia, rash, low platelets (<250) and low sodium (<132) each made a diagnosis of MIS-C more likely over other causes of childhood fever.
- Common alternative diagnoses include appendicitis, typhoid fever, Kawasaki disease, dysentery, gastroenteritis and sepsis.
- Kawasaki disease may be difficult to distinguish from MIS-C. Children with Kawasaki disease tend to be younger (mean age of 3 vs 6 years) and generally do not have organ dysfunction and less hypotension and shock. Distinguishing between Kawasaki and MIS-C should not delay treatment or referral.

4.18.5 Referral guidelines

MIS-C is potentially a very severe disease - early discussion and referral of all children with evidence of cardiac or other organ dysfunction to a paediatrician is necessary. Approximately a third of children with MIS-C in South Africa have required ICU admission. Supportive therapy and investigations should start immediately at any centre based on availability.

Delay in referral or transfer should not delay treatment – treatment guidelines below may be initiated at any centre.

4.18.6 Principles of management in possible MIS-C

The following are adapted for South Africa from the international consensus management guidelines.[13,14]

4.18.6.1. Initial evaluation and supportive management

In addition to the routine emergency management of an unwell child, the following is important in MIS-C:

- Do not under-estimate shock:
  - Hypotension and tachycardia may be under-estimated in these patients as they are generally older and well-nourished.
  - If MIS-C is suspected, monitor perfusion, blood pressure, and heart rate frequently (at least three hourly) and ensure appropriate for age.
- Features of severity include:
  - Persistent hypotension/tachycardia
  - Poor capillary refill
  - Requirement for fluid bolus
  - Oxygen saturation <92% in room air
  - Evidence of cardiac failure, including raised jugular venous pulses and/or gallop rhythm on auscultation
- Support all organ dysfunction as needed with oxygen, ventilation, diuretics, inotropes.
- Contact an expert for advice (rather earlier than later)
- Remember pain management, especially if severe abdominal pain.
- Remember the differential diagnosis, including sepsis, meningitis, malaria, gastroenteritis, typhoid, appendicitis, etc.
- Antibiotics - Intravenous antibiotics should be started on all patients as per local sepsis guidelines. Based on the clinical picture and microbiology results, these may be targeted or stopped.
- Aspirin should be given at a dose of 3-5 mg/kg/day daily in children who meet Kawasaki criteria and be continued for six weeks after discharge.
- Anticoagulation: Low molecular weight heparin should be considered with specialist team input, weighing the balance of risk of bleeding and thrombosis, especially in patients with:
  - Severe cardiac insufficiency (ejection fraction <35%) or requiring inotropic support
  - D-dimers >10 times the upper limit of normal
  - High risk for thromboembolism - central venous catheter, underlying malignancy, prolonged immobility, obesity, oral contraceptive use, and family history of thrombophilia
  - Discuss the management with an expert

4.18.6.2. Specific management for MIS-C meeting diagnostic criteria

There are no randomized data in MIS-C; therefore, consider offering enrolment to all patients to the **SA-PED RECOVERY** trial (if available at your centre/province).

It may be reasonable to manage select patients with mild symptoms in the outpatient setting, provided that the child is well appearing (i.e., normal vital signs and reassuring physical examination), and close clinical follow-up can be assured. Such patients are typically those who have undergone evaluation for MIS-C because of non-specific symptoms or findings (e.g., fever, rash), who lack worrisome findings, and in whom the diagnosis of MIS-C is uncertain. By contrast, children with more convincing findings who meet diagnostic criteria for MIS-C or in whom the diagnosis is strongly suspected should generally be hospitalized, even if the manifestations are mild initially.

Considerations for first-line therapy

There is currently insufficient evidence to distinguish between the efficacy of IVIG or corticosteroids alone or in combination as first-line therapy, although one retrospective, limited study has reported improved outcomes when used in combination.[15–17]. The WHO currently recommends using corticosteroids in addition to supportive care in MIS-C and corticosteroids in addition to standard of care for Kawasaki Disease (IVIG) for children with MIS-C who meet the criteria for Kawasaki Disease.[18]

Therefore, it must be emphasised that steroids are important and easily available and should be administered early in MIS-C along with good supportive care. The optimal dosage and route of administration of steroids is not well known. Consider giving IV methylprednisolone as first-line therapy in severe patients but if IV methylprednisolone is not available or there is a delay in accessing IV methylprednisolone, consider giving oral prednisone (2 mg/kg/day).

Severe disease

Patients with shock, multi-system involvement or who require ionotropic or ventilatory support should be transferred to the appropriate level of care, and/or expert advice should be obtained. Steroid administration should not be delayed. Older children (>7 years) are more likely to have severe disease.

Current consensus treatment guidelines

All patients require the best standards of supportive care in addition to:

A. For All patients:

Corticosteroids

- Intravenous corticosteroids**: Methylprednisolone at 2-10 mg/kg/day (max 500 mg/dose) for 3 days. The high dose (10mg/kg/day)** is recommended in severe disease (requiring ionotropes/ICU/critically ill)
- Wean to 2 mg/kg prednisone per day (maximum 60mg per day), to be weaned over two weeks.
- Consider the use of a gastric protector while on high dose steroids.
- Discuss with a specialist team

B. Patients meeting criteria for Kawasaki Disease (fever for greater than 5 days AND 4/5 of rash; conjunctival injection; oral/lip changes; cervical lymphadenopathy; extremity changes)

In addition to the above:

IVIG

- 2 g per kg (maximum dose 40-60 g, depending on body weight) IVI over 12-24 hours unless concerns of cardiac/renal failure, in which case it can be given over a longer period (discuss with a specialist team).
- Use ideal body weight in children who are overweight.

Biologic therapy

Tocilizumab may be required in very rare cases as third-line therapy. This should be given in discussion with specialist units, based on availability and expertise and given either via the intravenous or subcutaneous route.

4.18.7 Signs of adequate response

The following are suggested as signs of an adequate response to therapy 24 hours after completion of treatment:

- Apyrexial
- Normalised heart rate and cardiac function
- Reduced CRP (by approximately 50% every 24 hours)

If there is an inadequate response to therapy, it may need to be escalated in discussion with a specialist team. Revisit the differential diagnosis while awaiting specialist advice.

4.18.8 Discharge

Children may be discharged once they have:

- no fever for 24-48 hours, and
- no cardiac dysfunction, and
- normal heart rate and blood pressure, and
- no other ongoing organ dysfunction, and
- normal CRP.

Discharge on oral aspirin 3-5 mg/kg/day for six weeks (if aspirin was started in hospital), plus the weaning dose of oral prednisone over two weeks.

Instructions should be given to return if fever recurs. All microbiology cultures should be monitored for the growth of pathogens.

4.19. Follow up

Children with MIS-C should be followed up as follows:

Table 5 Follow-up schedule for children with MIS-C

Time after discharge	Purpose of the follow-up visit
1-2 weeks	To ensure that fever and cardiac disease are fully resolved
6 weeks	To repeat echocardiogram to assess for coronary artery disease and ensure resolution of heart disease
6 months	Follow up for repeat echocardiogram and to assess for longer-term effects
! **Follow up sooner on the advice of a cardiologist if coronary artery aneurysms are present**	

4.19.1 Notification:

Notification is mandatory - please notify online at: *https://www.nicd.ac.za/nmc-overview/*.

Or download the form from *https://www.nicd.ac.za/wp-content/uploads/2020/09/NMC-CRF-for-MIS-C_8-Sept-2020-1.pdf*

Please ensure to notify these cases for MIS-C and not as paediatric COVID-19.

5. GENERAL (CROSS-CUTTING) TOPICS

5.1. Testing for COVID-19

5.1.1 Overview of types of tests, indications, interpretation

Real-time reverse transcription (rRT) PCR tests

- PCR-based tests are recommended as the gold standard for diagnosing acute COVID-19. Upper respiratory tract samples should be sent for all patients. Sputum or bronchoalveolar lavage (if the patient is intubated) samples should be sent when available.
- A single positive PCR test is sufficient proof of COVID-19. There is no role for repeat “confirmatory” PCR testing on patients who test positive despite the absence of symptoms, as PCR have excellent specificity.
- PCR tests are expensive and have longer turnaround times, limiting clinical or public health responses.[19]

Rapid antigen tests

- Rapid antigen tests are quick but are less sensitive than PCR-based tests.
- A positive result confirms the diagnosis of COVID-19.
- Ag-RDTs are likely to perform well within the first 5-7 days of illness when viral loads are high. Patients presenting more than 5-7 days after illness onset are likely to have lower viral loads, and false-negative results may occur.
- In high prevalence settings, in individuals presenting with clinical COVID-19 symptoms or individuals that are close contacts of a COVID-19 case, it is recommended that a negative Ag-RDT be followed by a PCR test.
- In individuals with a low likelihood of SARS-CoV-2 infection or with a clinical syndrome not consistent with COVID-19, it is recommended that a positive Ag-RDT be followed by a PCR test. Confirmatory testing should be performed as soon as possible (<48 hours) after the initial test.[19]

Antibody tests

- Antibody tests are not recommended for the diagnosis of acute COVID-19 due to very poor sensitivity within the first 1-2 weeks after symptom onset. They are, however, used in the diagnosis of MIS-C.[19]

5.1.2 Testing points and technique

- Testing should occur in a designated isolation room/cubicle in a health facility or other well-ventilated area.
- Testing should be performed by a health care worker wearing full PPE, including an N95 mask (or equivalent, e.g. FFP2 mask), eye protection (goggles or visor), gloves, and an apron or gown.
- Meticulous hand hygiene should be practised.
- One upper respiratory tract sample should be collected. A nasopharyngeal sample is preferred, but an oropharyngeal sample can be used as an alternative if a nasopharyngeal specimen is not feasible.
- The sample should be transported in a universal transport medium tube.
- Ensure that samples are kept at 2 – 8^{o}C until processed.

A system should be established to fast track the processing of tests by the laboratory of children classified as having severe disease.

For further information on testing, please see the following resources available on the NICD website:

GUIDE-TO-ANTIGEN-TESTING-FOR-SARS-COV-2-IN-SOUTH-AFRICA_V4

https://www.nicd.ac.za/wp-content/uploads/2021/08/GUIDE-TO-ANTIGEN-TESTING-FOR-SARS-COV-2-IN-SOUTH-AFRICA_V4_06.07.2021-DR-NDJEKA.pdf

CLINICAL MANAGEMENT OF SUSPECTED OR CONFIRMED COVID-19 DISEASE: TESTING

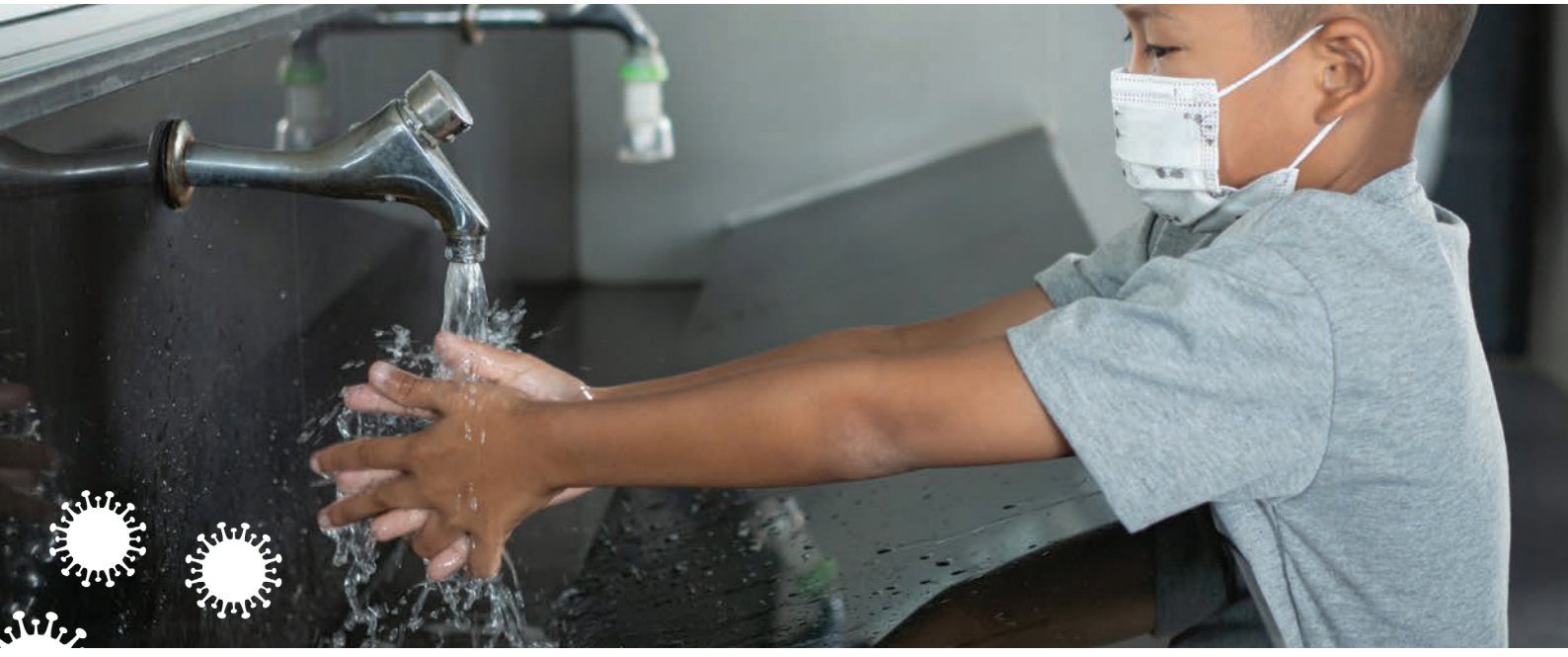
https://www.nicd.ac.za/wp-content/uploads/2021/08/2-Testing-April-2021.pdf

Post-mortem COVID-19 testing should be done, as per current Department of Health guidance.

5.2. Infection Prevention and Control

5.2.1 Personal Protection

- For staff attending to pregnant women, newborns or children 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. Standard infection control measures as required for managing all pregnancies and deliveries should therefore be strictly adhered to. However, staff can be reassured that the virus has not been detected in amniotic fluid or breastmilk.
- When attending caesarean section deliveries whereby the mother is under general anaesthesia (GA), full PPE is indicated. Spinal anaesthesia is not considered an AGP. Neonatal staff attending spinal deliveries in theatre or any delivery in labour wards with no AGPs can don standard PPE, particularly if the neonate will be managed away from the mother. However, neonatal staff should don full PPE in situations with a high likelihood of conversion to a GA.[20]



Requirements for PPE

Table 6 Requirements for PPE

Indication	Consists of	Required for
Standard PPE (staff)	Gloves, surgical mask, apron May require eye covering if risk of a mucosal splash.	Routine care of COVID-19 patients
Full PPE (staff)	Gloves, gown, hair cover, N95 ventilator, goggles/ visor	Aerosol generating procedures
PPE for mothers/ caregivers	Hand hygiene, face mask	

Aerosol-generating procedures (AGP)

- AGP's include intubation, extubation and related procedures (bag-mask ventilation and open suctioning of the respiratory tract), less invasive administration of surfactant (LISA), obtaining nasopharyngeal/ oropharyngeal swabs, induced sputum and all forms of ventilation (non-invasive and invasive), including CPAP and high flow nasal cannulae.
- Any AGP necessary, including intubation, needs to be carried out by experienced staff wearing full PPE in a closed room, ideally with negative pressure.
- nCPAP / BiPAP are beneficial to individual children. However, the risk to staff and caregivers from aerosolisation is high and persists as long as the care modality is used. These modalities should therefore only be considered in the following circumstances:
  - The child should be nursed in an isolation room;
  - Ideally, this room should have negative pressure (if available);
  - Staff should wear full PPE, with visor and N95 mask, continuously whilst in the same room as the child;
  - Filters to be applied to the nCPAP/BiPAP exit limb tubing.
- Other common modalities of care that are also likely to promote aerosolisation of the virus should be avoided:
  - Routine/repeated oropharyngeal examination
  - Nebulisers (rather use metered-dose inhalers instead, together with spacers, if needed)[20]

5.2.2 Environmental Disinfection

- Healthcare professionals engaged in obstetric care, including those who perform computerised tomography (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.

5.2.3 Biomedical Waste Disposal

- 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.

For further details, please consult the **COVID-19 Disease: Infection Prevention and Control Guidelines** (July 2021) available on the NICD website:

https://www.nicd.ac.za/diseases-a-z-index/disease-index-COVID-19/COVID-19-guidelines/infection-prevention-and-control-guidelines/

5.3. Reporting

General COVID-19 reporting

There are various forms to record and report cases of COVID-19 infection. These forms apply to all persons, regardless of age or pregnancy status.

All forms are available from
https://www.nicd.ac.za/nmc-overview/nmc-COVID-19-documents/

Table 7 Tools for general COVID-19 reporting

Tool	When to complete	Comment
Patient under investigation (PUI) form	To be completed for all individuals suspected of COVID-19 disease and have a specimen taken	This needs to be completed for all patients from whom NP/OP swabs are collected. Remember to document the patient's full contact information, travel history, any comorbidities that the patient may have and whether they are in hospital or not
Notifiable medical condition (NMC) case notification *https://www.nicd.ac.za/wp-content/uploads/2021/10/COVID-19_Case_Notification_Form_24August2021.pdf* Also available as an NMC smartphone application *https://nmc.nicd.ac.za/Account/Login*	To be completed for all cases who meet the case definition for COVID-19 infection and/or MIS-C	Notify confirmed cases only Can be completed online using NICD NMC mobile or web-based app MIS-C notification has a separate form
Daily Monitoring form *https://nicd.comunity.me/d/NICD/*	To be completed for all confirmed patients daily until de-isolation	This form will document patient progress and outcomes

Completed forms (if not entered online) should be submitted to the health facility's IPC staff.

Reporting specific to maternal and neonatal health

COVID-19 is a notifiable medical condition.

The Perinatal Problem Identification Programme (PPIP) data collection system will collect data on pregnant women with COVID-19. In addition to the forms above, all sites will be required to complete the following two forms:

Table 8 COVID-19 reporting for mothers and neonates

Form	Who should it be completed for?	When should the form be completed?	Comment
Maternal COVID-19 data collection form	For all women who are or have been infected with the SARS-CoV-2 virus during their pregnancy	At delivery	To monitor the impact of COVID-19 on pregnant women
In hospital COVID-19-exposed neonates: Individual datasheet	For all neonates who have been born to a mother with confirmed SARS-Co-V2 infection	At the discharge of the neonate	To monitor the impact of COVID-19 on exposed neonates

Forms available in Appendix 6, or for download at:

https://drive.google.com/drive/folders/1MMmcyqLVuDXIQclhmJ5MiqlqQUlnna1y

- Sites should continue to complete PPIP as they would have in the past but should submit their data monthly to the National PPIP database
- Each site will have access to data for their site but not for other sites.
- The NDOH and the SAMRC/UP will have access to the whole database to perform various analyses.

Database outputs will include:

- A weekly summary of the number of women who have delivered who had or have COVID-19
- A monthly summary of the PPIP data and the effect of the SARS-CoV-2 virus
- on the outcomes of infected and non-infected women. The monthly summary will analyse the following aspects as they relate to pregnant women with COVID-19
  - Maternal pregnancy complications
  - Maternal health system usage (normal, high care, ICU, ventilation)
  - Days in hospital
  - Outcome
  - Route of delivery
  - Relationship of complications to HIV status and ARV treatment
  - Perinatal outcome – Stillbirth, neonatal death, survivor
  - Birthweight
  - Gestational age
  - Neonatal complications (HIE, prematurity, infection)
  - Neonatal health system usage (stayed with mother, admitted nursery, high care, NICU, ventilation)
  - Days in nursery
  - Growth restriction
  - COVID-19 infected
  - Feeding method
  - Effect of HIV status on COVID-19 in pregnancy[21]

Reporting specific to child health

- The following data are required:
- PUI related data and COVID-19 workload and outcome data
    - Admissions
    - In-patient days
    - In-patient deaths
    - In-patient transfers out
    - In-patient discharge

- COVID-19 severity data
    - Mild disease - normal mental status, feeds normally, speaks in full sentences, no respiratory distress and SpO_2 ≥95% in room air.
    - Moderate disease - restless, does not finish feeds, speaks in interrupted sentences, fast breathing, chest in-drawing or SpO_2 92-95% in room air.
    - Severe disease - irritable/lethargic, unable to feed, unable to speak, very fast breathing, chest in-drawing, grunting or SpO_2 <92% in room air.
    - Admitted to standard bed
    - Admitted to high care or ICU bed

5.4. Occupational Health

- Quarantine: Health care staff who have been exposed unexpectedly while without PPE to a COVID-19-infected patient do not need to quarantine. They should continue to wear a mask and practice other IPC measures. If they develop symptoms, they should be thoroughly assessed and, if appropriate, tested for COVID-19.
- Asymptomatic staff members: Asymptomatic COVID infected staff at health facilities and care homes should stay away from the workplace for 5 days from the test date. Where possible to do so, they should work remotely from home.
- Given the limited public health utility of isolation, the period of isolation for health care workers with confirmed symptomatic COVID-19 has been reduced from 10 days to 7 days.
- Where a health care worker with confirmed COVID-19 returns to work in a healthcare setting, an N95 mask should preferably be worn from the day they return to work to day 10, and contact with extremely high-risk individuals (such as severely immunocompromised patients) be avoided;
- No COVID-19 test (either PCT or antigen-based) should be performed prior to a confirmed case returning to work after the required isolation period; and
- The isolation rules are equally applicable to vaccinated and unvaccinated individuals and high-and low-risk individuals.
- Any employee returning to work must always consider the employee's clinical status. Only those who are well enough to work should do so.

6. HEALTH SYSTEM REQUIREMENTS

This section summarises what is expected at each level of care for the management of maternity and reproductive health services during the COVID-19 pandemic phase. A summary table is provided in Table 9.

6.1. What are the health system requirements at a PHC clinic?

- Safe working conditions for all staff, including appropriate PPE for all staff according to PPE guidelines
- All staff working at the facility (not just medical or nursing) must have access to COVID-19 vaccination. Managers should keep updated records of which staff members have been vaccinated and encourage and facilitate vaccination for those who have not.
- Staff should receive regular (e.g., weekly) updates on the COVID-19 statistics, any new protocols and training on how to manage COVID-19 at their level of care. Simulation training (fire drills) is encouraged.
- Screening of all staff on arrival at work and before leaving (brief history and temperature check)
- Screening of all outpatients on arrival (brief history and temperature check). Face masks to be worn by all patients while attending the facility and by all staff while on duty.
- Open windows wherever possible to facilitate ventilation
- Well-ventilated isolation cubicle for a thorough assessment of those who screen positive and for making initial management plan.
- Testing for COVID-19, or clear referral route to the testing site.
- Clear referral criteria to higher levels of care for obstetric risk factors and complications.
- Clear protocols on managing COVID-19 or possible COVID-19, including referral criteria to higher levels of care or an isolation facility
    - Direct access to consultation with Obstetrics and gynaecology doctor at the referral hospital (via VULA App/cell phone/WhatsApp)
    - Either direct access, or access via doctor at the referral hospital, to doctor at specialised COVID-19 hospitals (for severe COVID-19 cases)
    - Direct access to doctor/manager at isolation facilities for those with mild disease or contact history who cannot isolate at home
    - Direct access for ANC/PNC patients to a senior staff member in the maternity department of the facility (via cell phone/WhatsApp) for COVID-19 related queries (especially regarding the scheduling of appointments)
- For COVID-19 cases, PUIs and close 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 to transfer COVID-19 patients.

6.2. What are the health system requirements at 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 postnatal 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 patients in labour and their newborns.

- 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 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 put in place because of the COVID-19 pandemic (wearing a mask etc.)
  - The infrastructure of the labour ward allows for the companion to avoid close contact with any other patients in the ward.
  - If the patient is still within their isolation period for a COVID-19 infection, a companion can only be allowed by prior agreement with the manager in charge of the ward. Appropriate PPE will have to be worn by the companion.
  - The companion's presence is not prohibited by any other local (provincial) regulation put in place for the COVID-19 pandemic.
  - It is highly beneficial for the companion to be fully vaccinated against COVID-19, which should be planned for during the antenatal care visits.

6.3. What are the health system requirements at a hospital with maternity services?

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 should ideally be within the maternity complex. For each patient in this category, there will need to be an individualized plan made and reviewed daily for the frequency of observations required and the frequency of ward rounds conducted by the obstetric doctor or the midwife.
- The COVID-19 section of the maternity unit at all levels of a hospital must have a reliable and ample oxygen supply, with equipment to deliver the oxygen to patients up to the level of at least high-flow nasal oxygen.
- 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.

6.4. What are the health system requirements at a 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 disease (particularly patients in septic shock or respiratory distress due to COVID-19). Requirements:

- Safe working conditions for all staff, including appropriate 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 disease
- A multi-disciplinary team includes midwives, a specialist obstetrician, a specialist neonatologist, and a specialist anaesthetist to co-manage pregnant women with severe COVID-19 and their newborns.

Table 9 Summary of health system requirements at different levels of care

Health Systems Requirement	PHC	All delivery sites, incl. MOUs	District hospital	Regional / tertiary hospital
PPE	✓	✓	✓	✓
COVID Vaccination	✓	✓	✓	✓
Clinical training and updates on statistics and protocols	✓	✓	✓	✓
Screen staff on arrival	✓	✓	✓	✓
Screen all patients on arrival	✓	✓	✓	✓
Face masks to be worn by patients	✓	✓	✓	✓
Well-ventilated isolation cubicle tor thorough assessment of those who screen	✓	✓	✓	✓
Rapid Antigen tests for COVID-19	✓	✓	✓	✓
PCR testing for COVID-19	✓	✓	✓	✓
Clear referral criteria and referral pathways to higher levels of care for obstetric risk factors and complications	✓	✓	✓	✓
Direct access to obstetrics and gynaecology-doctor at referral hospital (via VUIA. App/cellphone/WhatsApp etc)	✓	✓	✓	✓
Clear clinical and operational protocols on managing C0VID-19 cases/PUIs	✓	✓	✓	✓
Clear referral criteria and referral pathways to higher level of COVI0-19 related care, or to isolation facility	✓	✓	✓	✓
Access to a doctor at specialist hospital for severe COVID-19 cases (either direct via doctor or referral hospital)	✓	✓	✓	✓
Access to doctor/manager at isolation facilities	✓	✓	✓	✓
Direct access for ANC/PNC patients to a senior staff member in the maternity department of the facility (via cell phone/WhatsApp)	✓	✓	✓	✓
Obtain contact details and provide follow-up or COVID-19 cases PUIs and close contact of confirmed cases, who are to be managed through self-isolation at home	✓	✓	✓	✓
Access to EMS transport able to transfer COVID-19 patients	✓	✓	✓	✓
Isolation facility for managing a COVID-19 patient or suspect during labour, delivery and immediate post-natal period		✓	✓	✓
Oxygen supply tor oxygen delivery by mask or nasal cannula		✓	✓	✓
Adequate midwife and nurse staffing to allow dedicated staff		✓	✓	✓
COVID-19 isolation area within the maternity unit for managing COVID-19/PUI patient during labour, delivery and, immediate post-natal period who require in patient care for non-COVID reasons (e.g. PET)			✓	✓
Oxygen supply for oxygen delivery at least to the level of high flow nasal oxygen			✓	✓
Operating theatre complex with functional air conditioning system with an adequate number of air exchanges per hour			✓	✓
Isolation area within the neonatal nursery to care for a sick baby delivered from a mother with COVID-19			✓	✓
Availability of lodger mother facilities			✓	✓
Wi-fi for staff to join training and meeting virtually, and for patients to keep in touch with their loved ones			✓	✓
Referral criteria for accepting severe COVID-19 patients or PUIs				✓
ICU and High care facility for COVID-19 patients and PUIs				✓
Specialists able to manage the COVID-19 patient with severe features				✓
Multi-disciplinary team including midwifes, specialist obstetrician, specialist neonatologist and specialist anaesthetist				✓

6.5. What are the health system requirements at an isolation facility?

This is a facility where people can be referred to for isolation within a defined catchment area or the community. Such a facility will take in people, including pregnant women and postpartum women with their newborns as well as children with their primary caregivers, who are well enough to be managed as outpatients but who need to be kept in isolation to reduce the risk of transmitting COVID-19 to other members of the community. These would be people whose home circumstances make it impossible for them to isolate 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 that has been entirely designated for isolation purposes for the period of the COVID-19 pandemic.

Requirements:

- Safe working conditions should be available, including appropriate PPE for all staff according to PPE guidelines.
- Isolation facilities for multiple individuals, including pregnant women, postpartum mother/baby pairs and children with their primary caregivers.
- Admission criteria and protocols for managing the isolation period.
- On-site doctor or nurse (with primary health care and midwifery training)
- Clear referral criteria and pathways, including for obstetric/neonatal/paediatric complications.
- Direct access to consultation with an obstetrician and neonatal/paediatric doctor at a referral hospital (via VULA App/cell phone/WhatsApp).
- Clear protocols on managing COVID-19, including referral criteria to the specialised COVID-19 hospital.
- Direct access to the doctor at the specialised COVID-19 hospital (for consultation and referral of COVID-19 cases who develop severe features)
- Access to EMS transport to transfer COVID-19 patients for those who need transfer to another facility for obstetric or neonatal/paediatric problems or COVID-19–related complications.

6.6. What systems must be in place to ensure the safe functioning of maternity waiting homes during the COVID pandemic?

- There must be a careful screening of all women before admission to a maternity waiting home (MWH), assessing for signs and symptoms of COVID-19 and vaccination status.
- Women with COVID-19 cannot be admitted to the MWH unless this includes a designated physically and functionally separate section for women with COVID-19.
- PUIs cannot be admitted to the MWH unless this includes rooms that allow solo isolation for these women.
- Daily screening for signs and symptoms of COVID-19 for all occupants of the MWH.
- Appropriate infection prevention and control (IPC) measures amongst the occupants of the MWH must be enforced by a relevant supervisor (hand-washing, social distancing and face masks for all, etc.).
- If a woman cannot be admitted to the MWH because of COVID-19 (confirmed or suspected), a senior antenatal care provider must individualise a plan for the woman, e.g. admission for isolation in hospital, admission to an isolation facility or self-isolation at home. Admission to the MWH can be reconsidered once their isolation period has been completed.

7. PSYCHOSOCIAL CARE

7.1. Health worker mental distress and wellness

The COVID-19 pandemic has been a **very stressful time.** Health workers have been facing stress in their personal lives (like losses and or trauma), in addition to having to cope with more demanding and changing work environments. COVID-19 has meant that many health workers find it **difficult to cope over a long period** of challenging times.

Why is stress management important?

When stress is not managed well, work performance and physical wellbeing can be affected. Stress can lead to increased absenteeism. Chronic stress can lead to mental health difficulties such as depression, anxiety and alcohol/substance misuse. It is also very important to manage work-related and personal stress in order to be able to work effectively and kindly with patients. **If health workers do not feel cared for, it can be very difficult to care for others.**

What are the signs of stress?

Signs of stress could include tiredness, muscle tension, insomnia, dry mouth, sweating, nausea, increased use of drugs or alcohol, irritability and impatience, frequent worry, feeling sad, upset or angry, poor concentration, and feeling overwhelmed, even by small problems.

Where can health workers find help?

If a health worker feels overwhelmed by stress and affects how they function at work or home, they need to get help. It often makes people feel better and to think of different ways of managing to talk to a trusted person (a friend, family member, colleague or manager) or someone from these helplines (or others in Appendix 1 of this chapter):

- LIFELINE: 0861 322 322
- SADAG: 0800 121 314

Managers should also encourage health workers to refer themselves to the **employee wellness programme** linked to their district or province. It does not need to be a crisis for a referral to be made. Speaking with a professional counsellor can also help to prevent problems.

How can health workers care for themselves?

There are good **self-care strategies** that can help to manage stress effectively. These include:

- **Ask for help.** Share worries with trusted family and friends to get their support and ideas.
- **Identify support networks.** These could be community or religious organisations, colleagues within the same facility, or spending time with friends and family who are positive and supportive.
- **Exercise regularly and eat healthy food.** Avoid sugar and alcohol, which can give short-term relief from stress but make it more difficult to manage stress long-term.
- **Get enough sleep.** Lack of sleep affects functioning, mood and coping abilities.
- **Set realistic goals.** What can be managed today? What could be done by next week?
- **Get more information** about the problem from reliable sources. It may help reduce worry.
- **Breathing exercises** have been shown to help to reduce stress. Breathe in – hold for as long as is comfortable – exhale – pause for as long as is comfortable and repeat. Notice all the physical sensations of the breath. This simple exercise can be done at any time.

What can line managers do about staff wellness?

Line managers need to be aware of how their workforce is coping and feeling. Several strategies can be adopted. They can:

- schedule **brief check-in meetings** on a regular basis as a team or one-on-one.
  - These meetings could be called, '**Morale booster sessions**' which may make it more appealing for people to attend.
  - Each staff member can be given a few minutes to share how they are doing – what has helped and what has been unhelpful for stress since the last meeting.
  - Managers can express gratitude - publicly and in private – to staff who have performed well or filled in for those who are absent.
  - Self-care exercises such as singing, relaxation methods or sharing music or uplifting stories can be included in these meetings. Each person can take a turn to lead a self-care activity.
  - Consider small gifts or some food at these meetings.
- arrange for rotational time off /rotational shift work amongst the staff if the units/wards are not busy.
- share self-care strategies and resources with their staff.
- express gratitude on divisional social media, newsletters or arrange notes of appreciation from senior sectional managers.
- destigmatise and recommend self-referrals to employee wellness programmes, if available. It can be very helpful if someone who has used these services feels comfortable to personally recommend these to colleagues.

What resources are available to help health workers manage stress?

- **Helplines**
  - In Appendix 1, there is a list of **helplines** that can be used by health workers or people using Maternal Neonatal and Child Health services.
- **WhatsApp** service
  - NDoH HealthWorkerConnect is a WhatsApp service that provides psychosocial support for health workers. **Send 'Hi' to +27 60 060 1111**. They have self-care activities and information around a range of topics, including stress management, resilience, domestic violence, addiction, sleep, grief and loss and managing work relationships.
- **Online Resources**
  - The Perinatal Mental Health Project has a self-care pamphlet for health workers *https://pmhp.za.org/wp-content/uploads/Self-care_HealthWorkers.pdf*
  - The World Health Organization has a stress management guide with self-help techniques *https://www.who.int/publications/i/item/9789240003927*
  - The NHS (UK) has breathing exercises for stress *https://www.nhs.uk/mental-health/self-help/guides-tools-and-activities/breathing-exercises-for-stress/*
  - The International Federation of Red Cross has a pamphlet on sleep *https://pscentre.org/?resource=sleep-helps-you-cope-with-stressful-times*

7.2. Empathic engagement skills

The COVID-19 pandemic has placed a lot of **strain on the psychological wellbeing and social wellbeing** of mothers, other caregivers and children. This strain has led to stress in the mildest of cases. In more severe cases, this stress can lead to mental health difficulties such as depression, anxiety and alcohol or substance misuse (see Special Issues in this chapter). These problems make it very difficult for service users to use the health system in the best way. They **may not understand** or **may be afraid** of the new COVID-19 processes. They **may be angry** at the losses, bereavements and trauma in their lives. They **may be feeling distracted** by enormous financial and relationship challenges in their personal lives.

It is a professional obligation to treat all service users (patients) with **respect** according to **Batho Pele** principles and the **Respectful Maternity Care and Person-Centred Care** guidance (see Section 7.5). This is especially important for people experiencing stress or mental health difficulties - 'mental distress' - at this time during COVID-19.

What help do service users who experience mental distress need?

- Someone who really 'listens' to them
- Time and a safe space to talk to someone and share their feelings
- Supportive health workers who do not judge them
- Respect
- The chance to identify practical options and explore their own possible solutions
- Contact with supportive persons who have had similar experiences

What is empathy?

Empathy is the act of identifying, understanding, being aware of or being sensitive to another person's feelings, thoughts or experiences. It is 'being with' the person. This happens without necessarily having experienced the same feelings, thoughts or experiences yourself. Through this connection, empathy is a powerful form of care. It builds trust and allows the person to feel valued and thus, use available services in the best possible ways.

What is empathic engagement?

- It is interacting with someone in a non-judgemental, supportive way.
- It is 'being with' that person (not just doing things to them or telling them things).
- It is communicating that you are connected to them and that you recognise their feelings.

How do you show empathy?

The most important part of empathic engagement is to **listen**! It involves supporting and empowering the mother or caregiver to find their own solutions. It is **not** about giving advice! It is hardest to empathise with those who are different from us. To empathise with another, you need to be:

- *Open-minded*: you must set aside, for the moment, your own beliefs, values and attitudes to consider those of the other person.
- *Imaginative*: imagine the other person's background, thoughts and feelings, which may differ from yours.
- *Committed:* want to understand another person.
- *Knowing and accepting yourself:* knowing yourself and accepting who you are helps to develop empathy for others.

What are the personal qualities of someone who engages empathically?

- Keeping confidentiality
- Positive regard - an attitude of acceptance, non-judgement, respect and support of a person, regardless of what the person says or does. Positive regard means relating in a positive, helpful and constructive way rather than in a negative, critical and destructive way.
- Warmth and genuineness

What empathic engagement skills can you use every day as part of routine care?

- **Set the scene:** Greet warmly, introduce yourself, use the person's name, make them feel safe and welcome in a private, confidential space.
- **Communicate:** Use language that is easy to understand, ask open questions, use body language to show care and connection; allow the person to tell their story in their own words "Can you tell me more?"; "Go on".
- **Explore life events:** Gently ask about recent life events, changes, use of substances, social background so that you can plan to support the person as a whole.
- **Reflect feelings:** Notice what the person may be feeling and gently reflect this back, even if the feeling is unpleasant. For example, "It sounds as though you feel everything is too much right now/ you are angry with …./ you are very sad about …/ you are very worried about…Am I right?" Remember, the feelings are real for the person. It does not help to tell them their feelings should be different.
- **Rephrase and summarise:** If you have heard the person's story about their challenges, it can help them hear you rephrase (put in slightly different words) and summarise (briefly state the main points) what you have understood.
- **Affirm, support and normalise:** Look for examples of where the person has done well and reflect this back. For example, they have grown a healthy sized baby, they have looked after their children and family by doing……, they have managed a problem well previously. Tell them about your support for their actions and decisions that you find are healthy. Explain that many people are struggling with difficult feelings, social problems at this time.
- **Get feedback:** Health workers often do not realise that distressed people may have different understandings and needs from what the health worker understands. If you are giving information or making suggestions or a referral, gently check that the person has understood you and that what you have said or suggested makes sense or is useful for them.

Will this take too much time?

This may take some extra time which is very short during the pandemic. Even **a few minutes** of quality engagement **can make a big difference.** You can gently place **healthy boundaries** on your engagement with the person according to your available time. Remember, in addition to improving **psychosocial health**, empathic care will likely benefit the **physical health outcomes** for mothers, other caregivers and children.

More resources for empathic engagement skills

- The Perinatal Mental Health Project has several resources for service providers at
- *https://pmhp.za.org/resources/for-service-providers/*. See booklet "Basic counselling skills"
- The Bettercare book "Maternal mental health: a guide for health and social workers" is free online at *http://bettercare.co.za/learning-programmes/maternal-mental-health/*. Chapter 4, "How to help mothers with mental distress", provides detail on skills, case studies and self-assessment
- A short film for South African health workers in maternity care on empathic engagement skills is available at *https://pmhp.za.org/what-we-do/capacity-building/courses-modules/*

7.3. Communication and messaging

During COVID-19, there is much **new information, regulations and processes** for health workers to share with service users. Many of these **change** from one week to the next. Because of the additional stresses that mothers, caregivers, and children face, this communication can be difficult to take on board or **confusing.** Therefore, health workers need to take note of **the quality of their communication**[24] with service users. Many of the **empathic skills** above help with effective communication.

What should health workers do for effective communication?

- Give full attention to the person.
- Be honest, open and warm.
- Notice non-verbal communication in yourself and the service user.
- Offer clear information that is easy to understand (be aware that the person may not understand your language well).
- Allow the person to express their emotions and reflect these back.
- Check that the person understands.
- Offer a chance for the person to ask questions or to ask you to repeat your messages.
- Use innovative communication channels to overcome the restrictions enforced during the COVID-19 pandemic.

What should health workers avoid for effective communication?

- Talking too much
- Rushing, interrupting
- Giving personal advice, forcing ideas or decisions
- Criticising, blaming, judging

Where should health workers find up to date health information to share?

There are many resources for messaging at the NDoH COVID-19 resource and news portal *https://sacoronavirus.co.za/*. Also, experts have developed a set of messages for mothers and caregivers that cover physical health, child health, mental health, domestic violence, parenting and vaccine-related matters during COVID-19. The links to these are available in Appendices 2. Some of the messages have been translated into other languages or are available in more detail at *www.messagesformothers.co.za* .

What about messaging on self-isolation

Public health measures for limiting the spread of COVID-19 infection require symptomatic people to isolate (when positive or possible positive) for 7 days (current recommendation: please align to latest national guidelines). Health workers must provide accurate information about this and assist in problem-solving about necessary planning. This may involve referring to DoH or NPO groupings which can assist and provide support for these arrangements. See also sections 2.7 and 4.10. Remember, many people struggle with loneliness and their mental wellbeing when they isolate. Suggest easy and pleasurable activities for them to do and ways to connect with others via phones and social media.

What about messaging about vaccinations?

A special set of messages has been developed to support vaccine uptake for all pregnant and breastfeeding women. These are available in Appendix 2 and are available on MomConnect.

What about vaccine hesitancy?

People's concerns about being vaccinated could be **emotional** and related to personal experiences and perceptions of **poor or unfair treatment in the past.** They may have **questions about the science** involved with the vaccine and not have all the information they need. They can be influenced by their families or communities' beliefs or controlling behaviours. It is important **not to overwhelm people with facts** and information. Instead, **acknowledge their views or experiences** and find out what would encourage them to get vaccinated.[25]

How can health care workers help boost vaccine confidence?

- **Lead by example –** share your personal experience of getting vaccinated. This helps to promote vaccination acceptance as a social norm. Sharing your own concerns and how you overcame these.
- **Build trust –** If you're helping to give vaccines, be supportive of anyone coming in for vaccination who has questions or asks for your advice. Listen to any concerns and communicate in a way that is respectful and builds trust.
- Help people feel **empowered**[26] **–** many people are scared. You can help to remind people that they can do something about this virus. By getting vaccinated, they can help to protect themselves and their loved ones.
- **Address misinformation –** if someone is arguing against vaccination because of false information, you need to give the correct information.
- **Start with the facts –** e.g. "No vaccine is 100% safe and effective, but COVID-19 vaccines have been shown, in many scientific studies, to be very safe and effective."
- Say that there is misinformation. Acknowledge the myth the person has mentioned. End with the relevant facts.
- **Share vaccine success stories –** vaccines have helped the world get rid of Smallpox and Polio and control measles and meningitis. Childhood vaccinations for many diseases are routine and help to save lives.[27] Vaccines in pregnancy have been given to prevent other infections for many years.
- **Emphasise positive outcomes –** "Vaccination will help protect you, your family and your community from COVID-19, and will bring us all closer to doing the things we love with the people we care about."

7.4. Intersectoral collaboration

During the COVID-19 pandemic, children, families, and communities face a huge amount of stress such as unemployment, hunger, and domestic violence. As a result, many are experiencing anxiety, depression and substance use problems. Although **being empathic can help in many ways**, healthcare workers **may not have the skills, resources and time available to provide all the needs** to all patients. But, effective intersectoral collaboration links patients to other departments or organisations for **additional support and treatment**.

What is intersectoral collaboration?

It is a relationship between different departments or organisations. The collaboration can be between different people or departments within the department of health or between the department of health and other organisations such as communities or not-for-profit organisations (NPOs).

How can you develop intersectoral collaboration?

Managers should lead this process with the support of their staff.

- **Accept your limitations**. You will not be able to provide everything to all patients. But, you are able to link patients to others to provide the support and care they may need.
- **Know what services you're unable to provide.** Make a list of all the services that your patients need but that you're unable to provide. For example, you may be able to detect anxiety and depression, but you're not able to provide psychological support. You may have patients who would benefit from the child support grant, but you are not able to help them with their application.
- **Investigate the resources available**
  - Meet with a full range of possible stakeholders to develop strong working relationships and understand what services they offer
    - Within your facility (social workers, mental health nurses, occupational therapists, medical officers, visiting psychologist, home affairs etc.).
    - NPOs working in the community surrounding your facility.
  - Find out the following information
    - **Details** on their service offerings. What can the patient expect they will receive?
    - **How to make an efficient referral** (forms, how should they be contacted, appointment systems). Find out any details such as days, times.
    - What is **their capacity** to take on referrals: how many, and what is the waiting period?
    - Ask about the **feedback** you can expect from them on the outcome of your referral. How will you know if the referral was taken up and if the support provided was adequate? Agree on how they will provide you with feedback and when you can expect this.
    - Ask if they can recommend other services.
    - Explore whether they would be willing to provide **services at your site**, if possible.
    - You may need to **repeat this regularly** as service offerings and providers may change.
- Develop a detailed resource directory or map for your facility.
  - Communicate the referral system to all staff, train and supervise for referrals.
  - Have the directory/map available in every clinical space.
  - Remember to update.
  - Have forms, logs and indicators integrated into routine service processes.
  - Communicate closure of clinics due to COVID-19 and offer alternative facilities to attend to or collect chronic meds.

7.5. Respectful Maternity Care and person-centred care

What is Respectful Maternity Care and person-centred care?

Respectful maternity care (RMC) is an evidence-based approach to care in all circumstances. It includes **respect for women's (and their babies') dignity, privacy and confidentiality; informed choice and continuous support during labour and childbirth.** It is part of person-centred care (PCC). In PCC, **emotional wellbeing and physical comfort are very important**, and patients are **empowered** and included in decisions about their care.

Is Respectful Maternity Care and person-centred care important during the pandemic?

RMC and PCC were weakened due to many problems linked to the COVID-19 pandemic.[28] Restrictions on contact between women and their infants or loved ones can make maternity care lonely and frightening for women, their partners and their babies. Health workers face high levels of personal and work stress that may make RMC and PCC feel difficult.

It is important to remember that practising RMC and PCC is **a professional duty and can improve job satisfaction**. RMC and PCC can help make childbirth a positive experience [29] and are linked to **better health results for mothers and their infants - both physically and psychologically**. If women are not treated with respect, they may delay or avoid using healthcare services. This can be harmful to them and their babies and cause more work for health workers.

How can RMC and PCC be practised within the reality of COVID-19 restrictions?

Promote family involvement/support

Promote the presence of the woman's partner or another companion of choice as far as possible within the current restriction level. This should happen in the antenatal clinics, labour ward, theatre or postpartum ward. Ensure the companion does not increase the COVID-19 transmission risk (screening, sanitation, mask-wearing, vaccination, as relevant). The companion can provide physical and emotional support and decrease the risk of health workers moving between patients. If physical presence is not possible, help the mother and her family have contact on the phone or via recorded messages.

Keep the mother and newborn together

Keep the newborn and mother together as far as possible: for breastfeeding, skin-to-skin contact, kangaroo-mother care and bonding. The baby is at more risk when not with her unless the mother or newborn is critically ill.

Ensure effective health education

Women need evidence-based information in easy to understand language, to be able to make informed decisions and give informed consent. See Empathic engagement (Section 7.2) and communication skills in this chapter and health messages in Appendix 2.

Promote a positive practice environment

A negative practice environment gets in the way of health workers providing kind, compassionate and empathetic care. Managers need to provide leadership support, deal with resource shortages and conflict or poor relationships between staff.

7.6. Family and Social Systems

Healthy relationships are at the centre of our wellbeing. This is true for all people. Babies are totally dependent on the care and support of their parents. Children, teenagers, adults and the elderly also depend on relationships. The relationships we have with those around us affect us in important ways. The Ubuntu saying is 'We are people through other people'. Children and adults in strong, supportive relationships are more likely to be healthy. They are likely to get hold of the right help when they need support. In times of stress, these relationships are important to restore health.

During COVID-19, many people have had strain on their relationships with family or social networks. Many people have lost relationships due to strain or bereavement.

How does this affect your work as a health worker?

- Your patient should be seen as part of a system of relationships. Relationships between babies and children and their parents are important. The social systems of adults (partner, sister, friend) are also important.
- If you can support these relationships while your patient is in your care, your patient will feel more comfortable and accept your advice and treatments more easily.

What should you do at work?

- Ask your patient who their important person is?
- Encourage them to talk to them and ask them for help.
- Every child must be accompanied by an adult wherever possible.
- Encourage supportive touch for children. Ask mothers or fathers or other caregivers to hold their hand or offer physical comfort.
- Explore different ways to stay in touch like SMSs, voice notes or WhatsApp messages.

What about your relationship with your patients?

- Speak to your patient with respect and care. They will listen to you if they feel respected by you.
- An empathic and kind relationship with a health worker can help a mother, caregiver or child to feel safe and cared for. This can be especially important if the person is feeling afraid and alone or cannot have close contact with other caring people in their lives for COVID-19 or other reasons.

What about when your patient has poor relationships with others?

- Speak to your patient about the importance of relationships and support.
- Explore whether they have symptoms of depression or anxiety or have low self-esteem, leading to their difficulties with relationships. Manage these causes if you can. See Section 7.7.5 on Special Issues related to stress, addictions, common and severe mental health conditions.
- Assist them in getting assistance from one of the support organisations in your area or those in Appendix 1.

What about support to families or individuals who are caring for sick family members at home?

COVID-19 has resulted in many people taking on the role of caregiver at home for sick relatives. This is a new role and responsibility for many and may make people afraid and uncertain. It is important to give clear information on supportive care provided in the home and danger signs that may require hospitalisation. Provide information on helplines and nearest emergency facilities.

7.7. Special issues

7.7.1 Grief, bereavement and loss

The COVID-19 pandemic has greatly increased the number and different types of losses experienced by so many. At the same time, people have had less opportunity to benefit from the usual community-based support structures and funerals/rituals to help grieving families. These losses range from losing loved ones to the loss of income, education, routines and structure.

What is grief?

Grief is a natural response to loss. It involves emotional, physical, spiritual, and intellectual reactions that need to be experienced to help the bereaved person to adjust to a new life without the person or object of loss.

What is the normal grief experience?

The grief journey is a unique experience for each person. Adults can experience emotions: denial, anger, bargaining, depression and acceptance. These emotions are not always experienced in this order. Children grieve differently. Their grief may be experienced in an 'on and off' way and can depend on their ability to understand what happened. When children cannot understand or express emotions in a healthy way, grief may show as behavioural problems, poor school performance or social withdrawal (avoiding social interactions, self-isolation).

When are grief responses abnormal or too much?

Complicated grief is an ongoing, intense state of mourning that keeps a person from healing, including intense sorrow, pain and constant thinking about the loss. Normal functioning (work and school) is impaired. Suicidal ideation (wishing to join the deceased) is a psychiatric emergency.

What can health workers do to support grieving adults (parents and caregivers) and children?

- **Prepare for anticipated loss:** If predicted, good preparation can help prepare the person better and help with important things like "saying goodbye". If this can't be done face to face because of COVID-19 visiting restrictions, this can be done through cellphones/Facetime etc.
- **Help families with memory work and rituals** to celebrate the person's life, like keeping photos, pieces of clothing, notes, celebrating the person's life with gatherings, readings, discussions.
- **Acknowledge the loss** and treat the deceased body with respect. Give the family time after a death and explain what is going to happen next.
- **Allow time for grieving** and help people (especially young children) understand their emotions (consider providing information brochures); assist with letters for work.
- **Encourage the family to identify local resources** (faith communities, schools) and persons that can help support them.
- **Encourage healthy connections (even virtually)** and **time out** (especially in nature) with others – prevent social isolation
- **Keep routines and regular mealtimes**
- **Provide young children** healthy ways for expressing emotions (writing, drawing, playing music)
- **Refer for professional help** if grief response is complicated. (Use resources in your area or those in Appendix 1)
- **Care for the carer-** acknowledge the impact of loss for the health worker. Provide opportunities for debriefing and professional support if needed.

Resources
https://www.cdc.gov/mentalhealth/stress-coping/grief-loss/index.html#loved-one
https://academy.patchsa.org/courses/supporting-grieving-children-in-the-time-of-COVID-19/
Khululeka Grief support (for children): https://khululeka.org/

7.7.2 Separation from caregivers

During COVID-19, newborns and children are often separated from their parents or those who love them in health service settings. This is usually happening because of a concern that the mother or caregiver has possible or confirmed COVID-19 infection. Health workers do not want the mother or caregiver to pass the infection to the child or others in the health facility, including health workers themselves.

Why is this a bad idea?

There are many reasons why this is a bad idea.

- Infection rates of babies are incredibly low, and even when children do become infected, they still have a small risk of getting very ill and dying.[30]
- The risks of not receiving kangaroo care (skin-to-skin), not breastfeeding, and being separated from their mother, far outweigh the risk of the baby contracting severe COVID-19 related illness.
- Not receiving kangaroo care, not breastfeeding, and being separated from their mother causes unnecessary suffering for babies – especially small and sick newborns.
- It is critically important for newborn infants to have close contact with their caregivers. This is true for all babies – for their physical and emotional wellbeing.
- The relationship between a baby and their caregiver helps the baby develop a secure attachment and learn self-regulation, which is crucial for child development.
- Prolonged separation from caregivers is highly traumatic for babies and children.
- For the mother to be separated from her baby may increase her risk of becoming anxious and depressed.

What can be done?

If at all possible, ensure that babies are not separated from their mothers or other caregivers.

If you are not sure of a mother or caregiver's vaccination status or COVID-19 status:

- Take a careful history
- Discuss mask-wearing, hand washing, cough hygiene
- Discuss safe and unsafe areas and times for the mother or caregiver to move around the facility
- Ventilate rooms well but ensure the baby or child is warm enough
- Help the mother or caregiver to look after the baby or child
- Group children who are COVID-19 positive or children who are a Persons Under Investigation (PUI)
- If possible, test mothers and caregivers

If the mother or caregiver has had a confirmed COVID-19 exposure or is COVID-19 positive and well, isolate the mother/caregiver and child from others in the facility if this is possible. If this is not possible, or the mother is unwell and not able to care for her child, suggest another caregiver be available to be with the infant or child until the primary mother or caregiver is safe to do so.

7.7.3 Gender-Based Violence

During COVID-19, additional stressors for the family can increase intimate partner violence (IPV) or violence by others in the home against pregnant or breastfeeding women. Women can experience physical, sexual, emotional or financial abuse by current or past partners or others who live in the home.

Health workers are in a good position to respond. Possible signs that a woman is experiencing violence: sadness, anger, withdrawal, worry, not following medical advice, difficulties in labour.

How can you help a woman who is experiencing violence?

- First, invite her to talk with you in a quiet, private space in the clinic.
- If she is accompanied by a partner or family member who may be harming her, say that you need to do a medical procedure with the woman in private for a while.
- Use your empathic skills: make her feel safe with you; show kindness with your words, your voice and body; listen to her story and reflect her feelings without judgement.
- Ask about the relationship. For example, ask: “Do you have any concerns about your relationships at home or with your partner?”
- Next, ask if she has any worries about safety: “Are you worried about your relationship? Are you ever feeling unsafe?”, “Do your children feel unsafe at home?”

Many women will not disclose their experience of violence unless they are asked direct, specific questions about it (but in a gentle, sensitive way), “Do you get hit, slapped, punched or hurt by someone at home?” or “Are you forced to have sex when you don’t want to?”

Just this step of asking kindly and calmly about something happening in the woman’s life can be helpful. You may be the first person ever to ask them about IPV or domestic violence and the first person they disclose to. Having a positive disclosure experience with you is a very powerful and therapeutic intervention.

But, even if they do not tell you much, they will know that the health clinic is a place where someone cares about them, and they might choose to disclose their experience at a future clinic visit.

What if the woman tells you that she is experiencing violence currently?

Your job is not to solve the problem of violence but instead to help her get help outside the clinic. This is called “first-line support”.

1. Continue to be calm, gentle and kind.
2. Explain that your job as a health worker is to support her in making her own decisions and responding to her most immediate concerns.
3. Help her explore her options and the advantages and disadvantages of these. Assist her in developing a manageable step-by-step plan for her. If you can see her again to check how her plan is going. Recognise her strengths and resilience – reflect these to her. For challenges she may face in her problem solving, encourage her, or work with her to adjust her plan as necessary. Celebrate any successes.
4. Help her find additional care if she wants this:
    - For victims of rape, administer Post-Exposure Prophylaxis (PEP) within 72 hours. Refer her to a Thuthuzela Care Center for additional psychological or legal support.
    - Ask her to add these numbers to her phone or write down in her wallet with a fake name in case she wants more help – or has an emergency:
        - **Gender-Based Violence (GBV) Hotline: 0800 428 428**
        - **National Shelter Movement: 0800 001 005**
5. Share information on other support services (use organisations in your area, if possible) and help her connect to them by making a referral by phone or in writing.

6. Many women will not want help or a referral immediately. Do not pressure them to act immediately. It's important to respect their decisions – they will know best when it will be safe for them to act. If you can arrange to see them again in the clinic, you can offer valuable continuity of care.

For women who are experiencing or have survived violence, just knowing that you, as a health worker, care about them and can assist them in the future can be a meaningful change in their lives.

For women who experience violence - remember that 'leaving' is a process, and women resist the abuse in many different ways long before they are able to physically leave the relationship.

You can play an important role in supporting and empowering a woman during this process.

How can you check for signs of danger?

Make sure she and her children are safe from immediate danger.

Remember that women are often very skillful at telling what times are more dangerous than others. If she feels safe right now, you can help her plan for a future crisis now, while things are calm.

Ask her: "Do you believe your partner might harm you or your child in the next few days?"[22]

- If she says "no", she might still want help. Ask if she is willing to take a referral to another service provider for additional help.
- If she says "yes", you can refer her and her child to a shelter by phoning the 24-hour National Shelter Movement hotline: 0800 001 005
- If she is willing, you can also make a direct referral to the nearest police station (though many women will not choose to report during a moment of crisis.)

Some women don't want to stay at a shelter or tell the police. How can you help a woman stay safe if she wants to return home to a violent person?

- Talk with the woman about making a "safety plan" for times of violence or conflict:
- Help her identify a safe person to disclose the violence to (family member, friend, neighbour). Then, she could ask them if she could send them a code to alert them if she is in danger.
- Encourage her to organise her important documents and keep them ready and in a safe place if she needs to leave in a hurry (birth certificates, marriage certificates, ID, SASSA or bank card).
- Advise her to have a ready-packed bag with basic necessities for herself (and her children) if she needs to run away or go to a shelter. She can keep this at a friend or relative's house[23].
- Ask that she teaches her children to run to a room with a locked door or a safe neighbour's house if an argument breaks out. This can prevent children from getting hurt.

What about the health worker?

- It can be difficult to listen to stories of violence in the lives of our patients. We may also have been affected by the same situations in our personal lives. It is important to recognise that our role is to assist and not to fix. We also need to take care of ourselves in doing this work to protect our own mental health and to ensure our ability to be effective professionals.
- See free HealthCareWorker HCW Connect resource on WhatsApp 060 060 1111 or SADAG helplines: 0800 21 22 23 or 0800 456 789.

7.7.4 Poverty and food insecurity

Before COVID-19, more than half of all South Africans lived in poverty. The situation got worse during the lockdown when many more were left unemployed and food insecure. Pregnant and breastfeeding women are especially vulnerable since they may be unable to work but have to spend more money on clinic visits and eating healthy food. Poverty and food insecurity can affect the mental and physical wellbeing of the mother and her children.

How could poverty and hunger affect patients?

They could

- feel a deep sense of shame
- develop stress, depression or anxiety
- struggle to breastfeed resulting in underweight babies
- find it difficult to use services resulting in missed clinic visits
- engage in risky behaviour (unsafe sex, alcohol and drug use)

What can a health worker do?

- Show kindness and empathy (refer to sections in this chapter on Empathic Engagement and Communication for more information)
- Refer for mental health support
- Discuss the child support grant
- Refer to a social worker or food support organisations, income-generating opportunities or NPOs (refer to the section in this chapter on intersectoral collaboration)

7.7.5 Stress, mental health conditions and addictions

COVID-19 has created many social and psychological challenges for mothers, partners, other caregivers and children. There has been an increase in stress, mental health conditions and addictions. With the right care, MCH health workers can play an important role in addressing these.

What is stress?

Stress is part of life, part of growing and managing our place in the world. It is experienced as emotional or mental strain. The more difficult a situation is, the more stressed we feel. Some stress can help us function well, but too much stress can cause psychological suffering and poor functioning. How we cope with stress depends on our mental health, our circumstances and support systems. **See Adult Primary Care Guidelines (APC) for assessment and management of 'Low mood and stress'**

What are mental health conditions?

Mental health conditions affect a person's **feelings, thoughts and behaviours.** Mental disorders are not the same as temporary stress. A person may have a mental disorder if they have many symptoms affecting their mood and thoughts and their functioning: at work/school, home, and community.

What are the main types of mental health conditions?

- **'Common mental disorders'** are highly prevalent, including depression, anxiety, post-traumatic stress disorder (PTSD), and substance misuse. They may be mild, moderate, or severe and may occur independently or together (comorbid). These conditions have different negative effects on the mother and the child. The **prevalence** of perinatal anxiety and depression in South Africa (antenatal or postnatal) is 1 in 3 women. During COVID-19, these conditions are more common than before. These conditions are linked in a vicious cycle to poverty, violence, social isolation, difficult life events, trauma, being a displaced person, teen pregnancy and a history of mental health problems.
- **'Severe mental disorder'** usually refers to bipolar and psychotic disorders. These are quite rare (2–3% of the general population) but are always severe as they cause severely impaired functioning. **Remember that puerperal sepsis and other physical causes of delirium may look like postnatal psychosis.** Psychosis is when a person is out of touch with reality. They can have hallucinations and delusions, and their behaviour is unpredictable. It is a psychiatric emergency. The person should **not be left alone** until they have had an assessment by a mental health professional.

Any condition may present for the first time or become more severe during or after pregnancy.

What are addictions, and why do some people have them?

Addictions may be to substances (as in substance use disorders) or repetitive, rewarding behaviours such as gambling or computer games. Addictions interfere with personal functioning – they harm our relationships, household activities, and work performance. Some reasons for addictions:

- the immediate feeling of reward or satisfaction.
- to avoid withdrawal symptoms
- to cope with stress – the immediate reward feeling helps the person feel stronger and more able to cope. However, the harm caused means addictions are not a healthy way of coping.

Addictions are more common among people with other mental health conditions, such as anxiety, depression, PTSD, attention deficit hyperactivity disorder, bipolar disorder (which may show as depression or mania), or psychotic disorders.

What about suicide?

- People may think about, plan or attempt suicide for many reasons.
- This can be related to depression, psychosis or can be related to other factors such as impulsivity or very difficult life events.
- When you have developed a good relationship with the person, ask gently, "*Are you thinking about and have plans to end your own life?*
- Make an urgent referral to assessment with a doctor or mental health professional if you are concerned
- If a person has a history of having tried to harm themselves before, and/or
- If a person has planned how they will harm themselves
- **Do not leave the person unattended**

How do I know if a woman has a mental health condition?

- Examine the mental state of every woman: self-care, behaviours, posture, facial expression, speech
- Notice what other health staff or the woman's companions are saying about the woman
- Be aware of your own feelings towards her – if you feel irritated, impatient, this could show that there may be something wrong with the patient
- Ask gently about symptoms: mood, thoughts and functioning
- Use a validated screening tool

Why should maternal and child health workers be involved in mental healthcare?

- People with mental health difficulties
  - find it very challenging to use the health system and follow health advice in the best way.
  - have a greater chance of poor physical health outcomes
  - can improve with kind, empathic care from non-mental health specialists
- It is more effective and rewarding to practice healthcare that includes mental health and physical health components
- Many types of mental healthcare can be routinely integrated into routine MCH care.

What can maternal and child health workers do for the mental health of their patients?

A lot!

- Follow the NDOH PHC **Standard Treatment Guidelines** on Maternal Mental Health (in STG Chapter 6) and Mental Health (STG Chapter 16).
- Use the **algorithm/flow diagram** in Appendix 3 Stepped care approach to management and referral for mental health conditions.
- **Respectful Maternity Care, Person-centred Care and empathic care**, and effective **communication** are all very important mental health promotion skills.
- **Screen** using the 3-item tool in the Maternity Case Record. How screening is offered is linked to how a woman will respond. Consider screening for risk factors. If the screener has a **gentle and kind** attitude, the woman is more likely to respond openly and take up any referrals. Health workers should use their clinical judgement and refer women they are concerned about, even if the screening test is negative.
- Mental health conditions can be **managed.**
- If they are mild, effective treatment includes:
  - Social support and healthy relationships with others
  - Psychoeducation - use health communication messages on mental health (See Appendix 2)
  - Scheduling and increasing pleasurable activities
  - Psychotherapies 'talking therapies' such as Cognitive Behavioural Therapy, Interpersonal Therapy and Problem Solving Therapy.
- If the conditions are moderate or severe, **in addition to the above, antidepressant medication** can improve symptoms and functioning of depressed and anxious women. See Appendix 4 for the Adult Hospital Standard Treatment 2019 Guideline "Antidepressant Treatment Algorithm for Depression and Anxiety in Pregnancy and Breastfeeding"
- Make **good referrals**
- **Allied health professionals:** Social workers, registered counsellors, and occupational therapists can assist with different aspects of management, including self-esteem, motivation, insight, and judgement. Physiotherapists may also assist with motivation and body pains and in reducing mood symptoms through exercise.
- For local **resource mapping** - see section 7.4 on inter-sectoral collaboration in this chapter
- See also Appendix 1 for national resources/helplines
- Offer follow-up care and **case management** to support the uptake of services and recovery. Allocate a case manager (a social worker, registered counsellor, enrolled nurse, CHW, or lay health worker) to report to maternity staff on multiple problems the woman may be experiencing.
- The Bettercare book "Maternal mental health: a guide for health and social workers" is free online at *http://bettercare.co.za/learning-programmes/maternal-mental-health/*. Chapter 4, "How to help mothers with mental distress", provides detail on skills, case studies and self-assessment

7.7.6 Adolescent pregnancy

One of the results of schools closing during COVID-19 lockdowns is that vulnerable girls spend more time with boys and men, **increasing the chance of risky sexual behaviour** and teenage pregnancy. Also, getting information on reproductive health as well as visiting clinics for contraceptives has become more difficult. During the pandemic, adolescent girls are at **greater risk of sexual exploitation, rape, incest and other forms of violence.** Teens may feel **very afraid, alone, and ashamed** when they find out that they are pregnant.

What are some of the problems that can result from teen pregnancy?

- Adolescent girls that become pregnant are more likely to get married much earlier and experience poverty.
- If they try to get an unsafe abortion, they may die from the complications.
- When a teen is struggling with her own developmental issues, she may not be a responsive caregiver to her baby. This may result in health and emotional difficulties in the baby.
- Adolescent girls who are pregnant and have a baby often face high levels of stigma from caregivers and peers. This can have negative effects on their mental health.
- Adolescent girls are often in violent relationships, which then increases mental health risk.
- Mental health problems in adolescents can increase their chances of becoming pregnant.
- Adolescents have a greater risk of self-harming behaviours, including suicide.
- Dropping out of school can result in more adolescent pregnancies and greater chances of long-term poverty

What can health workers do?

Provide adolescent-friendly health services

- An anxious and scared adolescent is absolutely in need of support from health workers.
- Build a **trusting, non-judgmental relationship** – show kindness and respect. (See section on empathic engagement and communication skills in section 7.2). This can take time, and things can change quite quickly for teens.
- The **quality of your relationship** with her can affect how she uses services and the physical and mental health outcomes for her and her child.
- Ensure **privacy and confidentiality** - teens are sensitive to this and are worried about gossip.
- Remember, aggression or withdrawal/avoidance can be signs of fear and shame.
- Provide them with **information about their physical and mental health** using words that they can understand. Check for understanding. This should include:
  - Contraception and termination of pregnancy
  - Common mental health conditions and alcohol and substance use
  - HIV prevention
  - Birth preparation
  - Breastfeeding
  - Bonding with the foetus/infant and parenting skills
- Remember, adolescents may have misunderstandings and fears about contraception. They may have had bad experiences with disapproval from health staff or family and community members. These are important barriers to recognise. Gently and with respect, discuss options with the adolescent and allow her to feel she has choice. Tell her she can come back (or go to a Family Planning clinic) to discuss side effects and possible changes to her choice, if she wants. All this is vital to support contraceptive usage in this vulnerable group. A young mother with low self-esteem and symptoms of depression is more likely to become pregnant again than a young mother who feels empowered.
- Counselling should focus on **emotional support**, building self-esteem and interpersonal skills, identifying emotional and practical resources and **completing schooling.**
- Encourage them to **participate in social and community activities** – this is important for their wellbeing.
- Where suitable and with the teen's permission, **include parents or the adolescent's caregivers** in her care. Find out their needs and what support they have**. Encourage them to show care and support to the teen.** Help them come to terms with the pregnancy and encourage them not to punish their daughter as this can harm them and their infants.
- Strongly support the presence **of a companion** of the teen's choice for attending clinic and labour. Support that person to support the teen.
- **Refer to available mental health or substance use resources** (See section 7.7.5 on mental health in this chapter and Appendix 1 for resources.)
- Register the adolescent on MomConnect.
- If the pregnant adolescent is <16 years old and the father >18 years old, the child should be referred to a social worker for assessment with respect to further reporting to the Child Protection Unit.

8. APPENDICES

Appendix 1: National referral sources

Here are some useful websites and numbers to call if you need help. Remember – this is a busy time for many help centres. You may need to keep holding or try a number a few times. You may need to try different numbers. Do not give up.

CORONAVIRUS SA

Coronavirus Hotline: 0800 029 999

WhatsApp: 060 012 3456

Website: *https://sacoronavirus.co.za/* or *https://coronavirus.datafree.co/*

MENTAL HEALTH

- South African Depression and Anxiety Group (SADAG) www.sadag.org
  - Many helplines **0800 21 22 23** or **0800 456 789** or **0800 20 5026** or **0800 70 80 90** and others
  - Suicide Helpline **0800 567 567 (8am – 8pm)** or **SMS 31393** and a counsellor will call back
  - live online counselling service from their website
- *Lifeline:* counselling for any like crisis and referral to relevant services **0861 322 322**
- *Substance Abuse:* Department of Social Development 24hr helpline **0800 12 13 14** or **SMS 32312**
- *FAMSA:* advice on relationships, bereavement, trauma **011 975 7106** or **021 44 77 951** (many SA locations) www.famsa.org.za

VIOLENCE

- SAPS (Police) Crime Stop **0860 10111** / SMS Crime Line: **32211**
- Gender-based violence (GBV)-related service complaints (SAPS) **0800 333 177**
- GBV Command Centre **0800 428 428 / *120*7867#** from any cell phone
- People Opposing Women Abuse (POWA) www.powa.co.za tel: **0800 029 999**
- Tears Foundation www.tears.co.za tell dial ***134*7355#** or **010 590 5920**
- Stop Gender Violence: Women Abuse Helpline **0800 150 150**
- Childline: for children and young adolescents (0-16 years) who are in crisis, abuse, or at risk of abuse and violence **0800 055 555**
- Rape Crisis **021 447 9762**

PHYSICAL HEALTH

- Persons with disabilities, SMS 'help' to **31531**
- National AIDS Helpline **0800 012 322**

OTHER

- Department of Home Affairs **0800 601 190**
- National Crisis Line **0861 322 322**
- National Human Trafficking Helpline **0800 222 777**
- Support to Small, Medium and Micro Enterprises (SMMMEs) in distress **086 663 7867**
- Ambulance: calling from cell phone: **112** (number also works worldwide) Ambulance: calling from landline: **10177**
- Private Emergency ambulance **Er24 084124** or Netcare: **082911** (fees for transport)
- Fire Brigade: **998** or **999**

Appendix 2: Health Communication messages

These messages are available in pdf in English, Afrikaans, isiZulu, seSotho, Sepedi and isiXhosa at the links below:

Mother and child physical health

https://messagesformothers.co.za/resources-2/physical-health/)

Vaccination advice for pregnant and breastfeeding women

https://messagesformothers.co.za/2021/02/16/COVID-19-vaccination-mothers/)

Mental health and domestic violence

https://messagesformothers.co.za/resources-2/mental-health/)

Child health

(available in pdf in English at *https://messagesformothers.co.za/resources-2/mothering-at-home/parenting-in-the-pandemic-english/*)

Parenting in the pandemic

(available in pdf in English, Afrikaans, isiZulu, seSotho, Sepedi and isiXhosa at *https://messagesformothers.co.za/resources-2/mothering-at-home/parenting-in-the-pandemic-english/*)

Appendix 3: Stepped care approach to management and referral for mental health conditions

ALL pregnant and postnatal women

- Respectful, person-centred, empathic care
- Psychoeducation – discussion about mental health, self-care
- Activation of social support and birth companion
- Suspect alcohol/drug use (See APC Alcohol/drug abuse)
- Do a mental health screen

This step can act powerfully to prevent later mental distress

Mental health screen POSITIVE +

Risk factors present or

Clinical impression of mental health problem

See APC Stressed or miserable client

Mental health screen **NEGATIVE –**

Risk factors present only

- Respectful, empathic care
- Refer for Community Based Service home visit
- Refer according to risk type: to social worker, doctor, NGO, faith-based organisation, peer support group etc. (Repeat mental health screen at following visits)

Out of touch with reality?

Self harm/suicide plans or self-harm attempts/previous suicide attempts?

See assessments for "Self-harm or suicide" in APC or STG - Primary Health Care

See "Abnormal thoughts or Behaviour' in APC

YES

NO

URGENT CASE

- **Someone reliable to stay with woman at all times**
- Refer to medical officer/mental health nurse/ emergency unit
- Remember psychosis may look similar to delirium (which has medical causes)!

MODERATE / SEVERE

DEPRESSION +/- ANXIETY SYMPTOMS

Long duration,

functioning affected

Same as for MILD but

ADD

Requires referral to a trained provider

- Antidepressant medication and follow-up (prescribed by doctor** or specialist)
- Active follow-up with referral for those responding poorly to antidepressants

MILD

DEPRESSION +/- ANXIETY

SYMPTOMS

Shorter duration, functioning not affected

See APC depression and/or anxiety

- Supportive counselling
- Evidence-based talking therapy
- Ensure social connections (family, community resource)
- Repeat mental health screen in 1-3 months and postnatally

Abbreviations:
APC, Adult Primary Care guideline;
STG, Standard Treatment Guidelines

Appendix 4: Prescribing antidepressants in pregnancy and during breastfeeding

Recommended Steps before Beginning Antidepressant Medication Algorithm

(Discussion should include, yet not be limited to the below)

Screen for and exclude Bipolar Disorder

Does the woman have periods lasting several days or longer when she is more excited and full of energy than usual or very irritable and at the same time is very talkative, has decreased need for sleep and behaves in a way that she or significant others would normally regard as inappropriate?

If yes - suggests woman may have bipolar disorder – refer for clinical assessment and different treatment

If no - continue with recommended steps before beginning the antidepressant treatment algorithm

Counsel patient about antidepressant use

- Encourage non-medication treatments (e.g. psychotherapy) as a first-line treatment when clinically appropriate. Also encourage non-medication treatments (e.g. psychotherapy) in addition to medication treatment when this is prescribed
- No decision regarding whether to use antidepressants during pregnancy is risk-free.
- Selective Serotonin Reuptake Inhibitors (SSRIs) are among the best-studied class of medications during pregnancy.

Risks of antidepressant use during pregnancy	Risks of under-treatment or no treatment of depression and anxiety during pregnancy
• Persistent Pulmonary Hypertension of the Newborn (PPHN), but the absolute risk is low • Transient neonatal symptoms (esp. irritability, jitteriness, poor feeding) • Small but inconsistent increased risk of congenital malformations, particularly with the SSRIs fluoxetine and paroxetine • Most evidence does not suggest associations with pregnancy and birth complications • Studies do not suggest long-term neurodevelopmental effects on children	• Increased risk of postpartum depression • Increased risk of maternal substance misuse • Increased risk of birth complications - pre-eclampsia, pre-term labour, low birth weight • Can make it more difficult for mothers to take care of themselves and their babies • Can make it more difficult for mothers to bond with their babies • Depression and anxiety in pregnancy and postpartum is associated with negative outcomes for the mother, baby and family.

Adapted from MCPAP for Moms toolkit. Revision 10.10.17.
Authors: Byatt N., Biebel K., Hosein S; Lundquist R; Freeman M; Cohen L

Suggested talking points:

If pregnant: In your situation, the benefits of taking an antidepressant outweigh the chance of the negative outcomes we have discussed.

If breastfeeding: SSRIs and some other antidepressants are considered a reasonable treatment option during breastfeeding. The benefits of breastfeeding while taking antidepressants generally outweigh the risks.

Adult Hospital Standard Treatment 2019 Guideline: Antidepressant Treatment Algorithm for Depression and Anxiety in Pregnancy and Breastfeeding

Is patient currently taking an antidepressant?

YES

- Don't stop the antidepressants
- Evaluate history of illness and response to treatment
- Good response and stable?

YES → Continue medication

NO

- Reassess patient
- Consider trial of psychosocial intervention/ alternative medication

NO

Does patient have history of taking an antidepressant that helped?

YES → Prescribe antidepressants that helped in past

NO

FIRST LINE TREATMENT*

Citalopram, oral.

- Initiate at 10 mg daily for the 1st week
- Then increase to 20mg daily
- If patial response, increase to 40 mg daily (not in cardiac disease or > 65 years of age)

*if not currently on medication that is heping
If possible, **avoid Fluoxetine** as first line treatment, because of long half-life and high transfer across placenta and into breastmilk.
In general, if patient stable on an antidepressant, continue this treatment.
In general, if an antidepressant has helped in pregnancy it is best to continue it during breastfeeding.

Untreated depression and anxiety: associated with increased risk of pre-term labour, low birth weight babies, maternal self-harm, poor psychological and neurodevelopmental outcomes in the child.
Adverse effects of SSRIs: Possibe increase in miscarriage, persistent pulmonary hypertension of the newborn, and neonatal irritability, other adverse effects as in general population.
Goals of treatment: Relieve maternal distress and symptoms; improve functioning and uptake of maternal and child healthcare services.

Re-evaluate treatment in 2-4 weeks via mental health screen and clinical assessment

If no clinical improvement after 4-8 weeks

If no/minimal side effects, increase dose
If persistent side effects, switch to different medication

If clinical improvement and no / minimal side-effects

Re-evaluate every month and postpartum

Adapted from the MCPAP for Moms Perinatal Depression Toolkit funded by the Massachusetts Department of Mental Health.
Original Authors: Byatt N, Biebel K, Mittal L, Lundquist R, Freeman M, & Cohen L, Moore Simas T.

Appendix 5: Caregiver information for isolation at home

Isolation arrangements *(to be filled in by the HCW in discussion with the parent/caregiver)*

Your child, _____, possibly has COVID-19 and

we advise for them to stay in isolation for ___ days.

Living arrangements for the child with possible/confirmed COVID infection

In your household, _____ is the adult (parent or caregiver) with COVID-19 infection who will:

- Care for the following children WITH COVID-19 infection:_____

  _____
- Stay in this part of the house:_____,
- Together with these adults:_____.

Living arrangements for others in the household without COVID infection

_____ is the adult (parent or caregiver) **without** COVID-19 infection who will:

- Care for the following children without COVID-19 infection: _____

  _____
- Stay in this part of the house:_____
- Together with these adults: _____

Contact details

- If this child (or anyone else in the household) gets sicker (high fever, difficulty breathing or feeding) please immediately contact the following number _____, if your call is not answered, then go to _____
- If it is an emergency, call an ambulance on _____; tell the call handler or operator that the person has COVID-19 or is awaiting the results of COVID-19 testing.

Monitoring symptoms at home

If the child is getting sicker and you notice any of the following:

- breathing faster (can't finish a sentence) or difficulty breathing
- can't finish their food as normal, vomiting everything
- doesn't play as usual
- feverish
- other general danger signs (severe diarrhoea, shaking, not moving/waking or swelling of body/legs)

Then you must

- call your doctor or healthcare facility
- if it is an emergency, call an ambulance
- inform the call handler or operator or doctor or clinic that you have COVID-19 or are awaiting results of COVID-19 testing

Carefully watch or "monitor" yourself and your child(ren). You/they may have a slight fever, a runny nose and cough, and sometimes vomiting and diarrhoea. Extra care must be taken with children who have chronic health conditions.

Instructions for isolation

Isolation at home must balance children's physical and emotional needs with the need to safeguard them, household members and their friends from COVID-19.

1. You should stay with the child at home (isolate yourself). Don't go to work, avoid all unnecessary travel, and as far as possible, avoid close interactions with other people.
2. You should frequently clean your hands and your child(ren)'s hands with soap and water. If this is not possible, apply about a teaspoon of hand sanitiser (containing at least 60% alcohol) instead.
3. Do not have visitors to your home, including family who do not live with you, or allow other children over to play. Only those who live in your home should be allowed to stay.
4. You and child(ren) over 5 years of age (younger if possible) should wear cloth facemasks when in the same room as other people in the house (not those you are isolated with); or if you absolutely must go out, especially in a vehicle.
5. At home, you should try to stay in a specific room with the child(ren), keep the door closed and window(s) open as much as possible to keep the air clean and fresh, only coming out when necessary, wearing a facemask.
6. You and the child(ren) should use your own bathroom (if possible), or the bathroom should be fully cleaned before others use it, and the window(s) kept open. Disposable nappies must be put in a plastic bag and carefully sealed before throwing them away.
7. You should practice good cough and sneeze hygiene. You should also be careful when blowing or cleaning your nose. Teach or help the child(ren) to do the same by:
    a. coughing or sneezing or blowing into a tissue, throwing away the tissue immediately afterwards in a closed bag or bin, and then washing your hands.
    b. If you do not have tissues, you or the child(ren) should cough or sneeze into your elbow, but remember to wash these clothes carefully (see under laundry).
8. You should avoid sharing household items such as dishes, cups, eating utensils and towels. After using any of these, they should be thoroughly washed with soap and water.
9. All surfaces throughout the house, including the tops of tables or counters, door handles, and toilets, that you may have touched or that you touch frequently should be properly and frequently cleaned, with soapy water or disinfectant (4 teaspoons of bleach in a litre of water). This includes carefully cleaning phones, computers, etc., if others touch them.
10. All used and dirty laundry (sheets, clothes, cloth masks):
    a. must be washed in the hottest water possible (above 60°C);
    b. using soap or laundry detergent (e.g. OMO).
    c. Clean all surfaces and the area where you have stored or washed the laundry.
    d. Wash your hands thoroughly with soap and water after handling dirty laundry.
    e. Dry clothes in the sun (or tumble dry) and iron everything well using the highest setting you can.

Child-care for children in isolation GROW - LOVE - PLAY is still important

GROW

Feeding guidelines

- Continue usual feeding practices, encourage the child to eat despite poor appetite.
- Ensure food utensils are clean and not shared.
- Women who are breastfeeding should continue to do so regardless of COVID-19 status
- Wear a cloth mask (either homemade or bought) during breastfeeding. Wash the mask in soapy water as often as you can but at least every day, and dry in the sunshine. It is easier to have two masks, one to wear while the other is being washed or drying.
- Wash your hands and breasts with soap and water before feeding.

LOVE

Love is always important for all children, but you need to try and protect your child(ren) from an adult who is infected with COVID-19 as far as possible, especially if they (or you) have a cough or a fever.

- Don’t touch the child’s eyes, put fingers into the child’s mouth or blow in the child’s face.
- Don’t kiss babies and children whilst in isolation.

PLAY

- Eye contact, smiling, and games will help keep contact with children.
- You need to keep talking to and engaging the child in the usual parent-child conversation
- Be careful to keep all dangerous products out of the reach of children (including hand sanitiser) and never store them in cooldrink bottles or food jars.

Please complete this form for every confirmed COVID-19 pregnant woman at time of delivery.

DATE COVID-19 WAS CONFIRMED: / /

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

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

Birth weight: ☐ g OR ☐ Unknown

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

Gestational age: ☐ Weeks OR ☐ Unknown

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

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

Number of fetuses: ☐

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

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
- ☐ Other, specify: _____

NEONATAL MORBIDITY:

Please tick all that apply
- ☐ Respiratory distress syndrome
- ☐ Meconium aspiration syndrome
- ☐ Hypoxic-ischaemic encephalopathy
- ☐ Necrotising enterocolitis
- ☐ Intracranial haemorrhage
- ☐ Congenital abnormality
- ☐ Neonatal sepsis
- ☐ Other, specify: _____

SYPHILIS SEROLOGY

Please tick all that apply
- ☐ Positive
- ☐ Negative
- ☐ Not done
- ☐ Unknown

HIV SEROLOGY

Please tick all that apply
- ☐ Positive
- ☐ Negative
- ☐ Not done
- ☐ Unknown

ANTI-RETROVIRALS

Please tick all that apply
- ☐ Prophylactic
- ☐ Long-term
- ☐ Intrapartum
- ☐ Type unknown
- ☐ No ART
- ☐ Unknown

INFANT FEEDING

Please tick all that apply
- ☐ Breastfeeding
- ☐ Formula
- ☐ Mixed feeds
- ☐ Donor milk
- ☐ Expressed breastmilk
- ☐ Unknown

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:
☐ Days OR ☐ Unknown

HEALTH SYSTEMS USAGE: BABY

Please tick all that apply
- ☐ Stayed with the mother
- ☐ Discharge to interim caregiver
- ☐ Admitted to neonatal nursery
- ☐ Admitted to high-care unit
- ☐ Admitted to ICU
- ☐ Intubated & ventilated
- ☐ Death

Total duration of nursery admission:
☐ Days OR ☐ Unknown

In-hospital COVID-exposed neonates: Individual data sheet	
Maternal ID	*[link to maternal ID on obstetric COVID-19 form]*
Infant ID	*[keep list onsite of infant ID with names & facility reference number]*

Maternal information (if out-born or admitted from home) OR (if maternal COVID-19 data is not collected at local site) OR (if paediatric staff opts to document the maternal data)	Parity	/ Not Recorded
	Age	/ Not Recorded
	Antenatal care	Yes / No / Not Recorded
	If HIV-positive, maternal ART	Positive / Negative / Not Recorded
	Mode of delivery	TEE / TLD / 2nd-line / Other / Intrapartum / None / Not recorded
	Hypertensive disease	Vaginal / Caesarean Section / Not Recorded
	Diabetes	PET / eclampsia / Non-pregnancy HT / None / Not Recorded
	Number of foetuses	Yes (gestational) / Yes (non-gest) / None / Not Recorded
	Antenatal steroids	Yes / No / Not Recorded
	Prolonged rupture of membranes	Yes / No / Not Recorded
	Maternal pneumonia	Yes / No / Not Recorded
	Maternal level of illness	Well / Ill / Critically Ill (HCU or ICU) / Not Recorded
	Maternal death (any cause)	Yes / No / Not Recorded
Maternal positive COVID-19 test (from 14 days before delivery up until neonatal admission data)	Date maternal COVID-19 test	
	Type maternal COVID-19 test	PCR / Antibody / Other:
Neonatal information (in-born and out-born) (all admissions within neonatal period) (include COVID-exposed neonates who room-in with their mothers after birth) (filled at primary neonatal ward, before down-referral / step-down)	Date of Birth	
	Date of admission	
	Birth weight	
	Sex	Male / Female / Not Recorded
	Place of Birth	Inborn / Another Facility / In transit / At home/ Not recorded
	Gestational age	
	Apgar score @ 1 min	/ Not Recorded
	Apgar score@ 5 min	/ Not Recorded
	Admission ward	NICU / HCU / Standard Neonatal / With mother / Not recorded
Neonatal signs & symptoms (tick all relevant)		Rash / Oedema / Fever / Hypothermia / Cyanosis / Resp distress / Hypoglycaemia / Hyperglycaemia / Apnoea / Lethargy / Seizures / Feeding intolerance / Vomiting / Diarrhoea / Dehydration / Pallor / Jaundice / Other:
Neonatal diagnosis (tick all relevant)		Prematurity / LBW / VLBW / ELBW / HMD / TTN / MAS / Congenital pneumonia / Cong sepsis / Nosocomial sepsis / NEC / Jaundice (phototherapy) / Perinatal hypoxia (prem baby) / HIE / Intracranial haemorrhage / Shock / Cong abnormalities / Other:
Interventions (tick all relevant)	Respiratory support	O_2 / NPO_2 / HFNC / CPAP / IPPV / Oscillation / None / Other:
	Surfactant administration	Yes / No / Not recorded / Not done
Neonatal COVID-19 testing (tick all relevant)	Result COVID-19 test (test 1)	Positive / Negative / Indeterminate / Not recorded / Not done
	Date COVI0-19 test (test 1)	
	COVID-19 specimen type (test 1)	NPA / OPA / Trachealaspirate / Other:
	Type COVID-19 test (test 1)	PCR / Antibody / Other:
	Result COVID-19 test (test 2)	Positive / Negative / Indeterminate / Not recorded / Not done
	Date COVID-19 test (test 2)	
	COVID-19 specimen type (test 2)	NPA / OPA / Trachealaspirate / Other:
	Type COVID-19 test (test 2)	PCR / Antibody / Other:
Infant feeding (tick all relevant)	Infant feeding type	Breastfeeding / Expressed breast milk / Infant formula / Donor milk / TPN / Not recorded
Neonatal outcome (record at discharge / down-referral / seperation)	Discharge type	Remained with mother / Discharged to mother / Discharged to caregiver / Referred out for neonatal care / Down-referred (step-down) / Death
Neonatal information	Date of discharge/ death	

ACKNOWLEDGEMENTS

Technical working group for Maternal, Neonatal Care and Child Care

- Prof. Ute Feucht
- Dr Tsakane Hlongwane
- Dr Shakti Pillay
- Dr Neil Moran
- Prof. Simone Honikman
- Prof. Priya Soma-Pillay
- Prof. Helena Rabie
- Prof. Neil McKerrow
- Prof. David Bishop
- Prof Ameena Goga
- Dr Gary Reubensen
- Dr Firdose Nakwa
- Dr Amy Wise
- Prof. Stefan Gebhardt
- Prof. Nicolette du Plessis
- Prof. Mel Coetzee
- Dr Kate Webb
- Prof. Jeane Cloete
- Dr David Moore
- Dr Debbie White
- Prof. Heather Zar
- Dr Liesl Zuhlke
- Dr Mohendran Archery
- Dr Ziyaad Dangor
- Prof. Dini Mawela
- Prof. Ashraf Coovadia
- Dr Chris Sutton
- Dr C Mackay
- Dr Harshalo Chan
- Prof. Lee Fairlie
- Dr Lizzy Tabane
- Dr Marieke van der Zalm
- Dr Mphelekedzeni Mulaudzi
- Dr NE Tabane
- Dr Renate Strehlau
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Disclaimer:

The information presented in these guidelines conforms to the current medical, nursing and pharmaceutical practice. Contributors and editors cannot be held responsible for errors, individual responses to medicines, and other consequences.

Comments invited:
The clinical and operational knowledge related to the pandemic is ever evolving. Readers are therefore invited to submit comments that can inform future updates of this guideline to the following email address: **matinfru@up.ac.za**

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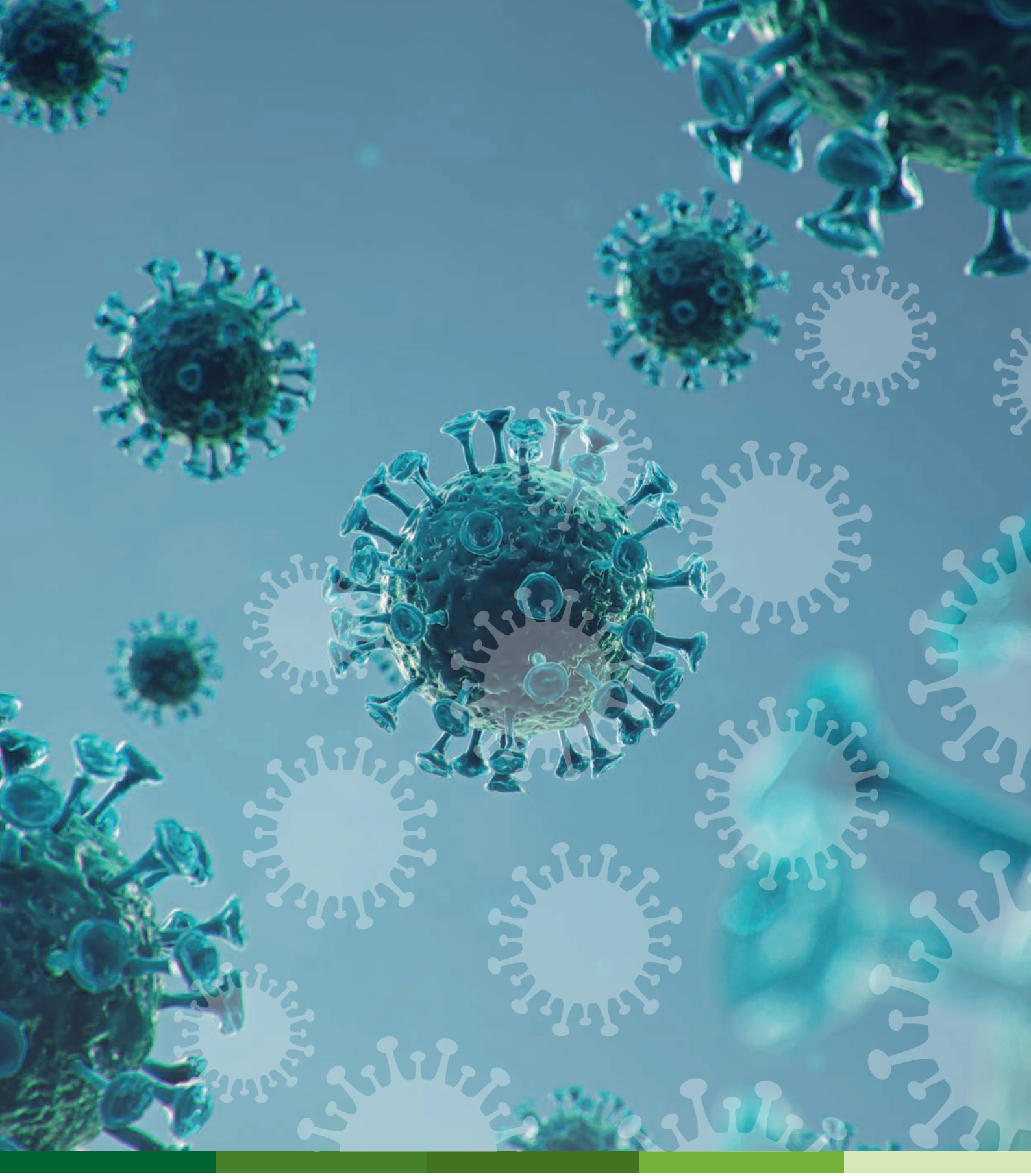

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