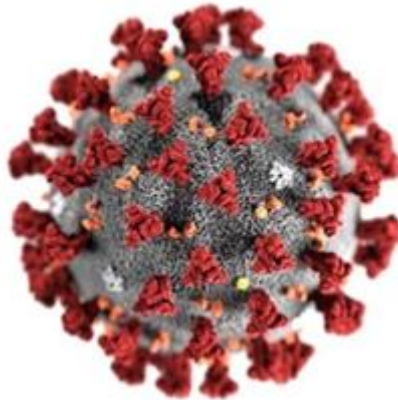


# Kingdom of Lesotho Ministry of Health



## Coronavirus Disease – 2019 (COVID-19) Screening, Testing, Clinical Management, and Prevention of COVID-19



### **GUIDELINES FOR CLINICIANS**

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UPDATE: 9<sup>th</sup> July 2020

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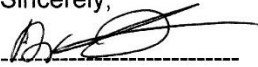
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## Executive Summary

The pandemic caused by coronavirus disease-2019 (COVID-19) and its causative agent, SARS-CoV-2, threatens the health and well-being of all countries, including Lesotho. Because the COVID-19 virus can infect anyone and causes severe illness, even death, among many who are infected a comprehensive response is needed to fight it. While COVID-19 is new, much has been learned about it and the best measures to counter its spread and negative health effects. These guidelines provide a current summary of the most important information for Lesotho's healthcare workers to know about COVID-19 and the recommended actions to address it. Because there is no cure for COVID-19 or vaccine to prevent it, following the recommended infection prevention and control interventions is of the utmost importance to protect healthcare workers and prevent the spread of the virus. By working together to tackle COVID-19 we can minimize the negative impact that the virus has on Lesotho, its people, and its health system.

Sincerely,



Nyane Letsie (Dr)  
Director General Health Services

## Summary of Key Updates

The COVID-19 Clinical Guidelines have been revised to incorporate updated recommendations from the World Health Organization based on ongoing scientific enquiry and discovery. Investigations into many aspects of viral transmission, disease presentation, risk factors for disease progression, treatment and recovery are ongoing. Additional revisions will be shared as evidence is compiled and confirmed.

### Disease Severity

- Disease severity classifications have been clarified.
  - See Table 1, page 8
- All individuals with oxygen saturation below 94% are classified as severe disease.
  - See pages 8, 21, 25
- Supplemental oxygen is to be provided to all individuals with pulse oximetry below 94% with urgent referral and transfer to COVID-19 Treatment Centres.
  - See Figure 8, page 21; pages 25, 27

### Disease Presentations

- Information regarding multisystem inflammatory syndrome in children is presented.
  - See pages 9 and 10
- Additional risk factors for severe and critical disease are included: obesity, hemoglobinopathy.
  - See pages 9 and 20
- Additional information on neuropsychiatric manifestations associated with COVID-19 are presented.
  - See page 32

### Treatment

- Dexamethasone 6 mg daily for 10 days is recommended for all individuals presenting with symptoms consistent with severe or critical disease.
  - See pages 26 and 28
- Elderly patients, diabetic patients and those with hypertension need additional monitoring and may need additional treatment to manage elevated blood sugar and blood pressure levels associated with dexamethasone administration.
  - See pages 29 and 30

### Testing

- Distinction between diagnostic and surveillance testing emphasized with clarification that surveillance team will provide additional guidance on surveillance testing.
  - See pages 13 and 35

### Discharge from Isolation

- Individuals with mild or moderate disease may be released from isolation after a minimum of 13 days from symptom onset and symptom-free for at least 72 hours. No additional testing is needed.
  - See page 23
- Asymptomatic individuals with confirmed disease (identified via surveillance testing) may be released from isolation 10 days after positive test.
  - See page 36

### Referral Pathway

- Updated algorithm is presented on the referral pathway.
  - See Figure 9, page 22

### Personal Protective Equipment

- Clarification that N95 respirator is recommended for clinicians collected nasopharyngeal swabs for SARS-CoV-2 testing.
  - See page 13
- Emphasis that medical masks are recommended for all health care workers in clinical areas.
  - See Table 10, page 42-46

## **Acknowledgements**

We wish to thank the many individuals who contributed their time and efforts to prepare these guidelines, including Ministry of Health staff from various departments, representatives from the World Health Organization and other United Nations agencies, partner organizations supporting the Ministry of Health, and private healthcare practitioners.

## Introduction

An outbreak of a novel coronavirus causing severe acute respiratory infections was first recognized and reported in central China in December 2019. The virus, now named SARS-CoV-2, rapidly spread to affect nearly every country in the world within three months of its first appearance. Coronavirus disease – 2019 (COVID-19), the disease caused by SARS-CoV-2, was declared a pandemic on March 11, 2020 by the World Health Organization. Based on current global experience with COVID-19, most people (~80%) with symptomatic COVID-19 will have a mild viral respiratory infection, 15% will require hospitalization for oxygen therapy, and 5% will be critically ill requiring life support to breathe.

### **Purpose**

This document is intended to be a reference for health care workers and affiliated personnel in Lesotho.

### **Scope**

This reference covers the following major topic areas regarding COVID-19:

- Overview of the virus, its transmission, clinical manifestations, and disease course;
- Recommended approaches for screening, testing, and managing COVID-19 suspects, cases, and contacts; and
- Recommended infection prevention and control measures with a focus on personal protective equipment (PPE).

### **Intended Audience**

- Clinicians and other health care workers involved in the screening, testing, and management of COVID-19 suspects, cases, and contacts.

## Transmission and virus characteristics

### *Virus transmission primarily by respiratory droplets*

- The **main way SARS-CoV-2 is passed from person-to-person is by respiratory droplets** produced by an infected person when they cough, sneeze, sing or breathe.
- Transmission occurs when respiratory droplets carrying living virus come into contact with mucosal surfaces (eye, nose, mouth) of an uninfected person.
- Droplet transmission can also happen indirectly if a surface is contaminated with living virus and that surface is then touched by someone who subsequently touches a mucosal surface.
- At this point in the COVID-19 pandemic, **person-to-person transmission is the main way that the virus is spreading.**
- It has clearly been shown that **once community transmission of SARS-CoV-2 is happening, most infections (75-85%) occur within family households.**
- The occurrence of airborne spread of SARS-CoV-2, and its significance to overall transmission is being actively investigated. Airborne precautions should be implemented in medical settings that could generate aerosols<sup>1</sup>.

### ***Viral characteristics contributing to spread***

Several characteristics of SARS-CoV-2 promote its spread and make it difficult to control:

- The virus is very good at infecting cells of the human airway (nose, mouth, throat, and lungs)
- It creates very high levels of the virus in the airway even before an infected person shows symptoms of being sick. **An infected person is most infectious right around the time they begin to have symptoms of COVID-19.** Some infected persons spread the virus during the pre-symptomatic period, 1-3 days before symptom onset.
- The virus is able to survive on various surfaces for hours to days.
- **Some infected individuals never develop symptoms**, or they only ever have very mild symptoms, but they are still contagious (able to spread the virus).

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<sup>1</sup> Examples of settings likely to generate aerosolization of the virus include nebulization, non-invasive positive-pressure ventilation (NIPPV), bronchoscopy, and intubation.

## Clinical presentation of COVID-19

The typical time before an infected person develops symptoms (called the incubation period) is 1 to 14 days with an average of 5 days. Symptoms of COVID-19 are non-specific and range from no symptoms to severe pneumonia and death. The most common symptoms of COVID-19 are:

- Fever
- Cough (usually a dry cough without much sputum being produced)
- Shortness of breath (dyspnoea)

Other symptoms that are reported less often are:

- Muscle aches (myalgias)
- Fatigue
- Sore throat
- Headache
- Chills
- Diarrhoea or vomiting
- Recent loss of smell (anosmia) or taste
- Nasal congestion and runny nose (rhinorrhoea)
- Poor feeding/poor appetite (infants and young children)

Older individuals and those with immunosuppression may present with atypical symptoms such as fatigue, reduced alertness, reduced mobility, diarrhoea, loss of appetite, delirium and absence of fever.

### Radiographic findings in COVID-19

Chest radiographs are abnormal in most (~60%) patients. Typical early chest X-ray findings are peripheral focal and/or interstitial infiltrates. Consolidation, discrete nodules, hilar lymphadenopathy, and pleural effusions are *not* typical findings in COVID-19.

## Clinical course and risk factors for severe COVID-19 and death

### Clinical course and severity definitions

Many individuals who are infected with SARS-CoV-2 will not develop symptoms. The exact proportion of asymptomatic cases is unknown at this time, but it may be a majority. Population-based serologic testing may provide this information in future.

**Table 1: Disease Severity Classifications**

Asymptomatic		Infection with SARS-CoV-2 without symptoms
Mild disease		Individuals with COVID-19 signs and symptoms (fever, cough, sore throat, malaise, etc) without hypoxia or dyspnea
Moderate disease	Pneumonia	Clinical signs of pneumonia (fever, cough, dyspnea, tachypnea) and SpO <sub>2</sub> ≥ 94% and no signs of severe pneumonia
Severe disease	Severe pneumonia	<b>Adolescents and adults</b> with clinical signs of pneumonia and c or severe respiratory distress or SpO <sub>2</sub> < 94% on room air.  <b>Child</b> with clinical signs of pneumonia and central cyanosis or SpO <sub>2</sub> < 94% or severe respiratory disease; or general danger sign or fast breathing (<2 months ≥ 60 breaths/min; 2-11 months ≥ 50 breaths/min; 1-5 years ≥ 40 breaths/min; 5-9 years ≥ 30 breaths/min).
Critical disease	ARDS	Respiratory failure not fully explained by cardiac failure or fluid overload. Oxygen impairment in adolescents and adults: <ul style="list-style-type: none"> <li>• Mild - PaO<sub>2</sub>/FiO<sub>2</sub> between 200-300 mmHg with PEEP ≥ 5 cmH<sub>2</sub>O</li> <li>• Moderate – PaO<sub>2</sub>/FiO<sub>2</sub> between 100-200 mmHg</li> <li>• Severe – PaO<sub>2</sub>/FiO<sub>2</sub> ≤ 100 mmHg</li> </ul> Oxygen impairment in children: SpO <sub>2</sub> /FiO <sub>2</sub> <264



	Sepsis	Acute, life-threatening organ dysfunction due to dysregulated host response to suspected or proven infection.
	Septic shock	Persistent hypotension despite volume resuscitation, requiring vasopressors to maintain MAP $\geq$ 65 mmHg and serum lactate level $>2$ mmol/L.  <b>Children:</b> any hypotension or two of three of the following: altered mental status, bradycardia or tachycardia, prolonged capillary refill or weak pulse, fast breathing, mottled or cool skin, high lactate, reduced urine output, hypothermia or hyperthermia.

Most people (~80%) with symptomatic COVID-19 only ever have mild or moderate disease although they can still be incapacitated for many days as a result of their symptoms. **Some patients with mild/moderate COVID-19 will progress to more severe disease**, including death. The typical pattern for these patients is stable mild/moderate symptoms for a period of 1-2 weeks before rapidly progressing to severe/critical disease. As a result, it is important to regularly monitor and reassess COVID-19 patients, especially the elderly and those with co-morbidities.

### **Prognosis and outcomes**

Patients with mild/moderate COVID-19 typically recover within 1-3 weeks of symptom onset with an average of 2 weeks. Severe and critical cases typically take 3-6 weeks to recover.

### **Risk factors for severe/critical COVID-19 and death**

The following people groups have the highest risk of developing severe or critical COVID-19 and death:

- People 60 years of age or older
- People with the following chronic medical conditions:
  - Cardiovascular disease (history of hypertension, stroke, heart attack or heart failure)
  - Diabetes mellitus
  - Chronic lung disease (e.g. asthma, COPD, or pneumoconiosis [i.e. silicosis])
  - Chronic kidney disease (e.g. dialysis patient)
  - Obesity
  - Active cancer
  - Hemoglobinopathies (e.g. sickle cell disease)
- People living with HIV (especially those with low CD4, high viral load, and/or advanced HIV)
- People with active tuberculosis or prior history of TB with evidence of lung scarring
- People with severe acute malnutrition (all ages)
- Current smokers

## **COVID-19 in children**

Currently available data suggest that fewer children are infected than adults and that when children do get infected, they have milder disease. However, we do not yet know if children could be having asymptomatic SARS-CoV-2 infections, so it is important that child contacts of COVID-19 cases are also screened, tested, and isolated or quarantined according to the recommended algorithms.

Children with suspected or confirmed COVID-19 infection should be kept together with caregivers wherever possible (if caregivers also have suspected or confirmed COVID-19 infection), and cared for in child-friendly spaces, taking into account specific medical, nursing, nutritional, and mental health and psychosocial support needs of children.

### **Multisystem inflammatory syndrome temporally associated with COVID-19**

This is a recently reported hyperinflammatory syndrome noted in children and adolescents leading to multiorgan failure and shock. Initial hypotheses are that this syndrome may be related to COVID-19 based on timing and positive serology testing; however, investigations are ongoing. To facilitate collection of standardized data, WHO has developed a preliminary case definition and case report form. All suspected cases should be managed in consultation with senior clinician, preferably a paediatrician.

### WHO Preliminary case definition

Children and adolescents 0–19 years of age with fever > 3 days

AND two of the following:

- Rash or bilateral non-purulent conjunctivitis or mucocutaneous inflammation signs
- Hypotension or shock
- Features of myocardial dysfunction, pericarditis, valvulitis, or coronary abnormalities
- Evidence of coagulopathy
- Acute gastrointestinal problems

AND

- Elevated markers of inflammation such as ESR, C-reactive protein, or procalcitonin

AND

- No other obvious microbial cause of inflammation, including bacterial sepsis, staphylococcal or streptococcal shock syndromes

AND

- Evidence of COVID-19 (RT-PCR, antigen test or serology positive), or likely contact with individual with COVID-19.

### Diagnosis of COVID-19

Currently, there are 3 types of tests for diagnosing SARS-CoV-2 infection:

- Detection of **SARS-CoV-2 RNA genetic material** in a clinical sample from a patient with suspected COVID-19. **This is the preferred method for diagnosing the disease.** A sample from the nose, throat, or lungs is required. It is also called a ‘molecular’ test.
- Detection of a **SARS-CoV-2 antigen (protein)** in a clinical sample from a patient with suspected COVID-19. Rapid antigen tests are available. A sample from the nose, throat, or lungs is required.
- Detection of **antibodies to SARS-CoV-2** from a blood sample from a patient with suspected COVID-19. Rapid antibody tests are available. Confirmation of active SARS-CoV-2 infection is done using a RT-PCR or antigen test.

#### **Additional considerations**

- Real-time, reverse-transcription polymerase chain reaction (RT-PCR) testing is the most common way for detecting SARS-CoV-2 RNA. Acceptable samples include **sputum, and nasopharyngeal or nasal swabs**<sup>2</sup>. Oropharyngeal (throat) swabs have shown lower sensitivity.

### Early detection of COVID-19 in health facilities

It is crucial that health facilities screen every person (patients, family, visitors, and staff) entering their grounds for COVID-19 symptoms and exposures. Screening should focus on identifying COVID-19 suspects, cases (probable and confirmed), and contacts (Table 2). Infection prevention and control measures, such as hand washing and respiratory hygiene, will also begin at the point of screening.

#### **Screening**

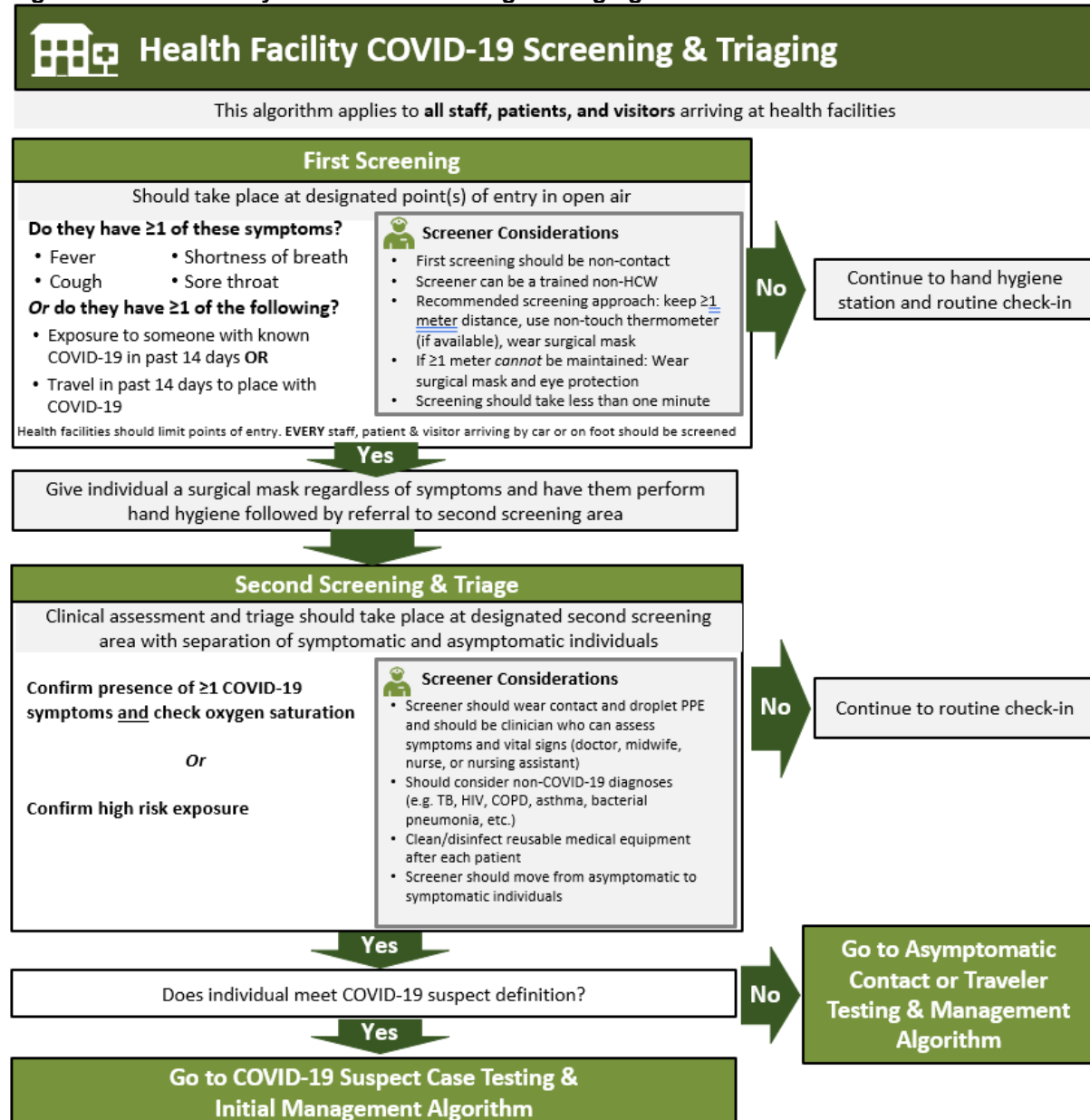
**A two-stage screening process is recommended at all health facilities to identify COVID-19 suspects, cases, travellers and contacts.** The current criteria in use by the Ministry of Health for defining COVID-19 suspects, cases, and contacts are found in Table 2. Figure 1 shows the recommended screening and triaging process (see Annex 9 for initial screening form).

**It is important for clinicians to remember that the clinical presentation of COVID-19 is non-specific. Other important diagnoses to consider** depending on a patient’s history and examination include, but are not limited to, acute bacterial pneumonia, TB, asthma or COPD exacerbation, PJP pneumonia (for people living with HIV), undiagnosed HIV infection (follow recommended national HIV testing algorithm), and congestive heart failure. **However, individuals who meet the criteria for a COVID-19 suspect should be tested for COVID-19 at the same time as other diagnoses.**

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<sup>2</sup> Sputum induction in order to collect sputum for SARS-CoV-2 testing should be avoided due to the risk of aerosolizing the virus.

Figure1: Health Facility COVID-19 Screening & Triage



**Reporting of suspected cases and contacts**

Any individual meeting the COVID-19 suspect case definition should be immediately reported via phone to a District Health Management Team (DHMT) COVID-19 team member. The case investigation form (Annex 10) should be completed and sent to the DHMT within 24 hours so that investigations, testing, and contact tracing begin without delay. Newly identified travellers and contacts should also be reported to the DHMT COVID-19 team to permit prompt follow-up.

## Testing and management of COVID-19 suspects and contacts

### Testing guidance

COVID-19 testing capacity has increased in Lesotho with reduction in turn-around times. The groups of people listed in Table 3 are the highest priority to test for SARS-CoV-2 infection<sup>3</sup>. This document focuses on diagnostic testing of SARS-CoV-2 in symptomatic individuals. Surveillance testing is also referenced and will be supplemented by additional guidance from MOH surveillance team members.

**Table 2: Lesotho Ministry of Health COVID-19 suspect, case, and contact definitions**

<p><b>SUSPECT CASE</b> <i>(must meet one or more of the following criteria)</i></p>
<p>A. A patient with acute respiratory illness<sup>4</sup> of at least one of the following: cough, sore throat, shortness of breath, or fever (self-reported or documented temperature <math>\geq 38.0^{\circ}\text{C}</math>) <b>with or without</b> a history of travel to or residence in a country/area or territory reporting local transmission of COVID-19 disease<sup>5</sup>; during the 14 days prior to symptom onset.</p> <p style="text-align: center;"><b>OR</b></p> <p>B. A patient with <u>any</u> acute respiratory illness <b>AND</b> having been in <u>contact</u> (see definition of a contact below) with a confirmed or probable COVID-19 case in the last 14 days prior to onset of symptoms.</p> <p style="text-align: center;"><b>OR</b></p> <p>C. A patient with severe acute respiratory infection <b>AND</b> with no other aetiology that fully explains the clinical presentation<sup>4</sup>.</p>
<p><b>PROBABLE CASE</b> <i>(must meet one of the following criteria)</i></p>
<p>A. A suspect case for whom testing for COVID-19 is inconclusive</p> <p style="text-align: center;"><b>OR</b></p> <p>B. A suspect case for whom testing could not be performed for any reason.</p>
<p><b>CONFIRMED CASE</b></p>
<p>A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.</p>
<p><b>CONTACT</b> <i>A person who experienced any one of the following exposures during the 2 days before and 14 days after the onset of symptoms of a probable or confirmed COVID-19 case</i></p>
<p>A. Face-to-face contact with a probable or confirmed case within 1 meter and for more than 15 minutes</p> <p style="text-align: center;"><b>OR</b></p> <p>B. Direct physical contact with a probable or confirmed case</p> <p style="text-align: center;"><b>OR</b></p> <p>C. Direct care for a patient with probable or confirmed COVID-19 disease without using proper personal protective equipment</p> <p style="text-align: center;"><b>OR</b></p> <p>D. Other situations as indicated by local risk assessments.</p>
<p>Note: for confirmed cases that are asymptomatic, the period of time used to define a contact's exposure is measured as the 2 days before through the 14 days after the <i>date on which the sample was taken</i> which led to confirmation.</p>

<sup>3</sup> If SARS-CoV-2 transmission becomes widespread it may be decided to test only a subset of suspect cases and contacts in order to streamline patient management and conserve testing resources. In this scenario, untested suspects would be categorized as probable cases but managed in the same manner as confirmed cases. Other groups of people outside of those listed may also be tested by COVID-19 surveillance teams in order to understand how the virus is spreading.

<sup>4</sup> Finding another etiology does not completely exclude COVID-19 infection as co-infection can occur, but it ensures that the patient is managed optimally for other treatable causes.

<sup>5</sup> Visit <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports> for most current report on countries' transmission status. South Africa currently has widespread local transmission.

**Table 3: Priority testing groups for COVID-19**

<b>Priority testing group</b>	<b>Primary purposes of testing</b>	<b>Testing algorithm to follow</b>
<b>Outpatients and inpatients</b> at health facilities meeting the <b>suspect case</b> definition	<ul style="list-style-type: none"> <li>• Diagnose COVID-19 cases</li> <li>• Limit further transmission</li> </ul>	COVID-19 suspect case testing and initial management
<b>Contacts</b> of probable or confirmed COVID-19 cases <b>with</b> COVID-19 symptoms (classified as both contacts and suspects because of symptoms)	<ul style="list-style-type: none"> <li>• Diagnose COVID-19 cases</li> <li>• Limit further transmission</li> </ul>	COVID-19 suspect case testing and initial management
<b>Contacts</b> of probable or confirmed COVID-19 cases <b>without</b> symptoms	<ul style="list-style-type: none"> <li>• Better understand SARS-CoV-2 attack rate<sup>6</sup> in order to inform public health response</li> <li>• Diagnose COVID-19 cases</li> <li>• Limit further transmission</li> </ul>	COVID-19 contact tracing and management <i>*Surveillance team to supplement</i>
<b>Asymptomatic health care workers</b> working in high patient flow areas	<ul style="list-style-type: none"> <li>• Conduct surveillance to identify unrecognized transmission within health facilities</li> <li>• Limit transmission within health facilities</li> <li>• Protect health care workers and patients</li> </ul>	COVID-19 surveillance testing among asymptomatic groups <i>*Surveillance team to supplement</i>

Due to the extent of community transmission in South Africa, all returning travellers are to be quarantined and monitored in district-based quarantine facilities. DHMT COVID-19 task force is working with chiefs and local community leaders to identify, quarantine and monitor those who enter outside of formal border posts. Those who develop symptoms will be further tested and managed as suspect cases. Asymptomatic contacts are to remain at home and self-quarantine to prevent potential spread of infection. Contacts who cannot safely quarantine at home will be referred to district-based quarantine centres. Those who develop symptoms will be further tested and managed as suspect cases.

#### *Diagnostic versus Surveillance Testing*

- These guidelines emphasize diagnostic testing – confirming the presence or absence of SARS-CoV-2 in those with respiratory illness and other symptoms that are consistent with COVID-19 disease.
- The tests used for surveillance testing – screening for and confirming the presence or absence of SARS-CovS-2 in those with risk factors for transmission but without symptoms consistent with COVID-19 disease – are also introduced.
  - The exact algorithms for surveillance testing will be guided by the surveillance team.
  - The algorithms will be updated over time based on global and local trends.

#### *How to test*

- **RT-PCR is the preferred diagnostic test for testing COVID-19 suspect cases.**
  - To request RT-PCR testing, clinician should notify their DHMT COVID-19 response team to report suspect in need of testing.
  - RT-PCR testing requires a swab of a patient’s nose or throat so a trained clinician wearing proper PPE (N95 respirator, goggles/face shield, gloves, gown) must collect it. A spot expectorated sputum sample can also be used for RT-PCR testing<sup>2</sup>.

<sup>6</sup> The attack rate of an infectious organism is the number of secondary infections caused by an index case among the index case’s susceptible contacts.

- Rapid diagnostic tests (RDTs) that detect human antibodies to SARS-CoV-2 or an antigen (protein) of the virus will be introduced to complement RT-PCR testing. These RDTs can provide a result in as few as 15 minutes.
  - Rapid antibody (Ab) tests are simple finger prick blood tests and can be performed at any health facility or in the community by trained staff, including lay workers.
    - Positive rapid antibody test results should be confirmed with a rapid antigen test or a RT-PCR test. Manage in same manner as a confirmed COVID-19 case while awaiting confirmation.
  - To request rapid antigen testing, clinician should notify their DHMT COVID-19 response team to report suspect case in need of testing.

**Table 4: Characteristics of SARS-CoV-2 antibody, antigen & molecular diagnostic tests**

	<b>Reverse transcription polymerase chain reaction (RT-PCR)</b>	<b>Antibody (Ab) (IgM/IgG) rapid diagnostic test (RDT)</b>	<b>Antigen (Ag) rapid diagnostic test (RDT)</b>
<b>Sample</b>	<ul style="list-style-type: none"> <li>• Nasopharyngeal (preferred) or nasal swab</li> <li>• Spot expectorated sputum<sup>7</sup> (most sensitive)</li> <li>• Oropharyngeal swab (least sensitive)</li> </ul>	<ul style="list-style-type: none"> <li>• Blood (finger stick or blood draw)</li> </ul>	<ul style="list-style-type: none"> <li>• Nasopharyngeal or nasal swab</li> <li>• Spot expectorated sputum<sup>7</sup> (most sensitive)</li> <li>• Oropharyngeal swab (least sensitive)</li> </ul>
<b>Window period<sup>8</sup></b>	Short	3-10 days	Short
<b>Sensitivity</b>	~75% (depends on specimen)	>95% after 10 days from symptom onset	Test dependent
<b>Turn-around time</b>	Hours to days	15 min	As soon as 30 min
<b>Complexity</b>	High	Very low	Low
<b>Follow-up</b>	<ul style="list-style-type: none"> <li>• If RT-PCR is negative but clinical suspicion is high, re-test in several days</li> </ul>	<ul style="list-style-type: none"> <li>• If Ab RDT negative in window period<sup>8</sup>, send RT-PCR and/or repeat Ab RDT in 3-5 days</li> <li>• Confirm positive Ab RDT with RT-PCR</li> </ul>	<ul style="list-style-type: none"> <li>• If Ag RDT negative in window period<sup>8</sup>, send RT-PCR and/or repeat Ag RDT in 3-5 days</li> </ul>
<b>Comment</b>	<ul style="list-style-type: none"> <li>• Requires clinician to collect sample (except expectorated sputum)</li> <li>• Full PPE for collection unless patient self-collects</li> </ul>	<ul style="list-style-type: none"> <li>• Trained lay worker can do test (same procedure as UniGold HIV RDT)</li> <li>• Partial PPE (surgical mask and gloves)</li> </ul>	<ul style="list-style-type: none"> <li>• Requires clinician to collect sample (except expectorated sputum)</li> <li>• Full PPE for collection unless patient self-collects</li> </ul>

### *What to do with test results*

The recommended action to be taken after receiving COVID-19 test results depends on the type of individual that was tested (suspect, contact, traveller, asymptomatic health worker, or other); the test(s) performed; and the results (positive/negative/indeterminate) (see Table 5).

<sup>7</sup> The patient should produce sputum outside in a well-ventilated area away from other people. Do not perform sputum induction in order to obtain a lower respiratory tract sample for SARS-CoV-2 testing because this poses a significant risk of aerosolizing the virus during sputum induction. If the clinician feels that sputum is also required to evaluate for TB in addition to SARS-CoV-2, every effort should be made to collect the sputum without induction/ nebulization in order to minimize risk of aerosolization.

<sup>8</sup> Window period is the period of time when an infection is present, but a diagnostic test is still negative

### Testing algorithms

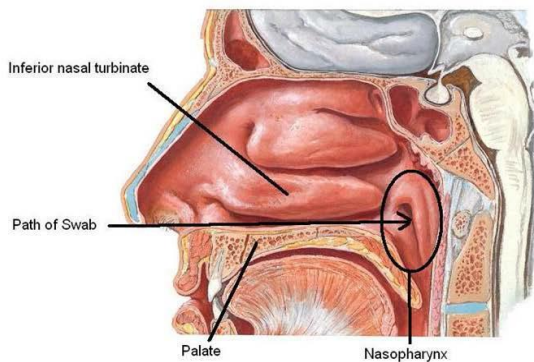
Refer to appropriate testing algorithm for the type of individual being tested and test(s) available.

- Figure 3: COVID-19 suspect case testing and initial management (overview testing algorithm)
- Figure 4: COVID-19 testing algorithm when molecular testing (RT-PCR or Xpert) is readily available or no rapid tests are available
- Figure 5: COVID-19 testing algorithm when only rapid antibody testing is available
- Figure 6: COVID-19 testing algorithm when both antigen and antibody tests are available
- Figure 7: COVID-19 surveillance testing among asymptomatic groups
- Figure 13: COVID-19 contact tracing and management<sup>9</sup>

## Figure 2: Nasopharyngeal and oropharyngeal swab collection

### Nasopharyngeal (NP) swab

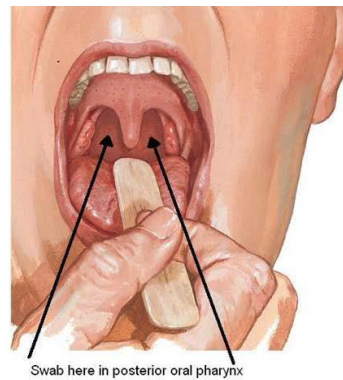
1. Have patient blow their nose before collection
2. Insert NP swab in level/flat position into back of nasopharynx until resistance is felt.
3. Rotate the swab for 10-15 seconds.



Nasopharyngeal swab

### Oropharyngeal (OP) swab

1. Swab both tonsils and back of throat
2. Avoid touching the tongue and teeth



Oropharyngeal swab

Use dacron or rayon swabs. Do not use cotton swabs or swabs with wood shafts as they can interfere with RT-PCR tests

<sup>9</sup> Please go to the 'Contact tracing' section for the contact tracing algorithm, including recommended testing.

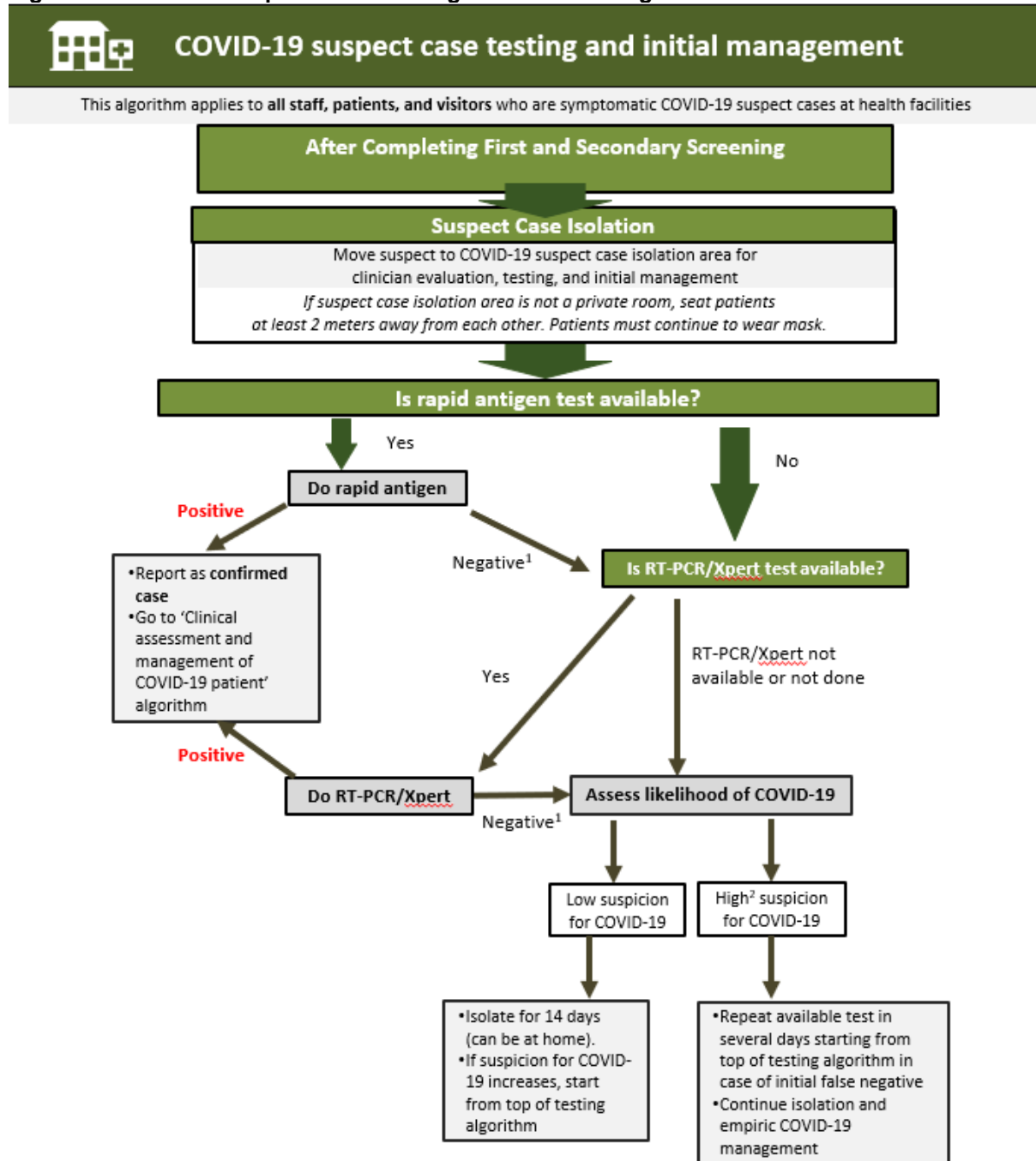
<sup>10</sup> Visit <https://www.youtube.com/watch?v=DVJNWefmHjE&feature=youtu.be> for a video on NP swab collection.

**Table 5: Recommended actions for COVID-19 testing results**

Testing group	Test result	Actions
<b>Symptomatic suspect cases</b>	Positive Ab RDT	<ul style="list-style-type: none"> <li>Send confirmatory RT-PCR test</li> <li>Isolate and begin contact tracing pending confirmation</li> <li>Do clinical assessment and begin clinical management pending confirmatory test result</li> <li>Report as probable case pending confirmatory test result</li> </ul>
	Positive Ab & Ag RDTs	<ul style="list-style-type: none"> <li>Isolate and begin contact tracing</li> <li>Do clinical assessment and begin clinical management</li> <li>Report as confirmed case</li> </ul>
	Positive Ag RDT	
	Positive RT-PCR	
	Negative Ab RDT and/or negative Ag RDT	<ul style="list-style-type: none"> <li>Send RT-PCR test and/or repeat RDT in 3-5 days if initial RDT sample was taken during the window period</li> </ul>
Negative RT-PCR	<ul style="list-style-type: none"> <li>If clinical suspicion remains high, repeat RT-PCR test and consider collecting a more sensitive sample (e.g. sputum).</li> <li>If clinical suspicion is low, report as negative and remove from COVID-19 isolation.</li> </ul>	
<b>Contacts and high-risk travellers*</b>	Positive Ab RDT	<ul style="list-style-type: none"> <li>Send confirmatory RT-PCR test</li> <li>Isolate and begin contact tracing pending confirmation</li> <li>Do clinical assessment and begin clinical management pending confirmatory test result</li> <li>Report as probable case pending confirmatory test result</li> </ul>
	Positive Ab & Ag RDTs	<ul style="list-style-type: none"> <li>Isolate and begin contact tracing</li> <li>Do clinical assessment and begin clinical management</li> <li>Report as confirmed case regardless of symptoms</li> </ul>
	Positive Ag RDT	
	Positive RT-PCR	
	Negative Ab or Ag RDT	<ul style="list-style-type: none"> <li>Continue following recommended quarantine instructions</li> </ul>
Negative RT-PCR	<ul style="list-style-type: none"> <li>Re-test if symptoms develop during quarantine period</li> </ul>	
<b>Asymptomatic health workers*</b>	Positive Ab RDT	<ul style="list-style-type: none"> <li>Send confirmatory RT-PCR test</li> <li>Isolate and begin contact tracing pending confirmation</li> <li>Do clinical assessment and begin clinical management pending confirmatory test result</li> <li>Report as probable case pending confirmatory test result</li> </ul>
	Positive Ag RDT	<ul style="list-style-type: none"> <li>Isolate and begin contact tracing</li> <li>Do clinical assessment and begin clinical management</li> <li>Report as confirmed case regardless of symptoms</li> </ul>
	Positive Ab & Ag RDTs	
	Positive RT-PCR	
Negative antibody, antigen, or RT-PCR	<ul style="list-style-type: none"> <li>Re-test next sample of health workers per surveillance plan or sooner if concern for COVID-19 spread within health facility</li> </ul>	
<p>* Surveillance teams to provide supplemental guidance, with updates as indicated based on global and local trends.            NB: An indeterminate result for any of the tests should be repeated.</p>		

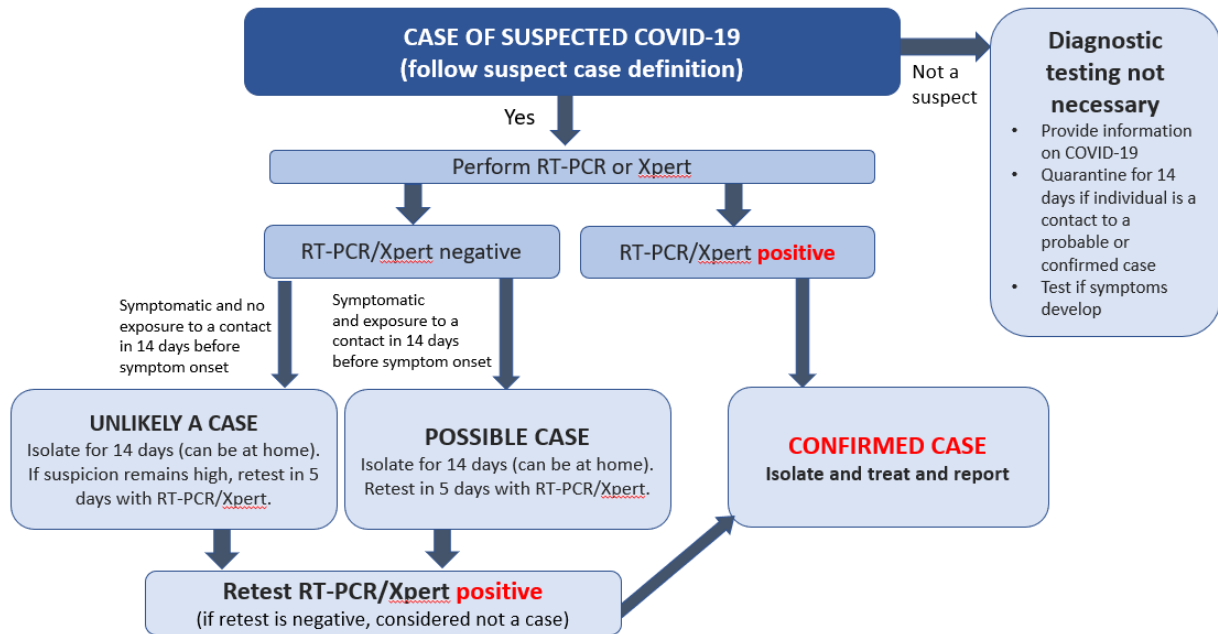


Figure 3: COVID-19 Suspect Case Testing and Initial Management

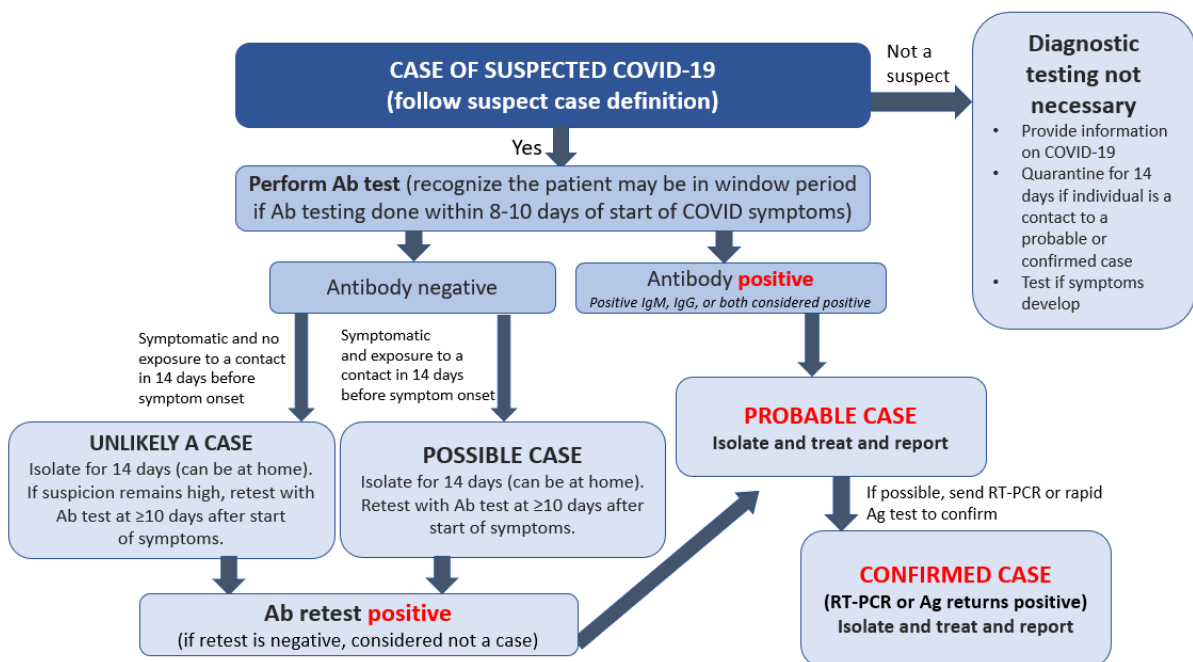


1. Recognize that an individual infected with SARS-CoV-2 may have a negative test result during initial window period. Typical window periods: RT-PCR/Xpert – up to 5 days; rapid Ag – up to 5-7 days; rapid Ab – up to 7-10 days.  
 2. Based on clinical judgement and risk factors. Consider other lab and radiology investigation results to help determine likelihood of individual having COVID-19 as well as results of tests for other possible diagnoses (e.g. TB).

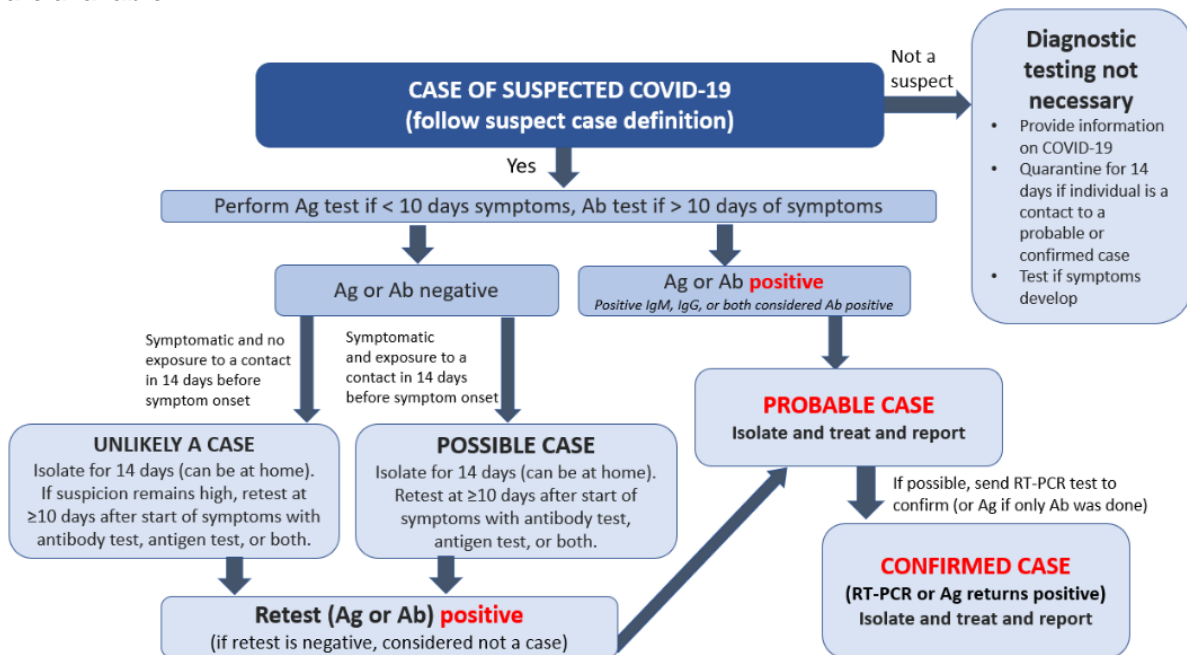
**Figure 4: COVID-19 Testing Algorithm when molecular testing (RT-PCR or Xpert) is readily available or no rapid tests are available**



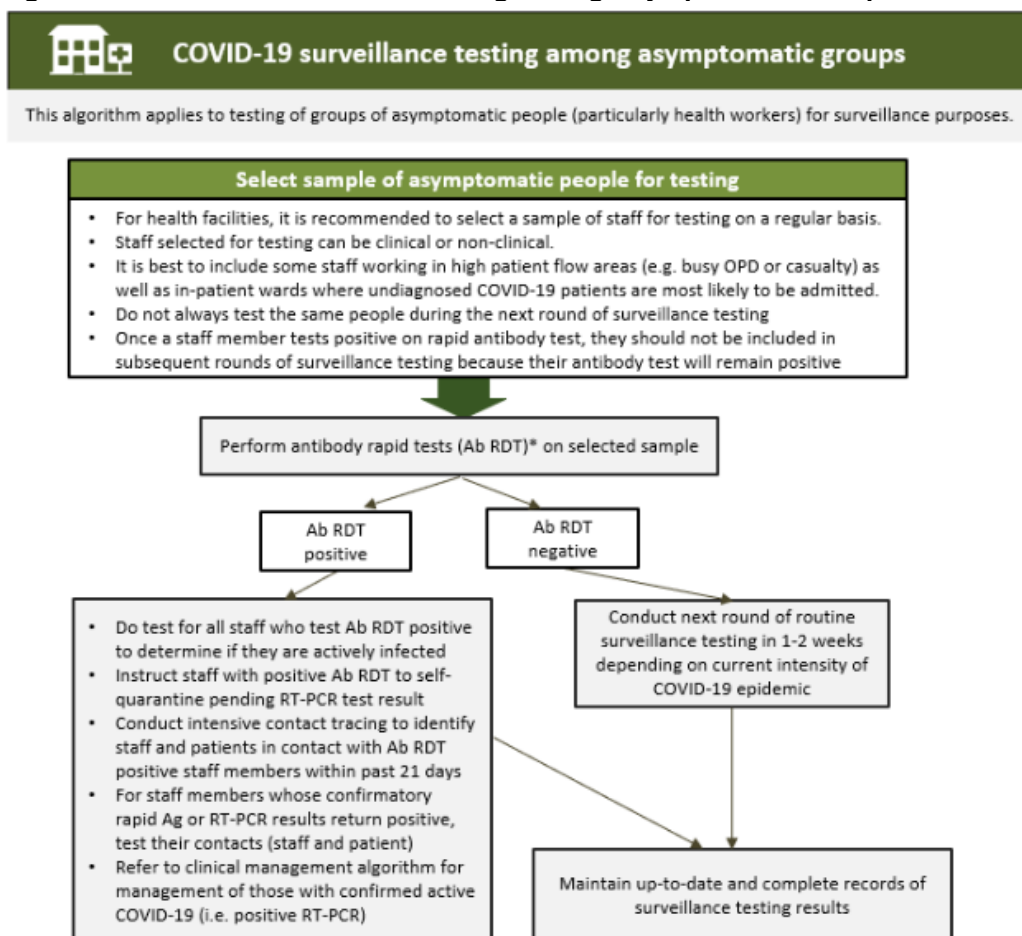
**Figure 5: COVID-19 Testing Algorithm when only rapid antibody (Ab) testing is available**



**Figure 6: COVID-19 Testing Algorithm when both rapid antigen (Ag) and antibody (Ab) tests are available**



**Figure 7: COVID-19 Surveillance Testing among Asymptomatic Groups**



\* Rapid antibody tests are preferred surveillance test because results are immediate and can help monitor spread of SARS-CoV-2 within a health facility over a longer period of time than RT-PCR or antigen tests.

## Clinical management of patients with probable or confirmed COVID-19

### *Overview*

Because there is no vaccine to prevent COVID-19 nor any approved therapies to treat it, preventing infections through IPC interventions is crucial. Patients with severe and critical disease should be admitted and managed aggressively with supportive treatments. Patients with mild or moderate disease may be managed at home provided IPC measures can be followed, and they are educated about warning signs of disease progression. See Figure 9 for COVID-19 Referral Pathway.

### *Initial evaluation of a probable or confirmed COVID-19 patient*

#### **To classify disease severity, clinicians should:**

- Take a complete set of vital signs, including oxygen saturation
- Determine the patient's major complaints and perform a focused physical examination
- Assess for co-morbidities that could increase the patient's risk for progressing to severe COVID-19 and death (e.g. obesity, diabetes, hypertension, HIV, TB, malnutrition, etc.).

**All patients with severe/critical disease should be referred to COVID-19 Treatment Centres for prompt and aggressive management.** Clinicians should immediately begin supportive therapy to stabilize patient while arranging transfer.

#### **The following risk factors place a patient at higher risk of developing severe disease and dying from COVID-19:**

- People 60 years of age or older
- People with the following chronic medical conditions:
  - Cardiovascular disease (history of hypertension, stroke, heart attack or heart failure)
  - Diabetes mellitus
  - Chronic lung disease (e.g. asthma, COPD, or pneumoconiosis [i.e. silicosis])
  - Chronic kidney disease (e.g. dialysis patient)
  - Obesity
  - Active cancer
  - Hemoglobinopathies (e.g. sickle cell disease)
- People with active tuberculosis or prior history of TB with evidence of lung scarring
- People with severe acute malnutrition (all ages)
- Current smokers
- HIV infection with at least one of these (test every COVID-19 patient for HIV if status unknown):
  - Last viral load > 1,000 or CD4 < 350 from past 12 months,
  - Not on ART or on ART for less than 6 months, or
  - WHO clinical stage 2, 3, or 4.

**Clinicians should consider admitting patients with mild/moderate COVID-19 but who have 1 or more of the risk factors for developing severe disease or death listed above.** Health centre clinicians should discuss mild/moderate COVID-19 patients with risk factors with a more senior clinician at the district hospital or one of the COVID-19 Treatment Centres to determine if admission is needed.

**Figure 8: Clinical Assessment and Management of COVID-19 Patients**

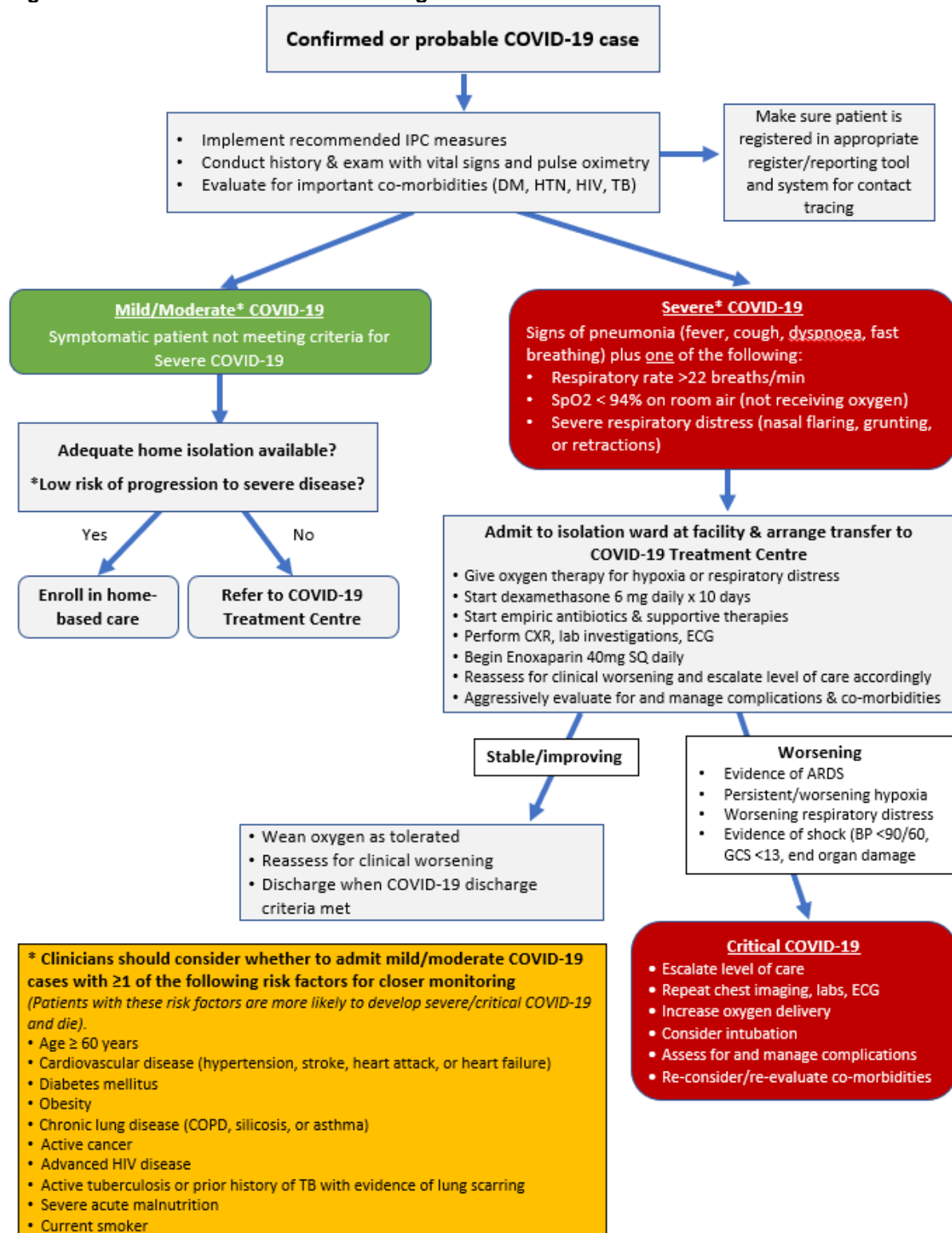
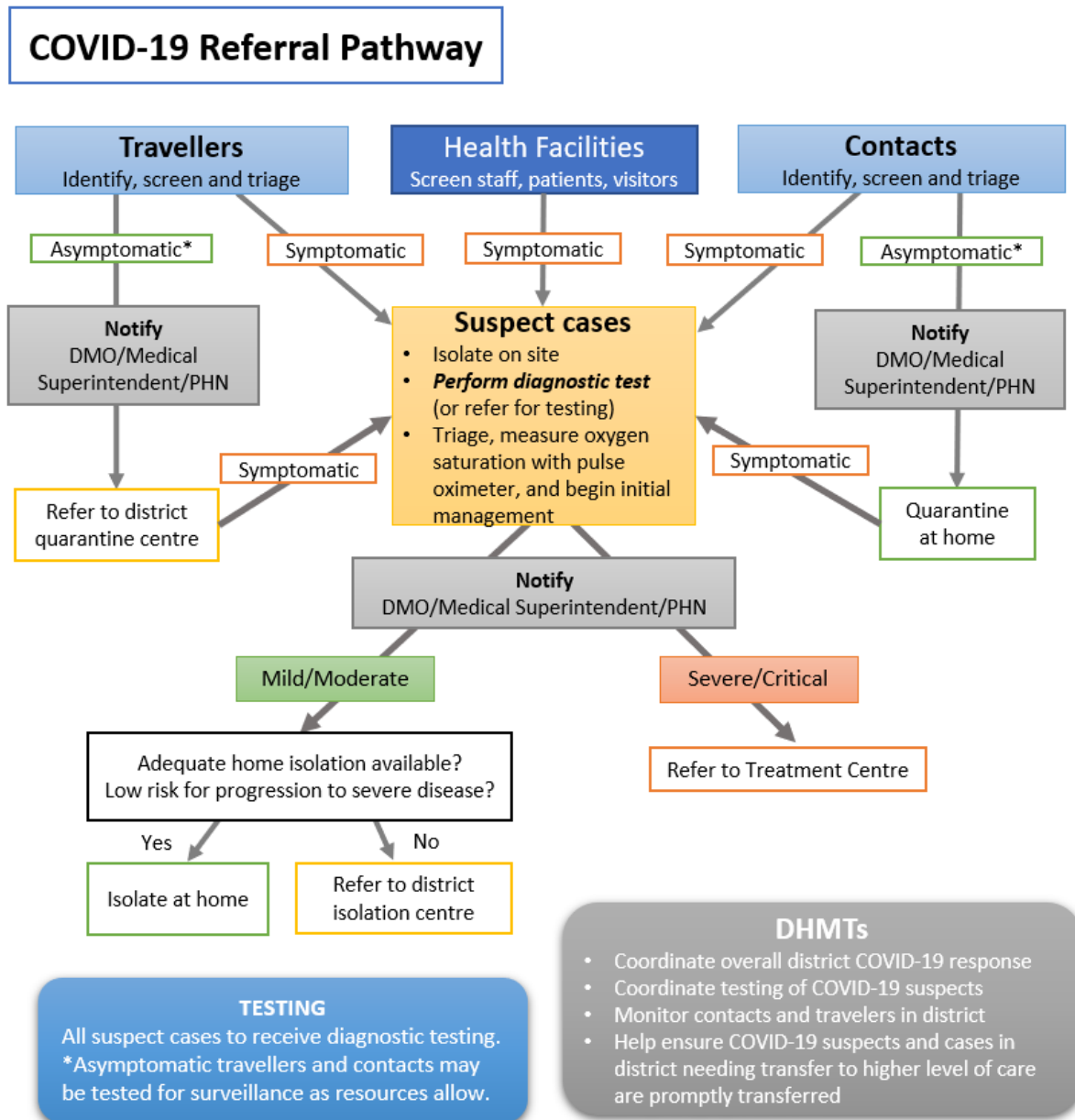


Figure 9: Referral Pathways



### Management of mild/moderate COVID-19 including home-based management

Mild and moderate COVID-19 cases do not require any specific medical treatments. Supportive care should be provided, such as antipyretics and analgesics for fever and myalgias. Corticosteroids should not be given to mild/moderate COVID-19 patients. Current evidence suggests that corticosteroids only benefit COVID-19 patients requiring supplemental oxygen. COVID-19 patients with mild and moderate illness should be managed at home when there is no concern for rapid deterioration. It is important to recognize that for some patients it may be unsafe to instruct them to self-isolate at home for an extended period of time due to their COVID-19 illness. An example is patients with severe food insecurity and insufficient social support. Refer to Annex 2 for a recommended checklist to help determine whether an individual is suitable for home-based management. Patients released home should be given specific instructions for home-based care, including clear guidance on warning signs for which the patient or caregiver should alert a healthcare worker or seek care (see Table 6).

Mild/moderate cases that cannot be safely managed at home should be admitted to the COVID-19 Isolation Centres or to dedicated isolation wards at hospitals. Admitted mild/moderate COVID-19 patients should be monitored twice a day using the Modified Early Warning Score (MEWS) for adults or Paediatric Early Warning Score (PEWS) for children (see Tables 7 and 8). The MEWS and PEWS

use vital signs and a brief clinical assessment to calculate a patient's score. A patient's MEWS/PEWS can change over time and if it is increasing it indicates the patient is at greater risk of getting worse. Patients with MEWS/PEWS of 0-2 require no change in their current management as they are at low risk for worsening. A MEWS/PEWS of 3 or 4 indicates that a patient has medium risk for clinical deterioration. The current management of such a patient should be re-evaluated and the frequency with which they are monitored should be increased. COVID-19 patients with a MEWS/PEWS of  $\geq 5$  are at high risk for clinical deterioration. The clinician managing the patient should immediately notify one of the COVID-19 Treatment Centres (currently located in Berea and Mafeteng districts) for transfer if they are not already admitted there. The clinician should manage the patient's acute symptoms while waiting for them to be transferred. If the patient is already admitted at a COVID-19 Treatment Centre they should be transferred to a unit providing higher levels of care (e.g. ICU).

<b>Table 6: Instructions for Home-Based Care for Mild/Moderate COVID-19 Cases</b>	
<b>Isolation</b>	<ul style="list-style-type: none"> <li>• Isolation should last at least 13 days from first day of COVID-19 symptoms. Patient should be symptom-free for at least 3 days before they leave isolation.</li> <li>• Ideal situation is for patient to have their own room and bathroom to themselves during isolation. They should maintain a distance of at least 2 meters from other household members.</li> <li>• Minimize use of shared spaces and eating utensils, plates, cups, etc.</li> <li>• Ensure that spaces are well ventilated. If a fan is available, point it out of one window and keep another window open to increase air movement through the room.</li> <li>• Assign one person to be the caregiver to minimize exposure.</li> <li>• No visitors should come to the home during the isolation period.</li> </ul>
<b>Hygiene</b>	<ul style="list-style-type: none"> <li>• Caregivers should wash hands after any type of contact with the patient, before and after preparing food, and before eating.</li> <li>• Patient should cover mouth with cloth or paper when coughing or sneezing and immediately dispose of it and wash their hands.</li> <li>• Clean eating utensils, plates, cups, etc. with soap and water after using.</li> <li>• Clean linens with detergent and surfaces with soapy water or chlorine-based disinfectant solution.</li> </ul>
<b>Materials</b>	<ul style="list-style-type: none"> <li>• Patients in isolation should focus on physical distancing (2+ meters) at all times.</li> <li>• If resources allow, patients should wear a paper or cloth mask when in close proximity to a caregiver or family member if physical distancing cannot be done.</li> <li>• Use dedicated sheets and eating utensils for the patient.</li> <li>• Bleach solutions can be diluted 1-part liquid bleach to 9 parts water to make 0.5% solution from 5% pure bleach.</li> </ul>
<b>Care</b>	<ul style="list-style-type: none"> <li>• Assess for and provide home care kits including food support.</li> <li>• Social support, including food supplementation, is critical.</li> <li>• Monitor daily for worsening symptoms. Call healthcare worker or report to facility if patient develops shortness of breath, altered mental status or severe sleepiness, inability to eat/drink or walk, or has any other significant change in condition.</li> <li>• Community health workers should visit on a frequent basis, checking in with family members and patients <i>outside</i> the home rather than entering</li> <li>• If possible, the CHW and/or health facility can offer families a small bag of paracetamol and oral rehydration solution (ORS) to help generate trust. This trust could help with coordination efforts if the patient's condition worsens.</li> </ul>

### **Discharging Patients from Isolation**

Based on evidence showing a rarity of positive viral culture in respiratory samples nine days after symptom onset among patients with mild disease, previously symptomatic patients can be released from isolation (home or facility) after a minimum of 13 days of isolation. They should also be fully recovered (symptom-free for at least 72 hours) before being discharged. These patients do NOT require repeat PCR testing.

### **Management of children with mild/moderate COVID-19**

The management of children with mild/moderate COVID-19 is the same as for adults and adolescents. Experience to date has demonstrated that children generally experience mild disease and very few progress to severe disease.

Children with mild or moderate COVID-19 may be released from isolation (home or facility) after a minimum of 13 days of isolation. They should also be fully recovered (symptom-free for at least 72 hours) before being discharged. These patients do NOT require repeat PCR testing.

### Management of severe and critical COVID-19

All patients with suspected or confirmed COVID-19 disease assessed as having severe disease should be admitted for management and close monitoring. In addition, some mild/moderate cases with risk factors for developing severe disease will also be admitted at the clinician's discretion. Severe/critical patients should be immediately referred to one of the COVID-19 Treatment Centres (currently Berea and Mafeteng Government Hospitals) although they should be managed appropriately and aggressively at the referring facility until transfer.

Table 7: Modified Early Warning Score (MEWS)							
Parameter	Score						
	3	2	1	0	1	2	3
Systolic BP	≤70	71-80	81-100	101-199		≥200	
Heart rate		≤40	41-50	50-100	101-110	111-129	≥130
Respirations		<9		9-14	15-20	21-29	≥30
Temperature		<35.0		35.0-38.4		>38.4	
SpO2	≤85%	85-89%	90-94%	≥95%			
AVPU score			Agitated	Alert	Reacts to voice	Reacts to pain	Unresponsive
To calculate MEWS, add up the score for each parameter. MEWS should be calculated at least twice a day for each admitted COVID-19 patient.							
MEWS 0-2: Lowest risk for clinical deterioration. Continue current treatments and monitoring.							
MEWS 3-4: Medium risk for clinical deterioration. Re-evaluate patient status and current patient management and increase monitoring. Discuss with next higher level of care.							
MEWS ≥5 or score of 3 on any parameter: High risk for clinical deterioration or death. Re-evaluate patient status and current patient management; move to higher level of care.							

Table 8: Pediatric Early Warning Score (PEWS)				
Parameter	Score			
	0	1	2	3
Behaviour	Playing/ Appropriate	Sleeping	Irritable	<ul style="list-style-type: none"> <li>Lethargic/Confused or</li> <li>Reduced response to pain</li> </ul>
Cardiovascular	<ul style="list-style-type: none"> <li>Pink or</li> <li>Capillary refill 1-2 seconds</li> </ul>	<ul style="list-style-type: none"> <li>Pale or dusky or</li> <li>Capillary refill 3 seconds</li> </ul>	<ul style="list-style-type: none"> <li>Grey or cyanotic or</li> <li>Capillary refill 4 seconds or</li> <li>Tachycardia of 20 above normal rate</li> </ul>	<ul style="list-style-type: none"> <li>Grey or cyanotic and mottled or</li> <li>Capillary refill 5 seconds or</li> <li>Tachycardia of 30 above normal rate or</li> <li>Bradycardia</li> </ul>
Respiratory	Normal, no retractions	<ul style="list-style-type: none"> <li>Rate &gt;10 above normal or</li> <li>Accessory muscle use or</li> <li>&gt;30% FiO2 or</li> <li>3+ liters/min</li> </ul>	<ul style="list-style-type: none"> <li>Rate &gt;20 above normal or</li> <li>Retractions or</li> <li>&gt;40% FiO2 or</li> <li>6+ liters/min</li> </ul>	<ul style="list-style-type: none"> <li>Rate &gt;5 below normal with retractions or grunting or</li> <li>&gt;50% FiO2 or 8+ liters/min</li> </ul>
To calculate PEWS, add up the score for each parameter. PEWS should be calculated at least twice a day for each admitted COVID-19 patient.				
PEWS 0-2: Lowest risk for clinical deterioration. Continue current treatments and monitoring.				
PEWS 3-4: Medium risk for clinical deterioration. Re-evaluate current patient management and increase monitoring. Discuss with next higher level of care.				
PEWS ≥5 or score of 3 on any parameter: High risk for clinical deterioration or death. Re-evaluate patient status and current patient management; move to higher level of care.				



### **Management of hypoxia and respiratory distress**

If the patient has hypoxia (oxygen saturation [SpO<sub>2</sub>] < 94%) or a rapid respiratory rate (> 22 breaths per minute for adults), supplemental oxygen should be given with a goal of maintaining the oxygen saturation 94-98%. Refer to the Oxygen Therapy Titration Algorithm (Figure 10) for the recommended approach for managing supplemental oxygen. Patients requiring a simple face mask (6-10 litres per minute flow) or non-rebreather face mask (10-15 litres per minute flow) should be immediately transferred to one of the COVID-19 Treatment Centres if not transferred already.

### **Acute respiratory distress syndrome (ARDS) and respiratory failure**

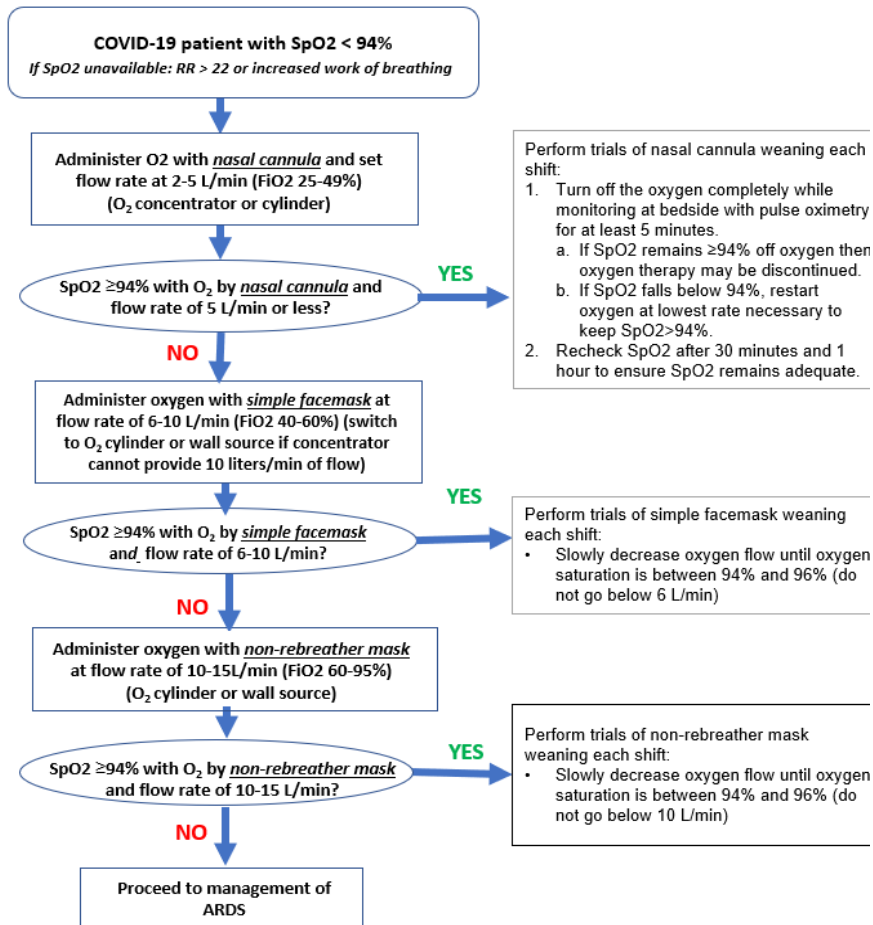
One of the most severe complications of COVID-19 is acute respiratory distress syndrome (ARDS). In ARDS, breathing becomes extremely laboured, the lungs become stiff and the patient's ability to oxygenate is severely impaired. ARDS is typically seen on X-ray or CT scan as bilateral opacities in the lungs without an alternate explanation (such as heart failure). Patients usually require non-invasive or mechanical ventilation. Patients with refractory hypoxia, respiratory distress, or ARDS despite maximal supplemental oxygen need ventilatory support. Non-invasive ventilation can be considered, where available, but requires airborne precautions. Endotracheal intubation should only be considered if it can be performed by an experienced provider using airborne precautions (N95, face mask, gown, gloves). In addition, a trained and experienced team should be in place to manage the mechanical ventilation of patient with ARDS and all of the necessary inputs (e.g. sedation, suction, intensive care, ventilator supplies, etc.). Intubated COVID-19 patients should be mechanically ventilated using lung protective strategies for ARDS (Annex 4).

### **Additional recommended treatments and management for severe COVID-19 cases**












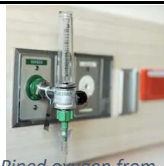
- **Lab and radiology investigations:** **Perform chest X-ray and lab investigations on admission** for all severe, critical and high-risk cases. Check full blood count, creatinine, liver function tests, and blood glucose level. An arterial blood gas should be done if available. Portable chest X-ray is preferred, if available, so that X-ray rooms do not have to be disinfected after COVID-19 patients. All severe/critical cases should be tested for HIV if status is unknown, and TB testing with GeneXpert is recommended<sup>7</sup>.
- **Antibiotics:** **Begin empiric antibiotics immediately upon admission** for possible concurrent bacterial pneumonia.
  - a. Recommended: Ceftriaxone 2 grams IV stat followed by 1 gram IV twice daily for 5-7 days and azithromycin 500mg po daily for 3 days *or* clarithromycin 500mg po twice daily for 5-7 days *or* doxycycline 100mg po twice daily for 7 days
  - b. Alternate: Amoxicillin-clavulanic acid 1.2 grams IV twice daily for 5-7 days and azithromycin 500mg po daily for 3 days *or* clarithromycin 500mg po twice daily for 5-7 days *or* doxycycline 100mg po twice daily for 7 days
- **Supportive treatments:** **Provide symptomatic treatments as needed** (e.g. antipyretics, analgesics, cough suppressants, vitamin C)
- **Drug therapy:** Remdesivir is an antiviral medication that received emergency use authorization from the United States Food and Drug Administration on May 1, 2020, based on evidence showing the drug shortened time to clinical recovery in patients with severe or critical COVID-19. The drug is not currently available in Lesotho. No other medications have been proven to be effective in treating COVID-19 as of the writing of these revisions. As such, **there are no medications recommended for treating COVID-19 patients** in Lesotho at this time.
- **Patient monitoring:** The typical clinical evolution of severe/critical COVID-19 is characterized by initial stability for the first 7-10 days followed by rapid deterioration. **Close monitoring of all hospitalized COVID-19 patients is recommended.** A clinical scoring system, such as the MEWS/PEWS (Tables 7 and 8), can be easily implemented using vital sign data to help identify patients at high risk for clinical deterioration.
- **Prone positioning:** (including for non-intubated patients): Placing a patient in the prone position (on their stomach) for 12-16 hours daily has been shown to be beneficial for mechanically ventilated ARDS patients. Anecdotal evidence suggests possible benefits from placing non-intubated COVID-19 patients with hypoxia in the prone position early to prevent worsening. See Annex 5.

- **Fluids: Intravenous (IV) fluids should be administered thoughtfully** given the potential risk for exacerbating pulmonary oedema if a patient develops ARDS and/or cardiac dysfunction. Urine output, fluid balance, renal function, and volume status should be monitored closely in these patients. They may have increased insensible losses due to fevers as well as decreased oral intake due to dyspnoea requiring judicious IV fluid repletion. Rapid administration of IV fluids should only be done in settings of sepsis/septic shock.
- **Steroids:** Recent evidence from a randomized controlled trial suggests a significant decrease in mortality from administration of dexamethasone to COVID-19 patients requiring supplemental oxygen. This includes all severe and critical cases. **Dexamethasone 6mg daily should be administered for up to 10 days for all patients requiring oxygen therapy.** Dexamethasone should be started as soon as possible once a patient requires supplemental oxygen. As of the writing of these revised guidelines, there is insufficient evidence to know whether other corticosteroids, such as prednisone and hydrocortisone, can be substituted for dexamethasone. If a patient requires a higher dose of steroid for another clinical indication, such as asthma, COPD, or septic shock, the treating physician should adjust the dose accordingly. Patients receiving dexamethasone should have their blood sugars checked regularly. Diabetic patients require extremely close blood sugar monitoring and aggressive blood sugar control with appropriate oral diabetic medications and/or insulin.
- **Nebulizations: Nebulized breathing treatments should be avoided** as they increase the risk of aerosolizing SARS-CoV-2 virus and increasing staff exposure if they are not wearing N95 or equivalent masks. Maintain chronic asthma and COPD patients on inhalers if possible.
- **Venous thromboembolic (VTE) disease prophylaxis:** Global clinical experience with severe and critical COVID-19 cases suggests the rate of VTE disease is significant. **Give VTE prophylaxis** with subcutaneous heparin 5,000 units twice daily or enoxaparin 40mg daily for all admitted COVID-19 patients (do not use enoxaparin if patient has significant kidney injury). Consider diagnosis of VTE and initiations of therapeutic anti-coagulation in deteriorating patients.
- **Multi-organ dysfunction or failure/shock:** After ARDS and respiratory failure, multi-organ dysfunction or failure is an important complication of COVID-19 especially among critically ill patients. The typical underlying cause of this in COVID-19 is not clear but the approach to evaluating and managing it is the same (Annex 6).
- **Palliative care:** Healthcare workers should anticipate having deaths among COVID-19 patients, especially in severe/critical cases.
  - Health workers and health facilities managing severe/critical COVID-19 patients should communicate clearly and honestly to patients and family members (if given permission by the patient) about the patient's clinical status, chances of recovery, and risk of respiratory failure and death. If possible, the views and wishes of the patient and family should be discussed before a patient is critically ill.
  - Psychosocial support should be provided to severe/critical patients and families.
  - Where available, palliative medicines should be provided for terminal COVID-19 patients to alleviate symptoms such as air hunger and pain.
  - Health facilities should consider allowing a limited number (maximum of 2) of close family members (wearing appropriate PPE) to visit terminally ill COVID-19 patients at end of life.

**Figure 10: Oxygen Therapy Titration Algorithm**



**Figure 11: Supplementary oxygen delivery systems**

Oxygen Delivery	Oxygen Flow	Acceptable Oxygen Sources
 Nasal cannula/prongs	1 to 5 L/min	 Oxygen concentrator  Oxygen cylinder  Piped oxygen from central source
 Simple facemask	6 to 10 L/min	 Oxygen concentrator  Oxygen cylinder  Piped oxygen from central source
 Non-rebreather	10 to 15 L/min	 Oxygen concentrator  Oxygen cylinder  Piped oxygen from central source

### ***Clinical management of severe/critical COVID-19 in infants and children***

There is much less experience managing infants and children with severe or critical COVID-19 because they have a lower risk for developing severe or critical disease. There are no fundamental differences between the management principles of children and adults with severe COVID-19 but there is even less data to support the pharmaceutical and non-pharmaceutical interventions mentioned for adults above. Specific considerations are:

- **Antibiotics:** **Begin empiric antibiotics immediately upon admission** for possible concurrent bacterial pneumonia.
  - a. Recommended: Ceftriaxone 50 mg/kg IV daily for 5-7 days and azithromycin 10 mg/kg po stat then 5 mg/kg po daily for 4 days *or* clarithromycin 7.5 mg/kg po twice daily for 5-7 days *or* doxycycline 2 mg/kg po twice daily for 7 days
  - b. Alternate: Amoxicillin-clavulanic acid 30mg/kg IV twice daily for 5-7 days and azithromycin 10 mg/kg po stat then 5 mg/kg po daily for 4 days *or* clarithromycin 7.5 mg/kg po twice daily for 5-7 days *or* doxycycline 2 mg/kg po twice daily for 7 days
- **Steroids:** **Dexamethasone 0.1mg/kg daily should be administered for up to 10 days for all children requiring oxygen therapy.** Dexamethasone should be started as soon as possible once a patient requires supplemental oxygen.

### **Discharging Patients from Isolation**

Patients with severe or critical disease should be isolated for at least 13 days from the onset of their symptoms. They should also be fully recovered (symptom-free for at least 72 hours) before being released from isolation. If RT-PCR testing is available, a recovered patient should have 2 negative RT-PCR test results from samples taken  $\geq 24$  hours apart before being released from isolation. Some patients may require ongoing inpatient or outpatient rehabilitation after this time, but isolation and transmission-based protections are no longer required.

### **Discharging Patients from Care**

Once a patient is breathing without oxygen and able to perform basic functions the patient may be discharged. Consider discharging patient from hospital when they are clinically stable (clinician judgement) and meet the following criteria:

- Oxygen saturation  $\geq 94\%$  on room air
- Respiratory rate  $< 22$
- BP  $> 90/60$
- No signs of increased work of breathing or respiratory distress

Refer patients to available psychosocial support programs upon discharge and provide them with prescriptions for any chronic medications that they take (e.g. ARVs, anti-hypertensives, etc.) along with instructions on when to follow up, if needed.

## **COVID-19 and Special Populations**

### ***Pregnant women and their neonates***

There is currently no known difference between the clinical manifestations of COVID-19 in pregnant women and non-pregnant adults of reproductive age. Although pregnant women have been confirmed to have COVID-19, they do not appear to be at increased risk for severe disease or negative pregnancy outcomes. However, there are limited data on the maternal and perinatal outcomes related to COVID-19 disease during pregnancy or postpartum period. Pregnant and postpartum women with pre-existing or pregnancy-related comorbidities (e.g. pregnancy-induced hypertension, gestational diabetes) may be at increased risk of severe disease.

#### **Management**

- Pregnant and recently pregnant women with suspected, probable or confirmed COVID-19 should have access to woman-centred, respectful skilled care, including midwifery, obstetric, fetal medicine and neonatal care, as well as mental health and psychosocial support.
  - A minimum of four focused in-person antenatal care visits are recommended. Health providers are encouraged to use phone calls and telemedicine to provide additional care and counselling to women and their families.
  - Induction of labour and caesarean section should only be undertaken when medically justified and based on maternal and fetal conditions. COVID-19 positive status alone is not an indication for caesarean section.

- Healthcare workers providing care to a pregnant or postpartum COVID-19 suspect or confirmed case should wear contact and droplet precautions. N95 masks should be worn during delivery (C-section or vaginal) of women with suspected or confirmed COVID-19.
- Family members should not be present during delivery of a pregnant woman who is a COVID-19 suspect or confirmed case.
- Pregnant and breastfeeding women with COVID-19 should be evaluated and managed based on disease severity.
- Antenatal corticosteroid therapy is recommended for women at risk of preterm birth (< 34 weeks of gestation) when there is no clinical evidence of maternal infection. However, in cases where the woman presents with mild COVID-19, the clinical benefits to the neonate of antenatal corticosteroid outweigh the risks of potential harm to the mother.
- Direct skin-to-skin contact of mother and baby and early breastfeeding, within one hour of birth, should be encouraged. The proven benefits of breast-feeding substantially outweigh the potential risks of transmission.
  - Mother and baby should remain together unless the mother is critically ill and unable to care for her newborn.
  - Mothers should perform respiratory hygiene and frequent hand hygiene. Mothers should wear a surgical mask until symptom resolution and release from isolation.
  - Mothers do not need to wash breasts prior to every breastfeed, but breasts should be washed with soap and water if she has been coughing on her chest before breastfeeding.
- Neonates born to a mother with suspected or confirmed COVID-19 should remain isolated (with the mother unless she is critically ill) for at least 13 days. The newborn should be considered a COVID-19 suspect and tested using RT-PCR.

### ***Non-communicable diseases (NCDs)***

Global experience with COVID-19 thus far has demonstrated that people with non-communicable diseases are at highest risk for developing severe COVID-19 and dying. As a result, all probable and confirmed COVID-19 patients with cardiovascular disease, diabetes, chronic lung disease, chronic kidney disease, and active cancer should be considered high-risk and may need admission for close observation.

#### Management

- COVID-19 patients with NCDs should be managed based on disease severity though consideration should be given whether to admit patients with mild/moderate COVID-19 and any of the high-risk NCDs listed.
- Care should be taken to properly manage pre-existing NCDs, which may be exacerbated during times of acute illness.
- Contact tracing teams and health care workers managing COVID-19 suspects, contacts, and confirmed cases must take complete histories so that patients with NCDs do not inadvertently stop their NCD medications. MMD is strongly encouraged.
- Patients with chronic lung disease may have pre-existing low oxygen saturations. This should be taken into consideration when starting and titrating supplemental oxygen.
- Diabetic COVID-19 patients receiving dexamethasone should have their blood sugar levels monitored closely and aggressively managed with oral diabetic medications and/or insulin.
- COVID-19 patients with pre-existing hypertension that are receiving dexamethasone may develop elevated blood pressures as a result of the medication. Blood pressure medications should be adjusted accordingly.

### ***Elderly (>60 years)***

Older individuals are at highest risk of severe disease and death from COVID-19 and are one of the most vulnerable populations. There is no 'safe' age as disease is seen at all ages, with risk of severe illness and death increasing proportionately with age.

#### Management

- Elderly persons should be evaluated and managed based on disease severity. However, older people are at higher risk of clinical deterioration in their second week of infection. Consider admitting mild/moderate COVID-19 cases >60 years for close observation.
- Physiologic changes in elderly persons may include changes in cognitive capacity, nutritional status, and mental health, all of which should be managed comprehensively. Critical illness and prolonged hospitalization in the elderly are associated with malnutrition, delirium, dementia, pressure ulcers, and venous thromboembolic disease.

- Older people are also more likely to have co-morbid conditions, such as heart disease or diabetes, and should be screened for them. Special care is needed to manage all conditions effectively. Special attention should be given to minimize polypharmacy and drug-drug interactions. Elderly patients are more likely to experience adverse effects from medications.
- Elderly patients receiving dexamethasone may have a higher risk of experiencing adverse effects from the medication than younger patients. Such adverse effects of dexamethasone include elevated blood sugar levels and blood pressures and altered mental status (including psychosis). Elderly patients receiving dexamethasone should be monitored closely for adverse effects and managed accordingly.

### ***Tuberculosis***

TB and COVID-19 may present with similar symptoms such as fever, cough, and difficulty breathing although COVID-19 disease course is acute rather than chronic like TB. It is not thought that people with TB are more likely to become infected with SARS-CoV-2. People with active TB and those with chronic lung disease are more likely to have poor outcomes.

#### Management

- TB clients should be evaluated and managed based on disease severity. However, TB clients with suspected or confirmed COVID-19 should strongly be considered for admission and observation.
- Ideally, clients with TB and COVID-19 co-infection need dedicated isolation space in health facilities to maximize prevention of transmission of both infections. However, if a separate isolation space is not available, smear-negative TB patients on anti-TB treatment for at least 2 weeks may be isolated with other COVID-19 patients with good ventilation.
- Medications aimed at treating COVID-19 should *not* be given to TB/COVID-19 co-infected patients due to significant drug-drug interactions with rifampicin.
- All patients with severe/critical COVID-19 should be evaluated for TB with GeneXpert MTB/RIF and chest X-ray.

#### Other considerations

- TB is an airborne infection. All TB IPC measures should be maintained at community and facility levels throughout the COVID-19 epidemic. TB patients and the treatment supporters and community health workers supporting them should be educated on COVID-19 and instructed on proper IPC measures for both conditions. Surgical masks should be provided to coughing TB patients and appropriate PPE for treatment supporters based on their exposure risk.
- Prioritize continuation of TB treatment. Ensure MMD (3 months) of anti-TB medications is provided for stable TB patients to prevent interruption of treatment and resulting adverse clinical outcomes and development of drug resistance. TB treatment monitoring with smears and cultures should be adjusted to be done when patients come for their check-ups.
- Maintain contact with TB patients on treatment as much as possible using mobile phones, SMS, and WhatsApp in order to support continued adherence and monitoring for adverse drug reactions.

### ***HIV***

People living with HIV (PLHIV) with advanced HIV disease, low CD4 count, high viral load, and those not on ART generally have increased risk of respiratory infections and related complications. It is not yet known how HIV and COVID-19 interact specifically. All PLHIV should take precautions to avoid getting infected with SARS-CoV-2. Some PLHIV will have other COVID-19 risk factors such as cardiovascular disease, diabetes, or old age.

#### Management

- PLHIV on ART should be provided their routine HIV prevention, treatment and care.
  - All stable PLHIV on ART eligible for 3-6 months MMD should be given 3 months of their ARVs at their next clinic visit. Additional community ART delivery models may be introduced by MOH.
  - Unstable PLHIV should continue to be evaluated at HIV clinics based on their clinical need so that they receive the best HIV care possible. Efforts should be made to make follow-ups of unstable patients by telephone where possible.
  - All PLHIV receiving TB prevention therapy (TPT) are eligible to receive 3 months of TPT-MMD.
  - Unwell ART patients should send a well buddy/relative to collect their ART drugs from the health facility unless they require evaluation for their symptoms.
  - Community ART groups (CAGs) should not have regular in-person group meetings as they do not align with current physical distancing recommendations.
    - CAG members should be supported to receive ART via MMD approaches.

- CAG members should continue peer adherence and retention support to each other via phone, SMS, WhatsApp, or similar services.
- Clinical management of COVID-19 is the same for HIV/SARS-CoV-2 co-infected patients but special attention should be paid to consider possible HIV-related infections that could present in similar fashion to COVID-19, such as PJP pneumonia, TB, and bacterial pneumonia.
- All COVID-19 cases should be tested for HIV if their status is unknown.
- While the presence of COVID-19 in a PLHIV on ART is not a criterion for ART failure, clinicians evaluating HIV/SARS-CoV-2 co-infected patients should consider the possibility of it and check a HIV viral load and CD4 according to National ART Guidelines.
- PLHIV with mild/moderate COVID-19 who meet one of the following criteria should be categorized as high-risk for progressing to severe COVID-19 and admission should be considered.
  - HIV viral load >1,000 or CD4 < 350 in last 12 months,
  - WHO HIV clinical stage 2, 3 or 4, or
  - Not on ART or on ART for < 6 months.
- It is important that contact tracing teams and health workers take complete histories from people they are recommending home isolation or quarantine for so that PLHIV do not inadvertently default their ARVs. Patients under isolation or quarantine must be provided with adequate supply of their medications so they do not default.

#### Additional Considerations

- All facility-based HIV testing should continue to be provided routinely with continued expansion of HIV self-testing to limit physical contact.
- All community-based HIV testing and outreach activities should be suspended in order to prevent mass gatherings and potential spread of SARS-CoV-2.
- Facilities should use phone calls, SMS and messaging applications to continue services such as counselling, contact tracing, partner notification services, etc.

### ***Incarcerated and detained persons***

Correctional facilities provide custody, housing, education, recreation, food, healthcare, and workplace services in a single physical setting. Control of COVID-19 transmission in such closed settings is challenging and options for prevention, such as frequent hand washing and physical distancing, may be difficult to implement. Incarcerated/detained persons and correctional services staff may have risk factors for severe disease, such as TB, HIV, NCDs, and old age, in addition to the close-contact settings.

#### Management

- Incarcerated/detained persons should be evaluated and managed based on disease severity, and attention should be paid to additional risk factors, such as age and NCDs.
- Ensure ongoing health and harm reduction services, including prevention and management of TB, HIV, viral hepatitis, NCDs, substance use, and sexual and reproductive health services.
- Physical distancing and medical isolation are imperative for cases of suspected or confirmed COVID-19 with mild/moderate symptoms being managed at the correctional facility.
  - Provide appropriate medical care within the medical isolation space.
  - Serve meals within the medical isolation space.
  - Use separate spaces for suspected and confirmed cases of COVID-19.

#### Additional considerations

- Limit visitation to prevent spread of COVID-19 from communities into correctional facilities. Facilitate telephonic communication with legal representatives and families.

### ***Mental Health Patients***

Stigma, discrimination, and neglect toward mental illness continue to prevail in Lesotho. Due to this, individuals with mental health disorders may face additional barriers in accessing recommended services, both for COVID-19 and for mental health.

#### Management

- COVID-19 patients with mental health disorders should be managed based on disease severity. Those with high-risk co-morbidities (see NCD section above) should be considered for hospital admission for closer observation.
- Care should be taken to properly manage underlying mental health disorders, which may be exacerbated during times of acute illness.
- Contact tracing teams and health care workers managing COVID-19 suspects, contacts, and confirmed cases must take complete histories so that patients with mental health disorders do not

inadvertently stop their medications. Health care workers should continue counselling and adherence support to mental health patients via phone, SMS, or WhatsApp if able.

## Mental Health and Psychosocial Support

### ***Management of neurological and mental manifestations associated with COVID-19***

Anxiety and depressive symptoms are common reactions for people in the context of COVID-19. Stressors particular to COVID-19 include: fear of falling ill and dying, fear of being socially excluded/placed in quarantine, loss of livelihood and loss of loved ones, and feelings of helplessness, boredom and loneliness due to being isolated. These stressors may trigger new symptoms or exacerbate underlying mental or neurological conditions. People with COVID-19 are at higher risk for sleep problems owing to acute stress responses, as well as additional reasons for those who are hospitalized such as environmental factors and invasive medical procedures.

### **Delirium**

People with COVID-19 are at high risk for delirium, an acute neuropsychiatric emergency. Manage any underlying cause of delirium by monitoring oxygenation and fluid status, correcting metabolic or endocrine abnormalities, addressing co-infections, minimizing the use of medications that may cause or worsen delirium, treating withdrawal from substances, understanding and minimizing the effects of any harmful drug-drug interactions and maintaining normal sleep cycles as much as possible.

### **Agitation**

In patients experiencing agitation (marked restlessness or excessive motor activity, often accompanied by anxiety), use calming communication strategies and attempt to reorient the person. Acute pain due to physical illness or air hunger should be considered as triggers for agitation and need to be addressed immediately.

If using antipsychotic medications for agitation, consider side-effects that may worsen symptoms, including sedation, respiratory or cardiac function, fever or other immunological abnormalities, or coagulation abnormalities and any potential drug-drug interactions between these and other medications. Use minimum effective doses of antipsychotic medications at the lowest frequency and for the shortest duration possible, with doses adjusted according to age, medical co-morbidities and degree of distress.

### ***Initial Response to Mental Health and Psychosocial Support***

Multiple levels of interventions should be integrated within outbreak response activities. These levels align with a spectrum of mental health and psychosocial needs and are represented in a pyramid of interventions ranging from embedding social and cultural considerations in basic services to providing specialized services for individuals with more severe conditions (see Figure 12).



Figure 12: Intervention pyramid for mental health and psychosocial support (IASC)

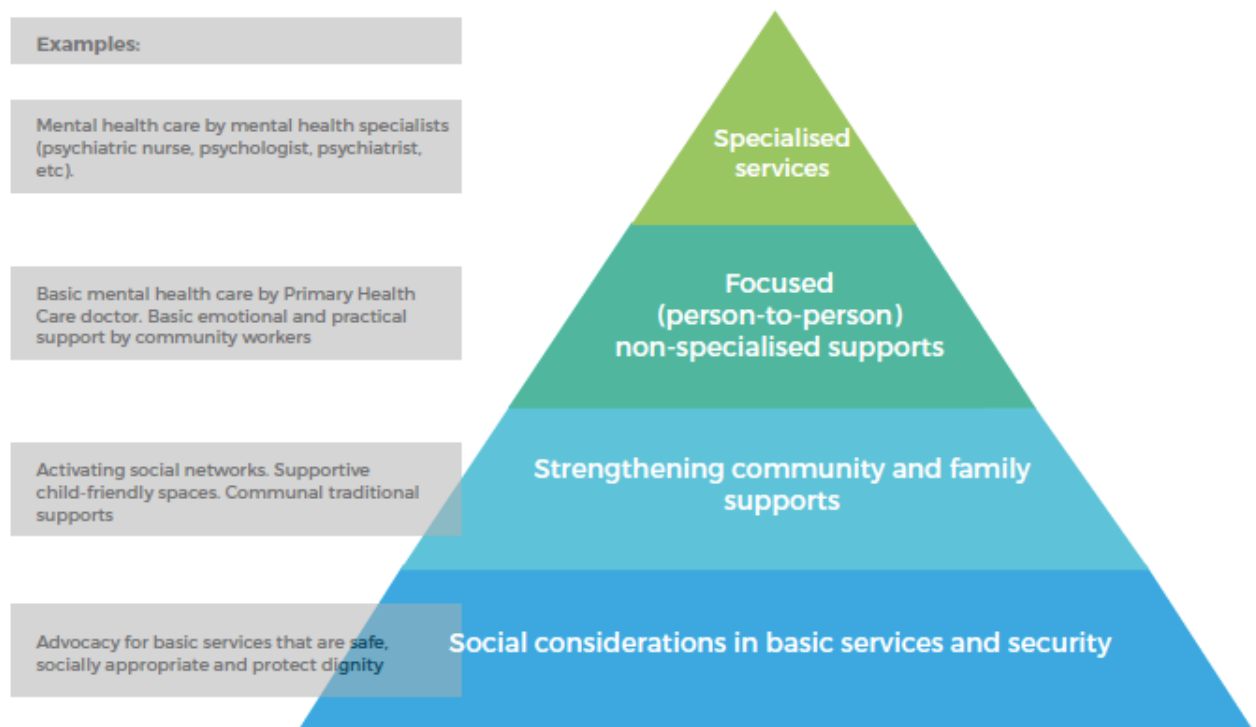
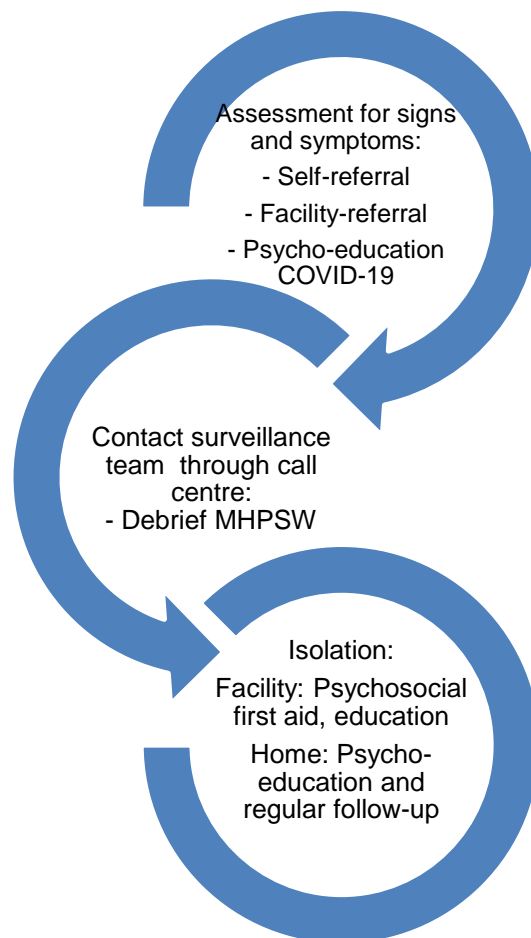


Figure 13: Recommended mental health assessment and referral pathway for COVID-19



### *Helping older adults cope with stress during the COVID-19 outbreak (IASC, February 2020)*

Older adults, especially those in isolation or with cognitive decline/dementia, may become more anxious, angry, stressed, agitated, withdrawn or suspicious. Provide emotional support using families and mental health professionals. Share simple facts and give clear information on how to reduce risk of infection. Repeat information whenever necessary.

- Meet the medical needs of older adults with and without COVID-19. Ensure uninterrupted supplies of essential medicines for diabetes, heart disease, kidney disease, HIV, etc.
- Present truthful information on risk factors and chances of recovery to isolated or infected persons. Use simple, easy to understand language to share information and facts about COVID-19, prevention, disease progression and treatment.
- Support counselling for patients and caregivers using phone, SMS, WhatsApp, etc.
- For those who live alone or have limited transportation, arrange for needed supplies such as food and medication.
- Provide advice on simple physical exercises to perform at home to maintain mobility and reduce boredom.

### *Supporting the needs of people with disabilities during the COVID-19 outbreak (IASC, February 2020)*

People with disabilities and their caregiver face barriers that could prevent them from accessing care and information to reduce their risks. Barriers include prejudices, stigma and discrimination against people with disabilities, including beliefs that they cannot contribute to the response or make their own decision. There is often a lack of development and sharing of information to people with communication disabilities. Many health facilities are not accessible to people with physical disabilities, especially as public transportation systems are halted. Inclusion of people with disabilities during emergency response is critical to maintaining physical and mental health while reducing risks of infection with COVID-19.

- Develop accessible communication messages for people with disabilities, including sensory, intellectual, cognitive and psychosocial disabilities.
  - Forms of communication that do not rely solely on written information should be developed and utilized.
  - Health staff know sign language or use sign language interpreters validated by people with deafness.
- If caregivers need to be moved into isolation/quarantine, plans must be made to ensure continued support for people with disabilities who need care and support.
- People with disabilities and their caregivers should be included in all stages of the outbreak response.

### *Messages and activities for helping children deal with stress (IASC, February 2020)*

Encourage active listening and an understanding attitude with children. Children may respond to the unsettling/changing situation differently: clinging to caregivers, feeling anxious, withdrawing, feeling angry, having nightmares, etc.

- Allow children to express and communicate their disturbing feelings in a safe and supportive environment. Engage in a creative activity such as playing or drawing to facilitate the process. Help children find positive ways to express their feelings.
- Children need adults' love and more dedicated attention during difficult times.
- Remember that children take their emotional cues from the important adults in their lives, so how caregivers respond to COVID-19 is very important. Encourage adults to manage their own emotions and remain calm, listen to children's concerns and reassure them.
- Make opportunities for children to play and relax.
- Avoid separating children and caregivers as much as possible. If a child needs to be separated from the primary caregiver, ensure that appropriate alternative care is provided. If possible, facilitate regular and frequent contact via phone, SMS, or WhatsApp. Ensure child protection and safeguarding measures are addressed.
- Keep regular routines and schedules as much as possible or create new ones. Provide facts about what is happening and give clear child-friendly information on how to reduce risk of infection and stay safe. Demonstrate how children can keep themselves safe, such as through effective handwashing.
- Explain personal protective equipment to children so that they are not scared.

### *Supporting people working in the COVID-19 response and front-line workers (IASC, February 2020)*

#### **MESSAGES FOR FRONTLINE WORKERS**

- Feeling stressed is quite normal in the current situation.
- Stress and the associated feelings are by no means a reflection that you cannot do your job or are weak, even if you feel that way. Stress can be useful. Right now, the feeling of stress may be keeping you going and providing a sense of purpose. Managing stress and psychosocial wellbeing is as important as managing your physical health.
- Take care of your basic needs and employ helpful coping strategies – ensure rest and respite between shifts, eat sufficient and healthy food, engage in physical activity and stay in contact with family and friends.

- This is a unique and unprecedented scenario for many workers. Even so, use the strategies that you have used in the past to manage times of stress.
- If your stress worsens and you feel overwhelmed, you are not to blame. Everyone experiences stress and copes with it differently. You may notice changes in how you are working, your mood may change, you may feel exhausted or it may feel harder to relax during respite periods, or you may have physical complaints such as stomach aches.
- Chronic stress can affect your mental wellbeing and your work and can affect you even after the situation improves. If the stress becomes overwhelming, please approach your line manager or appropriate person to ensure you are provided with needed support.

#### **MESSAGES FOR TEAM LEADERS OR MANAGERS:**

If you are a team leader or manager, keeping all staff protected from chronic stress and poor mental health during this response means they will have better capacity to fulfil their roles.

- Regularly and supportively monitoring your staff for their wellbeing and foster an environment which promotes staff to speak to you if their mental wellbeing worsens
- Ensure good quality communication and accurate information updates are provided to all.
- Consider if there is any capacity to ensure staff get the rest and recuperation they need. Rest is important for physical and mental wellbeing.
- Provide a brief and regular forum to allow workers to express their concerns and ask questions. Encourage peer support amongst colleagues.

## Contact tracing

### ***Definition of a contact***

A COVID-19 contact is a person who experienced any one of the following exposures during the 2 days before and 14 days after the onset of symptoms in a probable or confirmed COVID-19 case:

- Face-to-face contact with a probable or confirmed case within 1 meter and for more than 15 minutes,
- Direct physical contact with a probable or confirmed case,
- Direct care for a patient with probable or confirmed COVID-19 disease without using proper personal protective equipment, or
- Other situations as indicated by local risk assessments.

The contact's interaction with the index case should have taken place during the period of time spanning the two days preceding the index case's onset of symptoms through 14 days after the onset of symptoms ('2+14' period).

For confirmed cases that are asymptomatic, the period of time used to define a contact's exposure is measured as the 2 days before through the 14 days after the date on which the sample was taken which led to confirmation.

### ***Personnel and the contact tracing team***

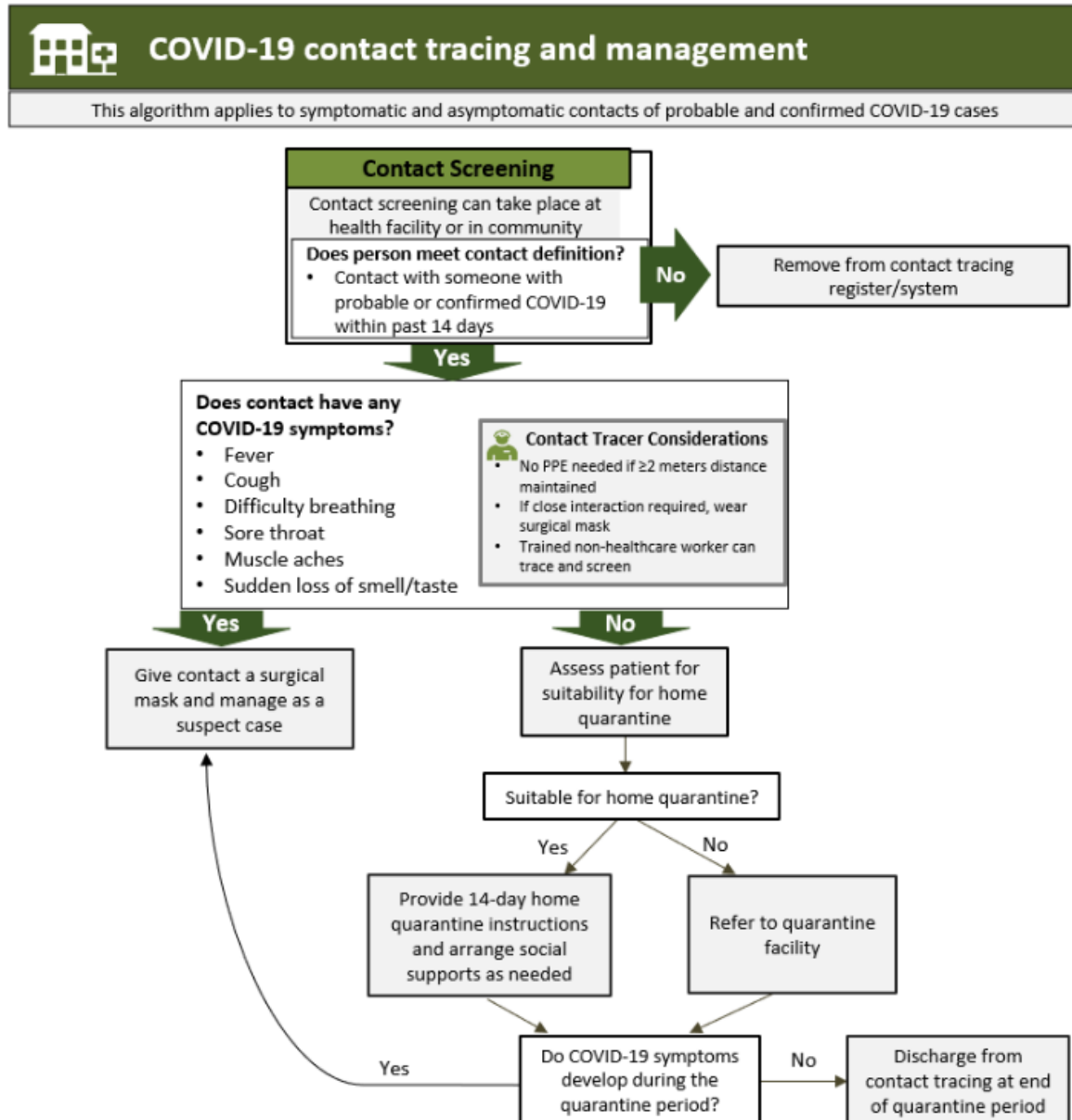
- Contact tracing teams can include trained personnel including community health nurses, CHWs, other clinical staff, and trained community leaders.
- Personnel should be equipped with PPE. Improper PPE is particularly dangerous as infected workers could be asymptomatic and infectious, thereby potentially serving to spread the virus to community members they visit. If contact tracing activities are conducted outside of the home and physical distancing of 2 meters maintained, then no PPE is required. This is a recommended approach in order to preserve PPE use for situations where physical distancing cannot be maintained.

### ***Testing of contacts***

- Any symptomatic contact should be tested and otherwise managed as a suspected case.
- Asymptomatic contacts should be told to self-quarantine for 14 days from the last day of their contact with the COVID-19 case<sup>11</sup>. They should also be instructed to notify a healthcare worker or present to a health facility if symptoms do develop. Self-quarantine may mean living in a separate house, or distant room in a shared house, for the quarantine period.
- Additional guidance of testing of asymptomatic contacts will be provided by surveillance team and updated based on global and local trends.

<sup>11</sup> Fourteen days is thought to be the longest incubation period for SARS-CoV-2 infection, which is why contacts are instructed to self-quarantine for 14 days from the last time they were exposed to the index case.

Figure 14: Contact Tracing



**Contact follow-up and discharge**

- Daily or frequent communication with a member of contact tracing team is ideal to monitor for symptoms. Communicating via telephone is preferred method of contact in order to maintain physical distancing and efficiently use contact tracers' time.
- Instructions for the contact:
  - Where to seek care if they develop a cough, fever, shortness of breath, or other COVID-19 symptoms.
  - Notify the facility in advance of their symptoms and travel to the facility.
  - Whenever possible, patients should remain at least 2 meters apart from anyone accompanying them to a healthcare facility. They should be discouraged from using any crowded public transportation.
  - Clean surfaces that come into contact during patient transport with 0.5% diluted bleach (this is 1 part 5% bleach to 9 parts water).

**Asymptomatic Individuals with Confirmed SARS-CoV-2**

During surveillance, asymptomatic individuals will be tested. Confirmed SARS-CoV-2 cases who never had symptoms may be released from isolation 10 days after the positive test. This recommendation applies to both adults and children.

## Infection Prevention and Control

Infection prevention and control (IPC) interventions for COVID-19 will work best when there is a functional IPC program and team in place at each health facility as well as DHMTs and MOH level. A dedicated IPC team with a designated focal point should be in place to implement and monitor the IPC plan. COVID-19 IPC interventions are grouped into 3 categories:

Category	IPC interventions
<b>Administrative controls</b> (ensuring resources for infection prevention and control are available)	<ul style="list-style-type: none"> <li>• Develop and implement policies and SOPs on early recognition and isolation of suspected and confirmed COVID-19 cases through screening, isolation, and testing</li> <li>• Develop and implement policies and SOPs on physical distancing among staff, patients, and visitors as well as restricting visitor access to health facilities during outbreak</li> <li>• Develop and implement policies and SOPs regarding environmental measures</li> <li>• Ensure policies and SOPs are adhered to through regular monitoring</li> <li>• Providing adequate training and updates for healthcare workers regarding all aspects of COVID-19 response</li> <li>• Make sure appropriate separate spaces are dedicated for screening and isolation measures</li> <li>• Ensuring adequate staffing levels</li> <li>• Ensuring adequate levels of PPE and proper use</li> <li>• Educating communities and staff on importance of recommended IPC measures</li> </ul>
<b>Environmental and engineering controls</b> (reduce the spread of virus through droplets and contaminated surfaces)	<ul style="list-style-type: none"> <li>• Limit entry points into health facility to enable screening</li> <li>• Provide sufficient hand hygiene stations and supplies</li> <li>• Post signage regarding hand and respiratory hygiene as well as droplet and contact precautions</li> <li>• Implement physical distancing of all patients</li> <li>• Provide dedicated waiting areas for COVID-19 suspects and separate isolation spaces for confirmed cases</li> <li>• Ensure adequate ventilation in all patient care areas</li> <li>• Ensure proper cleaning and disinfection procedures are followed</li> </ul>
<b>Personal protective equipment</b>	<ul style="list-style-type: none"> <li>• Apply standard precautions for all patients including hand and respiratory hygiene and routine cleaning and disinfection procedures</li> <li>• Implement droplet and contact precautions during patient care for suspected and confirmed COVID-19 cases</li> <li>• Airborne precautions needed only for procedures likely to cause aerosols</li> </ul>

**It should be noted that personal protective equipment works best when proper administrative, environmental, and engineering controls are first implemented.** These controls reduce the amount of exposure that health workers have to infectious virus. PPE then helps to further reduce the risk of infection from virus that health workers are exposed to.

### **Standard, Droplet and Airborne Precautions**

Standard, droplet, and airborne precautions should be practiced for all COVID-19 suspects and confirmed cases according to the particular patient circumstances. These precautions include hand and respiratory hygiene, the use of appropriate PPE, safe injection practices, safe waste management, proper linens, environmental cleaning, and proper cleaning, disinfection, and sterilization of patient care equipment.

**Standard precautions:** Hand washing is always a critical protection for staff and patients. Gloves should be used for all blood and body fluids.

### **WHO's 5 Moments for Hand Hygiene**

- 1 Before touching a patient.
- 2 Before clean/aseptic procedures.
- 3 After touching a patient.
- 4 After body fluid exposure/risk.
- 5 After touching the patient's surroundings.







**Droplet and contact precautions for suspected and confirmed COVID-19 patients:** In addition to standard precautions, because of the way SARS-CoV-2 virus is spread, additional PPE is required for personnel in contact with infected persons or infectious material. The virus is spread through droplets that contact mucous membranes. Therefore, masks, gowns, gloves, and eye protection are recommended.

- Don appropriate PPE (gloves, gown, surgical mask, and goggles/face mask) before performing patient care activities.
- If possible, place COVID-19 suspects and confirmed patients in single rooms.
- When single rooms not available, COVID-19 suspects may be grouped together (cohorted). This space should be separated and removed from other patients. Patients with other contagious co-infections (e.g. TB) should be isolated separately, if possible.
- Confirmed COVID-19 patients should be isolated/cohorted separately from suspected cases to avoid possible transmission from a patient with confirmed infection to a suspect who is actually not infected.
- Maintain at least 1-meter distance between all patients. All patients should don surgical masks.
- Limit transport and movement of patients. When transport is necessary, don appropriate PPE, place surgical mask on patient, and follow respiratory/hygiene etiquette.
- Patients cannot leave their isolation room/ward except to go to their dedicated bathroom or during movement authorized by a clinician until they are discharged.
- Equipment (stethoscope, BP cuff, pulse oximeter, etc.) must be cleaned and disinfected between each patient (e.g., by using ethyl alcohol 70%).
  - Equipment should not be moved between rooms.
- Increase frequency of cleaning and disinfection of screening and isolation areas to minimize spread from contaminated surfaces and items
- No visitors for suspected or confirmed patients (with the exception of parents for children and possibly terminally ill patients) as a strategy to help conserve PPE and minimize transmission.
- Maintain a record of all persons entering a patient's room or isolation space, including all staff and visitors. This supports later contact tracing if needed.

**Airborne precautions for aerosol-generating procedures:** Airborne precautions are currently only indicated for COVID-19 in limited circumstances.

- Indications for airborne precautions:
  - tracheal intubation, non-invasive ventilation, tracheotomy, CPR, manual ventilation before intubation, bronchoscopy, nebulizer treatment, use of high flow oxygen masks (i.e. Venturi masks), during non-invasive ventilation (high-flow nasal cannula, CPAP, BiPAP).
- Perform procedure in adequately ventilated space.
- Don N95 mask in addition to droplet and contact precautions PPE (gloves, gown, and face shield/goggles).
- Limit the number of people in the room to those necessary.
  - There should be no other patients present.

**Table 9: Recommended PPE for contact with COVID-19 suspects or cases or infectious material**

Item	Description
<p style="text-align: center;"><b>Gown</b></p> 	<p>Single-use, long sleeve, ties in back, length to mid-calf <b>OR</b> reusable cloth gowns.</p>
<p style="text-align: center;"><b>Surgical/medical mask</b></p> 	<p>Used by all HCWs in normal care settings for suspected or confirmed COVID-19</p> <p>Used by suspected or confirmed COVID-19 patients who may expose others</p>
<p><b>Particulate respirator (N95, FFP2, or similar)</b></p> 	<p>Reserved for HCW in contact with highly aerosolizing procedures (intubation, non-invasive ventilation, nebulization, deep suctioning, oxygen supplementation with venturi masks)</p>
<p><b>Face shield or goggles (below)</b></p> 	<p>Made of clear plastic and providing good visibility to both the wearer and the patient. Adjustable band to attach firmly around the head and fit snugly against the forehead. Completely cover the sides and length of the face. May be re-usable (made of robust material which can be cleaned and disinfected) or disposable.</p>
<p><b>Goggles or face shield (above)</b></p> 	<p>Good seal with the skin of the face, flexible PVC frame to easily fit with all face contours with even pressure, enclose eyes and the surrounding areas, accommodate wearers with prescription glasses, adjustable band to secure firmly so as not to become loose during clinical activity, indirect venting to avoid fogging. May be re-useable, after disinfection, or disposable.</p>
<p style="text-align: center;"><b>Non-sterile gloves</b></p> 	<p>Gloves should have longer cuffs, reaching above the wrist.</p>

**Donning and Doffing of PPE**

Putting on (donning) and taking off (doffing) PPE is an important part of infection control as improper placement of protective gear places staff at risk. Similarly, contamination of mucous membranes while removing gear can expose staff to the virus. **See Annex 3 for picture tutorials of proper donning and doffing procedures of PPE.**

<b>Donning</b>	<b>Doffing</b>
<ol style="list-style-type: none"> <li>1. Perform hand hygiene*</li> <li>2. Don gown</li> <li>3. Don surgical mask (or N95 respirator mask if required)</li> <li>4. Don face shield</li> <li>5. Don gloves, ensuring wrist covered</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove gloves</li> <li>2. Perform hand hygiene*</li> <li>3. Remove gown</li> <li>4. Perform hand hygiene*</li> <li>5. Remove face shield</li> <li>6. Perform hand hygiene*</li> <li>7. Leave the treatment area</li> <li>8. Remove N95/surgical mask (to be done outside the treatment area)</li> <li>9. Perform hand hygiene (preferably by washing hands with soap &amp; water)</li> </ol>

\*When using alcohol-based hand gel, allow gel to dry before continuing.

### **Strategies for Conserving PPE**

Conservation of PPE can begin prior to any cases of COVID-19 detection. It is critical that as screening and isolation systems are rapidly planned and implemented, early efforts are made to **conserve PPE** as stock is limited globally. Conserving PPE now will ensure enough supplies to keep providers safe throughout the epidemic.

#### **Strategies for conserving PPE**

- PPE should be used appropriately and rationally.
  - Health facility staff should be educated about appropriate PPE use and rationale behind recommendations.
  - Appropriate use should be monitored by health facility administrators.
- Staff performing initial screening at health facility entry points should only wear a surgical mask if the following measures are taken:
  - Screener should maintain at least 1 meter of distance from people being screened at all times. Note that if screener is behind a physical barrier, such as a window, it eliminates their need to wear any PPE, including the surgical mask.
  - If temperature screening is performed at this screening point it should only be done using non-contact thermometers. If a non-contact thermometer is not available, then first screener should only ask for history of fever.
  - If screener cannot maintain 1 meter of distance, wearing a surgical mask and eye protection is sufficient as the screener should not be touching individuals.
- Staff should only wear a N95 respirator mask when aerosolizing procedures are being done for COVID-19 suspects or probable/confirmed cases.
  - Such procedures include nebulization, intubation, manual ventilation, cardiopulmonary resuscitation, and non-invasive ventilation [CPAP, BiPAP, high-flow nasal cannula, and Venturi mask].
- When possible, concentrate patient care activities for COVID-19 suspects and probable/confirmed cases in order to minimize sets of PPE needed.
  - For example, take vital signs and give medications at the same time to use one set of PPE instead of returning a second time and using a second set of PPE.
- Consider using specific PPE only if in direct close contact with a COVID-19 suspect or case or their immediate environment.
  - For example, if only entering a patient's immediate environment to talk with or visually inspect them, consider only wearing a mask and eye protection and omitting gloves and gown.
- Minimize people working in a COVID-19 isolation area to the caregivers involved in direct care of those patients to minimize number of staff needing PPE. For example:
  - For patient rounds, consider only having the direct caregivers interact with the patient rather than members of the team responsible for the care of other patients.
  - On any single day, try to have a dedicated set of health workers for a COVID-19 isolation area and another set of health workers for a non-isolation area instead of having a larger number of caregivers that work in both areas.
  - Non-essential personnel should not be permitted in COVID-19 screening and isolation areas to reduce the use of masks and gowns.



### **Strategies for conserving PPE**

- As needed, consider the extended use of masks between patients (meaning that the mask is not removed between patients but stays on a provider's face continuously).
  - WHO guidelines for extended use: [https://apps.who.int/iris/bitstream/handle/10665/331695/WHO-2019-nCov-IPC\\_PPE\\_use-2020.3-eng.pdf](https://apps.who.int/iris/bitstream/handle/10665/331695/WHO-2019-nCov-IPC_PPE_use-2020.3-eng.pdf)
  - U.S. CDC guidelines for extended use (including when the mask should be changed): <https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/contingency-capacity-strategies.html>
- Re-use of N95 masks during care of patients with COVID-19 should be avoided if possible. Re-use refers to removing and then replacing the same mask on a provider's face. They can be reused when caring for patients who only have TB so long as respiratory maintains its structural and functional integrity. If a N95 mask must be reused during care of patients with COVID-19, a recommended strategy is to give health workers in need of them five N95 masks. Health worker should wear each mask for one day and then place it in a paper bag for a minimum of 5 days before using it again. This strategy allows enough time for any living virus on the mask to die before the mask is touched again. Refer to U.S. CDC web site for further information (<https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/index.html>)
- Eye protection can be cleaned with a bleach solution and reused between patients.
- To ensure that global PPE shortages do not negatively impact care of any kind of patient (including TB patients and surgical patients), it is important to conserve the use of PPE in all clinical areas.

**Please note none of these suggestions should detract from patient care.  
The safety of staff and patients is always the top priority!**

### ***Options for when recommended PPE is not available***

- Maintain > 1-meter distance to avoid inhalation of droplets or droplets making contact with mucous membranes.
- Frequent hand washing >20 seconds.
- Avoid touching face, nose, and mouth.
- Avoid touching surfaces without gloves.
- If performing aerosolizing procedure that would normally need an N95, double surgical masks and remaining out of direct line of sight from patient's nose and mouth.
- Any additional eye protection can be used to cover the eyes.
- If gowns are not available, consider use of lab coats, aprons, patient gowns, and/or arm covers (disposable or reusable)
- Use a face shield if medical masks are not available
- Cloth masks are not recommended for health workers because their efficiency at blocking respiratory droplets is unknown and they are not water resistant. However, in absence of any mask option, cloth mask can be considered but should be replaced cleaned daily and changed whenever it becomes moist.

Table 10 provides comprehensive recommendations for PPE to be used by various individuals according to the activity they are performing and setting in which it is occurring.

<b>Table 10: Recommended PPE for various settings according to group and activity</b>				
	<b>Setting</b>	<b>Target personnel or patients</b>	<b>Activity</b>	<b>Recommended PPE or IPC measures</b>
<b>Health care facilities</b>	<b>Inpatient ward</b>			
	Screening area	Health workers	Preliminary screening not involved direct contact	<ul style="list-style-type: none"> <li>○ Maintain physical distance of at least 1 meter</li> <li>○ Ideally, build glass/plastic screens to create a barrier between health workers and patients</li> <li>○ Medical mask recommended in all clinical areas.</li> <li>○ When physical distance is not feasible and yet no patient contact, use mask and eye protection.</li> <li>○ Perform hand hygiene regularly.</li> </ul>
		Patients <b>with</b> symptoms suggestive of COVID-19	Any	<ul style="list-style-type: none"> <li>○ Maintain physical distance of at least 1 meter.</li> <li>○ Provide medical mask if tolerated by patient.</li> <li>○ Immediately move the patient to an isolation room or separate area away from others; if this is not feasible, ensure spatial distance of at least 2 meters from other patients.</li> <li>○ Have the patient perform hand hygiene</li> </ul>
		Patients <b>without</b> symptoms suggestive of COVID-19	Any	<ul style="list-style-type: none"> <li>○ Cloth mask or face covering recommended.</li> <li>○ Have the patient perform hand hygiene</li> </ul>
	Patient room/ward	Health workers	Providing direct care to COVID-19 suspects or confirmed cases, in the absence of aerosol- generating procedures	<ul style="list-style-type: none"> <li>○ Medical mask</li> <li>○ Gown</li> <li>○ Gloves</li> <li>○ Eye protection (goggles or face shield)</li> <li>○ Perform hand hygiene regularly</li> </ul>
		Health workers	Providing direct care to COVID-19 suspects or confirmed cases in settings where aerosol- generating procedures are frequently in place	<ul style="list-style-type: none"> <li>○ N95 or FFP2 or FFP3 standard respirator, or equivalent.</li> <li>○ Gown</li> <li>○ Gloves</li> <li>○ Eye protection (goggles or face shield)</li> <li>○ Apron</li> <li>○ Perform hand hygiene regularly</li> </ul>

**Table 10: Recommended PPE for various settings according to group and activity**

	Setting	Target personnel or patients	Activity	Recommended PPE or IPC measures
		Cleaners	Entering the room of COVID-19 suspects or confirmed cases	<ul style="list-style-type: none"> <li>○ Medical mask</li> <li>○ Gown</li> <li>○ Heavy-duty gloves</li> <li>○ Eye protection (if risk of splash from organic material or chemicals is anticipated)</li> <li>○ Closed work shoes</li> <li>○ Perform hand hygiene regularly</li> </ul>
		Visitors	Entering the room of a COVID-19 suspect or confirmed case	<ul style="list-style-type: none"> <li>○ Maintain physical distance of at least 1 meter</li> <li>○ Medical mask</li> <li>○ Gown</li> <li>○ Gloves</li> <li>○ Perform hand hygiene regularly</li> </ul>
	Laboratory	Lab technician	<ul style="list-style-type: none"> <li>○ Manipulation of respiratory samples                             <ul style="list-style-type: none"> <li>○ Specimen handling for molecular/RT-PCR testing would require BSL-2 or equivalent facilities.</li> <li>○ Handling and processing of specimens from cases with suspected or confirmed COVID-19 infection that are intended for additional laboratory tests, such as haematology or blood gas analysis, should apply standard precautions</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ Maintain physical distance of at least 1 meter</li> <li>○ Medical mask</li> <li>○ Eye protection</li> <li>○ Gown</li> <li>○ Gloves</li> <li>○ Perform hand hygiene regularly</li> </ul>
	Administrative areas	All staff	Administrative tasks that do not involve contact with COVID-19 patients.	<ul style="list-style-type: none"> <li>○ Maintain physical distance of at least 1 meter</li> <li>○ No PPE required</li> <li>○ Perform hand hygiene regularly</li> </ul>
Health care facilities	Areas where patients are not allowed (e.g. cafeteria, corridors)	All staff, including health workers	Any activity that does not involve contact with COVID-19 patients	<ul style="list-style-type: none"> <li>○ Maintain physical distance of at least 1 meter</li> <li>○ No PPE required</li> <li>○ Perform hand hygiene regularly</li> </ul>
	Outpatient clinics			
	Screening area	Health workers	Preliminary screening not involved direct contact	<ul style="list-style-type: none"> <li>○ Maintain physical distance of at least 1 meter</li> <li>○ Ideally, build glass/plastic screens to create a barrier between health workers and patients</li> <li>○ Medical mask recommended in all clinical areas.</li> <li>○ When physical distance is not feasible and yet no patient contact, use mask and eye protection.</li> <li>○ Perform hand hygiene regularly.</li> </ul>

**Table 10: Recommended PPE for various settings according to group and activity**

Setting	Target personnel or patients	Activity	Recommended PPE or IPC measures	
	Patients <b>with</b> symptoms suggestive of COVID-19	Any	<ul style="list-style-type: none"> <li>○ Maintain physical distance of at least 1 meter.</li> <li>○ Provide medical mask if tolerated by patient.</li> <li>○ Immediately move the patient to an isolation room or separate area away from others; if this is not feasible, ensure spatial distance of at least 2 meters from other patients.</li> <li>○ Have the patient perform hand hygiene</li> </ul>	
	Patients <b>without</b> symptoms suggestive of COVID-19	Any	<ul style="list-style-type: none"> <li>○ Cloth mask or face covering recommended.</li> <li>○ Have the patient perform hand hygiene</li> </ul>	
	Waiting areas	Patients <b>with</b> symptoms suggestive of COVID-19	Any	<ul style="list-style-type: none"> <li>○ Provide medical mask if tolerated.</li> <li>○ Immediately move the patient to an isolation room or separate area away from others; if this is not feasible, ensure spatial distance of at least 2 meters from other patients.</li> <li>○ Have the patient perform hand hygiene</li> </ul>
		Patients <b>without</b> symptoms suggestive of COVID-19	Any	<ul style="list-style-type: none"> <li>○ Cloth mask or face covering recommended.</li> <li>○ Have the patient perform hand hygiene</li> </ul>
Consultation room	Health workers	Physical examination of patient with symptoms suggestive of COVID-19	<ul style="list-style-type: none"> <li>○ Medical mask</li> <li>○ Gown</li> <li>○ Gloves</li> <li>○ Eye protection (goggles or face shield)</li> <li>○ Perform hand hygiene regularly</li> </ul>	
	Health workers	Physical examination of patients without symptoms suggestive of COVID-19	<ul style="list-style-type: none"> <li>○ PPE according to standard precautions and patient risk assessment.</li> <li>○ Medical mask recommended in all clinical areas.</li> <li>○ Perform hand hygiene regularly</li> </ul>	
	Patients <b>with</b> symptoms suggestive of COVID-19	Any	<ul style="list-style-type: none"> <li>○ Provide medical mask if tolerated.</li> <li>○ Hand hygiene and respiratory etiquette</li> </ul>	
	Patients <b>without</b> symptoms suggestive of COVID-19	Any	<ul style="list-style-type: none"> <li>○ Cloth mask or face covering recommended.</li> <li>○ Have the patient perform hand hygiene</li> </ul>	

**Table 10: Recommended PPE for various settings according to group and activity**

	Setting	Target personnel or patients	Activity	Recommended PPE or IPC measures
		Cleaners	After and between consultations with patients with respiratory symptoms	<ul style="list-style-type: none"> <li>○ Medical mask</li> <li>○ Gown</li> <li>○ Heavy-duty gloves</li> <li>○ Eye protection (if risk of splash from organic material or chemicals).</li> <li>○ Closed work shoes</li> <li>○ Perform hand hygiene</li> </ul>
	Administrative areas	All staff, including health workers	Administrative tasks that do not involve contact with COVID-19 patients.	<ul style="list-style-type: none"> <li>○ Maintain physical distance of at least 1 meter</li> <li>○ No PPE required</li> <li>○ Perform hand hygiene regularly</li> </ul>
Home care	Home	Patients with symptoms suggestive of COVID-19	Any	<ul style="list-style-type: none"> <li>○ Maintain physical distance of at least 2 meters</li> <li>○ Provide medical mask if tolerated, except when sleeping.</li> <li>○ Hand and respiratory hygiene</li> </ul>
		Caregiver	Entering the patient's room, but not providing direct care or assistance	<ul style="list-style-type: none"> <li>○ Maintain physical distance of at least 2 meters</li> <li>○ Medical mask</li> <li>○ Perform hand hygiene</li> </ul>
		Caregiver	Providing direct care or when handling stool, urine, or waste from COVID-19 patient being cared for at home	<ul style="list-style-type: none"> <li>○ Gloves</li> <li>○ Medical mask</li> <li>○ Apron (if risk of splash is anticipated)</li> <li>○ Perform hand hygiene</li> </ul>
		Health workers	Providing direct care or assistance to a COVID-19 patient at home	<ul style="list-style-type: none"> <li>○ Medical mask</li> <li>○ Gown</li> <li>○ Gloves</li> <li>○ Eye protection</li> <li>○ Perform hand hygiene regularly</li> </ul>
Transport	Ambulance or transfer vehicle	Health workers	Transporting suspected or confirmed COVID-19 patients from/to health care facility	<ul style="list-style-type: none"> <li>○ Medical mask</li> <li>○ Gowns</li> <li>○ Gloves</li> <li>○ Eye protection</li> <li>○ Perform hand hygiene regularly</li> </ul>
		Driver	Involved only in driving the patient with suspected or confirmed COVID-19 and the driver's compartment is separated from the COVID-19 patient	<ul style="list-style-type: none"> <li>○ Maintain physical distance of at least 2 meters</li> <li>○ No PPE required</li> <li>○ Perform hand hygiene regularly</li> </ul>

**Table 10: Recommended PPE for various settings according to group and activity**

	Setting	Target personnel or patients	Activity	Recommended PPE or IPC measures
			Assisting with loading or unloading with COVID-19 patient	<ul style="list-style-type: none"> <li>○ Medical mask</li> <li>○ Gowns</li> <li>○ Gloves</li> <li>○ Eye protection</li> <li>○ Perform hand hygiene regularly</li> </ul>
			No direct contact with COVID-19 patient, but no separation between driver's and patient's compartments	<ul style="list-style-type: none"> <li>○ Medical mask</li> <li>○ Perform hand hygiene regularly</li> </ul>
		Patient with suspected or confirmed COVID-19	Transport to the referral health facility	<ul style="list-style-type: none"> <li>○ Medical mask if tolerated</li> <li>○ Have the patient perform hand hygiene</li> </ul>
		Cleaners	Cleaning after and between transport of patients with suspected COVID-19 to the referral health care facility.	<ul style="list-style-type: none"> <li>○ Medical mask</li> <li>○ Gown</li> <li>○ Heavy duty gloves</li> <li>○ Eye protection (if risk of splash from organic material or chemicals).</li> <li>○ Boots or closed work shoes</li> <li>○ Perform hand hygiene regularly</li> </ul>
Special considerations for rapid response/surveillance teams assisting with public health investigations				
Anywhere	Anywhere	Rapid response/surveillance team investigators	Remote interview of suspected or confirmed COVID-19 patients or their contacts.	<ul style="list-style-type: none"> <li>○ No PPE if done remotely (e.g. by telephone or video conference).</li> <li>○ Remote interview is the preferred method.</li> </ul>
			In-person interview of suspected or confirmed COVID-19 patients or contacts without direct contact	<ul style="list-style-type: none"> <li>○ Medical mask</li> <li>○ Maintain physical distance of at least 2 meters</li> <li>○ The interview should be conducted outside the house or outdoors, and COVID-19 patient should wear a medical mask if tolerated.</li> <li>○ Perform hand hygiene regularly</li> </ul>

## Annex

### 1 Paediatric normal vital sign ranges

	<b>Heart rate</b>	<b>Respiratory Rate</b>	<b>Systolic BP</b>
<b>Preterm</b>	120-180	50-70	40-60
<b>Birth – 1 month</b>	100-160	35-55	50-70
<b>1 – 12 months</b>	80-140	30-40	70-100
<b>12 – 36 months</b>	80-130	20-30	70-100
<b>3 – 5 years</b>	80-110	20-30	80-110
<b>6 – 11 years</b>	70-100	18-24	80-120
<b>12+ years</b>	60-90	14-22	100-120

## 2 Home Isolation/Quarantine Assessment for Mild/Moderate COVID-19 Cases and Asymptomatic Contacts

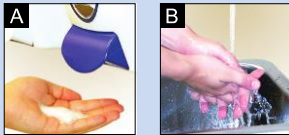
Question	Column	
	A	B
1. Can the individual isolate/quarantine in a separate room or maintain 2 meters of physical distance from other household members for the duration of their isolation/quarantine?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. Is there a caregiver available to assist the individual with any daily activities as needed so that they can maintain their isolation/quarantine and physical distancing? Examples include purchasing and preparing food, providing childcare, cleaning the house, etc. A caregiver could be a family member, neighbor, community health worker, or someone else.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2A. If there is no caregiver available, can arrangements be made to assist the individual during their isolation/quarantine? For example, can a food package be provided, or children temporarily stay with a relative?	<input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A
3. Are there enough materials to ensure adequate hygiene and isolation/quarantine from others in the household? Examples of hygiene materials include utensils, plates, cups, soap for hand hygiene, cleaning/disinfecting supplies, etc.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
3A. If hygiene materials are not sufficient, can the individual purchase them or be provided by someone else?	<input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> N/A
4. Is there any other reason why the individual cannot safely complete their isolation/quarantine at home?	<input type="checkbox"/> No	<input type="checkbox"/> Yes
<ul style="list-style-type: none"> <li>• If all answers are in Column A then individual is safe to complete isolation/quarantine at home.</li> <li>• If answer to Question 2 or Question 3 is 'No' but answer to Question 2A or 3A is 'Yes' then individual is also safe to complete home isolation/quarantine once appropriate arrangements.</li> <li>• If any answer is in Column B and issue cannot be fixed, then individual is not safe for home isolation/quarantine. COVID-19 cases should be admitted to a health facility for their isolation. Alternative arrangements for contacts can be made with DHMT or MOH COVID-19 task team.</li> </ul>		



### 3 Donning and Doffing Droplet/Airborne PPE

## Putting on (Donning) Personal Protective Equipment (PPE)

### 1 HAND HYGIENE



- A Using an alcohol-based hand rub is the preferred way to **clean your hands**.
- B If your hands look or feel dirty, soap and water **must** be used to wash your hands.

### 2 Gown



- A Make sure the gown covers from neck to knees to wrist.
- B Tie at the back of neck and waist.

### 3a Procedure/Surgical mask

- ◆ Secure the ties or elastic around your head so the mask stays in place.
- ◆ Fit the moldable band to the nose bridge. Fit snugly to your face and below chin.

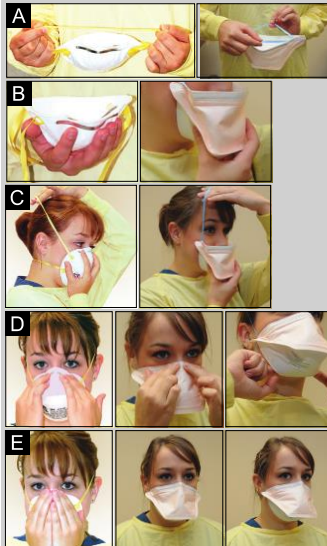


### 3b N95 respirator

There are different styles of N95 respirators (pictured below). They include: a) molded cup, b) duckbill, c) flat-fold and d) v-fold



All styles have the same basic steps for donning; molded cup and duckbill are pictured below. Refer to the manufacturer for specific donning instructions.



- A Pre-stretch both top and bottom straps before placing the respirator on your face.
- B Cup the N95 respirator in your hand.
- C Position the N95 respirator under your chin with the nose piece up. Secure the elastic band around your head so the N95 respirator stays in place.
- D Use both hands to mold the metal band of the N95 respirator around the bridge of your nose.
- E Fit check the N95 respirator.

### 4 Eye protection or face shields



- ◆ Place over the eyes (or face).
- ◆ Adjust to fit.

### 5 Gloves



- ◆ Pull the cuffs of the gloves over the cuffs of the gown.



May 2014

## Taking off (Doffing) Personal Protective Equipment (PPE)

**1 Gloves**



**A** Grasp the outside edge of the glove near the wrist and peel away from the hand, turning the glove inside-out.


- ◆ Hold the glove in the opposite gloved hand.

**B** Slide an ungloved finger or thumb under the wrist of the remaining glove.

**C** Peel the glove off and over the first glove, making a bag for both gloves.

- ◆ Put the gloves in the garbage.

**2 HAND HYGIENE**



**A** Using an alcohol-based hand rub is the preferred way to clean your hands.

**B** If your hands look or feel dirty, soap and water must be used to wash your hands.

**3 Gown**



**A** Carefully unfasten ties.

**B** Grasp the outside of the gown at the back of the shoulders and pull the gown down over the arms.

**C** Turn the gown inside out during removal.

- ◆ Put in hamper or, if disposable, put in garbage.

**4 HAND HYGIENE**



- ◆ Clean your hands. (See No. 2)
- ◆ Exit the patient room, close the door and clean your hands again.

**5 Eye protection or face shield**



- ◆ Handle only by headband or ear pieces.
- ◆ Carefully pull away from face.
- ◆ Put reusable items in appropriate area for cleaning.
- ◆ Put disposable items into garbage.

**6 Mask or N95 respirator**



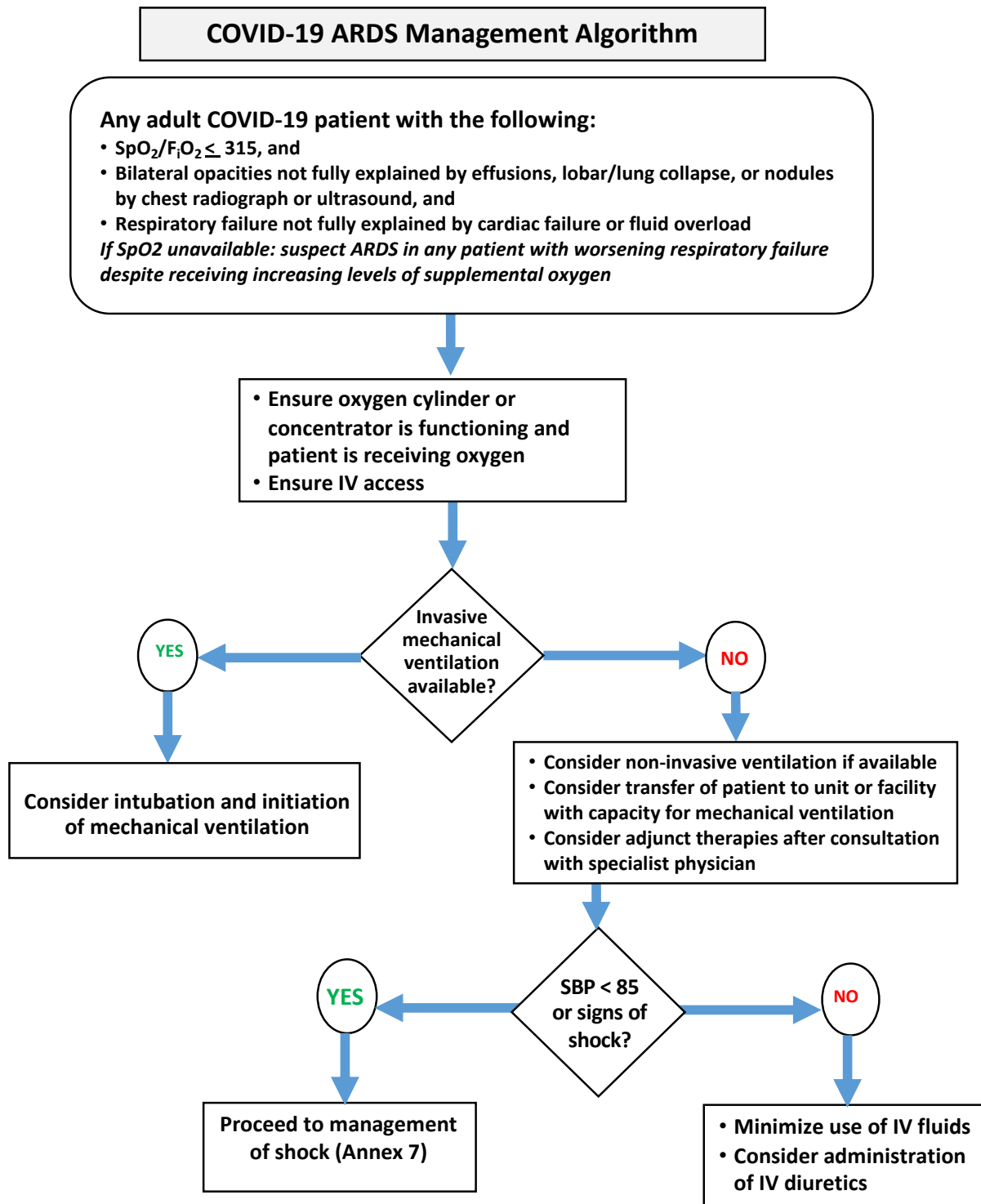
- ◆ Bend forward slightly and carefully remove the mask from your face by touching only the ties or elastic bands.
- ◆ Start with the bottom tie, then remove the top tie.
- ◆ Throw the mask in the garbage.

There are different styles of N95 respirators but all styles have the same basic steps for doffing.

**7 HAND HYGIENE**

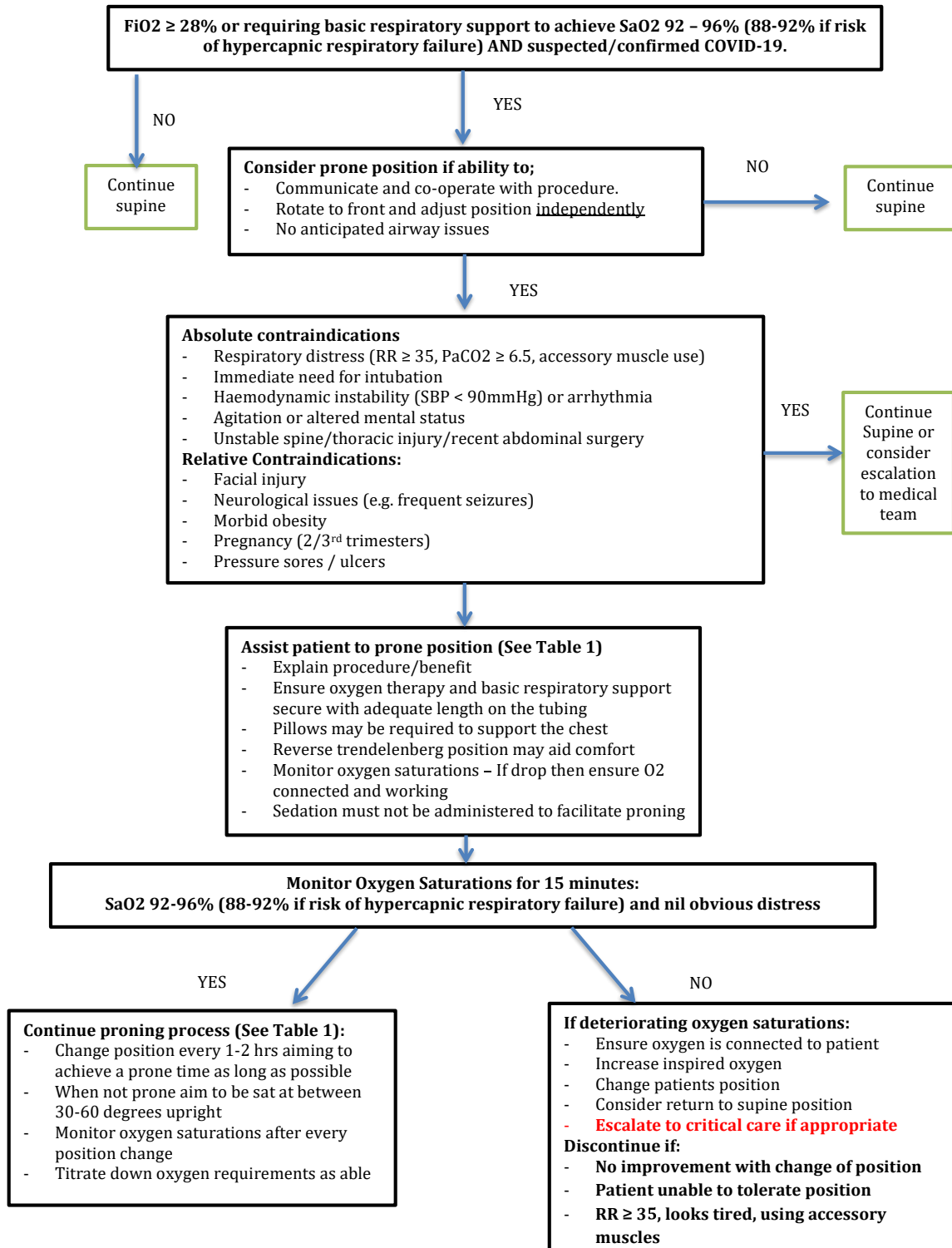
- ◆ Clean your hands. (See No. 2)

#### 4 ARDS management algorithm



## 5 Prone positioning resources

**Figure 1 – Flow diagram decision tool for Conscious Proning process**



**Table 1 – Timed position changes for patients undergoing conscious proning process**

**Timed Position Changes:**

If patient fulfils criteria for proning ask the patient to switch positions as follows. Monitor oxygen saturations 15 minutes after each position change to ensure oxygen saturation has not decreased. Continue to monitor oxygen saturations as per the National Early Warning Score (NEWS)

- 30 minutes to 2 hours lying fully prone (bed flat)
- 30 minutes to 2 hours lying on right side (bed flat)
- 30 minutes to 2 hours sitting up (30-60 degrees) by adjusting head of the bed
- 30 minutes to 2 hours lying on left side (bed flat)
- 30 minutes to 2 hours lying prone again
- Continue to repeat the cycle.....

# COVID-19

## Bucks Healthcare Prone Positioning Guide



Step 1: Anaesthetist positioned at head of bed with five other members of staff. An additional person may be required depending upon the patient's BMI.



Step 2: Roll patient and insert slide sheet under patient, adhering to Trust Manual Handling policy.



Step 3: Place pillows over patient followed by second bedsheet over the pillows. Fold down to uncover the patient's head and neck.



Step 4: Cover the patient with the second sheet. Fold down to uncover the patient's face. Roll the edges of both bedsheets together.



Step 5: Slide the patient across the bed.



Step 6: Turn patient into a lateral position.



Step 7: Lower patient into prone position, turning the head to protect the airway.



Step 8: Slide patient up the bed and remove sliding sheet. Position whole bed at an incline of 15-30°.

## Bucks Healthcare Supinating Protocol



Step 1: Anaesthetist positioned at head of bed with six other members of staff – three on either side.



Step 2: Roll patient and insert slide sheet under patient, protecting the airway and adhering to Trust manual handling policy.



Step 3: Place second bedsheet over patient and roll the edges together.



Step 4: Turn patient into a lateral position, towards the ventilator.



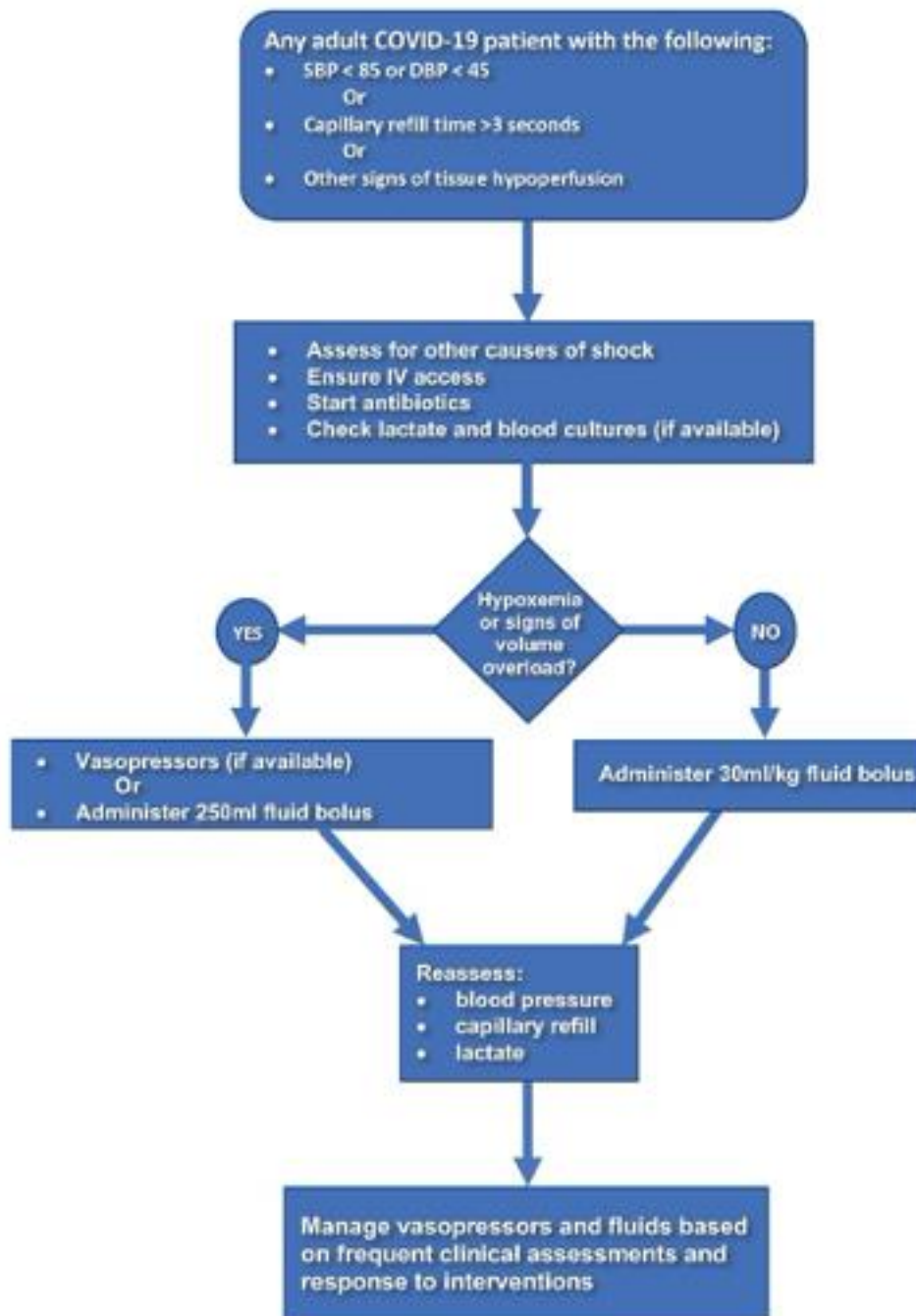
Step 5: Lower patient into supine position and reposition.



Step 6: Slide patient up the bed and remove sliding sheet.

## 6 Multi-system organ failure/Shock management algorithm

The diagram is meant to illustrate the overall management of organ failure/shock and does not replace more detailed intensive care guidelines.





## 7 Prevention of complications in critically ill patients

<b>Anticipated Outcome</b>	<b>Interventions</b>
Reduce days of invasive mechanical ventilation	Use weaning protocols that include daily assessment for readiness to breathe spontaneously Minimize continuous or intermittent sedation, targeting specific titration endpoints (light sedation unless contraindicated) or with daily interruption of continuous sedative infusions
Reduced incidence of ventilator associated pneumonia	Oral intubation is preferable to nasal intubation in adolescents and adults
	Keep patient in semi-recumbent position (head of bed elevation 30-45 degrees)
	Use a closed suctioning system, periodically drain and discard condensate in tubing
	Use a new ventilator circuit for each patient, once patient is ventilated, change circuit if it is soiled or damaged but not routinely
Change heat moisture exchanger when it malfunctions, when soiled, or every 5-7 days	
Reduce incidence of venous thromboembolism	Use pharmacological prophylaxis (low molecular-weight heparin (preferred if available) or heparin 5000 units subcutaneously twice daily) in adolescents and adults without contraindications. For those with contraindications, use mechanical prophylaxis (intermittent pneumatic compression devices)
Reduce incidence of catheter-related bloodstream infection	Use checklist with completion verified by a real time observer as reminder of each step needed for sterile insertion and as a daily reminder to remove catheter if no longer needed
Reduce incidence of pressure ulcers	Turn patient every 2 hours
Reduce incidence of stress ulcers and gastrointestinal (GI) bleeding	Give early enteral nutrition (within 24-48 hours of admission)
	Administer histamine-2 receptor blockers or proton pump inhibitors in patients with risk factors for GI bleeding. Risk factors for GI bleeding include mechanical ventilation for greater than or equal to 48 hours, coagulopathy, renal replacement therapy, liver disease, multiple comorbidities and high organ failure score
Reduce incidence of ICU - related weakness	Actively mobilize patient early in the course of illness when safe to do so

## 8 Cleaning and disinfection guidance

**OFFICES and NON-CLINICAL AREAS:** Recommended Minimum Cleaning and Disinfecting Frequencies

Type of Surface	Examples	Soap and Water	Disinfect
<b>Minimally Touched Surfaces</b>	Floors Ceilings Walls Windows	When Dirty. At least 3 times / week.	After Human Contact / When Dirty. At least weekly.
<b>Frequently Touched Surfaces</b>	Door Handles Tabletops / Desks Light Switches Computers Sinks/Basins	Daily	Daily

**CLINICAL AREAS:** Including Isolation units: COVID-19 Cleaning and Disinfection Instructions  
Recommended Minimum Cleaning and Disinfecting Frequencies

Type of Surface	Examples	Soap and Water	Disinfect
<b>Minimally Touched Surfaces</b>	Floors Ceilings Walls Blinds	3 times daily + any known COVID-exposure	3 times daily + any known COVID-exposure
<b>Frequently Touched Surfaces</b>	Door Handles Tabletops / Desks Light Switches Computers Sinks/Basins	3 times daily + between each patient	3 times daily + between each patient

### A. Cleaning Preparation

- Wear disposable gloves for all tasks in the cleaning process, including handling trash. Wash hands immediately after gloves are removed.
- Close off areas to be cleaned and wait as long as practical before beginning cleaning and disinfection to minimize the potential for exposure to respiratory droplets.
- Open outside doors and windows to increase air circulation in the area.

### B. Soap and Water Cleaning

- Always clean surfaces using a detergent or soap and water before disinfection.
- Remove visible pollutants (blood, secretions, excreta) completely.
- Damp mopping is preferable to dry mopping.
- Surfaces should be disinfected if they have come into direct human contact or are frequently touched.
- Always sterilize washing cloths, mops and other supplies used during cleaning.

### C. Disinfecting Guidelines

- Wear disposable gloves for all tasks in the disinfection process, including handling trash. Wash hands immediately after gloves are removed.
- Use freshly made solutions, or premix and follow manufacturer's instructions or table below for appropriate dilution.
- Wipe the area with the disinfectant solution using a cloth.
- Wipe cleaner regions first, then more contaminated regions.
- Dispose or sterilize cloth immediately after use.
- After cleaning, wash hands well using soap and water. If water is unavailable, clean hands with alcohol-based hand rub.

### D. Choosing the Right Disinfectant

- Chlorine Bleach can damage computers, plastic, fabric and metal
- Use chlorine bleach on non-porous surfaces such as floors, sinks, toilets, walls
- Use an Alcohol-based cleaner (if available) on biomedical equipment, electronics, computers, phones, screens, etc.

- If not available, clean with bleach, if possible
- DO NOT MIX SOLUTIONS

**E. Preparation and use of disinfectant solution**

- Gloves should be worn when handling and preparing bleach solutions.
- Protective eye wear should be worn in case of splashing.
- Cleaning solutions (example chlorine bleach) should be made up daily.
- Leave the disinfectant solution on the surface for a sufficient time is required to kill the virus – a minimum of 10 minutes for chlorine/bleach.
- Always rinse chlorine/bleach with water after 10 minutes. Hydrogen peroxide and alcohol-based cleaners do not need to be rinsed.

**Acceptable Disinfectants**

Disinfecting Solution	Concentration	Directions	OK to use on	Do NOT use on
<b>Diluted chlorine bleach (5.25% sodium hypochlorite)</b>	0.5% (1:50)	Apply, leave for 10 min, rinse	Floors, desks, non-porous surfaces	Computers, phones, screens, fabric, can discolour plastic, metal
<b>Chlorine (see table below to mix chlorine)</b>	0.5%	Apply, leave for 10 min, rinse	Floors, desks, non-porous surfaces	Computers, phones, screens, fabric, can discolour plastic, metal
<b>Hydrogen Peroxide</b>	0.5%	Apply	Floors, desks, non-porous surfaces, metal	Fabric
<b>Ethanol / Ethyl Alcohol</b>	62% minimum	Apply	Computers, Phones, Non-porous surfaces	Can discolour plastic
<b>Isopropyl Alcohol</b>	70% minimum	Apply	Computers, Phones, Non-porous surfaces	Can discolour plastic
<b>Propanol</b>	70% minimum	Apply	Computers, Phones, Non-porous surfaces	Can discolour plastic
<b>Do NOT use: Ammonia, vinegar</b>				
<b>Do NOT: mix multiple disinfectants</b>				

Liquid Chlorine Preparation				
	% Solution	0.05 %	0.5 %	2 %
<b>Basic Product</b>	<b>Use for:</b>	<b>Hands, skin, laundry, clothes</b>	<b>Floors, walls, equipment</b>	<b>Disinfection of stool, vomit, blood. Disinfection of corpses.</b>
	<b>Bleach, 5% sodium hypochlorite (5% active chlorine)</b>	10 millilitres in 10 litres of water	1 litre in 10 litres of water	4 litres in 6 litres of water
	<b>Chlorine laundry powder (30% active chlorine)</b>	16 grams (1 tablespoon) in 10 litres of water	16 grams (1 tablespoon) in 1 litre of water	64 grams (4 tablespoons) in 1 litre of water
	<b>Chlorine granules (HTH)</b>	8 grams (1/2 tablespoon) in 10 litres of water	8 grams (1/2 tablespoon) in 1 litre of water	32 grams (2 tablespoons) in 1 litre of water
ALWAYS label solutions using a permanent marker				
Note: WaterGuard is 1.25% Sodium Hypochlorite --> if this is used, then will need to use different ratios				

## **F. Disposal of excreta**

- It is critical to conduct hand hygiene when there is suspected or direct contact with faeces (if hands are dirty, then soap and water are preferred to the use of an alcohol-based hand rub).
- If the patient is unable to use a latrine, excreta should be collected in either a diaper or a clean bedpan and immediately and carefully disposed of into a separate toilet or latrine used only by suspected or confirmed cases of COVID-19.
- Faeces must be treated as a biohazard and handled as little as possible. Anyone handling faeces should follow WHO contact and droplet precautions and use PPE to prevent exposure, including long-sleeved gowns, gloves, boots, surgical masks, and goggles or a face shield. If diapers are used, they should be disposed of as infectious waste as they would be in all situations.
- If a bedpan is used, after disposing of excreta from it, the bedpan should be cleaned with a neutral detergent and water, disinfected with a 1% chlorine or 0.5% sodium hypochlorite solution, and then rinsed with clean water; the rinse water should be disposed of in a drain, toilet, or latrine.

## **G. Laundry:**

- All individuals dealing with soiled bedding, towels and clothes from patients with COVID-19 infection should wear appropriate PPE before touching it, including heavy duty gloves, a mask, eye protection (goggles or a face shield), a long-sleeved gown, an apron if the gown is not fluid resistant, and boots or closed shoes.
- Soiled linen should be placed in clearly labelled, leak-proof bags or containers, after carefully removing any solid excrement and putting it in a covered bucket to be disposed of in a toilet or latrine.
- Machine washing with warm water at 60–90° C with laundry detergent is recommended. The laundry can then be dried according to routine procedures.
  - If machine washing is not possible, linens can be soaked in hot water and soap in a large drum using a stick to stir and being careful to avoid splashing. The drum should then be emptied, and the linens soaked in 1% chlorine for approximately 30 minutes. Finally, the laundry should be rinsed with clean water and the linens allowed to dry fully in sunlight.
  - If excreta are on surfaces (such as linens or the floor), the excreta should be carefully removed with towels and immediately safely disposed of in a toilet or latrine. If the towels are single use, they should be treated as infectious waste; if they are reusable, they should be treated as soiled linens.
- Water: Persistence of SARS-CoV-2 in drinking-water is possible. There is no evidence to date about survival of the virus that causes COVID-19 in water or sewage, but this virus is likely to become inactivated significantly faster than non-enveloped human enteric viruses with known waterborne transmission (such as adenoviruses, norovirus, rotavirus and hepatitis A).

## **Dead body management**

**(adapted from WHO interim guidance on 'Infection prevention and control for the safe management of a dead body in the context of COVID-19')**

- There is no evidence of COVID-19 transmission via dead bodies.
- Standard precautions should be followed in handling dead bodies of persons who died of confirmed or suspected COVID-19.
- No special body bag or transport equipment or vehicle is needed. Wrap body in cloth and transfer it as soon as possible to the mortuary.
- There is no need to disinfect the body before transfer to the mortuary
- Health workers or mortuary staff preparing the body should wear appropriate PPE according to standard precautions
- Embalming is not recommended to avoid excessive handling of the body
- Environmental surfaces on which the body was prepared should be cleaned with soap and water followed by disinfection with minimum of 0.1% sodium hypochlorite (bleach) or 70% ethanol.
- People >60 years of age or immunocompromised should not directly handle the body
- If family wishes to view the body, they should be instructed not to touch or kiss the body
- Individuals responsible for touching the body to place it in the coffin or grave should wear gloves and wash hands after removal of gloves
- Cremation is not required
- Belongings of the deceased should be handled with gloves and cleaned with a detergent followed by disinfection
- Clothing and other fabric belonging to the deceased should be washed with warm water and detergent

## 9 COVID-19 screening tool for health facilities



# COVID-19 Screening Tool for Health Facilities

Division of Disease Control  
Lesotho Ministry of Health

### Section A: Exposure History

1. In the past 14 days, have you ever travelled to any COVID-19 affected country? 

Yes	No
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- OR**
2. In the past 14 days, have you been in contact with a person known to have COVID-19? 

Yes	No
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### Section B: Clinical History

3. Do you have fever? 

Yes	No
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 Take temperature .....°C
4. Do you have any respiratory symptom? If yes, specify 

Yes	No
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 Cough  breathing difficulty  sore throat  Other (specify).....

**If exposure OR illness (fever or any of the respiratory symptoms) is present, proceed to Section C. If neither are present, no COVID services are required.**

### Section C: Management of the patient

5. Place face mask on patient
6. Escort the patient to the isolation room/block  
**Isolation staff for your facility take over**
7. Wear appropriate personal protective equipment
8. Assess clinical status
9. Report to the next level of care
10. Investigation and case management as per protocols

**If only exposure (contact or travel) identified but no illness (fever or respiratory symptoms), proceed to Section D.**

### Section D: Home quarantine

11. Instruct patient on home quarantine (give guideline)
12. Instruct patient to call immediately if they develop symptoms at home and wear facemask

# 10 COVID-19 Case Investigation Form



Division of Disease Control  
Lesotho Ministry of Health

<b>Internal Use:</b>  ID Case: _____ Date of reception: ___/___/___
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## Novel Coronavirus (COVID-19) – Case Investigation Form

Date of detection of the case : ___/___/___ This case was notified by ( <i>tick off the right answer and specify</i> ) Health Centre: _____ Hospital: _____ Other: _____ Form filled by (first name and surname): _____ Contact details (email-address and contact numbers): _____
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### Identity of the patient

First name: _____ Surname: _____ Birth date: ___/___/___ Age (years): ____ Sex: M F Contact number: _____ Permanent address: Head of Household (first name and surname) _____ Village: _____ District: _____ Country: _____ Nationality: _____
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### History of the disease

Date of onset of symptoms: ___/___/___ Date of consultation/admission: ___/___/___ Symptoms (tick all that apply): Fever ( $\geq 38^{\circ}\text{C}$ ) , Cough , Chills , Runny nose , Sore throat , Shortness of breath , myalgia/body aches , Malaise , Other (specify) _____ Diagnosis: Were chest x-rays done? Yes No , if yes, radiological findings: _____ Did the patient have clinical or radiological evidence of pneumonia? Yes No Did the patient have clinical or radiological evidence of acute respiratory distress syndrome (ARDS)? Yes No Did the patient have another diagnosis/etiology for their respiratory illness? Yes No Unknown , if yes specify: _____
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### History of other co-morbid/underlying conditions

Does the patient have any of the following (mark all that apply)? Asthma Chronic obstructive pulmonary disease Tuberculosis Cardiac disease Diabetes HIV Pregnancy None Other _____
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### Laboratory Investigations

Date of specimen collection: ___/___/___ Type of sample (mark all that apply): Sputum <input type="checkbox"/> Broncho alveolar lavage <input type="checkbox"/> Tracheal aspirate <input type="checkbox"/> Nasopharyngeal aspirate <input type="checkbox"/> Nasopharyngeal (NP) swab <input type="checkbox"/> Oropharyngeal (OP) swab <input type="checkbox"/> NP&OP swabs <input type="checkbox"/> Serum <input type="checkbox"/> Pleural fluid <input type="checkbox"/> Other <input type="checkbox"/> (specify if other) _____ Results (COVID-19): _____ Other abnormal results: _____
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### Treatment/Management

Hospitalised: Yes No Unknown Admitted in ICU: Yes No Unknown Ventilated: Yes No Unknown Antibiotics given: Yes No Unknown Other (specify): _____
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### Contact and Travelling History

In the 14 days before symptom onset did the patient (mark all that apply): <ul style="list-style-type: none"> <li>▪ Have close physical contact with a <b>known</b> COVID-19 case? Y <input type="checkbox"/> N <input type="checkbox"/> Unknown</li> <li>▪ Patient is a healthcare worker? Y <input type="checkbox"/> N <input type="checkbox"/> Unknown <input type="checkbox"/></li> <li>▪ Patient is a healthcare worker who was exposed to patients with severe acute respiratory infections? Y <input type="checkbox"/> N <input type="checkbox"/> Unknown <input type="checkbox"/></li> <li>▪ Visit a health care facility (as a patient or visitor) in other countries where COVID-19 is circulating? Y <input type="checkbox"/> N <input type="checkbox"/> ( <b>if yes, complete section below for countries visited</b> )</li> <li>▪ Patient is part of a severe respiratory illness cluster of unknown aetiology that occurred within a 14-day period? Y <input type="checkbox"/> N <input type="checkbox"/> Unknown <input type="checkbox"/></li> <li>▪ Patient has travelled to other countries where COVID-19 is known to be circulating? Y <input type="checkbox"/> N <input type="checkbox"/> Unknown <input type="checkbox"/></li> </ul>
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**(If any travel outside Lesotho in the last 14-days, please complete section below for countries visited)**

Country Visited	Date of departure to the area	Date of return from the area	Mode of transport

### Patient Outcome (*verified 4 weeks after the onset of symptoms*)

Discharged , if discharged date of discharge ___/___/___, Currently hospitalized , Dead If dead, date of death ___/___/___ Transferred/Referred , name of the health facility: _____, Other (specify): _____
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# 11 COVID-19 respiratory specimen collection form

CRDM episode no:                      CRDM lab no:                      Trak no:                      Date received:

Centre for Respiratory Diseases and Meningitis			
Specimen Submission form			
Patient Information		Submitter Information (contact person for results)	
Identifier or Hospital no		Surname	
Surname		First name	
First name		Laboratory	
Age/Date of birth		City, Country	
Gender		Contact number (country code) + (    )	
Facility/Hospital		Email address	
Specimen Details			
Specimen collection date: <input type="text"/>			
Specimen type:			
<input type="checkbox"/> Combined NP/OP swab	<input type="checkbox"/> Nasopharyngeal (NP) aspirate	<input type="checkbox"/> Nasal swab	
<input type="checkbox"/> Nasopharyngeal (NP) swab	<input type="checkbox"/> Bronchoalveolar lavage (BAL)	<input type="checkbox"/> Sputum	
<input type="checkbox"/> Oropharyngeal (OP) swab	<input type="checkbox"/> Pleural fluid	<input type="checkbox"/> CSF	
<input type="checkbox"/> Tracheal aspirate (TA)	<input type="checkbox"/> Blood culture	<input type="checkbox"/> Serum	
<input type="checkbox"/> Whole blood	<input type="checkbox"/> Other, specify: _____		
Laboratory Test Details (please consult with CRDM if testing other than influenza, RSV or <i>B. pertussis</i> is required)			
Tests requested:			
<input type="checkbox"/> Avian influenza	<input type="checkbox"/> Influenza / RSV	<input type="checkbox"/> MERS-CoV	<input type="checkbox"/> Neonatal sepsis*
<input type="checkbox"/> <i>Bordetella pertussis</i>	<input type="checkbox"/> <i>Legionella</i> spp.	<input type="checkbox"/> Atypical pneumonia*	<input type="checkbox"/> Bacterial meningitis*
<input type="checkbox"/> <i>C. diphtheriae</i>	<input type="checkbox"/> Respiratory panel (bacterial & viral)*		<input type="checkbox"/> Viral meningitis*
<input type="checkbox"/> Group A streptococcus	<input type="checkbox"/> Community-acquired pneumonia (bacteria)*	<input type="checkbox"/> Other, specify: _____	
<input type="checkbox"/> Group B streptococcus	<input type="checkbox"/> Hospital-acquired pneumonia (bacteria)*		
<small>Refer to page 2 for test panel details</small>			
Clinical Presentation and Outcome		Date of symptom onset:	
Clinical diagnosis:			
<input type="checkbox"/> Acute rheumatic fever	<input type="checkbox"/> Meningococcal disease	<input type="checkbox"/> Lower respiratory tract infection	
<input type="checkbox"/> Diphtheria	<input type="checkbox"/> Influenza-like illness	<input type="checkbox"/> Upper respiratory tract infection	
<input type="checkbox"/> Pertussis	<input type="checkbox"/> Meningitis	<input type="checkbox"/> Other, specify: _____	
Symptoms:			
<input type="checkbox"/> Fever ( $\geq 38^{\circ}\text{C}$ )	<input type="checkbox"/> Sore Throat	<input type="checkbox"/> Cough	<input type="checkbox"/> Headache
<input type="checkbox"/> Stiff neck	<input type="checkbox"/> Shortness of breath	<input type="checkbox"/> Vomiting	<input type="checkbox"/> Diarrhoea
<input type="checkbox"/> Paroxysmal cough/inspiratory whoop	<input type="checkbox"/> Apnoea	<input type="checkbox"/> Other, specify: _____	<input type="checkbox"/> Unknown
<input type="checkbox"/> None			
Underlying Risk Factors:			
<input type="checkbox"/> Asthma	<input type="checkbox"/> Chronic Lung Disease	<input type="checkbox"/> Diabetes	<input type="checkbox"/> HIV
<input type="checkbox"/> Pregnancy	<input type="checkbox"/> TB	<input type="checkbox"/> Heart Disease	<input type="checkbox"/> Other, specify: _____
<input type="checkbox"/> Unknown	<input type="checkbox"/> None		
Hospitalisation:		Outcome:	
<input type="checkbox"/> Outpatient	<input type="checkbox"/> Inpatient— not admitted ICU	<input type="checkbox"/> Still hospitalised	
<input type="checkbox"/> Inpatient— admitted to ICU	<input type="checkbox"/> Unknown	<input type="checkbox"/> Survived	
		<input type="checkbox"/> Died	
		<input type="checkbox"/> Unknown	
Exposure History			
Did the patient travel in the 14 days prior to symptom onset? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown			
Area/Country travelled to:	Date of travel <u>to</u> this area	Date of travel <u>from</u> this area	
1.			
2.			
Did the patient have animal contact in the 14 days prior to symptom onset? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown			
Animal type		Date of exposure	Exposure type
<input type="checkbox"/> Swine <input type="checkbox"/> Wildbirds <input type="checkbox"/> Poultry (eg. chickens, ostrich, ducks)			
<input type="checkbox"/> Other, specify: _____			
Tel: +27 (0)11 555 0315   0317 NICD Hotline: 082 883 9920 Email: lindad@nicd.ac.za/orienkah@nicd.ac.za <b>Please attach any relevant information</b>			

CRDM Specimen Submission Form V2 Aug 2019

Date entered:

Initials: