INTERIM GUIDELINES ON MANAGEMENT OF COVID-19 IN KENYA

COVID-19, Infection Prevention and Control (IPC) and Case Management

These consolidated guidelines provide recommendations for comprehensive prevention and case management strategies in Kenya

Scope of the Guidelines:

Infection prevention and control
Patient triage
Emergency Medical Services
Case management
Laboratory testing algorithm

Target Audience:

Health care workers taking care of patients suspected or confirmed to have COVID-19

FOREWORD

The interim guidelines and protocols for SARS-CoV 2 and COVID 19 were developed in response to the new Coronavirus Disease 2019 (COVID-19). COVID -19 is a serious respiratory viral infection caused by a novel coronavirus recently named SARS-COV2. The outbreak started in Wuhan City, Hubei Province in mainland China and has since spread globally, infecting more than 300,000 people resulting in over 13,000 deaths and occurring in 188 countries. This pandemic continues to pose grave danger to all populations, particularly those in Sub-Saharan Africa where overburdened health systems continue to struggle with scarcity of human and financial resources.

These guidelines combine both preventive and clinical management of the disease in Kenyan context. The protocol borrows various international recommendations including the World Health Organization, from experience of other countries such as China that has struggled with the outbreak for a longer time and from principles of virology and infectious disease management.

I expect every clinician and healthcare worker as well as the caregivers to adhere to these guidelines to effectively manage the Coronavirus epidemic. With these guidelines we expect highest quality care for the suspected and confirmed corona patients. As experience and knowledge on COVID-19 is rapidly evolving, these interim guidelines will be updated periodically.

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Ag. Director General for Health

ACKNOWLEDGEMENT

This Interim Case Management Protocol has been developed through the contributions of many individuals and institutions that are committed to ensuring effective management of COVID-19 patients. The Kenyan Ministry of Health (MOH) wishes to thank all the contributing authors led by the Panel of experts on Case Management for their expertise and time given to the writing of this protocol.

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LIST OF ABBREVIATIONS

ARI	-	Acute Respiratory Infection
ARDS	-	Acute Respiratory Distress Syndrome
APRV	-	Airway Pressure Release Ventilation
BP	-	Blood Pressure
Bpm	-	Beats/minute
EMS	-	Emergency Medical Services
CPAP	-	Continuous Positive Airway Pressure
COVID-19	-	Coronavirus Disease 2019
FiO2	-	Fraction of inspired oxygen
IPC	-	Infection Prevention and Control
LRT	-	Lower Respiratory Tract
MAP	-	Mean Arterial Pressure
NIV	-	Non-invasive Ventilation
OI	-	Oxygenation Index
OSI	-	Oxygenation Index using SpO2
PaO2	-	Partial Pressure of Oxygen
PCR	-	Polymerase Chain Reaction
PEEP	-	Positive End-Expiratory Pressure

PPE	-	Personal Protective Equipment
RRT	-	Rapid Response Team
RT-PCR	-	Reverse Transcriptase – Polymerase Chain Reaction
SBP	-	Systolic Blood Pressure
SARI	-	Severe Acute Respiratory Illness
SARS-COV-2	-	Severe Acute Respiratory Syndrome – Coronavirus -2
SD	-	Standard Deviation
SIRS	-	Systemic Inflammatory Response Syndrome
SpO2	-	Oxygen Saturation
URT	-	Upper Respiratory Tract

INTRODUCTION:

Coronavirus disease 2019 (COVID-19) is an acute respiratory infection caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). SARS-CoV-2 belongs to the Sarbecovirus subgenus of the Coronaviridae family, and is the seventh coronavirus known to infect humans. Coronaviruses are a large family of enveloped RNA viruses, some of which cause illness in people (e.g., common cold, SARS, MERS), and others that circulate among mammals (e.g., bats, camels) and birds. Rarely, animal coronaviruses can spread to humans and subsequently spread between humans. Similar to SARS and MERS, it is thought that human transmission occurs via respiratory droplets produced when a person sneezes or coughs. Current estimates of the incubation period range from 1 to 14 days, according to the World Health Organization. The average incubation period is currently estimated to be 5 days. Transmission can occur during the incubation period.

The most common clinical presentation is that of a respiratory infection with a symptom severity ranging from a mild common cold-like illness (estimated 80% of cases), to a severe viral pneumonia leading to acute respiratory distress syndrome that is potentially fatal. WHO first declared COVID-19 to be a public health emergency of international concern on 30 January 2020 and subsequently declared it a pandemic on 11 March 2020. The first confirmed case in Kenya was reported on 13th March 2020

Infection prevention and Control (IPC) plan in Response to COVID-19

The main aim for IPC will be to enhance infection prevention and control measures at all levels of health care systems

(A) QUARANTINE AND SOCIAL DISTANCING

Quarantine is separation and restricted movement of well persons presumed exposed often at home or may be in designated residential facility or hospital. It can be applied at the individual, family or community level. Until the Ministry of Health establishes the existence of sustained community transmission, all confirmed COVID-19 cases identified should be monitored closely at a health facility isolation room. Contacts of cases are to be quarantined either at home or in designated facilities. Once sustained community transmission has been established, home management of mild cases should be encouraged. All personnel who have access to cases and the contacts should observe standard and transmission (contact and droplet) precautions. Maintain adherence to hand hygiene by washing with soap and water or using alcohol-based hand sanitizer. It is important to practice hand hygiene immediately after removing gloves and masks and after any contact with respiratory secretions or patient environments.

(B) IMPLEMENTING QUARANTINE

Methods of Quarantine

Quarantine can either be self-quarantine or carried out at a designated facility. Instructions for self-quarantine include**:**

- Limit visitors
- Continue to observe respiratory hygiene and cough etiquette
- Observe hand hygiene as advised
- Observe body temperature twice daily

(C) MODALITIES OF IMPLEMENTING SOCIAL DISTANCE

Measures to increase social distance

- School closures with the school children advised to avoid loitering in the estates and streets.
- Business and market closure
- Cancellation of events – Harambees, public barazas, etc.
- Movement restrictions – advice on use public transport
- Restriction on public gatherings – places of worship, bars, hotels, supermarkets, weddings, funerals etc.
- Supervision of burials
- Reducing crowding at hospitals, this may involve reducing the number of visitor's patients admitted to the facilities can receive

(D) RECOMMENDED ISOLATION PRACTICES

Isolation

Separation and restricted movement of ill persons with contagious disease, often in a hospital setting;

In the community:

If an individual suspect to have a flu, practice self-triage based on:

Your symptoms and duration of symptoms;

Exposure history

- Whether you travelled to an area that has confirmed COVID-19 transmission or
- Whether you have been in close contact with someone from an area with COVID-19 transmission or
- Has been in contact with a probable or confirmed COVID-19 case or
- Has participated in cleaning a COVID-19 patient's room or articles

Seeking health care

If an individual has symptoms of fever, cough or difficulty breathing then they should call centre number (719), the individual will be directed to the nearest facility with capacity to screen, collect samples for the laboratory and manage the patient. If safe transport is not available, then an ambulance with appropriate personnel and PPE will be dispatched to pick the patient. Safe transportation includes a private car where all the occupants including the sick person use masks. Public transport (matatus, buses, Ubers, taxis) should not be used to transport sick individuals to the nearest isolation facilities as these are likely to propagate the spread of infection.

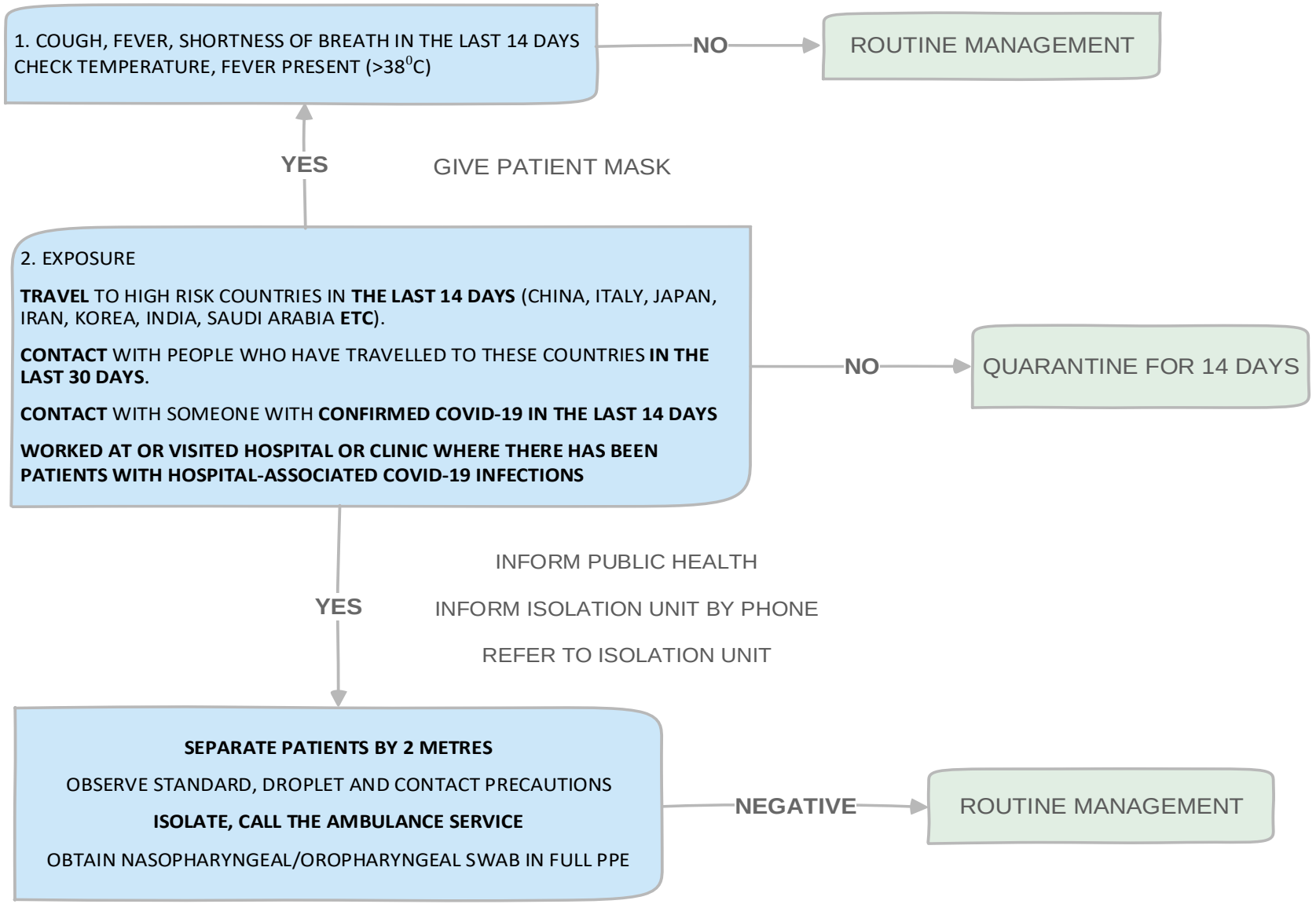
On arrival to a facility or arrival of the ambulance, health personnel will assess the patient to determine if they meet the case definition.

For patients who meet the case definition, on arrival to the facility, staff will ensure that they don appropriate PPE, move the patient to isolation, assess to get better history and conduct a physical exam

On arrival to a health facility:

- Healthcare facilities should organize prompt triage services at the reception using a symptom criterion of fever, cough or difficulty in breathing.
- Older children should be assisted by their parents/caregivers to ensure that they wear the mask at all times
- All acute febrile patients with Influenza like illness (ILI) should be directed to a respiratory cohort area and promptly provided with a surgical face mask.
- The triage nurse should assess the patients to determine the nature of respiratory illness and;
    - Directs all acute febrile illness to a cohort area
    - Encourages patients to use a mask if not in respiratory distress
    - Teaches the cohorted patients on respiratory hygiene and cough etiquette.

TRIAGE FORM FOR COVID-19 IN THE OUTPATIENT SETTING



In-Patient care

- Isolate mild, moderate and severe cases
- Do not wait for lab confirmation before placing a patient in isolation
- Plan for large number of severe cases
- Provide medical and social care

Patient placement

Isolate patient/s in a well-ventilated single room or an isolation unit for a group of patients.
The room should have hand washing facilities – basin with flowing water or water pan with a receptacle or alcohol-based hand sanitizer.

ISOLATION FACILITIES FOR CHILDREN WITH SUSPECTED OR CONFIRMED SARS COVID-19 INFECTION

All referral hospitals should set up facilities for paediatric patients with COVID 19 infection away from the paediatric in-patient ward and separate from the adult isolation ward. Children most at risk are those with co-morbidities e.g. sickle cell anaemia, congenital or acquired heart diseases, cancer, HIV etc. The isolation ward should be able to accommodate a parents/caregiver to stay with the child during the duration of admission. Visitors to the child should be strictly limited.

Patient movement

If the patient requires to be moved to another department, the destination point should be notified in advance, while on transit the patient wears a surgical mask and the procedure is performed last when other patients have moved out.

Precautions by Healthcare Personnel

Healthcare personnel are defined as persons, including employees, students, contractors, attending clinicians, and volunteers, whose activities involve contact with patients in a healthcare or laboratory setting.

PPE to Be Provided to Staff According to Risk Categories

Risk Category	Characteristic of Exposure of Staff	Examples of Staff	Surgical Masks	Gloves	Gown	Particulate Respirators (e.g. N95 masks)	Eye Protection (e.g. Goggles/ Face Shield)
1	Health care workers who manage patients clinically and have close contact (<1 meter) with known/suspected COVID-19 patients or their infectious material	E.g. Doctors, nurses who work in the fever clin	√	√	√	√	√
2	Non-health care worker staff who have close contact (<1 meter) with known/suspected COVID-19 patients or their infectious material	E.g. Security personnel, receptionist, cleaning staff who work in the fever clinic	√	√	√	X	X
3	Staff with close contact (<1 meter) with persons of "unknown" COVID-19 status	E.g., Essential duty travelers	√	X	X	X	X
4	Staff infected with COVID-19 influenza	E.g. Patients in the fever clinic	√	X	X	X	X
5	Staff with no known close contact (<1 meter) with known/ suspected COVID-19 patients or their infectious material	E.g. Critical staff "quarantined" in work space, and not working in the fever clinic	X	X	X	X	X

NB. Health workers should remember to observe hand hygiene and standard precautions. Maintain adherence to *hand hygiene by washing with soap and water or using alcohol-based hand sanitizer* immediately after removing gloves and other equipment and after any contact with respiratory secretions. While obtaining nasopharyngeal swabs for suspected cases and undertaking aerosol generating procedures (e.g., bronchoscopy, elective intubation, suctioning, administering nebulized medications, dental procedures), full personal equipment should be worn comprising of PPE suit, N95 mask, goggles, hair protection. The procedure should be undertaken in a well-ventilated separate room. In the setting of COVID-19 outbreak, these invasive procedures should be kept to a minimum to avoid generating large quantities of infectious aerosols. Intubation must be rapid sequence induction preceded by a long preoxygenation and where initial manual ventilation is carried out, this should be done using small tidal volumes

Isolation precautions

- Healthcare personnel entering the room of a patient in isolation should be limited to those performing direct patient care only.
- All healthcare personnel who enter the patient's room should take *standard and contact precautions.*
- Non-sterile gloves and N95 masks should be donned when entering a patient's room.
- All healthcare personnel who attend to patients in the isolation rooms should wear an N95 face mask and gloves while those who enter for short duration may use a standard surgical mask
- Minimize amount of time that health care personnel spend in the patient areas to only what is necessary to evaluate and manage the patient taking in to account the severity of illness.

Management of visitors

- Limit visitors for patients in isolation for COVID-19 infection to persons who are necessary for the patient's emotional well-being and care.
- Visitors who have been in contact with the patient before and during hospitalization are a possible source of COVID-19
- Visitors should be instructed to limit their movement within the facility.
- Visitors should be offered surgical masks and be required to practice hand hygiene on leaving the isolation room.

Duration of precautions

- Isolation precautions should be continued for up to 14 days from symptom onset, whichever is longer.
- Persons with COVID-19 should be considered potentially contagious from two days before to 14 days following illness onset.
- Persons who continue to be ill longer than 7 days after illness onset should be considered potentially contagious until symptoms have resolved.
- Children, especially younger children, might be contagious for longer periods.

Surveillance of healthcare personnel

- In communities where transmission is occurring, healthcare personnel should be monitored daily for signs and symptoms of febrile respiratory illness.
- Healthcare personnel who develop these symptoms should be instructed not to report to work, or if at work, should cease patient care activities and notify their supervisor and infection control personnel.
- In communities without SARS-COV-2 transmission, healthcare personnel working in areas of a facility where there are patients being assessed or isolated for COVID-19 should be monitored daily for signs and symptoms of febrile respiratory infection.
- This would include healthcare personnel exposed to patients in an outpatient setting or the emergency department. Healthcare personnel who develop these symptoms should be instructed not to report to work, or if at work, should cease patient care activities and notify their supervisor and infection control personnel.
- Healthcare personnel who do not have a febrile respiratory illness may continue to work.
- Asymptomatic healthcare personnel who have had an unprotected exposure to COVID-19 should be quarantined (an appropriate quarantine facility should be provided. Hospitals could consider securing a guest house, hotel or staff houses for staff quarantine for 7 days at which time they should have a throat swab taken for COVID-19 testing, if this is negative then they should be allowed back to work, if positive, then isolation should continue for 14 days

Management of ill healthcare personnel

- Healthcare personnel should not report to work if they have a febrile respiratory illness.
- In communities where transmission is occurring, healthcare personnel who develop a febrile respiratory illness should be excluded from work and should be tested for COVID-19. If negative, then they should stay away from work until symptoms resolve. If positive then they should proceed to isolation for 14 days
- Healthcare personnel, who develop a febrile respiratory illness and have been working in areas of the hospital where SARS-COV-2 patients are present, should be excluded from work for 7 days or until symptoms have resolved, whichever is longer.

Stewardship of personal protective equipment and antivirals

Health Facilities should implement plans to ensure appropriate allocation of personal protective equipment, including gloves, masks, N95 respirators, and antiviral medications. Referral isolation centres should be adequately staffed, equipped with functional mechanical ventilators, oxygen, patient monitors and consumables.

Environmental infection control

Routine cleaning and disinfection strategies used during influenza seasons can be applied to the environmental management of SARS-COV-2Management of laundry, utensils and medical waste should also be performed in accordance with procedures for waste management (refer to the COVID-19 waste management guidelines).

Implementation of Respiratory Hygiene/Cough Etiquette

To prevent the transmission of all respiratory infections in healthcare settings, including SARS-COV 2, respiratory hygiene/cough etiquette measures should be implemented.

Elements of Respiratory Hygiene/Cough Etiquette include

1) Education of healthcare facility staff, patients, and visitors;
2) Posted signs in language appropriate to the population served with instructions to patients and accompanying family members or friends;
3) Source control measures (e.g., covering the mouth/nose with a tissue when coughing and disposing of used tissues, using surgical masks on the coughing person when tolerated and appropriate);
4) Hand hygiene after contact with respiratory secretions; and

5) Spatial separation, ideally > 1 metre (>3 feet), of persons with respiratory infections in common waiting areas when possible.

N.B. Covering sneezes and coughs and placing masks on coughing patients are proven means of source containment that prevent infected persons from dispersing respiratory droplets into the air. Physical proximity of <3 feet has been associated with an increased risk for transmission of infections via the droplet route and therefore supports the practice of distancing infected persons from others who are not infected.

Guidance for Emergency Medical Services (EMS) Systems for Management of Patients with Confirmed or Suspected COVID-19

Background

As a component of the Nation's critical infrastructure, emergency medical services (along with other emergency services) play a vital role in responding to requests for assistance, triaging patients, and providing emergency treatment to suspected COVID-19 patients. However, unlike patient care in the controlled environment of a fixed medical facility, pre-hospital EMS patient care is provided in an uncontrolled environment, often confined to a very small space, and frequently requires rapid medical decision-making, and interventions with limited information. EMS personnel are frequently unable to determine the patient history before having to administer emergency care.

Recommendations

Coordination among the EMS system, designated isolation healthcare facilities, and the public health system is important for a coordinated response to the COVID-19.

Infectious Period

Persons with COVID-19 should be considered potentially infectious from two days before to 14 days following illness onset. Persons who continue to be ill longer than 7 days after illness onset should be considered potentially contagious until symptoms have resolved. Children, especially younger children, might potentially be contagious for longer periods.

Non-hospitalized ill persons who are a confirmed or suspected case of COVID-19 are recommended to stay at home (voluntary isolation) for at least the first 14 days after checking with their health care provider about any special care they might need if they are pregnant or have a health condition such as diabetes, heart disease, asthma, or emphysema.

Recommendations for EMS

Patient assessment

Assess all patients for symptoms of acute febrile respiratory illness (fever plus one or more of the following: nasal congestion/ rhinorrhea, sore throat, or cough).

1. If acute febrile respiratory illness is present, use of appropriate PPE when coming into close contact with the patient is recommended.
2. This includes fit-tested disposable N95 respirator or a surgical mask and eye protection (e.g., goggles; eye shield), disposable non-sterile gloves, and gown,
3. If no acute febrile respiratory illness, proceed with normal EMS care
4. If no acute febrile respiratory illness, place a standard surgical mask on the patient (if tolerated) Use good respiratory hygiene – use non-sterile gloves for contact with patient, patient secretions, or surfaces that may have been contaminated. Follow hand hygiene including hand washing or cleansing with alcohol-based hand disinfectant after contact.

Infection Control

Emergency medical services personnel (EMS) should always practice basic infection control procedures including vehicle/equipment decontamination, hand hygiene, cough and respiratory hygiene, and proper use of the recommended medical personal protective equipment (PPE).

Recommendations:

- Because SARS-COV-2 is transmitted through droplets and contact with contaminated surfaces, EMS personnel who are in close contact with patients with suspected or confirmedCOVID-19 should wear a fit-tested disposable N95 respirator, disposable non-sterile gloves, eye protection (e.g., goggles; eye shields), and gown with hood, when coming into close contact with the patient.

All EMS personnel engaged in aerosol generating activities in the management suspected or confirmed COVID-19 patients (e.g. endotracheal intubation, nebulizer treatment, and resuscitation involving emergency intubation or cardiac pulmonary resuscitation) should wear a fit-tested disposable N95 respirator, disposable non-sterile gloves, eye protection (e.g., goggles; eye shields), and gown with hood, All patients with acute febrile respiratory illness should wear a surgical mask unless patient cannot tolerate the mask.

Inter-facility Transport

EMS personnel involved in the inter-facility transfer of patients with suspected or confirmedCOVID-19 should use standard, droplet and contact precautions for all patient care activities. This should include wearing a fit-tested disposable N95 mask/respirator, wearing disposable non-sterile gloves, eye protection (e.g., goggles, eye-shield) and gown with hood. The use of a surgical mask on the transported patient can help to minimize the spread of infectious droplets in the patient care compartment. Encourage good patient compartment vehicle airflow/ventilation to reduce the concentration of aerosol accumulation when possible.

Guidance for Cleaning EMS Transport Vehicles after Transporting a Suspected or Confirmed COVID-19 Patient

The following are general guidelines for cleaning or maintaining EMS transport vehicles and equipment after transporting a suspected or confirmed COVID-19 patient.

Routine cleaning with soap or detergent and water to remove soil and organic matter, followed by the proper use of disinfectants, are the basic components of effective environmental management of SARS-COV-2. Reducing the number of SARS-COV-2virus particles on a surface through these steps can reduce the chances of hand transfer of virus. SARS-COV-2 virus is susceptible to inactivation by a number of chemical disinfectants readily available from consumer and commercial sources.

After the patient has been removed and prior to cleaning, the air within the vehicle may be exhausted by opening the doors and windows of the vehicle while the ventilation system is running. This should be done outdoors and away from pedestrian traffic. Routine cleaning methods should be employed throughout the vehicle and on non-disposable equipment.

EMS Transfer of Patient Care to a Healthcare Facility

When transporting a patient with symptoms of acute febrile respiratory illness, EMS personnel should notify the receiving healthcare facility so that appropriate infection control precautions may be taken prior to patient arrival. Patients with acute febrile respiratory illness should wear a surgical mask, if tolerated. Small facemasks are available that can be worn by children, but it may be problematic for children to wear them correctly and consistently.

Biosafety Guidelines for Laboratory Workers

This guidance is for all individuals who may be processing or performing diagnostic testing on clinical specimens from patients with suspected COVID-19, or performing viral isolation. Reference should be made to the National Biosafety Guidelines for more information

Clinical Laboratory Testing (Laboratory Diagnostic Work)

Diagnostic laboratory work on clinical samples from patients who are suspected cases of COVID-19 should be conducted in a BSL2 laboratory. All sample manipulations with the potential for creating an aerosol should be done inside a biosafety cabinet (BSC) that is certified annually. Personal protective equipment should include.

- Gloves
- Laboratory coat
- Eye protection

Laboratory waste

All waste disposal procedures should be followed as outlined in your facility standard laboratory operating procedures. Steam autoclaving is the preferred method for all decontamination processes. Alternative methods may be considered based on applicable national regulations, as well as on a site-specific risk assessment.

Appropriate disinfectants

Several chemical disinfectants, including chlorine, alcohols, peroxygen, detergents, iodophors, quaternary ammonium and phenolic compounds, are effective against corona viruses if used at the correct concentration for the appropriate contact time as specified in the manufacturer's recommendations.

Work surfaces and equipment should be decontaminated as soon as possible after specimens are processed. Studies have shown that corona viruses can survive on environmental surfaces and can infect a person for up to 2–8 hours after being deposited on the surface.

Occupational Health

All personnel should self-monitor for fever and other symptoms such as cough, sore throat, runny or stuffy nose, body aches, headache, chills, and fatigue. Any influenza-like illness should be reported to your supervisor immediately.

Personnel who have had an occupational exposure to clinical material or live virus from a confirmed case of SARS-COV-2 should immediately report to their supervisor. Antiviral chemoprophylaxis if available and should be monitored for 14 days

(G) GUIDANCE FOR EMERGENCY SHELTERS ON THE SARS-COV-2

Background

Emergency Shelters that serve refugees, IDPs and other displaced persons can help protect the health of their clients, staff, volunteers and local communities during this outbreak of COVID-19 by taking actions to prevent its spread. Recommendations to reduce transmission of SARS-COV-2 in this group setting are addressed below.

Influenza-like Illness (ILI) and COVID-19

Transmission

SARS-COV-2 is spread from person to person through the coughing or sneezing of infected people (droplet infection) or by touching something with SARS-COV-2 viruses on it and then touching their mouth, nose, or eyes (contact transmission).

Symptoms

Symptoms of COVID-19 include fever and either cough or difficulty breathing. In addition, illness may be accompanied by other symptoms including headache, tiredness, runny or stuffy nose, chills, body aches, diarrhea, and vomiting. Like seasonal flu, COVID-19 in humans can vary in severity from mild to severe.

General Prevention Recommendations

- Encourage all persons within the shelter to cover their cough or sneeze with a tissue. Throw all tissues in the trash after use. Maintain good hand hygiene by washing with running water and soap, or using an alcohol-based hand sanitizer if available, especially after coughing or sneezing. Avoid touching eyes, nose and mouth.

- Provide the means for appropriate hand cleansing readily available within the shelter, including common, food preparation and eating areas. Ideal means for hand cleansing include, running water, soap. Paper towels and waste baskets should be made available. Shelter staff, volunteers and clients should frequently wash their hands with soap and water, or use a hand sanitizer if hand washing with soap and water is not possible and hand sanitizers are available.
- Shelters settings should follow standard infection prevention precautions. These includes training staff in the control of infectious diseases, providing access to personal protective equipment and apparatus, and encouraging proper handwashing. Items that are often in contact with respiratory droplets and hands (e.g., doorknobs, faucets, etc.,) should be cleaned and disinfected regularly.
- Clean all common areas within the shelter routinely and immediately, when visibly soiled, with the cleaning agents normally used in these areas. Eating utensils should be washed with detergent and water. Cups and utensils should not be shared until after washing.
- Educational materials and information should be provided to clients in a way that can be understood by non-English and non-Kiswahili speakers.

Reducing Exposure and Spread of SARS-CoV Within Shelters

Shelter management should contact local and national health officials for more specific guidance. Shelters that have pregnant women should refer to MOH Guidance for Pregnant and breastfeeding mothers

Reduction of Risk of Introduction

- Shelter clients, staff and volunteers should be instructed to immediately inform shelter management if they have an influenza-like illness (ILI) or if they have had one in the previous 7 days.
- Direct persons with ILI symptoms to facilities or alternative care sites (ACS) where they can receive proper care, if such alternatives are available.
- Staff and volunteers with ILI should stay home (or be sent home if they develop symptoms while at the shelter), and remain at home for 7 days or until 24 hours after symptoms resolve, whichever is longer.
- Follow current vaccination recommendations and encourage staff and volunteers to take the upcoming season's influenza vaccine, when it is available.

Rapid Detection of Cases

- ☐ Shelter staff and volunteers should be diligent about early recognition of illness and placing those with ILI symptoms away from others (encourage self-quarantine).
- ☐ Instruct existing clients, staff and volunteers to report symptoms of ILI to the shelter management at the first sign of illness.
- ☐ Plan for how persons with ILI may be evaluated and treated, if necessary.
- ☐ Consider daily temperature checks with shelter clients who had contact with persons with ILI.

Management and Isolation of Suspect and Confirmed Cases

- ☐ Minimize the number of personnel directly exposed to ill people.
- ☐ For proper techniques in caring for an ill person, refer to the MOH Guidance for nCOV: Taking Care of a Sick Person in Your Home. Pregnant staff member(s) and others at high risk of severe illness from influenza should not be designated as caregivers for sick clients who are staying in the shelter.
- ☐ Refer to the guidance document on Personal Protective Equipment
- ☐ Actively monitor the number and severity of cases of ILI and inform the public health officials
- ☐ Ideally, sick persons should be confined to individual rooms and should avoid common areas. If individual rooms for sick clients are not available, consider using a large, well-ventilated room specifically for sick persons with beds at least 1 metre apart and the use of temporary barriers between beds, when possible.
- ☐ Designate staff to care for the sick persons and limit client movement between different parts of the institution to decrease the risk of spreading influenza to other parts of the shelter.
- ☐ Pre-exposure antiviral chemoprophylaxis should only be used in limited circumstances, and in consultation with local medical or public health authorities.
- ☐ Provide sick clients with access to fluids, tissues, plastic bags for the proper disposal of used tissues, and a means to wash their hands with soap and water or alcohol-based hand sanitizers.

- Linens, eating utensils, and dishes belonging to those who are sick do not need to be cleaned separately, but they should not be shared without thorough washing. Linens (such as bed sheets and towels) should be washed using laundry soap and dried in the sun Individuals should wash their hands with soap and water or use alcohol-based hand sanitizer immediately after handling dirty laundry.

Caring for Persons at High Risk

The shelter should be aware of the special health needs of persons at increased risk of severe illness from influenza.

Persons at high risk for complications from nCOV infection may be similar to those who are at high risk for seasonal influenza complications and include the following: children 5 years and younger, persons age 65 years and older, pregnant women, persons of any age with chronic medical conditions (such as asthma, diabetes, or heart disease), and persons who are immunocompromised (for example, taking immunosuppressive medications or infected with HIV).

If severe symptoms of infection are identified, persons should be taken to receive medical attention from a physician or hospital. Severe symptoms include:

- Difficulty breathing or shortness of breath
- Pain or pressure in the chest or abdomen
- Sudden dizziness
- Confusion
- Severe or persistent vomiting
- Flu-like symptoms improve but then return with fever and worse cough

General Prevention Recommendations for the Facility

- Encourage all persons within the facility to cover their cough or sneeze with a tissue or onto their shoulders. Throw all tissue in the trash after use. Maintain good hand hygiene by washing with soap and water, especially after coughing or sneezing. Avoid touching eyes, nose and mouth without cleaning hands.
- Make the means for appropriate hand cleansing readily available within the facility, including intake areas where prisoners are booked and processed, visitor entries and exits, visitation rooms, common areas, and staff-restricted areas, in addition to toilets and food preparation and dining areas. The means for hand cleansing are ideally running water and soap, and hand drying machines or paper towels and waste baskets.
- Clean all common areas within the facility routinely and immediately, when visibly soiled, with the cleaning agents normally used in these areas. Eating utensils should be washed either in a dishwasher or by hand with water and soap. Cups and utensils should not be shared until after washing.
- Respiratory hygiene/cough etiquette should be implemented beginning at the first point of contact with a potentially infected person to prevent the transmission of all respiratory tract infections in the prison.

Reduction of Risk of Introduction into the Institution

- Potential visitors should be informed that anyone who had an influenza-like illness (ILI) in the 7 days prior or who still has symptoms of ILI 7 days after illness began may not enter the facility. When possible, facilities should use their usual communication channels to inform potential visitors of these rules before they travel to the facility.
- Exclude visitors who had ILI in the 7 days prior or who still have symptoms of ILI 7 days after illness began.
- Staff with ILI should stay home (or be sent home if they develop symptoms while at the facility), and remain at home for 7 days or until 24 hours after symptoms resolve, whichever is longer.
- If there is ILI in the facility, cancel internal group gatherings and stagger group meals and other activities to provide more personal space between individuals. Consider temporarily suspending visitation or modifying visitation programs, when appropriate.

CASE MANAGEMENT

Case management activities will involve;

- Create isolation areas for case management in COVID-19 designated hospitals
- Strengthen NIC – Reference laboratory to handle suspected COVID-19 samples
- Provision of viral taking sets and transportation kits
- Procure respirators (Intermittent Positive Pressure Respirators)
- Procure pharmaceutical and non-pharmaceutical supplies for supportive case management
- Distribution of all supplies to targeted areas
- Diagnostic Algorithm to be put in a poster format for use at screening point and OPDs and distributed accordingly
- Management should be at source most recommended to minimize spread,
- SOPs for home management - keep minimal contact with people.
- SOPs for health workers - have surgical masks when in working environment, retrain them on bio-safety when dealing with the patient, work in well ventilated environment, should contact DSRU or NIC, the local administration should be informed, advise patient on self-quarantine (5 -7 day after onset of symptoms) but hospitalize severe cases – take sample, serve verity of disease not as highlighted – in public and media.
- PPE should be available to all health workers – ministry
- Strengthen critical care capacity by increasing access to oxygen, closed suction systems, availability of ventilation site and equipment and enable internet connectivity to assist medical personnel communicate on patient management issues in real time.

Clinical management of severe acute respiratory infection when COVID-19 is suspected

Introduction

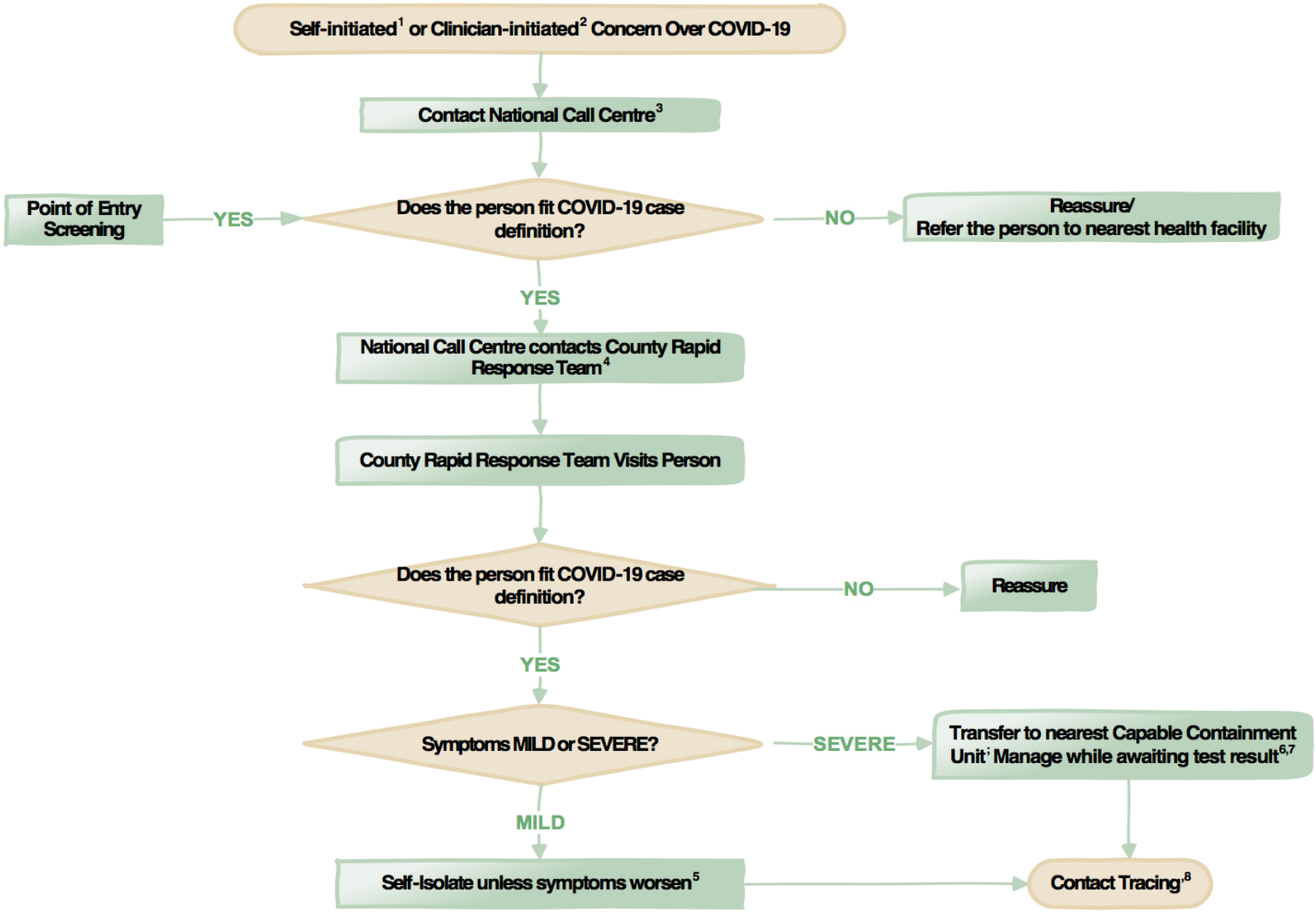
This document is intended for clinicians taking care of hospitalized adult and paediatric patients with severe acute respiratory infection (SARI) when COVID-19 is suspected. It is not meant to replace clinical judgment or specialist consultation but rather to strengthen clinical management of these patients and provide up-to-date guidance. Best practices for SARI including IPC and optimized supportive care for severely ill patients are essential.

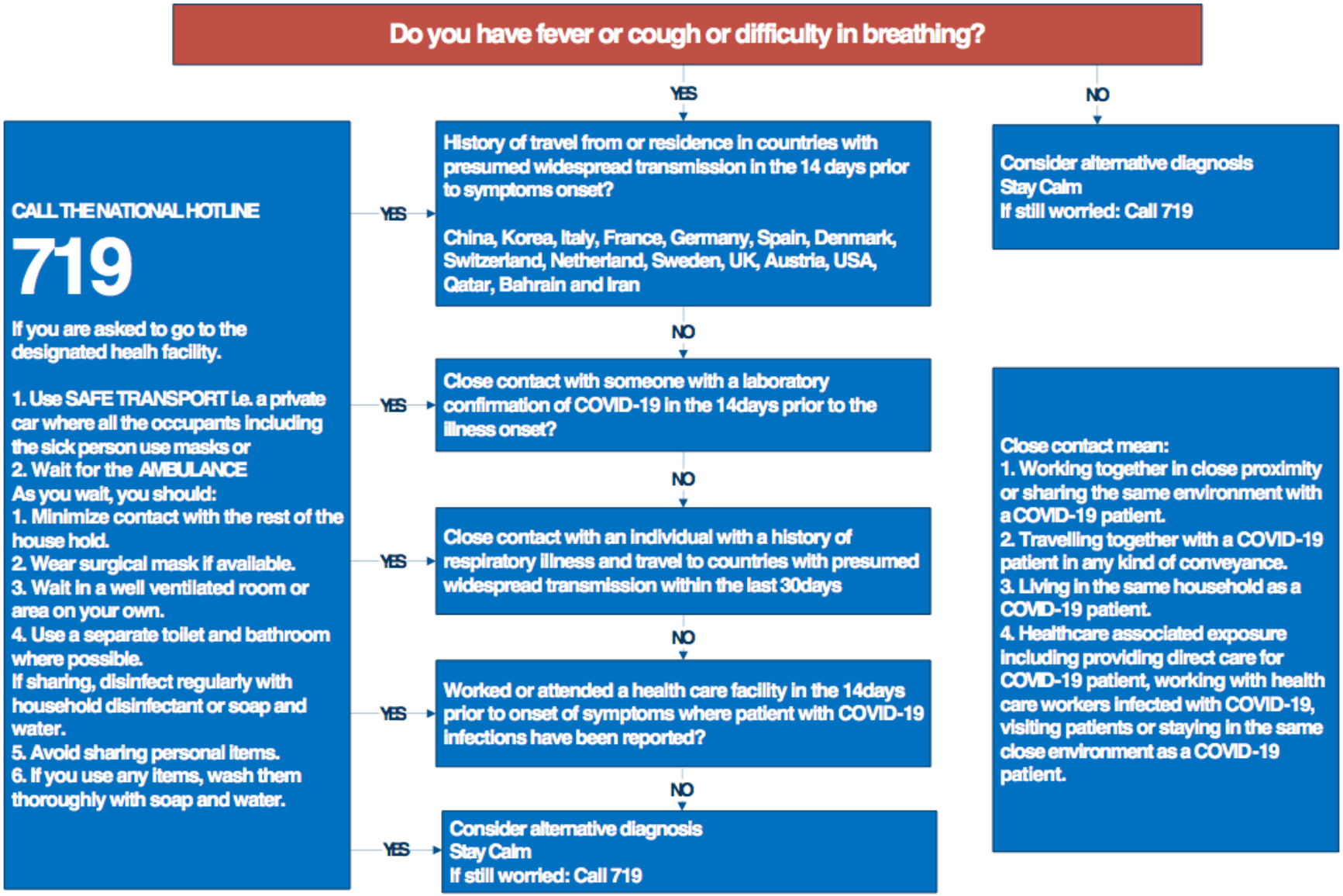
Sections in this Document:

1. Triage: recognize and sort patients with SARI
2. Immediate implementation of appropriate infection prevention and control (IPC) measures
3. Early supportive therapy and monitoring
4. Collection of specimens for laboratory diagnosis
5. Management of hypoxemic respiratory failure and acute respiratory distress syndrome (ARDS)
6. Management of septic shock
7. Prevention of complications
8. Specific anti-nCoV treatments
9. Special considerations for pregnant patients
10. Direction on self-quarantine

Pre-Hospital Triage through the National and County Hotlines

The initial triage of patients will happen through the hotline (719). Patients with suspected COVID will be advised through the national and county hotlines on which designated facilities to present to. These facilities will have PPE and the HCWs will be trained to receive and handle these patients. Patients will be brought to hospital through the ambulance service or through safe transportation.


Self-initiated[1] or Clinician-initiated[2] Concern Over COVID-19
Contact National Call Centre[3]
Point of Entry Screening
YES
Does the person fit COVID-19 case definition?
NO
Reassure/ Refer the person to nearest health facility
YES
National Call Centre contacts County Rapid Response Team[4]
County Rapid Response Team Visits Person
Does the person fit COVID-19 case definition?
NO
Reassure
YES
Symptoms MILD or SEVERE?
SEVERE
Transfer to nearest Capable Containment Unit; Manage while awaiting test result[6,7]
MILD
Self-Isolate unless symptoms worsen[5]
Contact Tracing[8]


Do you have fever or cough or difficulty in breathing?
YES
NO
CALL THE NATIONAL HOTLINE
719
If you are asked to go to the designated healh facility.
1. Use SAFE TRANSPORT i.e. a private car where all the occupants including the sick person use masks or
2. Wait for the AMBULANCE
As you wait, you should:
1. Minimize contact with the rest of the house hold.
2. Wear surgical mask if available.
3. Wait in a well ventilated room or area on your own.
4. Use a separate toilet and bathroom where possible.
If sharing, disinfect regularly with household disinfectant or soap and water.
5. Avoid sharing personal items.
6. If you use any items, wash them thoroughly with soap and water.
YES
History of travel from or residence in countries with presumed widespread transmission in the 14 days prior to symptoms onset?
China, Korea, Italy, France, Germany, Spain, Denmark, Switzerland, Netherland, Sweden, UK, Austria, USA, Qatar, Bahrain and Iran
NO
Consider alternative diagnosis
Stay Calm
If still worried: Call 719
YES
NO
Close contact with someone with a laboratory confirmation of COVID-19 in the 14days prior to the illness onset?
YES
NO
Close contact with an individual with a history of respiratory illness and travel to countries with presumed widespread transmission within the last 30days
YES
NO
Worked or attended a health care facility in the 14days prior to onset of symptoms where patient with COVID-19 infections have been reported?
YES
NO
Consider alternative diagnosis
Stay Calm
If still worried: Call 719
Close contact mean:
1. Working together in close proximity or sharing the same environment with a COVID-19 patient.
2. Travelling together with a COVID-19 patient in any kind of conveyance.
3. Living in the same household as a COVID-19 patient.
4. Healthcare associated exposure including providing direct care for COVID-19 patient, working with health care workers infected with COVID-19, visiting patients or staying in the same close environment as a COVID-19 patient.

TRIAGE: EARLY RECOGNITION OF PATIENTS WITH SARI ASSOCIATED WITH COVID-1

Triage:

Recognize and sort all patients with SARI at first point of contact with health care system (such as the emergency department). Consider COVID-19 as a possible etiology of SARI under certain conditions if they meet the case definition:

Case Definition*

1. Suspected case
   Any person with any acute respiratory illness (fever or cough or difficulty in breathing) **AND** at least one of the following:
   - A history of travel in to the country 14 days prior to symptom onset, **or**
   - Close contact* with a confirmed or probable case of COVID-19 in the 14 days prior to illness onset, **or**
   - Close contact* with an individual with a history of respiratory illness and travel out of the country within the last 30 days, **or**
   - Worked or attended a health care facility in the 14 days prior to onset of symptoms where patients with hospital-associated COVID-19 infections have been reported.
2. Probable case: A suspect case for whom testing for 2019-nCoV is inconclusive** or for whom testing was positive on a pan-coronavirus assay.
3. Confirmed case: A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.

*Close contact is defined as:

- Working together in close proximity or sharing the same environment with a COVID-19 patient
- Travelling together with a COVID-19 patient in any kind of conveyance
- Living in the same household as a COVID-19 patient
- Health care associated exposure, including providing direct care for COVID-19 patients, working with health care workers infected with COVID-19, visiting patients or staying in the same close environment as a COVID-19 patient

* The case definition may change as the outbreak evolves and this will be updated from time to time

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

Triage patients and start emergency treatments based on disease severity.

NB:

COVID-19 may present with mild, moderate, or severe illness; the latter includes severe pneumonia, ARDS, sepsis and septic shock. Early recognition of suspected patients allows for timely initiation of IPC. Early identification of those with severe manifestations allows for immediate optimized supportive care treatments and safe, rapid admission (or referral) to intensive care unit according to institutional or national protocols. For those with mild illness, hospitalization may not be required unless there is concern for rapid deterioration. All patients discharged home should be instructed to return to hospital if they develop any worsening of illness.

IMMEDIATE IMPLEMENTATION OF APPROPRIATE IPC MEASURES

How to implement infection prevention and control measures for patients with suspected or confirmed COVID-19

At triage:

- Give suspect patient a medical mask and direct patient to separate area, an isolation room if available.
- Keep at least 1meter distance between suspected patients and other patients.
- Instruct all patients to cover nose and mouth with tissue or flexed elbow during coughing or sneezing
- Perform hand hygiene after contact with patient or patient environment
- Parents/caregivers need to support their children in maintaining cough hygiene by ensuring the child wears the mask or if the child becomes irritable and unable to tolerate the mask, the parent/caregiver should ensure they provide tissue for the child coughs into.
- Parents should ensure they guide hand washing for young children using soap and water.

Apply droplet precautions:

Droplet precautions prevent large droplet transmission of respiratory viruses.

- Use a medical mask if working within 1-2 metres from the patient.
- Place patients in single rooms, or group together those with the same etiological diagnosis.
- If an etiological diagnosis is not possible, group patients with similar clinical diagnosis and based on epidemiological risk factors, with a spatial separation.
- When providing care in close contact with a patient with respiratory symptoms (e.g. coughing or sneezing), use eye protection (face-mask or goggles), because sprays of secretions may occur.

- Limit patient movement within the institution and ensure that patients wear medical masks when outside their rooms and that patients' clean hands frequently either by washing with soap and water or use an alcohol hand rub.

Apply contact precautions:

Droplet and contact precautions prevent direct or indirect transmission from contact with contaminated surfaces or equipment (i.e. contact with contaminated oxygen tubing/interfaces).

- Use PPE (medical mask, eye protection, gloves and gown with hood) when entering room and remove PPE when leaving.
- If possible, use either disposable or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers).
- If equipment needs to be shared among patients, clean and disinfect between each patient use.
- Ensure that health care workers refrain from touching their eyes, nose, and mouth with potentially contaminated gloved or ungloved hands.
- Avoid contaminating environmental surfaces that are not directly related to patient care (e.g. door handles and light switches).
- Ensure adequate room ventilation.
- Avoid movement of patients or transportation.
- Perform hand hygiene after touching each patient or patient environment.

Apply airborne precautions when performing an aerosol generating procedure:

- Ensure that healthcare workers obtaining nasopharyngeal swabs, performing dental procedures and performing aerosol-generating procedures (i.e. open suctioning of respiratory tract, intubation, bronchoscopy, cardiopulmonary resuscitation) use PPE, including gloves, long-sleeved gowns, eye protection, and fit-tested particulate respirators (N95 or equivalent, or higher level of protection). (The scheduled fit test should not be confused with user seal check before each use.)
- When possible, use adequately ventilated single rooms when performing aerosol-generating procedures, meaning negative pressure rooms with minimum of 12 air changes per hour or at least 160 litres/second/patient in facilities with natural ventilation.
- Avoid the presence of unnecessary individuals in the room.
- Care for the patient in the same type of room after mechanical ventilation commences

Clinical syndromes associated with COVID-19

Uncomplicated illness	• **Patients with uncomplicated upper respiratory tract viral infection, may have non-specific symptoms such as fever, cough, sore throat, nasal congestion, malaise, headache, muscle pain or malaise.** • **The elderly and immunosuppressed may present with atypical symptoms.** • **These patients do not have any signs of dehydration, sepsis or shortness of breath**
Mild pneumonia	• Patient with pneumonia and no signs of severe pneumonia. • Child with non-severe pneumonia has cough or difficulty breathing + fast breathing: fast breathing (in breaths/min)
Severe pneumonia	Adolescent or adult: fever or suspected respiratory infection, plus one of respiratory rate >30 breaths/min, severe respiratory distress, or SpO2 <93% Child with cough or difficulty in breathing, plus at least one of the following: central cyanosis or SpO2 < 90%; severe respiratory distress (e.g. grunting, very severe chest indrawing); signs of pneumonia with a general danger sign: inability to breastfeed or drink, lethargy or unconsciousness, or convulsions (15). Other signs of pneumonia may be present: chest indrawing, fast breathing (in breaths/min): < 2 months: ≥ 60; 2–11 months: ≥ 50; 1–5 years: ≥ 40 (16). While the diagnosis is made on clinical grounds; chest imaging may identify or exclude some pulmonary complications.
Critical cases	Cases meeting any of the following criteria: • Respiratory failure and requiring mechanical ventilations • Shock • Other organ failure that requires ICU care

Acute Respiratory Distress Syndrome	• Onset: within 1 week of a known clinical insult or new or worsening respiratory symptoms. • Chest imaging (radiograph, CT scan, or lung ultrasound): bilateral opacities, not fully explained by volume overload, lobar or lung collapse, or nodules. • Origin of pulmonary infiltrates: respiratory failure not fully explained by cardiac failure or fluid overload. Need objective assessment (e.g. echocardiography) to exclude hydrostatic cause of infiltrates/oedema if no risk factor present. Oxygenation impairment in adults: • Mild ARDS: 200 mmHg < PaO2/FiO2a ≤ 300 mmHg (with PEEP or CPAP ≥ 5 cmH2O, or non-ventilated) • Moderate ARDS: 100 mmHg < PaO2/FiO2 ≤ 200 mmHg (with PEEP ≥ 5 cmH2O, or non-ventilated) • Severe ARDS: PaO2/FiO2 ≤ 100 mmHg (with PEEP ≥ 5 cmH2O, or non-ventilated) • When PaO2 is not available, SpO2/FiO2 ≤ 315 suggests ARDS (including in non-ventilated patients). Oxygenation impairment in children: note OI = Oxygenation Index and OSI = Oxygenation Index using SpO2. Use PaO2-based • metric when available. If PaO2 not available, wean FiO2 to maintain SpO2 ≤ 97% to calculate OSI or SpO2/FiO2 ratio: • Bilevel (NIV or CPAP) ≥ 5 cmH2O via full face mask: PaO2/FiO2 ≤ 300 mmHg or SpO2/FiO2 ≤ 264 • Mild ARDS (invasively ventilated): 4 ≤ OI < 8 or 5 ≤ OSI < 7.5 • Moderate ARDS (invasively ventilated): 8 ≤ OI < 16 or 7.5 ≤ OSI < 12.3 • Severe ARDS (invasively ventilated): OI ≥ 16 or OSI ≥ 12.3.

Sepsis	**Adults**: life-threatening organ dysfunction caused by a dysregulated host response to suspected or proven infection, with organ dysfunction*. Signs of organ dysfunction include: altered mental status, difficult or fast breathing, low oxygen saturation, reduced urine output, fast heart rate, weak pulse, cold extremities or low blood pressure, skin mottling, or laboratory evidence of coagulopathy, thrombocytopenia, acidosis, high lactate or hyperbilirubinemia. **Children:** suspected or proven infection and ≥2 SIRS criteria, of which one must be abnormal temperature or white blood cell count
Septic shock	• Adults: persisting hypotension despite volume resuscitation, requiring vasopressors to maintain MAP ≥65 mmHg and serum lactate level >2 mmol/L. • Children (based on [12]): any hypotension (SBP 2 SD below normal for age) or 2-3 of the following: altered mental state; tachycardia or bradycardia (HR 160 bpm in infants and HR 150 bpm in children); prolonged capillary refill (>2 sec) or warm vasodilation with bounding pulses; tachypnea; mottled skin or petechial or purpuric rash; increased lactate; oliguria; hyperthermia or hypothermia Septic shock – Tachycardia definition for infants Heart rate > 160bpm child >1year HR >150bpm Bradycardia - Infant Heart rate <80bpm; child >1year HR <50bpm

Abbreviations: ARI, acute respiratory infection; BP, blood pressure; bpm, beats/minute; CPAP, continuous positive airway pressure; FiO2, fraction of inspired oxygen; MAP, mean arterial pressure; NIV, noninvasive ventilation; OI, Oxygenation Index; OSI, Oxygenation Index using SpO2; PaO2, partial pressure of oxygen; PEEP, positive end-expiratory pressure; SBP, systolic blood pressure; SD, standard deviation; SIRS, systemic inflammatory response syndrome; SpO2, oxygen saturation. APRV, airway pressure release ventilation; *If altitude is higher than 1000m, then correction factor should be calculated as follows: PaO2/FiO2 x Barometric pressure/760

Collection of specimens for laboratory diagnosis

- Collect specimens from the upper respiratory tract (URT; nasopharyngeal and oropharyngeal) AND, where clinical suspicion remains and URT specimens are negative, collect specimens from the lower respiratory tract when readily available (LRT; expectorated sputum, endotracheal aspirate, or broncho-alveolar lavage in ventilated patient) for SARS-CoV-2 testing by RT-PCR and bacterial stains/cultures.
- Collect blood cultures for bacteria that cause pneumonia and sepsis, ideally before antimicrobial therapy. DO NOT delay antimicrobial therapy to collect blood cultures.

NB:

- Use appropriate PPE for specimen collection (droplet and contact precautions for URT specimens; airborne precautions for LRT specimens). When collecting URT samples, use viral swabs (sterile Dacron or rayon, not cotton) and viral transport media. Do not sample the nostrils or tonsils. In a patient with suspected SARS-CoV-2, especially with pneumonia or severe illness, a single URT sample does not exclude the diagnosis, and additional URT and LRT samples are recommended (vs. URT) samples are more likely to be positive and for a longer period. Clinicians may elect to collect only LRT samples when these are readily available (for example, in mechanically ventilated patients). Sputum induction should be avoided due to increased risk of increasing aerosol transmission.
- Dual infections with other respiratory viral infections have been found in SARS and MERS cases. At this stage we need detailed microbiologic studies in all suspected cases. Both URT and LRT specimens can be tested for other respiratory viruses, such as influenza A and B (including zoonotic influenza A), respiratory syncytial virus, parainfluenza viruses, rhinoviruses, adenoviruses, enteroviruses (e.g. EVD68), human metapneumovirus, and endemic human coronaviruses (i.e. HKU1, OC43, NL63, and 229E).
- In hospitalized patients with confirmed COVID-19 infection, repeat URT and LRT samples should be collected to demonstrate viral clearance. The frequency of specimen collection will depend on local circumstances but should be at least after 7 days until there are two consecutive negative results (both URT and LRT samples if both are collected) in a clinically recovered patient at least 24 hours apart. If local infection control practice requires two negative results before removal of droplet precautions, specimens may be collected as often as daily

Management of mild COVID-19: symptomatic treatment and monitoring

Patients with mild disease do not require hospital interventions, but isolation is necessary to contain virus transmission. This will initially be done in hospital if there are only sporadic cases or small clusters. If the number of cases increases then facilities should be identified for isolation of mild cases outside of the hospitals.

Provide patients with mild COVID-19 with symptomatic treatment such as antipyretics for fever e.g. paracetamol 500mg -1gm TID for adults and for children 10-15mg/kg TID

Counsel patients with mild COVID-19 about signs and symptoms of complicated disease. If they develop any of these symptoms, they should seek urgent care through national referral systems.

Management of children

- Reassure parents and involve them in caring for their child, most children will have mild symptoms - much milder than those seen in adults.
- Be extra-vigilant in children with pre-existing conditions (e.g. long-term respiratory conditions, immunocompromise from disease or treatment and cyanotic heart disease) but reassure parents that the risks of co-morbidities are much greater in adults than children.
- Chest x-rays, bloods, and blood gases are not routinely indicated. Consider these only in children with persistent fever, altered fluid balance, signs of liver dysfunction, or respiratory failure.
- Although recommended in some adult studies, the following medical treatments are likely to have more side-effects than beneficial effects in children and are not routinely indicated: bronchodilators, systemic steroids, antibiotics, antivirals, and diuretics.
- Escalate respiratory support as per the respiratory failure pathway – do not use high flow nasal cannula oxygen if the child is saturating adequately with low flow oxygen.

Management of severe COVID-19: oxygen therapy and monitoring

Early supportive therapy and monitoring:

a. Give supplemental oxygen therapy immediately to patients with SARI and respiratory distress, hypoxaemia, or shock. Remarks: Initiate oxygen therapy at 5 L/min and titrate flow rates to reach target SpO2 ≥90% in non-pregnant adults and SpO2 ≥92-95 % in pregnant patients. Children with emergency signs (obstructed or absent breathing, severe respiratory distress, central cyanosis, shock, coma or convulsions) should receive oxygen therapy during resuscitation to target SpO2 ≥94%; otherwise, the target SpO2 is ≥90%. (All areas where patients with SARI are cared for should be equipped with pulse oximeters, functioning oxygen systems and disposable, single-use, oxygen-delivering interfaces (nasal cannula, simple face mask, and mask with reservoir bag). Use contact precautions when handling contaminated oxygen interfaces of patients with COVID-19.
b. Use conservative fluid management in patients with SARI when there is no evidence of shock because aggressive fluid resuscitation may worsen oxygenation, especially in settings where there is limited availability of mechanical ventilation.
c. Give empiric antimicrobials to treat all likely pathogens causing SARI. Give antimicrobials within one hour of initial patient assessment for patients with sepsis. The recommended antibiotics for a patient with SARI coming from the community would include Amoxicillin 1gm TID or Amoxicillin-clavulanic acid 625mg BD PLUS erythromycin 500mg BD or azithromycin 500mg OD or Clarithromycin 500mg BD (Paediatric dosing - Amoxicillin DT mild infection 25mg/kg/dose BD or severe infection 40-45mg/kg/dose BD or Amoxicillin-clavulanic acid 25-30mg/kg/day BD PLUS erythromycin 30-50mg/kg/day TID or azithromycin 100mg/kg)
d. Do not routinely give systemic corticosteroids for treatment of viral pneumonia or ARDS outside of clinical trials unless they are indicated for another reason.
e. Monitor patients with COVID-19 for signs of clinical deterioration, such as rapidly progressive respiratory failure and sepsis and respond immediately with supportive care interventions.
f. Haematology and biochemistry laboratory testing and ECG should be performed at admission and as clinically indicated to monitor for complications, such as acute liver injury, acute kidney injury, acute cardiac injury, or shock.
g. For pregnant patients, once the pregnant woman has been resuscitated and stabilized then fetal monitoring should be done

NB: Although the patient may be suspected to have COVID-19, administer appropriate empiric antimicrobials within ONE hour of identification of sepsis. Empiric antibiotic treatment should be based on the clinical diagnosis (community-acquired pneumonia, health care-associated pneumonia [if infection was acquired in healthcare setting], or sepsis), local epidemiology and susceptibility data, and treatment guidelines. Empiric therapy includes a neuraminidase inhibitor for treatment of influenza when there is local circulation or other risk factors, including travel history or exposure to animal influenza viruses. Empiric therapy should be de-escalated on the basis of microbiology results and clinical judgment.

During intensive care management of SARI, determine which chronic therapies should be continued and which therapies should be stopped temporarily. Communicate proactively with patients and families and provide support and prognostic information. Understand the patient's values and preferences regarding life-sustaining interventions.

Management of critical COVID-19: acute respiratory distress syndrome (ARDS)

Recognize severe hypoxemic respiratory failure when a patient with respiratory distress is failing to respond to standard oxygen therapy and prepare to provide advanced oxygen/ventilatory support.

> Patients may continue to have increased work of breathing or hypoxemia even when oxygen is delivered via a face mask with reservoir bag (flow rates of 10–15 L/min, which is typically the minimum flow required to maintain bag inflation; FiO2 0.60–0.95). Hypoxemic respiratory failure in ARDS commonly results from intrapulmonary ventilation-perfusion mismatch or shunt and usually requires mechanical ventilation.

Endotracheal intubation should be performed by a trained and experienced provider using airborne precautions and rapid sequence.

> Patients with ARDS, especially young children or those who are obese or pregnant, may desaturate quickly during intubation. Pre-oxygenate with 100% FiO2 for 5 minutes, via a face mask with reservoir bag. Rapid-sequence intubation is appropriate after an airway assessment that identifies no signs of difficult intubation.

The following recommendations pertain to mechanically ventilated adults and paediatric patients with ARDS.

Implement mechanical ventilation using lower tidal volumes (4–8 mL/kg predicted body weight, PBW) and lower inspiratory pressures (plateau pressure < 30 cmH2O).

- Remarks for adults: This is a strong recommendation from a clinical guideline for patients with ARDS, and is suggested for patients with sepsis-induced respiratory failure who do not meet ARDS criteria. The initial tidal volume is 6 mL/kg PBW; tidal volume up to 8 mL/kg PBW is allowed if undesirable side effects occur (e.g. dyssynchrony, pH < 7.15). Permissive hypercapnia is permitted. Ventilator protocols are available. The use of deep sedation and initial neuromuscular blockade may be required to control respiratory drive and achieve tidal volume targets.

- Remarks for children: In children, a lower level of plateau pressure (< 28 cmH2O) is targeted, and lower target of pH is permitted (7.15–7.30). Tidal volumes should be adapted to disease severity: 3–6 mL/kg PBW in the case of poor respiratory system compliance, and 5–8 mL/kg PBW with better preserved compliance.

- In adult patients with severe ARDS, prone ventilation for 12–16 hours per day is recommended.

- Remarks for adults and children: Application of prone ventilation is strongly recommended for adult patients and may be considered for paediatric patients with severe ARDS but requires sufficient human resources and expertise to be performed safely; protocols (including videos) are available (https://www.nejm.org/doi/full/10.1056/NEJMoa1214103).

- There is little evidence on prone positioning in pregnant women. Pregnant women may benefit from being placed in the lateral decubitus position.

Use a conservative fluid management strategy for ARDS patients without tissue hypoperfusion.

In patients with moderate or severe ARDS, higher PEEP instead of lower PEEP is suggested and prone positioning with APRV recommended.

- PEEP titration requires consideration of benefits (reducing atelectrauma and improving alveolar recruitment) vs risks (end-inspiratory overdistension leading to lung injury and higher pulmonary vascular resistance). Tables are available to guide PEEP

titration based on the FiO2 required to maintain SpO2. In younger children, maximal PEEP rates are 15 cmH2O. Although high driving pressure (plateau pressure − PEEP) may more accurately predict increased mortality in ARDS compared with high tidal volume or plateau pressure, data from RCTs of ventilation strategies that target driving pressure are not currently available.

- A related intervention of recruitment manoeuvres (RMs) is delivered as episodic periods of high continuous positive airway pressure (CPAP) (30–40 cmH2O), progressive incremental increases in PEEP with constant driving pressure, or high driving pressure; considerations of benefits vs risks are similar. Higher PEEP and RMs were both conditionally recommended in a clinical practice guideline. For PEEP, the guideline considered an individual patient data meta-analysis of three RCTs. However, a subsequent RCT of high PEEP and prolonged high-pressure RMs showed harm, suggesting that the protocol in this RCT should be avoided. Monitoring of patients to identify those who respond to the initial application of higher PEEP or a different RM protocol and stopping these interventions in non-responders are suggested.

In patients with moderate-severe ARDS (PaO2/FiO2 < 150), neuromuscular blockade by continuous infusion SHOULD not be routinely used as may result in myopathy.

- A trial found that this strategy improved survival in adult patients with severe ARDS (PaO2/FiO2 < 150) without causing significant weakness, but results of a recent larger trial found that use of neuromuscular blockade with high PEEP strategy was not associated with a survival benefit when compared with a light sedation strategy without neuromuscular blockade. Continuous neuromuscular blockade may still be considered in patients with ARDS, both adults and children, in certain situations: ventilator dyssynchrony despite sedation, such that tidal volume limitation cannot be reliably achieved; or refractory hypoxemia or hypercapnia.

Avoid disconnecting the patient from the ventilator, which results in loss of PEEP and atelectasis.

Use in-line catheters for airway suctioning and clamp endotracheal tube when disconnection is required (for example, transfer to a transport ventilator).

The following recommendations pertain to adult and paediatric patients with ARDS who are treated with non-invasive or high-flow oxygen systems.

- High-flow nasal oxygen (HFNO) should be used only in selected patients with hypoxemic respiratory failure.

- Non-invasive ventilation (NIV) should be used only in selected patients with hypoxemic respiratory failure.
- Patients treated with either HFNO or NIV should be closely monitored for clinical deterioration.

  - Adult HFNO systems can deliver 60 L/min of gas flow and FiO2 up to 1.0. Paediatric circuits generally only handle up to 25 L/min, and many children will require an adult circuit to deliver adequate flow.
  - Because of uncertainty around the potential for aerosolization, HFO, NIV, including bubble CPAP with viral filters, should be used with airborne precautions until further evaluation of safety can be completed.
  - Compared with standard oxygen therapy, HFNO reduces the need for intubation. Patients with hypercapnia (exacerbation of obstructive lung disease, cardiogenic pulmonary oedema), hemodynamic instability, multiorgan failure, or abnormal mental status should generally not receive HFNO, although emerging data suggest that HFNO may be safe in patients with mild-moderate and non-worsening hypercapnia. Patients receiving HFNO should be in a monitored setting and cared for by experienced personnel capable of performing endotracheal intubation in case the patient acutely deteriorates or does not improve after a short trial (about 1 hour). Evidence-based guidelines on HFNO do not exist, and reports on HFNO in patients infected with other coronaviruses are limited.

Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected: Interim guidance

- Patients receiving a trial of NIV should be in a monitored setting and cared for by experienced personnel capable of performing endotracheal intubation in case the patient acutely deteriorates or does not improve after a short trial (about 1 hour). Patients with haemodynamic instability, multiorgan failure, or abnormal mental status should NOT receive NIV in place of other options such as invasive ventilation.
- In situations where, mechanical ventilation might not be available, bubble nasal CPAP may be used for newborns and children with severe hypoxemia.

Prevention of Complications

Anticipated Outcome	Interventions
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
Reduce 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 30-45º) • 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 a 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 two hours
Reduce incidence of stress ulcers and gastrointestinal 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 gastrointestinal bleeding include mechanical ventilation for ≥48 hours, coagulopathy, renal replacement therapy, liver disease, multiple comorbidities, and higher organ failure score

Reduce incidence of ICU-related weakness	Actively mobilize the patient early in the course of illness when safe to do so

SPECIFIC ANTI-SARS-COV-2 TREATMENTS

Multiple clinical trials are ongoing or planned to assess the activity of various drugs in COVID-19. There is insufficient evidence to strongly recommend a particular drug.

There have been recent reports on the role of chloroquine and hydroxychloroquine in management of COVID 19. One small study reported that hydroxychloroquine alone or in combination with azithromycin reduced detection of SARS-CoV-2 RNA in upper respiratory tract specimens compared with a non-randomized control group but did not assess clinical benefit.

Recommendation:

- No antiviral treatment for patients with mild disease
- For patients with severe disease or who are rapidly deteriorating, in addition to the management described above, consideration may be given to adding hydroxychloroquine (Dose of 400mg BD on day 1 followed by 200mg BD on days 2-5).

Note that this is not a strong recommendation and may change as more data from clinical trials becomes available

Special considerations for pregnant patients

Pregnant women with suspected or confirmed COVID-19 should be treated with supportive therapies as described above, taking into account the physiologic adaptations of pregnancy. The use of investigational therapeutic agents outside of a research study should be guided by individual risk-benefit analysis based on potential benefit for mother and safety to fetus, with consultation from an obstetric specialist and ethics committee. Emergency delivery and pregnancy termination decisions are challenging and based on many factors: gestational age, maternal condition, and fetal stability. Consultations with obstetric, neonatal, and intensive care specialists (depending on the condition of the mother) are essential.

Guidance on discharge and de-isolation of patients with COVID-19

- SARS-CoV-2 virus can initially be detected 24-48 hours prior to symptom onset in upper respiratory tract samples; the virus can persist for 7–12 days in moderate cases and up to 2 weeks in severe cases (WHO mission to China Report) [1]. Prolonged viral shedding of up to 22 days has been noted in children even after mild infections.
- Mild cases can be managed from home as long as they are able to self-isolate. If self-isolation is not possible, then they should be admitted for 14 days

How to move from the hospital:

Patient should be picked by only one person who should wear a mask.
Sit on the back-left seat of the vehicle (do not sit on the co-driver's seat)
Not have any physical contact with the driver

If one is to self-isolate, then they must stay at home and not move out of their home for a period of 14 days and:

- While at home stay away from others. If possible, should stay in a specific room with adequate ventilation and use a separate bathroom. If sharing bathroom facilities then this should be disinfected regularly using household disinfectant or soap and water
- Wash hands often with soap and water for 20 seconds.
- Avoid sharing personal household items. After using personal items, such as silverware, dishes, towels, sheets and more, wash thoroughly with soap and water.
- Cover mouth and nose with a tissue when you cough and sneeze and then throw it into the trash.
- Wear a surgical mask.
- The rest of the family should be advised to minimize contact with the patient and to wear a mask if coming in to contact. They should frequently wash hands with soap and water

Patients admitted can be discharged from the facility if:

- Symptoms have resolved
- They are able to self-isolate as indicated above

Viral Clearance

Where capacity allows, viral clearance should be defined as:

- Resolution of symptoms
- Two documented negative Viral PCR tests in 2 respiratory samples collected at least 24 hours apart. Repeat testing to determine viral clearance should be repeated at least 10 days after diagnosis provided that all symptoms have resolved

General considerations for health facilities:

Identify a room where individuals suspected to have COVID-19 can be isolated prior to being transferred to an isolation facility.

Set up a triage station near the entrance to the facility and follow the triage guidance given above

Isolation

facilities should identify and train personnel who will take care of patients with COVID-19, all the staff in the facility should be sensitized on COVID-19, facilities should also ensure they identify clinical or lab personnel that are trained on sample collection.

Hospitals should identify a comfortable location where health care personnel can stay for periods of quarantine and isolation.

Hospitals should reduce crowding at their facilities. Possible ways of doing this include:

- Reducing number of patients attending elective clinics by proper triage
- Reducing elective surgeries
- Only admitting patients who require in-patient care
- Reducing number of visitors, a patient can receive to only one per day
- Fill out longer prescriptions for patients on stable chronic care

Private outpatient clinics:

- Reduce number of patients seen in clinic to only those that require urgent or emergency care.
- Fill out longer prescriptions for patients on stable chronic care
- Triage patients on phone - those with respiratory symptoms or recent travel into the country should not come to clinic but should stay home on self-quarantine and call 719
- Ensure all the precautions highlighted below are adhered to

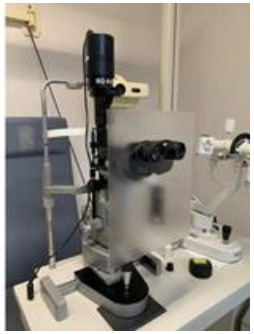
Other measures that facilities and private clinics should implement include:

- Avoid crowding at the patient waiting area ensuring the 1-meter distance between patients is maintained.
- Ensure the waiting area is well ventilated.
- Any over flow of patients should be advised to wait outside in an open space until their appointment time arrives.
- A sanitizer must be present at the entrance of the waiting area with a minimum of 70% alcohol and should be used by each patient entering the waiting area.
- The clinicians, nurses and receptionist staff must avoid shaking hands with the patients and each other.
- Encourage use of electronic money transfer services for payment of clinical services
- The clinician must wash his hands thoroughly with soap and water following the d handwashing before and after coming into contact with each patient.
- Frequently decontaminate all surfaces and equipment using 0.5% chlorine

REDUCING RISKS OF TRANSMISSION IN OPHTHALMOLOGY

- Ensure that there is adequate water and soap for Hand washing
- Ensure you sanitize your hands and the tools (including the slit lamps,) used to examine the patient, before and after examining the patients.
- Always when in the hospital/examination room, remain in a face mask, protecting the mouth, nose, with eye protection-googles/shields, besides usual dust/Lab coat
- Use available material to you/in your context to create a good barrier between the health worker and the Patient, especially while using a slit Lamp (see Fig. 1) Laminated materials, Transparencies or Old X-ray Films, remember to sanitize the barrier too
- Where possible use a slit lamp indirect ophthalmoscopy, or use head mounted Light source to do indirect ophthalmoscopy. Encourage minimal talking when using the slit lamp
- Only Patients with emergency conditions (painful conditions occurring in the last 5 days) should visit the hospitals during this period of Corona shutdown.
- Corona Conjunctivitis, may be mild, may be the first manifestation and will need basic antibiotic eye drop or Artificial Tears.
- Out Patient Clinics, Elective Surgical/Medical Procedures preferably should be deferred till when the situation is under control.
- At the end of the day, sanitize all the surfaces, including the furniture.

Creating a Slit Lamp Barrier



Management of Dialysis

This section gives guidance on:

- Infection prevention practices within the dialysis unit during the COVID-19 pandemic
- Management of a patient on outpatient hemodialysis when suspected to have COVID-19 infection
- Management of a patient on outpatient hemodialysis when confirmed to have COVID-19 infection

Dialysis patients are at increased risk of COVID-19 infection as they represent an immunocompromised population. In Kenya, all patients with end stage renal disease (ESRD) undergo in-patient hemodialysis (HD) and so are constantly exposed to a hospital environment, thereby increasing their risk of infection. Further, a large percentage of the population are above the age of 65 years and hence at greater risk of complicated COVID-19 infection.

In Wuhan City, where the COVID-19 viral infection originated, in a single centre in Renmin Hospital, Wuhan University, 37 of 230 HD patients, and 4 of 33 staff members developed COVID-19 infection between 14 January and 17 February 2020. These patients had less lymphopenia, lower serum levels of inflammatory cytokines and milder clinical disease than described in patients with comorbidities other than ESRD on HD. Nonetheless, mortality was 16.2% (6 patients) in the HD population within this one month.

MANAGEMENT OF PATIENTS ON DIALYSIS DURING COVID-19 PANDEMIC

In-center HD represents an increased risk of transmission of infection, not only to patients but to their family members, medical staff and other facility workers.

Information Updates and Group Activities:

A working team consisting of dialysis physicians, nursing staff and technologists should receive training in updated clinical knowledge of epidemic COVID-19, notification of infection at risk, epidemic prevention tools, and guidelines from the government and hospital authority.

Information on travel, occupation, contacts, and clusters history (TOCC) of each medical staff, dialysis patient, their family members, friends they have been in physical contact with, residents of the same institution, and colleagues at work, will be collected and updated regularly.

Group activities, including group rounds, group studies, and case discussions will be minimized.

It is recommended that staff members have meals at different time to avoid dining together. Hands washed with flowing water before meals.

Precautions:

All patients entering the dialysis facility should be screened at triage and all appropriate IPC measures put in place including ensuring that:

- Staff shall self-monitor their symptoms and shall inform the team leader in case they or their family members develop symptom(s) suggestive of COVID-19 infection.
- Patients with suspected or confirmed COVID-19 infection should ideally be admitted to negative pressure isolation ward of specified hospitals.
- Where this is not possible, for those patients on 14-day self-quarantine for possible contact with COVID-19, the "Fixed Dialysis Care Model" as below is recommended.

Place of dialysis treatment: patients will continue hemodialysis at the original hemodialysis center and not change to another center.

Dialysis shift and personnel: Do not change dialysis shifts and caregiver staff to avoid cross contamination and infection. Minimize the relevant contacts.

If patients need vascular access intervention and are confirmed or suspected to have COVID-19 should be carried out in a designated room (for example negative pressure room in ICU if available) with necessary protection for medical staff.

Transportation: Public transport should not be used. Transport personnel and escorts should wear surgical grade or N95 masks throughout.

Hemodialysis management of suspected or confirmed COVID-19 infected case:

- Best efforts must be made to isolate patients with suspected or confirmed COVID-19.
- Separate rooms with the door closed may be used if available, except those rooms used for treatment of patients with hepatitis B.
- If no separate room is available, patients suspected to have COVID-19 should be cohorted on a designated isolation shift (preferably the last shift of the day), or dialyzed in a designated COVID-19 facility.
- If patients with COVID-19 must be treated at the same time as patients who are asymptomatic, patients who are symptomatic should be treated in a corner or end-of-row station. At least 6 feet of separation should be maintained between masked patients who are symptomatic and others.
- All personnel involved in the direct care of patients affected by COVID-19 must undertake full protection, including long-sleeved waterproof isolation clothing, hair caps, goggles, gloves and medical masks (FFP2 or FFP3 mask if available) filtering 95 to 99% of particulate matter and aerosols in inhaled air. Hand hygiene must be strictly implemented: carefully washing hands with soap and water and systematically using alcoholic solutions and disposable gloves.
- Consideration should be given to cohorting more than one patient with suspected or confirmed COVID-19 and the healthcare team caring for them together in the section of the unit and/or on the same shift (e.g., consider the last shift of the day). Avoid, however, mixing of suspected and confirmed cases.
- Healthcare team should be cohorted i.e. separate teams for management of high-risk and low risk patients. Only the minimum number of assigned healthcare team should enter the isolation room/cohort area, all non-scheduled team-mates should be excluded at all times.
- If a newly confirmed or highly suspected case of novel Coronavirus infection in dialysis centers is identified, disinfection must be carried out immediately. Areas in close contact with these patients must not be used for other patients until cleared.
- The medical waste from confirmed or suspected patients with novel Coronavirus infection must be considered as infectious medical waste and disposed accordingly.

- It is not a requirement that patients infected with COVID-19 be treated in an airborne infection isolation room.

Special Considerations:

a. Procedures

Patients who need vascular access surgery should be screened for COVID-19. Operations on patients with confirmed or suspected COVID-19 infection should be carried out in a designated room with necessary protection for medical staff.

b. Home haemodialysis and peritoneal dialysis

These patients should be assisted at home as far as is possible, using tele – reporting and home visits by healthcare staff, as deemed necessary.

c. Dialysis Frequency

- It can be considered to decrease the frequency of haemodialysis sessions from three to two times per week in patients that tolerate such a regimen. This could be considered:
- to decrease the need for travelling by taxi / ambulance in case of shortage of such transportation means
- to decrease the chance of dialysis patients getting infected by travelling back and forth to the dialysis unit
- to decrease the chance of dialysis patients spreading the infection to the dialysis unit or the hospital to decrease the need for supplies of which shortages are expected. (Especially with factories closing down (temporarily) and supply problems, your unit may run into logistical problems with shortage of material needed for dialysis. An early change from three to two haemodialysis sessions per week in a large part of your dialysis population may help to save material, allowing you to run your dialysis unit as long as possible).

Operational strategies for family member and caregivers

- All the family members living with dialysis patients must follow all the precautions and regulations given to patients to prevent person-to-person and within family transmission of the COVID-19, which include body temperature measurement, good personal hygiene, handwashing, and prompt reporting of potentially sick people.
- Dialysis patients, who have a family member or caregiver subject to "basic quarantine", can have dialysis as usual in accordance during the 14-day period.
- When transporting a suspected or confirmed COVID-19 infected case to hospital for hemodialysis, family members should wear a surgical or N-95 mask. The mode of transport and the route followed should remain the same

RECOMMENDATIONS FOR DENTAL PRACTICE IN RESPECT TO COVID19 PANDEMIC

Interim guidance on infection prevention and control during health care is recommended when COVID-19 infection is suspected. Dental professionals are uniquely exposed to COVID-19 due to regular contact with oral mucosa, and bodily fluids, saliva and blood. Most dental procedures result in production of droplet and aerosols, which can remain suspended in the air for some time before being inhaled or settling on environmental surfaces. Dental professionals should therefore have an understanding of COVID-19 transmission, detection of infection and extra precautions required when providing dental treatment to avoid contracting or transmitting the infection.

Provision of routine care

Care should be taken to avoid or minimize operations that can produce droplets or aerosols. **Routine dental visits should be deferred, pending advisories from the Ministry of Health.** Dental emergencies will continue to be managed non-invasively where applicable. Where procedures must be done, this should be done with presumption of COVID-19 exposure and appropriate precautions taken. It was reported that dental practice should be postponed at least 1 month for convalescing patients with SARS. It is unknown yet whether the same suggestion should be recommended for patients recovered from COVID-19.

Plan ahead

All clinics should have standard operating procedures in place for handling patients presenting to the clinic who have been potentially exposed to COVID-19. Standalone clinics should have a designated space to safely separate the patient potentially exposed to COVID-

19 from others who may be in the waiting area. This should be an area separated by a door. Clinics within hospitals should be aware of the designated point for handling suspected COVID-19 exposure. All professionals should be well versed with the country case definition for COVID-19 infection which may be amended from time to time as the situation evolves.

Evaluation of Patients

Where possible, patient triaging over the telephone should be done prior to arrival at the clinic. Patients with symptoms of respiratory tract infection should be advised to stay home until the condition resolves.

Where additional history reveals recent travel from a country with confirmed COVID-19 cases or contact with such individuals should be advised to call the national hotline 719 for further evaluation. Follow-up on compliance of the advisory to use the hotline should be done.

Where telephone triaging is not possible, dental clinics are recommended to establish precheck triages to measure and record the temperature of every staff and patient as a routine procedure. A contact free thermometer is strongly recommended. Precheck staff should ask patients questions about their health status and history of contact or travel. Patients who have a presentation and/or travel or contact history suggestive of COVID-19 exposure should be isolated pending transfer to designated hospitals screening COVID-19 cases, or if the clinic is within a hospital, the designated COVID-19 screening site. For patient transfer, calling the national hotline 719 will avail a rapid response team who will come to evaluate and evacuate the patient. Following the MOH advisory, patients who have been to epidemic regions within the past 14 days, will be quarantined for at least 14 days. Such patients should only be seen to address dental emergencies.

Oral Examination

The current literature suggests that a significant proportion of people infected with COVID-19 are asymptomatic. Preoperative antimicrobial mouth rinse could reduce the number of microbes in the oral cavity. Chlorhexidine mouthwash has been found to have poor virucidal activity against coronavirus. A pre-procedure mouth rinse with oxidative agents such as 1% hydrogen peroxide or 0.2% povidone is recommended. Intraoral x-ray examination is the most common radiographic technique in dental imaging; however, it can stimulate saliva secretion and coughing. Therefore, extraoral dental radiographies, such as panoramic radiography is advised.

Provision of dental care for confirmed COVID-19 infected patients.

- Provision of care for confirmed cases of covid-19 infection should be restricted to dental emergencies. Appropriate precautions should be taken to protect the patient and all staff in the operatory and minimize risk of contamination. Strict personal protection measures should be in place. All personnel should endure handwashing before and after examination, procedures, leaving the patient surroundings and after handling tissue, bodily fluids or contaminated material. Care should be taken by staff to avoid touching their own eyes, mouth and nose.

- PPE for all staff in the operatory should include: hair net, disposable gown, face masks and goggles/face shields, surgical gloves and waterproof footwear are recommended. Face shields and goggles are essential with use of high or low-speed drilling with water spray

- Care should be taken to avoid or minimize operations that can produce droplets of aerosols. Procedures that are likely to induce coughing should be avoided (if possible) or performed cautiously (WHO 2020a). Aerosol-generating procedures, such as the use of a 3-way syringe, should be minimized as much as possible. The 4-handed technique is beneficial for controlling infection. The use of saliva ejectors with low or high volume can reduce the production of droplets and aerosols. Rubber dams and high-volume saliva ejectors can help minimize aerosol or spatter in dental procedures.

- If a carious tooth is diagnosed with symptomatic irreversible pulpitis not controlled by medication, pulp exposure could be made with chemo mechanical caries removal under rubber dam isolation and a high-volume saliva ejector after local anesthesia; then, pulp devitalization can be performed to reduce the pain. The filling material can be replaced gently without a devitalizing agent later according to the manufacturer's recommendation. Where use of high-speed handpiece is unavoidable it recommended to schedule the procedure as the last patient in the day to decrease the risk of nosocomial infection. After treatment, environmental cleaning and disinfection procedures should be followed. Alternatively, patients could be treated in an isolated and well-ventilated designated treatment room. or negatively pressured rooms if available.

- The treatment planning of tooth fracture, luxation, or avulsion is dependent on the age, the traumatic severity of dental tissue, the development of the apex, and the duration of tooth avulsion. If the tooth needs to be extracted, if suturing is needed, absorbable suture is preferred. For patients with facial soft tissue contusion, debridement and suturing should be performed. It is recommended to rinse the wound slowly and use the saliva ejector to avoid spraying.

- Dental emergencies can occur and exacerbate in a short period and therefore need immediate treatment. Life-threatening cases with oral and maxillofacial compound injuries or infections should be admitted to the hospital immediately, and chest imaging should be prescribed if available to exclude suspected infection because of the turnaround time for receiving COVID-19 test results. RT-PCR test, besides being time-consuming, needs a laboratory with pan-coronavirus or specific SARS-CoV-2 detection capacity.

Recommendations for Dental Education

It is worth advocating to encourage all dental professionals to engage in self-learning, make full use of online resources, and learn about the latest academic developments. With the increased knowledge of viral features, epidemiologic characteristics, clinical spectrum, and treatment, strategies to prevent, control, and stop the spread of COVID-19 will continue to be developed.

Conclusion

- Only dental emergencies should be addressed at all levels until further communication.
- Patients are encouraged to call for consultation and only visit the dental clinic on the advice on the dental professional.
- If a stand-alone clinic does not have enough room/capacity to triage and isolate suspected cases, it should desist from operating.
- The dentists working in public dental facilities should liaise with the hospitals where they are working on how to handle the patients. In the absence of proper PPE as prescribed in the text above, they should not handle any patients.
- It is the responsibility of the dental practitioner to educate their patients on the risks of undertaking a non-urgent procedure and also to ensure their safety and the safety of other patients and staff.

Considerations for individuals with Diabetes Mellitus

The following Individuals with diabetes are considered most vulnerable:

- Those with inadequately controlled diabetes mellitus, specifically with a HBA1c reading > 7.6% or those with recently fluctuating sugars.
- Patients more than 55 years of age.
- Patients with diabetes and concomitant comorbidities such as heart failure, hypertension, chronic obstructive pulmonary disease, chronic kidney disease, cancer and HIV who are already known to have a significant impairment in their immune function.
- Specific points relating to diabetes mellitus and COVID-19 infection
- It is important to note that those patients living with diabetes who are well controlled with no significant comorbidities have a significantly lower risk of developing severe complications of COVID-19 and their risk is comparable to that of the general population. (12)
- The risk associated with COVID-19 infection is similar in individuals who have either type 1 or type 2 diabetes excluding other risk factors such as age, micro and macro vascular complications, comorbidities and glycemic control. (12)
- COVID-19 infection in individuals who have either type 1 or type 2 diabetes can put them at a higher risk of developing diabetic ketoacidosis. The same standard treatment protocol for managing diabetic ketoacidosis as outlined by the American diabetes association (ADA) is used to treat patients with diabetes who develop diabetic ketoacidosis secondary to COVID-19 infection. (12)
- In individuals with Diabetes we recommend the following measures to prevent COVID-19 infection: (12,13)
- Frequent hand washing using the correct technique with water and soap is usually sufficient. If sanitizer is available, it should contain at least 70% alcohol to be considered effective.
- Social distancing - Keeping a one-meter distance from individuals in various spaces.
- Avoid being in crowded places or group meetings of more than 10 people at a time.

- Avoid touching your face.
- Only go to the hospital if it is absolutely necessary.
- or non-urgent clinical cases, we recommend you contact your health care provider and ensure you get a reasonable stock of medication supplies for the next eight weeks. This should be ensured until there is more clarity on the progress of the condition in the country.
- Ensure that you have current phone contacts of your treatment facility and ensure your family members have this contact as well in the event of any emergency.
- Try coughing either into your flexed elbow or a disposable tissue and away from people. Ensure proper and immediate disposal of the used tissues.
- Wear a face mask when coming into a crowded health care facility.
- Avoid non-essential local and international travel during this current phase.
- Avoid all crowded public areas and social gatherings such as in churches, temples, mosques, as well as entertainment areas such as clubs, gyms restaurants and bars.
- Minimize the number of visitors coming into your homes especially for those who are considered high risk individuals as per the criteria noted above.
- Caregivers taking care of patients living with diabetes must always thoroughly wash their hands with the correct technique before and after coming into contact with them.
- All utensils and surfaces must be thoroughly cleaned as frequently as possible.
- Avoid touching common surfaces such as handrails, elevator buttons, door handles, counter tops. If you do so, ensure you wash or sanitize your hands each time you come into contact with them.

- Consult your doctor on phone if you note any form of glycemic variability that is off the recommended patient specific blood glucose targets. In general, the recommended glycemic targets are 5 to 7 mmol/l for fasting blood sugar and 5 to 10 mmol/l for 2-hour postprandial blood glucose.
- Encourage patients to review patient education material on how to avoid and manage hypoglycemia with their family members and caregivers. These materials are available online and can be availed on electronic platforms by clinic staff to patients to ensure preparedness on the part of the patient as well as his/her support system at home.
- Ensure that you have stocked a reasonable supply of strips and ensure your glucometer is well calibrated and in good working condition.
- For those with type I diabetes ensure that you have ketone strips on standby in the event you find you that you have persistent hyperglycemia and symptomatology to suggest impending diabetic ketoacidosis. Contact your clinician on phone in the event of marked hyperglycemia and a ketone reading of > 0.6 mmol/l. If you do not have access to ketone strips, inform your doctor if your sugars remain persistently high.

Recommendations for doctors' inpatient and outpatient clinical practice adapted from the CDC

1. Avoid admitting anyone living with diabetes who does not need to be in the inpatient setting to reduce further contact and exposure since the inpatient transmission rate is estimated to be as high 41% as noted by
2. Where possible, any elective procedures should be postponed till after the pandemic.

3. The strictest hygiene measures and laid down aseptic techniques of wound care must be observed when dealing with diabetes related wounds that may need frequent dressing such as diabetic foot or post-surgical wounds.

4. Coronavirus can survive up to 8 hours on fabric. It is therefore recommended that staff working in high turnover units such as high dependency units, accident and emergency, intensive care units, chemotherapy centres and dialysis units wear scrubs that can be laundered at the end of the shift to avoid possible transmission of infection to homes of medical personnel.

5. If outpatient clinics have to continue for those patients who need to be genuinely reviewed, ensure the following precautions

- Avoid crowding at the patient waiting area ensuring the 1-meter distance between patients is maintained.

- Ensure the waiting area is well ventilated.
- Any over flow of patients should be advised to wait outside in an open space until their appointment time arrives.
- A sanitizer must be present at the entrance of the waiting area with a minimum of 70% alcohol and should be used by each patient entering the waiting area.
- The clinicians, nurses and receptionist staff must avoid shaking hands with the patients.
- Encourage use of electronic money transfer services for payment of clinical services to avoid coming into contact with currency notes and coins that are known vehicles of transmission.
- The clinician must wash his hands thoroughly with soap and water following the designated 7 steps of handwashing before and after coming into contact with each patient.
- We recommend 0.5 % chlorine-based solutions to decontaminate all floors, clinical surfaces including countertops, desk tops, tables, chairs.
- We recommend 0.05% chlorine-based solutions to decontaminate all clinic equipment e.g. stethoscopes, blood pressure machines and glucometers to prevent spread of the coronavirus.
- Ensure the clinicians desktop is sanitized as frequently as possible.
- Ensure that the examination couch is decontaminated regularly and draped in linen. Tissue liners should be rolled over the examination couch and discarded after each patient is examined.
- Avoid touching your nose, eyes and face.

All contacts of confirmed cases should be asked to self-quarantine. The information below should be given to individuals required to self-quarantine (Appendix 1)

CONSIDERATIONS FOR OBSTETRICS AND GYNAECOLOGY

The approach to prevention, evaluation, diagnosis, and treatment of pregnant women with suspected COVID-19 should be similar to that in nonpregnant individuals (as described above), with consideration that pregnant women with other potentially severe respiratory infections, such as influenza, severe acute respiratory syndrome (SARS)-CoV, or Middle East respiratory syndrome (MERS)-CoV, appear to be more vulnerable to developing severe disease.

It is unknown whether the virus can be transmitted through breast milk; however, droplet transmission could occur through close contact during breastfeeding.

Recommendation:

- A mother with confirmed COVID-19 or who is symptomatic should take all possible precautions to avoid spreading the virus to her infant, including washing her hands before touching the infant and wearing a face mask, if possible, while breastfeeding. If expressing breast milk with a manual or electric breast pump, the mother should wash her hands before touching any pump or bottle parts and follow recommendations for proper pump cleaning after each use. If possible, consider having someone who is well to feed the expressed breast milk to the infant.

Elective surgeries

- In a situation where COVID-19 has caused stress on the health care system, it may be advantageous to identify and modify surgical scheduling, including for procedures that are medically indicated, when a patient's health and safety would not be harmed by such delay.
- Obstetric and gynecologic procedures for which a delay will negatively affect patient health and safety should not be delayed. This includes gynecologic procedures and procedures related to pregnancy for which delay would harm the patient health.

APPENDIX 1

Having come in to contact with an individual diagnosed to have COVID-19, you will be required to self-quarantine. This must be adhered to.

What is quarantine?

Quarantine separates and restricts the movement of people who were exposed to a contagious disease to see if they become sick. This means that you reduce contact with other people until the period of quarantine is over. The aim is to protect your loved ones and other members of the public from potentially acquiring an infection from you since you may have come into contact with the disease. This is an important public health measure that will be enforced.

How to move around:

- You should avoid using public transportation
- If you use a car:
  - You should be picked by only one person who should wear a mask.
  - Sit on the back-left seat of the vehicle (do not sit on the co-driver's seat)
  - Do not have any physical contact with the driver

If you are to self-quarantine, then you must stay at home and not move out of your home for a period of 14 days and:

- While at home stay away from others. If possible, you should stay in a specific room with adequate ventilation and use a separate bathroom. If you are sharing bathroom facilities then this should be disinfected regularly using household disinfectant or soap and water
- Wash your hands often with soap and water for 20 seconds.
- Avoid sharing personal household items. After using personal items, such as silverware, dishes, towels, sheets and more, wash thoroughly with soap and water.
- Cover your mouth and nose with a tissue when you cough and sneeze and then throw it into the trash.
- Postpone all non-essential appointments until you are out of quarantine.

If you are unable to self-quarantine, then you will be taken to a quarantine facility

If you develop any symptoms during the period of quarantine (such symptoms may include fever, cough, muscle pain, headache, sore throat, diarrhoea), then you should call **719** for direction to an isolation facility.

If you are safely able to present to an isolation facility (in a private vehicle accompanied only by the driver and you sit on the back seat without physical contact with the driver) then you can of on your own, otherwise you will be given further directions upon calling 719.

At the facility, you will be evaluated by a health care personnel and a swab of your throat and nose taken for labor tory testing and appropriate care offered.

We will collect your contact details (name, next of kin, physical address and telephone contact) to allow for follow-up on the progress of yourself quarantine. If at any time you feel you are unable to continue self-quarantine then call **719** and you will be directed to a self-quarantine facility.

Understand that if you break the self-quarantine then you risk exposing your loved ones and other members of the public to infection.

Your movements during this period of quarantine may be monitored by the Ministry of Health from time to time. If your break the self-quarantine, then Ministry of Health officials are authorized to admit you to a quarantine facility.

Ensure you give correct contact and address information. Please note that it is an offence under the Public Health Act to give false information

By signing this form, you agree to abide by these instructions (failure to agree means you accept to be Admitted to a government quarantine facility):

Name: _____ Next of Kin _____

ID/Passport number: _____

Telephone Number: _____ Next of kin contact_____

Physical contact: _____

Signature: _____

APPENDIX 2

Guidance for wearing and removing personal protective equipment in healthcare settings for the care of patients with suspected or confirmed COVID-19

***********European Centre for Disease Prevention and Control Technical Report Feb 2020***

Before wearing the PPE for managing a suspected or confirmed COVID-19 case, proper hand hygiene should be performed (Figure 1).

Figure 1. Hand hygiene performed using alcohol-based solution

The first PPE to be donned (Figure 2) is the gown. There are different types of gowns (single use, reusable); this guidance presents a reusable long-sleeved water-resistant gown. When using a gown with back closure, as shown below, a second operator should assist in buttoning up the back (Figure 3).

Figure 2. Donning of a long-sleeved water-resistant gown

Figure 3. Buttoning up the backside of the gown; performed by an assistant

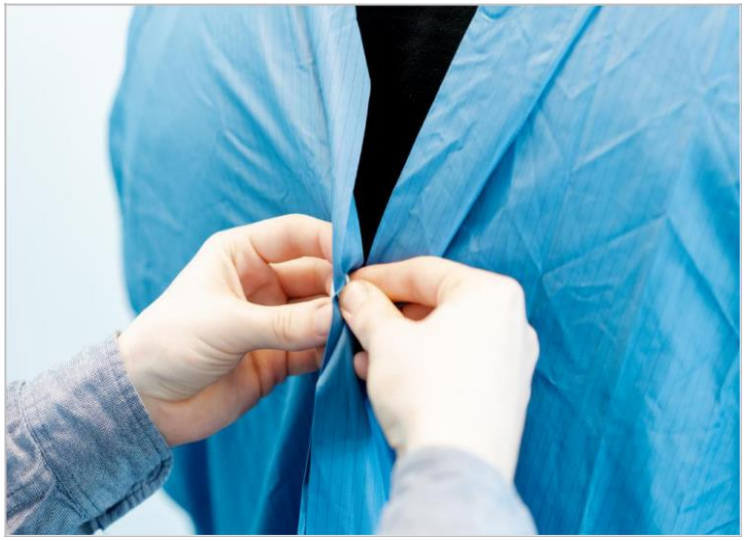
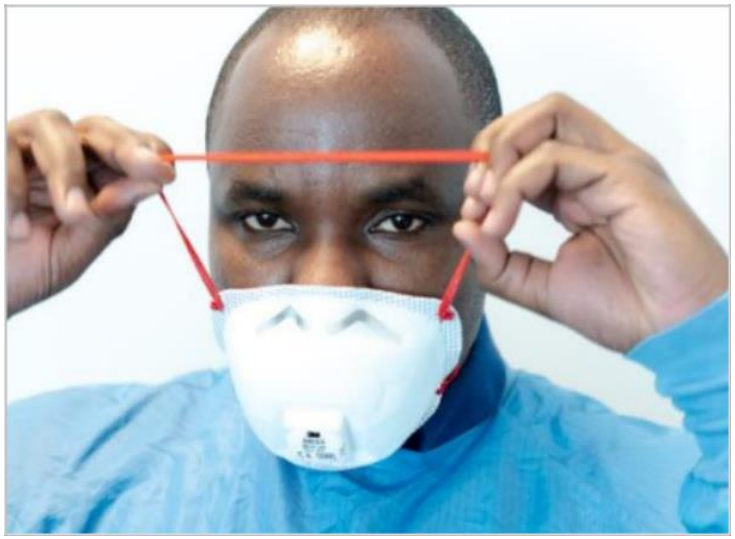


Figure 4. Wearing of an FFP (class 2 or 3) respirator



After wearing the gown, it is suggested to proceed with the respirator that protects from the inhalation of droplets and particles. It is important to perform a fitting test after the respirator has been put on, following the manufacturer's instructions.

Figure 5. Fitting the respirator's metal nose clip

Figure 6. Wearing of a face mask (surgical mask)

The metal nose clip needs to be adjusted (Figure 5) and the straps have to be tightened to have a firm and comfortable fit. If you cannot achieve a proper fit, position the straps crosswise. However, this minor modification could imply a deviation from the recommendations in the manufacturer's product manual.

If a face mask (surgical mask) is worn as substitution for a respirator (Figure 6), it is important to correctly position it on the face and adjust it with the metal nose clip (Figure 7) in order to achieve a proper fit.

Figure 7. Fitting the face mask's metal nose clip

Figure 8. Wearing of goggles with textile elastic strap

Once the respirator has been properly positioned, put on the goggles for eye protection. Place the goggles over the mask's straps and ensure that the textile elastic strap fits snugly – but not too tightly (Figures 8 and 9).

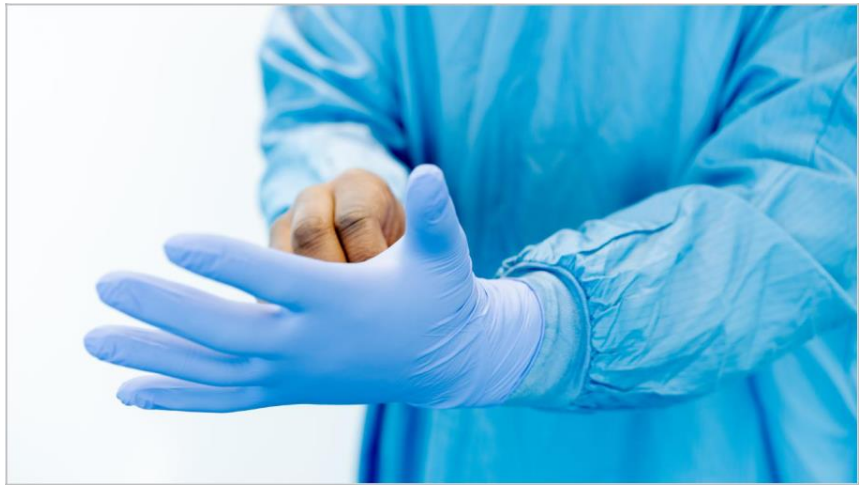
Figure 9. Side view of goggles with an elastic textile strap

Figure 10. Wearing of goggles with temples

If goggles with temples are used, make sure that they are properly positioned and fit well (Figure 10).

After the goggles, the gloves are next. When wearing gloves, it is important to extend the glove to cover the wrist over the gown's cuffs (Figure 11). For individuals allergic to latex gloves, an alternative option, for example nitrile gloves, should be available.

Figure 11. Wearing of gloves



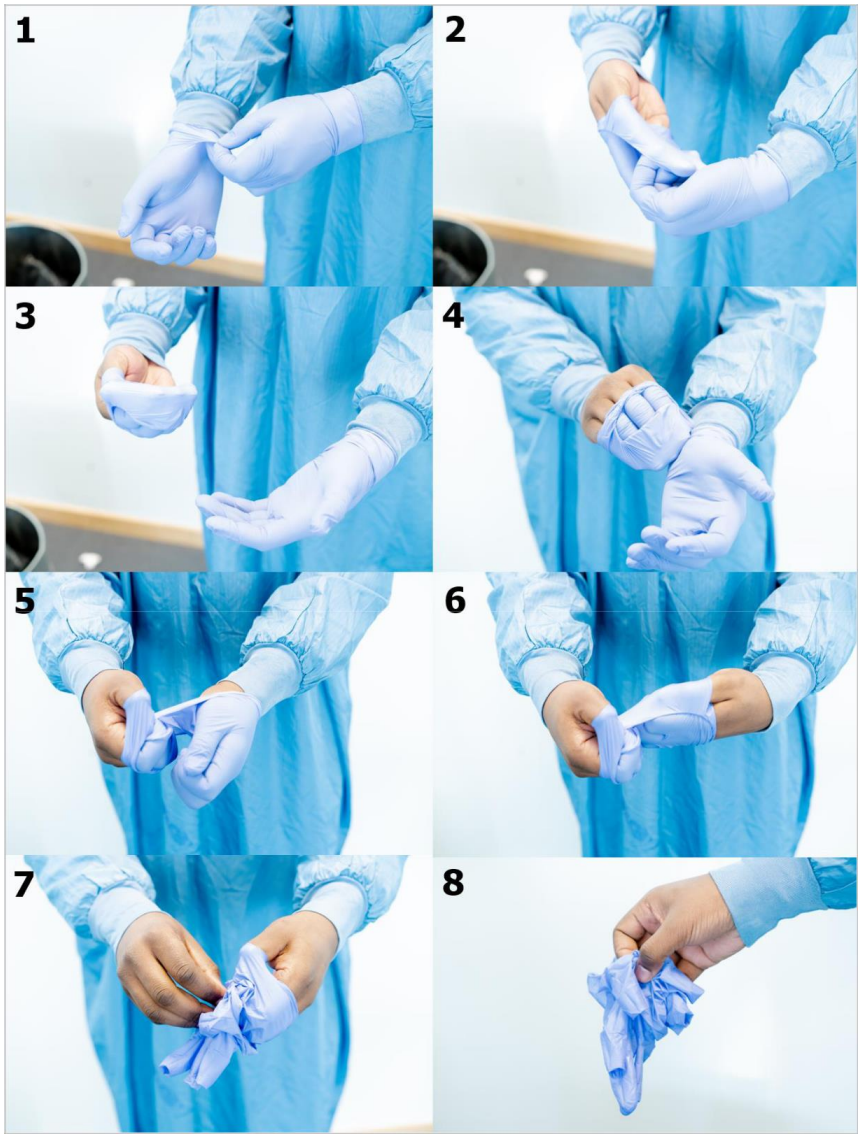
Removing (doffing) the PPE

Wearing the PPE correctly will protect the healthcare worker from contamination. After the patient has been examined, the removal (doffing) of the PPE is a critical and important step that needs to be carefully carried out in order to avoid self-contamination because the PPE could by now be contaminated.

The gloves are removed first because they are considered a heavily contaminated item. Use of alcohol-based hand disinfectant should be considered before removing the gloves. The gloves should be removed following eight steps (Figure 12).

Start by (1) pinching and holding the glove (with the other gloved hand) between the palm and wrist area, (2) peeling the glove away from the wrist (3) until it turns inside out covering the fingers. With the now half-gloved hand, (4) pinch and hold the fully gloved hand between the palm and wrist, (5) peel the glove away from the wrist (6) until it turns inside out and covers the fingers. Now that both hands are half-gloved, (7) remove the glove from one hand completely by grabbing the inside part of the glove and peeling it away from the hand and do the same for the remaining half-gloved hand using the non-gloved hand, while always grabbing the inside part of the glove. Dispose of the gloves (8) in a biohazard bin.

Figure 12. Removal of gloves (steps 1 to 8)



After the removal of gloves, hand hygiene should be performed and a new pair of gloves should be worn to further continue the doffing procedure. Using a new pair of gloves will prevent self-contamination.

With the new pair of gloves on, the gown should be removed. When using a gown with back closure (as used in this document), a second operator should assist in unbuttoning the backside of the gown (Figure 13). The assistant should wear gloves and a surgical mask, which need to be removed after opening the gown. After the gloves of the assistant are removed, hand hygiene should be performed using an alcoholic solution. After the gown has been unbuttoned, the gown can be removed by the healthcare worker by grabbing the back of the gown (Figure 14) and pulling it away from the body, keeping the contaminated front part inside the gown (Figure 15).

Figure 13. Unbuttoning of the backside of the gown, performed by an assistant

Figure 14. Removal of gown: grabbing the back of the gown

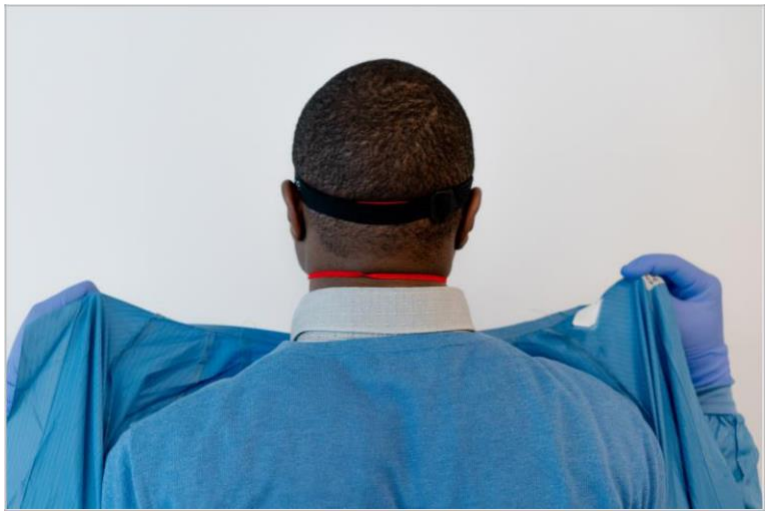


Figure 15. Removal of gown: pulling the gown away from the body

Single-use gowns can now be disposed of; reusable gowns have to be placed in a bag or container for disinfection (Figure 16).

Figure 16. Placing the gown in a biohazard container for disinfection

After the gown, the goggles should be removed and either disposed if they are single-use, or placed in a bag or container for disinfection. In order to remove the goggles, a finger should be placed under the textile elastic strap in the back of the head and the goggles taken off as shown in Figure 17. Touching the front part of the googles, which can be contaminated, should be avoided. If goggles with temples are used, they should be removed as shown in Figure 18.

Figure 17. Removal of goggles with textile elastic strap (steps 1 to 4)

Figure 18. Removal of goggles with temples (steps 1 and 2)

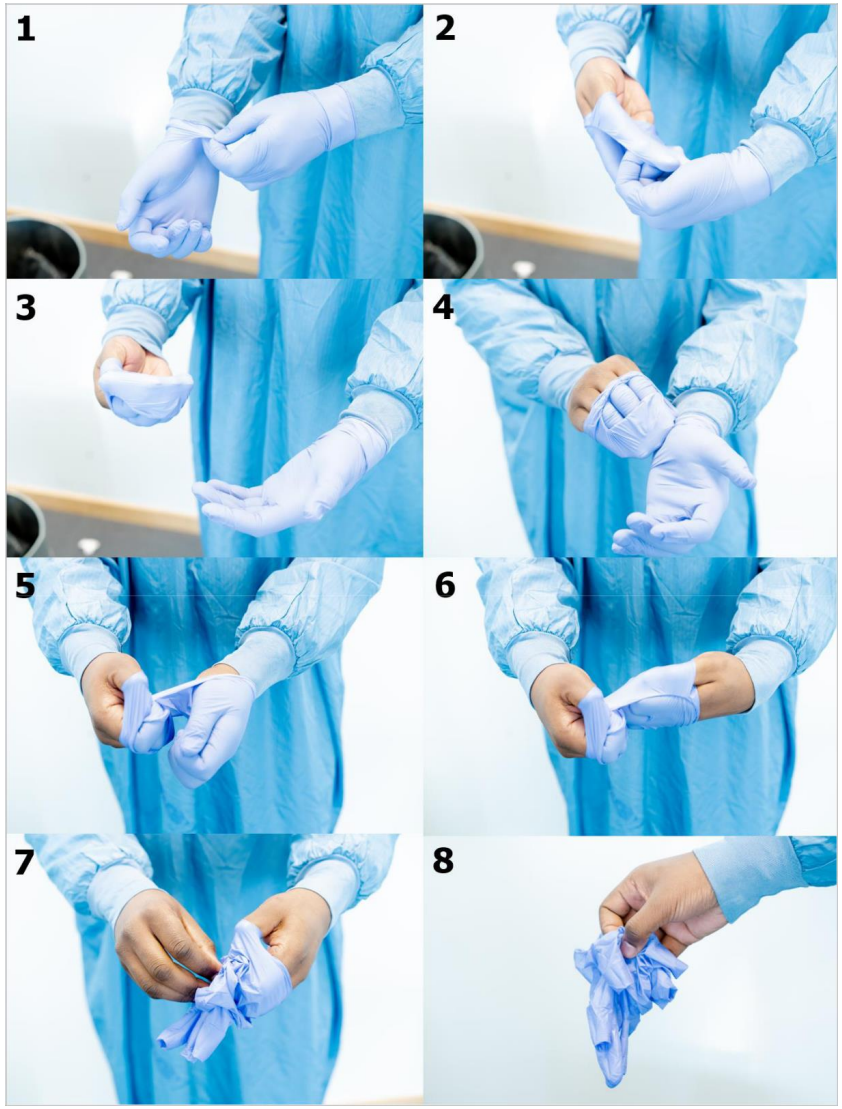
The respirator should be removed next. In order to remove the respirator, a finger or thumb should be placed under the straps in the back and the respirator taken off as shown in Figure 19.

The respirator (or the surgical mask) should be disposed of after removal. It is important to avoid touching the respirator with the gloves (except for the elastic straps) during its removal.

Figure 19. Removal of respirator (steps 1 through 4)

The last PPE items that should be removed are the gloves. Use of alcohol-based solution should be considered before removing the gloves. The gloves should be removed in accordance with the procedure described above. After glove removal, hand hygiene should be performed.

Figure 20. Removal of gloves (steps 1 through 8)



APPENDIX 3

Notes on Testing:

All testing and reporting are coordinated by the Head of the National lab. All requests for testing should be directed to the EOC (0732353535/0729471414)

There are currently 4 labs that can test samples - National Influeza centre at the National Public Health laboratory (NIC), KEMRI labs in Nairobi, Kilifi and Kisumu.

Counties and facilities should identify and train clinical and lab personnel to collect samples.

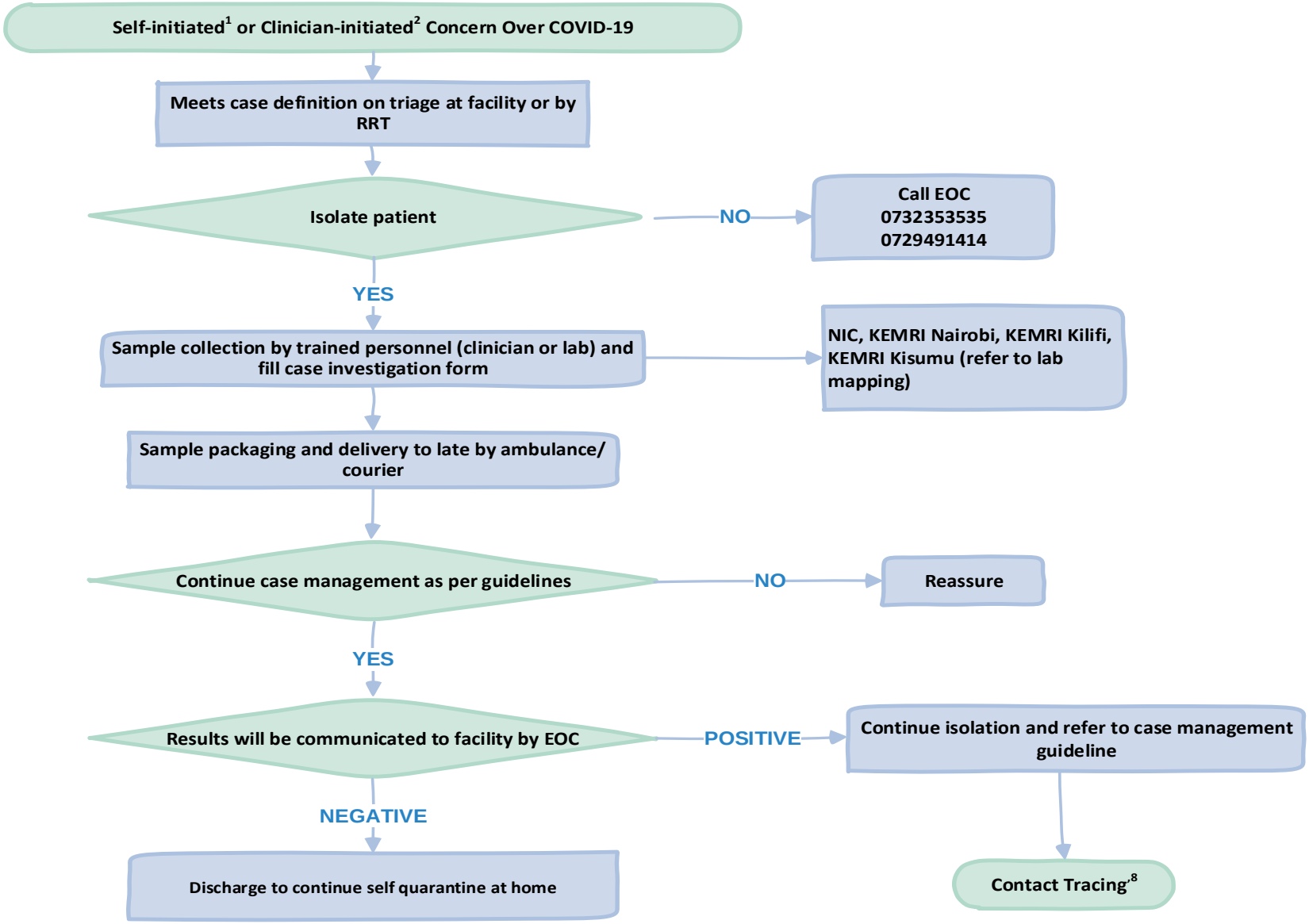
Counties should identify and put in place at least 2 RRT teams who should be available to support case investigation, sample collection and transport to the lab.

For persons calling the Hotline number 719 from home or small health care facilities with no isolation capacity, the county/subcounty RRT team will respond and send a team to:

- assess whether the patient meets the case definition
- Collect a sample and transport to the lab
- Transfer patient to an appropriate isolation facility

For private hospitals in Nairobi, the facility should facilitate collection and delivery of a sample to the NIC, private hospitals in the counties should coordinate with the county RRT team.

Figure 21: LAB FLOW



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