NATIONAL COMPREHENSIVE COVID19 MANAGEMENT HANDBOOK

FMOH, Ethiopia
First edition
APRIL 2020

TABLE OF CONTENT

FOREWORD ii

ACKNOWLEDGEMENTS iii

SECTION I: BACKGROUND 1

SECTION II: SURVEILLANCE 3

SECTION III: COVID-19 EMERGENCY OPERATION CENTRE CONTACT TRACING PROTOCOL 7

SECTION IV: PROTOCOL FOR INFECTION PREVENTION AND CONTROL DURING HEALTHCARE WHEN SARS COV-2 INFECTION IS SUSPECTED 11

SECTION V: PROTOCOL ON FUMIGATION AND APPROPRIATE CHEMICALS 20

SECTION VI: LABORATORY TESTING FOR COVID-19 28

SECTION VII: COVID 19 TRIAGE PROTOCOL 33

SECTION VIII: CASE MANAGEMENT (TRIAGE and MANAGEMENT of SUSPECT and CONFIRMED CASES) 40

SECTION IX: DEATH CARE AND BURIAL 59

SECTION X: ETHICAL ISSUES IN COVID 19 MANAGEMENT 62

SECTION XI: RISK ASSESSMENT AND MANAGEMENT OF EXPOSURE OF HEALTH CARE WORKERS IN THE CONTEXT OF COVID-19 67

SECTION XII: RIGHTS, ROLES, RESPONSIBILITIES, OCCUPATIONAL SAFETY AND HEALTH OF HEALTH CARE WORKFORCE IN THE MANAGEMENT OF COVID-19 PATIENTS IN ETHIOPIA 70

SECTION XIII: HEALTH CARE FACILITY COVID 19 PREPAREDNESS PROTOCOL 74

SECTION XIV: RISK COMMUNICATION AND COMMUNITY ENGAGEMENT (RCCE) 2019 NOVEL CORONA VIRUS (COVID-19) DISEASE PREPAREDNESS 88

SECTION XV: COVID-19 OPERATIONAL GUIDANCE FOR MAINTAINING ESSENTIAL HEALTH SERVICES DURING AN OUTBREAK 103

ANNEXES 110

REFERENCES 156

TABLE OF FIGURES

Figure 1: Rumor Investigation and Verification Procedures.....5

Figure 2: Traveler follow up and contact tracing procedure 6

Figure 3: Hand Washing Procedure.....15

Figure 4: Alcohol Based Hand Rub Procedure.....16

Figure 5: How to put on personal Protective Equipment 17

Figure 6: Nasopharyngeal swab.....29

Figure 7: Nasopharyngeal swab.....29

Figure 8: Patient flow.....36

Figure 9: COVID-19 patient flow.....39

Figure 10: Safe removal of PPE 80

Figure 11: The five domains of risk communication.....89

Figure 12: Preparedness, implementation and evaluation phase of RCCE 90

Figure 13: Example for rumour management strategies and flow of information to address the rumours.....102

FOREWORD

The COVID 19 pandemic is causing huge stress on the health care system of all countries in the world. The impact of the pandemic is both social and economic. It is observed that early interventions with optimal Political commitment and community mobilization help to flatten the curve averting occurrence of many cases and deaths.

Ethiopia, being one of the developing countries trying to address the diverse needs of its people, is currently at the verge of the epidemic. The government is currently showing high commitment to contain the epidemic before it causes significant damage to the community. Case identification, contact tracing, isolation and quarantine are the actions being taken to contain the spread of the disease in addition to the preventive measures put in place mainly promoting social distancing and sanitary measures.

Cognizant of the need for standardization of the response for COVID-19, the Federal Ministry of Health prepared this national guideline in an effort to contain the epidemic before it overwhelms the health care facilities. This national guideline is expected to guide policy makers and health professionals at all level. A standardized approaches to will assist effective and efficient utilization of the limited resource of the country, minimizes dilemma and confusion on case management. To this effect, the FMOH has established National COVID-19 advisory committee. The committee members are from different specialties with very good experiences in disaster management and prevention and treatment of infectious disease epidemics. The input from the committee is used to make decisions at the national level about the epidemics in the weeks and months to come. The FMOH would like to acknowledge the members of the national advisory committee for their commitment and unreserved effort in finalizing the task in a very short period of time and advising the Ministry on various issues related to the epidemics at this critical time.

Lia Tadesse , M.D, MHA

Minister

ACKNOWLEDGEMENTS

FMOH would like to acknowledge the following members of the national advisory committee for COVID-19 case management for their valuable contribution to the development and review of this comprehensive hand book.

No.	Name	Institute
1.	Woldesenbet Waganew (MD, ECCM)---Chairman	SPHMMC
2.	Aklilu Azazh (Prof.ECCM)	AAU/CHS
3.	Aschalew Worku(MD, PCCM)	AAU/CHS
4.	Berhane Redae(MD, Surgeon)	FMOH, Jhpiego Ethiopia
5.	Menbeu Sultan(MD, Internist)	SPHMMC
6.	Yakob Seman (MPH)	FMOH, MSDG
7.	Hilina Taddese (MD)	FMOH, MSDG
8.	Ebriza Mudesir	FMOH,CSD
9.	Naod Wendrad (MPH)	FMOH,ECCD
10.	Natnael Brhanu (MD, MPH)	Save the Children
11.	Miraf Walelegn (MPH)	FMOH
12.	Muluwork Tefera(MD, Pediatric ECCM)	AAU/CHS
13.	Rahel Argaw (MD, Pediatric PCCM)	AAU/CHS
14.	SisayTeklu (MD, Gyn-Obstetrician)	AAU/CHS
15.	SisayYifru (MD, Pediatrician)	FMOH
16.	Wondwossen Amogne(MD, PHD)	AAU/CHS
17.	Yibeltal Mekonnen(MD, MSC)	Jhpiego Ethiopia

18.	Zewdu Assefa	EPHI EOC
19.	Shambel Habebe	EPHI EOC
20.	Ebise Abose	EPHI EOC
21.	Dr. Fantu Lombamo	EPHI EOC
22.	Diriba Sufa	EPHI EOC
23.	Dr. Musa Emmanue	EPHI EOC

We would also like to thank Mahlet Tadesse(MD, Anesthesiologist), Ananya Abate(MD, Anesthesiologist), RahelTilahun (MD, Anesthesiologist), FetiaAlferid (MD, Anesthesiologist), AzebAsaminew(MD, Psychiatrist),MulatAsnake (PhD, Psychologist), HenokHailu (Psychologist)**,**
AssefaGetachew(MD,Radiologist),TesfayeKebede(MD,Radiologist),AzmeraGissila(MD,Radiologist),AlemayehuBedane(MD,Radiologist),AshenafiAberra (MD,Radiologist), for their contribution in their respective field of expertise. Our acknowledgment extends also to EPHI EOC team **Case management (**Dr. Sisay Temesgen, Dr. Fentaw Yimam, Malaku Seyoum, Dr. Belay Makango , Dr. Nnamdi Nwosu, Dr. Yaregal Fufa, Dr. Fantu Lombamo**), Surveillance (**Mikias Alayu, Mengistu Biru, Mesfin Wossen, Dr. David Sugerman, Dr. Kathleen Gallagher, Dr. Abiy Girmay, Meseret Abraham, Hiwot Amare, Adamu Tayachew, Woubayehu Kassa, Adamu Tayachew , Berhane Beyene **) , IPC (**Getaneh Abreha, Molla Godif, Aron Mabratom, Dr. Mike Oji**) , POE and quarantine (**Yohannes Dugasa, Tamiru Tadese, Temesgen Lemi, Rahel Atakilti, Mengistu Temesgen, Raphael Marfo, Dr. Berhanu Amare , Ahimed Mohammed, Hannah Kubinso, Mohamedo , Dr. Fahmi Ahmed**) , Risk Communication (**Temesgen Ayehu , Mussie Girma, Melaku Abebe, Mihreteab Getachew, Tagu Zergawu, Seble Abebe, Dr. Ruth Deriba**) ,** for enormous input in the document, AAU/CHS, SPHMMC and Jhpiego Ethiopia for allowing their staffs to work in the team.

SECTION I: BACKGROUND

Severe acute respiratory infection remains one of the leading causes of mortality around the world. The recent pandemic caused by an RNA virus that belongs to the family of CORONA (Latin Crown, from the structure of the virus under electron microscope) virus is a challenge for both developed and underdeveloped nations. The new CORONA virus identified as the cause of the acute respiratory disease in humans since the end of December 2019(2019-nCoV), later labeled as SARS-CoV2 by World Health Organization is a different strain of CORONA virus from SARS and MERS CORONA viruses. The difference is not limited to genetic make-up only but also in the clinical presentations, case fatality and the rate of spread across the globe. The disease caused by this virus is known as COVID-19.

First seen in Wuhan, China, the disease has been recognized as global public health emergency by World Health Organization after cases had started to be seen outside china in less than two-month period. Failure to predict, reluctance to use initial information timely and take the necessary actions together with lack of political commitment in nations across the world contributed to the rapid spread of the disease out of China and unacceptably high mortality in countries most affected by the pandemic. Physical contact and respiratory routs are the two most important well established routs of transmission of the virus. Poor hand hygiene practice, overcrowding, and close physical contacts like hand shaking contributes for the fast spread of the virus with in very short period of time. Experience from China where the disease was first recognized shows educating the public about the nature of the disease and the rout of transmission, restricting mobility of individuals within the border and across borders is proven to be key in preventing transmission. The pandemic started when the world was not ready even for commonly known epidemics and when mobility for business and tourism was high and very simple due to globalization. Scarcity of supplies for hand hygiene and lack of PPE in most health facilities are good evidences for our unpreparedness for an infectious disease pandemic of this scale.

Ethiopia, being one of the countries with limited trained human and material resources, is expected to be affected most by the global COVID-19 pandemic. Allocating the limited resources for the prevention of transmission of the disease and implementation of a uniform and evidence based preventive and treatment protocol at all levels of health care system and

throughout the country under central command is believed to be wise decision for optimal utilization of the resources. Areas affected most will be given priority to treat and contain the infection in that locality so that other part of the country will not be affected. In order to make all preventive and treatment endeavors uniform in Ethiopia the need for national COVID-19 prevention and treatment guideline is given priority by FMOH and EPHI. A committee was organized from consultants of different specialties and given the task of developing evidence based, cost effective and applicable national guideline for prevention and treatment of COVID-19 in Ethiopia. The guideline has taken in to consideration the culture, leaving condition and background of the people and is made as much as possible understandable and usable by most levels of health care professionals.

This prevention and treatment guideline encompasses principles of infection prevention and control, starting from the scene up to discharge and safe burial system in case of death. Management of critically ill patients, in wards and ICU is discussed in the guideline. Ethical considerations regarding safety of health professionals and bioethics have been included. The recommendations in this guideline are based on limited studies available and recommendation by WHO and CDC. The guideline will be revised and updated as more information and evidences are released. All healthcare facilities must ensure that health professionals are well trained and able to implement infection control procedures and COVID-19 management.

SECTION II: SURVEILLANCE

1. Case definitions for COVID-19

Suspected case

A. A person presenting with fever (>38°C) or history of fever and symptoms of respiratory tract illness e.g. cough, difficulty in breathing AND a history of travel to or residence in a country/area or territory reporting local transmission of COVID-19 disease during the 14 days prior to symptom onset.

OR

B. A person with fever (>38°C) or history of fever and symptoms of respiratory tract illness e.g. cough, difficulty in breathing AND in the last 14 days before symptom onset, close contact with a person who is under investigation or confirmed for COVID-19

OR

C. A person with fever (>38°C) or history of fever and symptoms of respiratory tract illness e.g. cough, difficulty in breathing; And requiring hospitalization)And in the absence of alternative diagnoses that fully explains the clinical situation

Probable case:

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

OR

B. A suspect case for whom testing could not be performed for any reason

Confirmed case:

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

2. Rumor investigation and verification

In the rumor verification process the rumor is obtained from different ways: example from the toll free teams /reported through 8335, health Facilities (Governmental and Non-Governmental), screening sites (Airport and land crossings), hotels, investment areas, refuges and other sources

A. Each rumor is further investigated and verified by an rapid response team (RRT). The established rumor investigation team/RRT is composed of different disciplines including:
   - Epidemiologist
   - Clinician
   - Laboratory personnel
   - Environmental (IPC) expert
   - Drivers

B. The team always ensures the presences of the following PPEs and Lab equipment's.
   - Face Mask (Medical mask or N95)
   - Gloves
   - Eye goggles
   - Gown
   - Infrared thermometer
   - Viral Transport Media (VTM), Biohazard Bag, cotton etc.

C. After the team has deployed, the team is expected to verify the rumor
   - Expected to assess the clinical presentation and corona virus sign and symptoms
   - Expected to assess the epidemiological linkage of the rumor
   - Decision to weather to Isolate at isolation center or home care
   - If the case is not suspected reassure him/her and link to the follow up team
   - If the case is a suspect, transport to isolation center, take laboratory specimen and trace and list contacts

Figure 1: Rumor Investigation and Verification Procedures

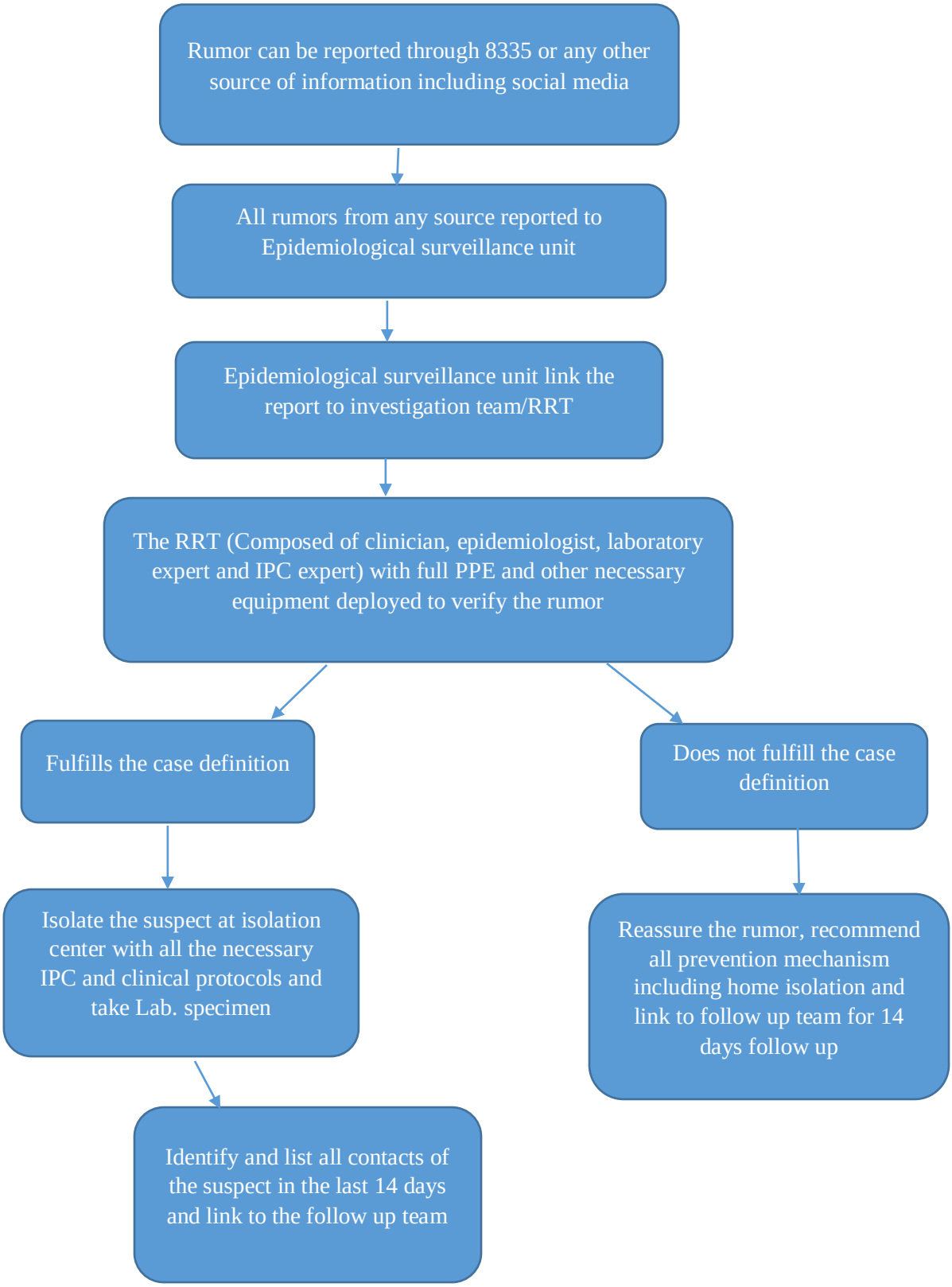
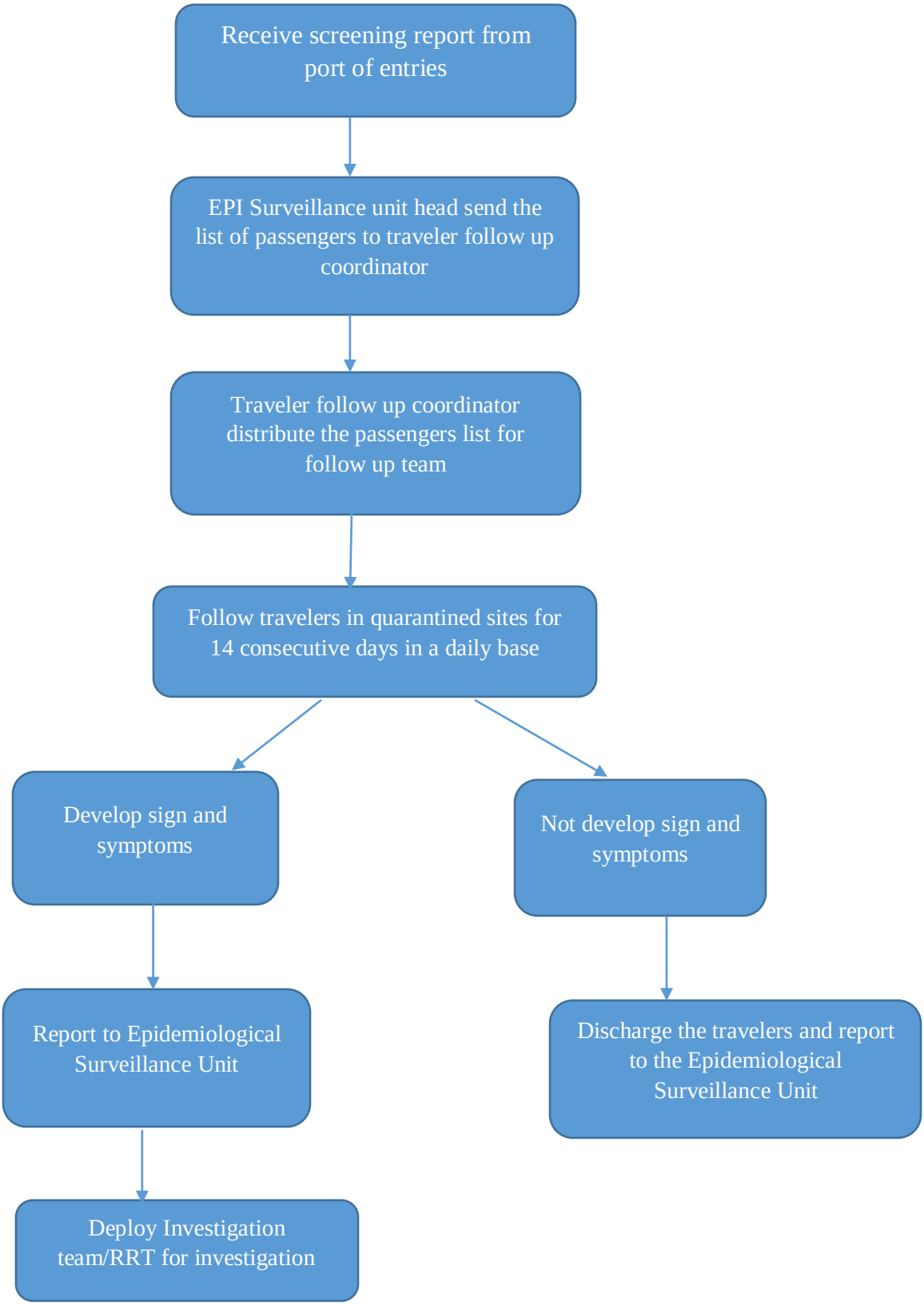


Figure 2: Traveler follow up and contact tracing procedure



SECTION III: COVID-19 EMERGENCY OPERATION CENTRE CONTACT TRACING PROTOCOL

Background

Once suspected case has been identified, one of the public health measures is tracking down people who may have been exposed to the virus through a process called contact tracing.

Health services use contact tracing to find people who may have been exposed to an infectious people. There are two types of contacts, close contacts and casual contacts. The measure to be taken for those two types of contacts are different.

Contact tracing and listing should be done by rapid response team (RRT). Once the contacts of suspected or confirmed cases are identified and listed, they will be linked to follow up team and monitored for 14 days from the last date of contact by active or passive monitoring depending on the type of contact.

Objective

To enable early detection of cases through active monitoring of peoples exposed to possible risks and rapidly contains the outbreak.

Contact tracing approach

Contacts of suspected and confirmed cases will be searched through the following mechanisms;

- Identifying contacts from health facility i.e. health care workers, patients in the same room or in contact with the case, laboratory expert handling the sample, supportive staffs in the facility etc.
- Looking for social ceremonies the case attended starting from the date of onset of the symptom and identify possible contacts
- Exhaustively search the house hold level contacts and visitors starting from the onset of symptoms
- Searching for contacts from work places

Contact identification and definition

A. Close Contact

Any individual who has one of the following is considered as a close contact;

- Any individual who has had greater than 15 minutes face-to-face (<2 meters distance) contact with a suspected, confirmed case, in any setting.
- Household contacts defined as living or sleeping in the same home, individuals in shared accommodation sharing kitchen or bathroom facilities and sexual partners.
- Healthcare workers, including laboratory workers, who have not worn appropriate PPE or had a breach in PPE during the following exposures to the case:
    - Direct contact with the case (as defined above), their body fluids or their laboratory specimen
    - Present in the same room when an aerosol generating procedure is undertaken on the case.
- Passengers on an aircraft sitting within two seats (in any direction) of the COVID-19 case, travel companions or persons providing care, and crew members serving in the section of the aircraft where the case was seated.
- For those contacts who have shared a closed space with a confirmed case for longer than two hours, a risk assessment should be undertaken taking into consideration the size of the room, ventilation and the distance from the case. This may include office and school settings and any sort of large conveyance.

Contact needs to have occurred during the infectious period. The infectious period is defined as from the day of symptom onset in the case until the case is classified as no longer infectious by the treating team (usually 24 hours after symptom resolution).

B. Casual Contact

Any individual who has one of the following is considered as a causal contact;

- Healthcare workers, not including laboratory workers, who have taken recommended infection control precautions, including the use of appropriate PPE, during the following exposures to the case:

    - Direct contact with the case (as defined above) or their body fluids
    - Present in the same room when an aerosol generating procedure is undertaken on the case.
- Any individual who has shared a closed space with a case for less than two hours.
- Passengers on an aircraft sitting beyond two seats (in any direction) of a confirmed case.
- Any individual who has shared a closed space with a confirmed case for longer than two hours, but following risk assessment, does not meet the definition of a close contact.

Contact assessment

Contact tracing should be initiated immediately after a confirmed case of COVID-19 or a suspected case is identified.

All persons identified as having had contact with a confirmed case or a suspected case should be assessed to see if they should be classified as a close or casual contact. A contact tracing form should be completed for each contact to collect all relevant information.

Contact management of a confirmed case

For close contacts of a confirmed case;

- Close contacts of a confirmed case should undergo active follow-up for 14 days after the last possible exposure to a confirmed COVID-19 case
- They should be advised about their risk and the symptoms of COVID-19 and provided with a PPE, including face masks as appropriate.
- They should be reminded about adhering to adequate respiratory precautions and hand hygiene practice throughout the period of active monitoring
- Contact should be made with them on a daily basis to ask about relevant symptoms for 14 days after the last possible exposure to a confirmed COVID-19 case
- Close contacts of a confirmed case should be asked to limit their movements and interactions with others, as far as is practical.
- In particular, they should be advised to avoid contact with immune compromised, elderly, pregnant or other vulnerable individuals. They should not attend work or school.

- They should also be advised to avoid attendance at any social gatherings, crowded closed settings, healthcare, childcare or school settings during the period of active monitoring

For causal contacts of a confirmed case;

- Casual contacts should undergo passive follow-up for 14 days after the last possible exposure to a confirmed COVID-19 case.
- They should be advised about their risk and the symptoms of COVID-19 and provided all necessary information.
- They should be advised to self-isolate if they develop any relevant symptoms and call their local health institution/EPHI (8335).
- No isolation and restriction of movement is requiring unless they develop symptoms

Contact management of a suspected case

If once the case fulfills the case definition COVID-19 and isolated, tracing of contacts should not wait for laboratory result.

If the suspected case is tested negative by RT-PCR, release the contacts of the suspect and rather enroll the negative suspect in to follow up and monitor for 14 days starting from the last date of exposure (in any) or the date of onset of the first symptom (if exposure is unknown or no exposure).

SECTION IV: PROTOCOL FOR INFECTION PREVENTION AND CONTROL DURING HEALTHCARE WHEN SARS COV-2 INFECTION IS SUSPECTED

This protocols will be used by health care providers, professionals working in isolation unit and treatment center, rumor verification and investigating professionals, laboratory professionals, supportive staff (ambulance drivers, cleaners and laundry personnel) and the public in general and will help in preventing the transmission of infection with in isolation units, treatment centers and the general public.

This IPC protocols are based on WHO infection prevention and control during health care SARS CoV-2 infection interim guidance, Ethiopian National Infection Prevention and Control Guideline, WHO guideline on hand hygiene in health care and WHO putting on and taking off PPE.

For Rumor Verification and Rapid Response Team (RRT) do the following:

- Before departure ensure that all the necessary IPC Supplies are available within the Vehicle.
- Each team member should be proficient on Rational, correct, and consistent use of available PPE and appropriate hand hygiene.
- During investigation wear appropriate Personal Protective Equipment based on the risk assessment.
- Ensure proper IPC protocols are followed during sample collection and transport.
- Ensure proper disinfection and cleaning for all contaminated environmental surfaces.
- After investigation ensure disinfection of temperature monitoring devices, any reusable Personal Protective Equipment and any other non-critical equipment using 70% Alcohol based Swabs using new gloves.
- Ensure that all wastes are secured and sealed in a leak proof biohazard bag for appropriate disposal.

Early Recognition and Source Control

- Ensure establishment of sustainable IPC infrastructures and activities.
- Ensure HCWs training, patients' care givers education.
- Ensure prompt reporting for laboratory testing for identification of the etiologic agent.
- Ensure that professional working in clinical triage team have adequate training on SARS-CoV-2 to ensure high level of clinical suspicion.
- Ensure that Posters are posted in public areas reminding symptomatic patients to alert HCWs that includes case definitions of suspected, probable and conformed cases for SARS-CoV-2.
- Health Education programs should emphasize on respiratory hygiene as an important preventative measure that take account of covering mouth during coughing and sneezing with tissue or flexed elbow.
- Ensure appropriate waste management protocol.
- Ensure provision of dedicated waiting areas for symptomatic patients and appropriate placement of hospitalized patients promoting an adequate patient-to-staff ratio.
- Suspected SARS-CoV-2 patients should be placed in an area separate from other patients, and additional IPC (droplet and contact) precautions promptly implemented.

For Isolation Unit / Treatment Unit

- In addition to Standard Precautions, all individuals, including family members, visitors and HCWs should apply Contact and Droplet precautions.
- Ensure patients are placed in adequately ventilated single rooms at least 12 air exchange rate per hour (ACH).
- If and only if single rooms are not available, cohort patients suspected of SARS-CoV-2 infection together but never place suspected cases with confirmed patients and ensure 1 m distance between cases.
- Ensure placement of policies on prevention of overcrowding especially in the Emergency department and isolation/ treatment units.
- Each healthcare worker working in SARS-CoV-2 infected or suspected cases should be proficient on rational, correct, and consistent use of available PPE and appropriate hand hygiene.

- During care health care workers should wear appropriate Personal Protective Equipment based on the risk assessment.
- Use N95 respirators; eye/facial protection (i.e. goggles or a face shield); clean, non-sterile, long-sleeved fluid resistant gown; gloves.
- If equipment (example: BP apparatus, thermometer, etc) needs to be shared among patients, clean and disinfect between each patient use (e.g. ethyl alcohol 70%).
- Refrain from touching eyes, nose or mouth with potentially contaminated hands.
- Ensure strict hand Hygiene practice, if hands are visibly soiled, wash hands with soap and water, if visible clean use Alcohol Based Hand Rub.
- Ensure proper IPC protocols are followed during sample collection and transport.
- Avoid the movement and transport of patients out of the room or area unless medically necessary. Use designated portable X-ray equipment and/or other important diagnostic equipment.
- If transport is required, use pre-determined transport routes to minimize exposures to staff, other patients and visitors and apply medical mask to patient.
- Ensure that health care workers who are transporting patients wear appropriate PPE as described in this section and perform hand hygiene.
- Notify the receiving area of necessary precautions as soon as possible before the patient's arrival.
- Ensure routine environmental cleaning and patient-contact surfaces using 0.5% chlorine Solution and disinfect non critical equipment using 70% Alcohol.
- Limit the number of HCWs, family members and visitors in contact with a patient with suspected SARS-CoV-2 infection.
- Ensure proper waste management protocols.
- Maintain a record of all persons entering the patient's room including all staff and visitors.

General Precautions

This part of the protocol will be applicable if and only if the infection is confirmed in country. Once the outbreak is declared:

- Cough hygiene should be implemented by the general public including covering mouth during coughing and sneezing with tissue or flexed elbow.
- All personnel should wear surgical masks.
- Do not shake hands, and if you do Apply ABHR or wash hands thoroughly with soap and water
- Avoid contact with a patient who is suspected or conformed for nCoV
- Limit movement to essential purpose only
- Ensure adequate ventilation at homes
- Avoid thirst of throat, maintain rehydration

List of IPC Materials Required

- N95 mask
- Long sleeved disposable gown
- Disposable glove
- Temperature monitoring device
- Alcohol Based Hand Rub (ABHR)/ Sanitizer
- 70% Alcohol
- Leak prof biohazard bag
- 0.5% Chlorine Solution

Hand Hygiene Procedures

- All team members should perform consistent and appropriate hand hygiene procedures:
    - Hand hygiene is the process of removing soil, debris, and microbes by cleansing hands using soap and water, ABHR, antiseptic agents, or antimicrobial soap.
    - Hand washing is the process of mechanically removing soil, debris, and transient flora from hands using soap and clean water.

- Alcohol-Based Hand Rub (ABHR)is a fast-acting, antiseptic hand rub that does not require water to reduce resident flora, kills transient flora on the hands, and has the potential to protect the skin (depending on the ingredients).

Figure 3: Hand Washing Procedure

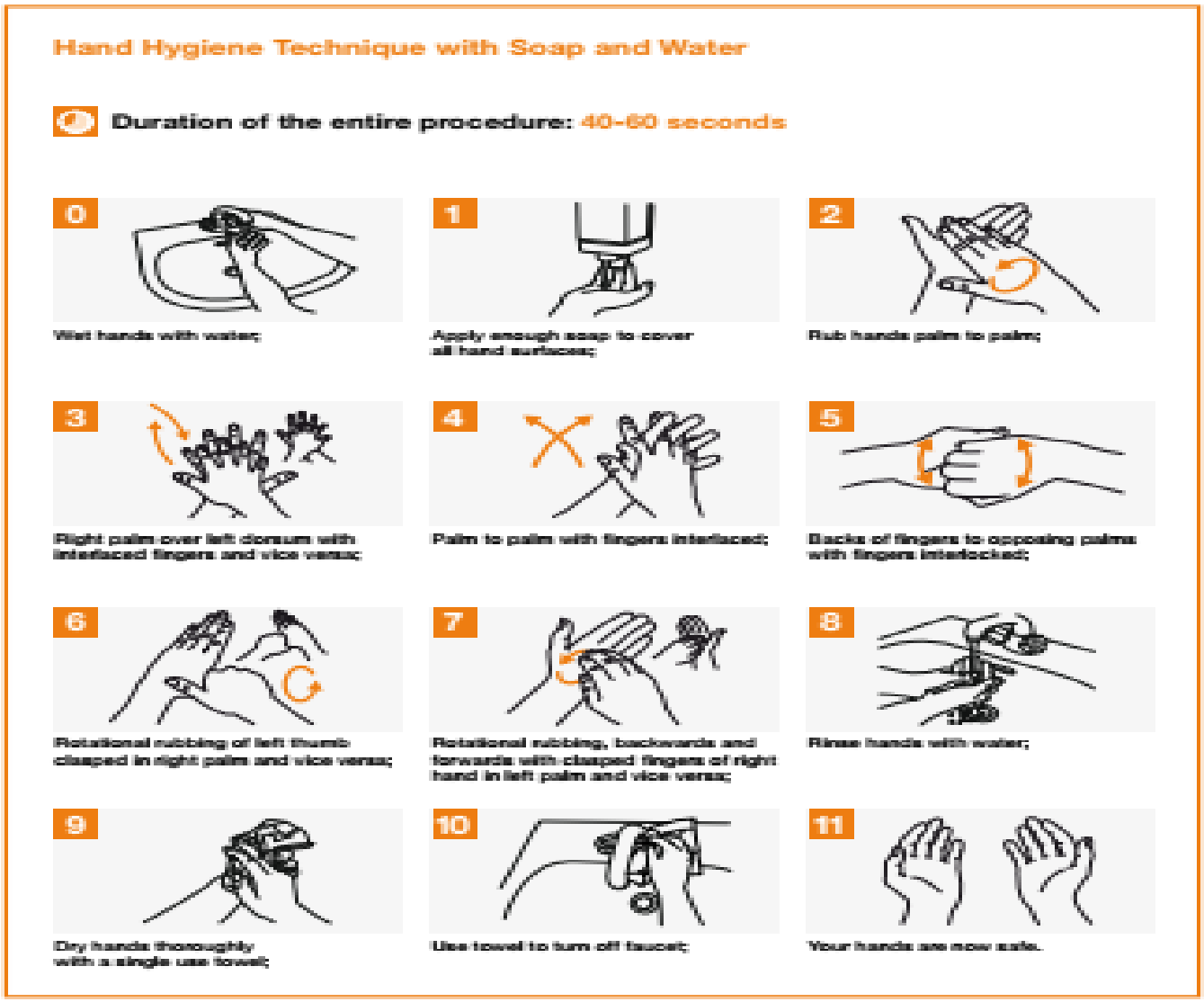


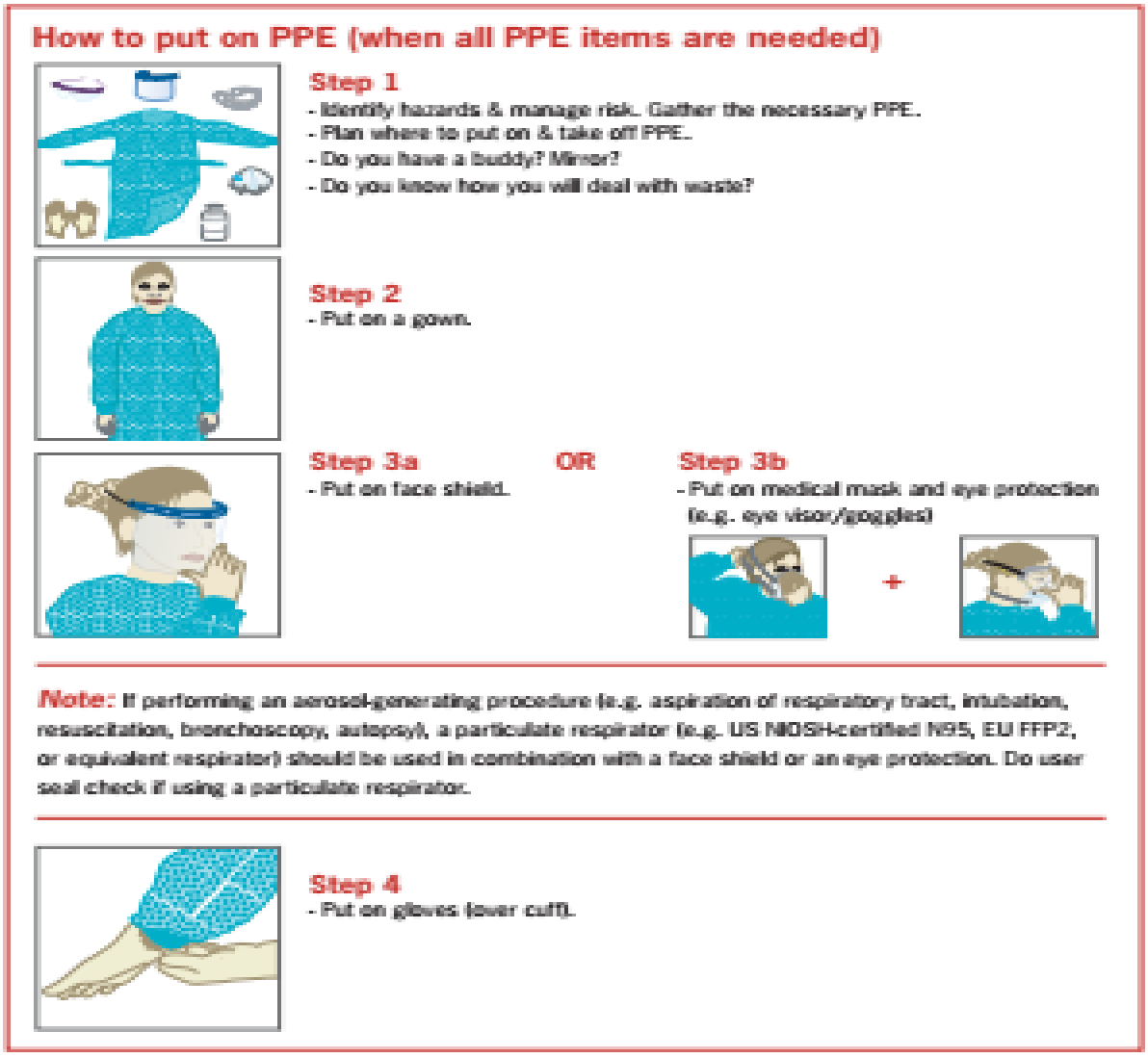
Figure 4: Alcohol Based Hand Rub Procedure

Putting on and taking off Personal Protective Equipment (PPE). See fig 5 and 6

Proper donning sequence includes:

1. Wash your hands if visibly soiled, if visibly clean use ABHR
2. Wear single use disposable gowns
3. Wear N95masks (Check for fitness)
4. Wear Google
5. Wear gloves
6. Refrain from touching other surfaces with contaminated gloves

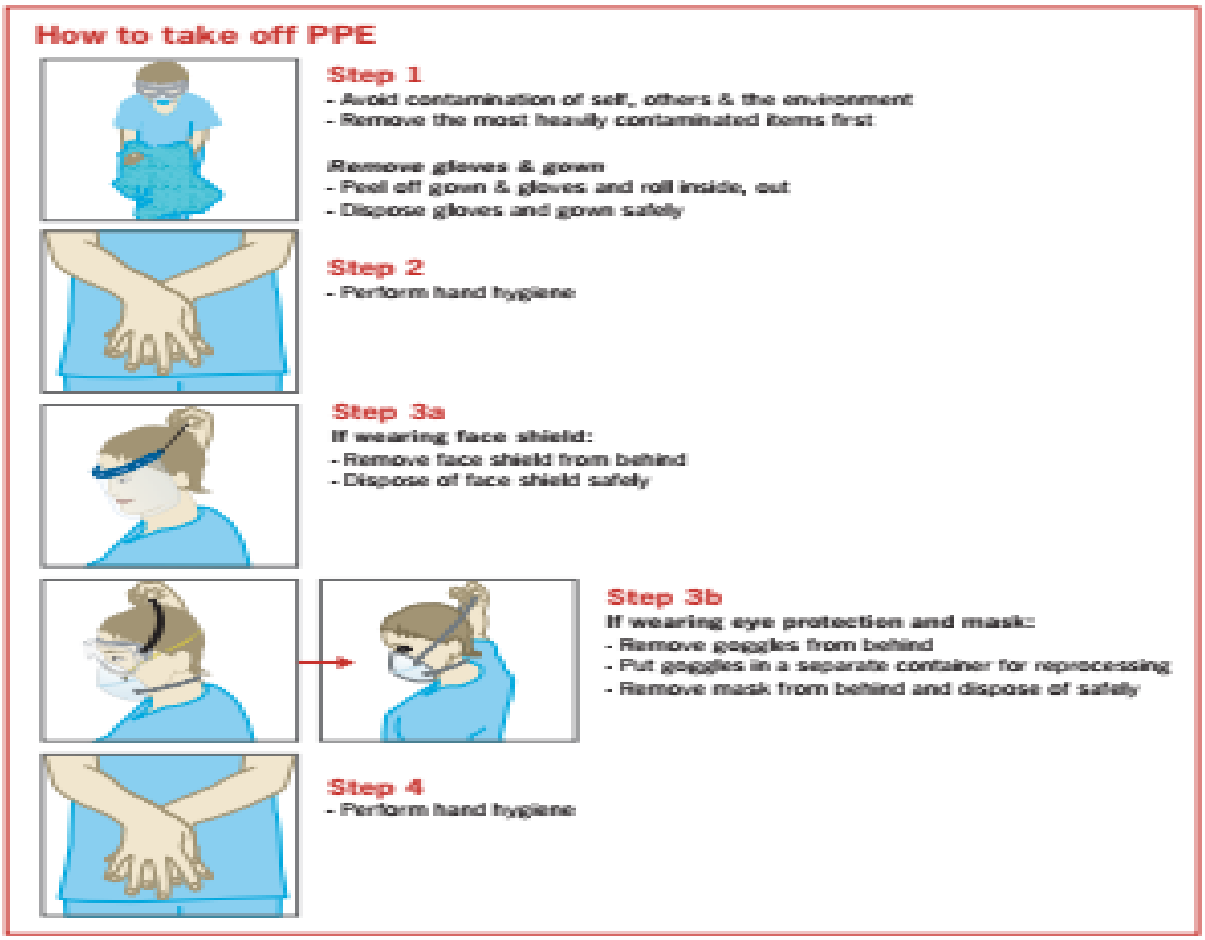
Figure 5: How to put on personal Protective Equipment



Proper donning sequence includes

1. Remove you single use disposable gown with your gloves and put in a biohazard bag
2. Wash hands with running water and soap or use ABHR if visibly clean
3. Remove goggles
4. Remove masks
5. Wash hands with running water and soap or use ABHR if visibly clean

Figure 6: How to take off Personal Protective Equipment



Sample Transportation

- Ensure that personnel who transport specimens are trained in safe handling practices and decontamination procedures
- Follow the requirements in the national or international regulations for the transport of dangerous goods (infectious substances) as applicable
- Deliver all specimens by hand whenever possible. Do not use pneumatic-tube systems to transport specimens
- Notify the receiving laboratory as soon as possible that the specimen is being transported.
- Packaging and transportation of specimens within national borders should comply with applicable national regulations and international standards.
- International Transport Regulations: SARS-CoV-2 specimens should follow the UN Model Regulations for international transportations

Environmental Cleaning

- All contaminated surfaces should be cleaned with 0.5% chlorine solution, prior to cleaning with water and detergent
- Or correctly follow the usual procedures to clean the facility environment
- Clean all linens or the similar supplies using existing laundry or forms of cleaning in Precautionary manner
- Do not share items among patients before cleaning them properly
- All disposable wastes should be managed as if they are infectious
- Clean ambulance and stretchers, wheel chairs with 0.5% chlorine after infected patient transported

Waste Management

- All medical and non-medical wastes should be collected, sealed and secured in leak proof biohazard bag and be transported in a manner that poses minimum risk to heath care provider, patients and community
- All leftover foods/items from patients should be managed as other medical wastes
- Wastes should be disposed in an incinerator designed for medical waste disposal

SECTION V: PROTOCOL ON FUMIGATION AND APPROPRIATE CHEMICALS

World Health Organization (WHO) works with agencies across the world to develop specific medicines, treatments and vaccines, a key focus of efforts has been to try and prevent the spread of the virus through travel and good hygiene practices.

Reasons to Fumigate:

1. A Psychological good feel factor that something is being done
2. Even though it has only been used on other strains of COVID-19 successfully, it has a good chance of working
3. This will reduce the cumulative effect of other diseases
4. It is another form of effective sanitation

The viral load of coronaviruses on inanimate objects during an outbreak is unknown, but it's plausible that disinfection methods should help, especially when applied to frequently touched surfaces where you might expect the viral load to be most potent.

The World Health Organization, which advises "that environmental cleaning and disinfection procedures are followed consistently and correctly. Thoroughly cleaning environmental surfaces with water and detergent and applying commonly used hospital-level disinfectants (such as sodium hypochlorite) are effective and sufficient procedures.

The most widely used are chlorine (as in hypochlorite solutions or "bleach") and formaldehyde, with some use being made of hydrogen peroxide and other oxidizing agents, or glutaraldehyde. At the concentrations necessary to be effective, these are potentially hazardous to human health if handled incorrectly.

"Ethanol at concentrations between 62 percent and 71 percent reduced coronavirus infectivity within 1 min exposure time

"Concentrations of 0.1- 0.5 percent sodium hypochlorite and 2 percent glutardialdehyde were also quite effective

“A higher temperature such as 30°C or 40°C reduced the duration of persistence of highly pathogenic

Using products effectively:

- To kill the virus, the surface must stay wet for the entire time on the label. Look for "contact time" or "dwell time".
- Surface wipes can dry out during use. They must remain wet to be effective.
- Each product has only been shown to work where the label says it can be used. Look for "use sites" on the label.
- Disinfectants may not work on all surfaces. Follow the label carefully. Examples of surface types are listed in Table 1 below.
- "Cleaning" wipes do not kill viruses.
- Precautions, therefore, should be taken not to get these on skin or into the eyes or, especially with the aldehydes, not to inhale them. In the case of fumigation, the work should only be carried out by trained professionals with appropriate protective clothing and breathing apparatus.
- Attention is drawn to the importance of handling the concentrated liquid disinfectants referred to with caution, using gloves and aprons or overalls and goggles or eye shields to prevent contact with skin or eyes
- Clean water should be at hand for immediate washing or showering in the event of an accident while handling concentrated disinfectants.
- All containers of disinfectants should be properly and accurately labeled as to their contents.
- Peroxides may be explosive under certain circumstances.
- Appropriate (chemical) respirators should be worn by personnel disinfecting or fumigating closed spaces (rooms, stables, etc.) and when opening up such places to ventilate them at the end of the disinfection or fumigation procedure.
- Respirators should be fitted and tested by qualified personnel, and users of respirators should be trained in their correct use by qualified personnel.

- Irradiation by gamma ray or particle bombardment should only be done by properly trained persons in properly monitored facilities. In the case of UV irradiation, care should be taken to protect the eyes and not to expose eyes or skin to direct UV light sources.

Choice of disinfectants, fumigants or procedures:

- If heat treatment or incineration of the contaminated material is possible, this should be done in preference to chemical decontamination and disinfection. For certain materials or animal by-products, irradiation with gamma rays or particle bombardment may be appropriate.
- Irradiation should not be relied on alone for decontamination, but should be used in conjunction with wiping down items to be decontaminated with hypochlorite or possibly formalin.

A. Disinfectants

The principal disinfecting agents for destruction formaldehyde, glutaraldehyde (at pH 8.0–8.5), hydrogen peroxide and peracetic acid. Chlorine dioxide was the alternative chosen decontamination of rooms.

- Hypochlorites are rapidly neutralized by organic matter and, therefore, while good for items like laboratory surfaces (not wooden ones) or glassware, or for water treatment, are unsuitable for disinfecting most environmental sites or materials.
- Hydrogen peroxide and peracetic acid are *not* appropriate if blood is present.

B. Fumigants

The theoretical options for fumigants are formaldehyde, ethylene oxide, methyl bromide, and hydrogen peroxide vapor and chlorine dioxide. Hydrogen peroxide, while being the most acceptable in environmental terms requires elaborate apparatus and procedures and has other hazard factors, especially danger of explosion, that need to be borne in mind.

Fumigation of rooms

- Formaldehyde is a gas which is soluble in water. The solution of formaldehyde in water is named “formalin”. Fully saturated (100%) formalin has a concentration of approximately 37% formaldehyde. For simplicity, concentrations of formalin are used

where possible below. So, for example, 10% formalin would be a 3.7% formaldehyde solution.

- Rooms where surfaces cannot be cleared before decontamination and disinfection, such as laboratories, can be fumigated by boiling off (for rooms up to 25–30 m^3) 4 liters of 10% formalin in an electric kettle (fitted with a timing or other device to cut off the electricity when the fluid level has reached the element) and leaving overnight (or no less than 4 hours from the point in time when the boiling process has been completed) before venting.
- Alternatively, paraformaldehyde can be vaporized in a pan on an electric element on the basis of 12 g per m^3 with simultaneous evaporation of 4 liters of water to supply the necessary humidity. For formaldehyde fumigation, room temperature should be > 15 °C.
    - (*Caution: vaporization of formalin or paraformaldehyde should not be done with gas or other naked flame heaters; formaldehyde is flammable. Avoid skin contact with formaldehyde solution or inhalation of formaldehyde vapors.*)
- Neutralization of formaldehyde can be used with electric fan which will assist in circulating the ammonia, but it may still be 24–48 hours before the room can be entered without a respirator.
- The presence of absorbent material in the room (paper, cardboard, fabric, etc.) reduces the rate of clearance and, indeed, can reduce the effectiveness of the fumigation process.
- Where there is extensive absorbent material present, the exposure time and possibly the starting concentration of the formalin or paraformaldehyde should be raised to compensate.
- Before fumigation commences, all windows, doors and other vents to the outside should be sealed with heavy adhesive tape.
- Hazard warning notices should be posted on the door(s) and, if appropriate, windows. To ensure complete access of the fumigant, items of equipment should be held above bench or floor surfaces by racks or by tilting to allow the fumigant to penetrate underneath.
- A fan, or fans, assists the extraction. Doors into the room should be kept closed and other personnel prevented from passing near or through them until venting is complete.
- If a formaldehyde meter is available, venting should not be considered complete until levels of less than 2 ppm have been reached. In the absence of a meter, the odor of

formaldehyde should have become almost undetectable before entry into the room without a respirator is allowed.

- Vaporized hydrogen peroxide would be appropriate for attempts at room fumigation. It is by far the most ecologically acceptable, with the degradation products being oxygen and water. The process again requires the appropriate generating and personal protective equipment and should only be carried out by professionally qualified personnel.

Disinfection in rooms, animal houses, vehicles, etc

Where fumigation is not an option or following fumigation of a facility, disinfection should be carried out in a three-step process aimed at (i) preliminary disinfection, (ii) cleaning, and (iii) final disinfection.

Stage 1: Preliminary disinfection

- One of the following disinfectants may be used in amounts of 1–1.5 liters per square meter for an exposure time of 2 hours:
- hypochlorite solution containing 10 000 ppm active chlorine (note: chlorine is rapidly neutralized by organic matter; if this is present, it should be washed down first with water and collected into suitable containers for autoclaving or aldehyde disinfection);
- 10% formalin (temperature should be ≥ 15 °C);
- 3% hydrogen peroxide solution.

Stage 2: Cleaning

- Where practical, cleaning of all surfaces should be done by straightforward washing and scrubbing using ample hot water or mild hypochlorite solution (5000 ppm active chlorine).

Stage 3: Final disinfection

- For final disinfection, one of the following disinfectants should be applied at a rate of 0.4 liters per square meter for an exposure time of at least 2 hours:
- Hypochlorite solution (10 000 ppm available chlorine)
- 10% formalin (temperature should be ≥ 15 °C)

- 3% hydrogen peroxide solution.
- After the final disinfection, closed spaces such as rooms or animal houses should be well ventilated before re-commissioning.
- Other oxidizing agent fumigants – hydrogen peroxide, ethylene oxide, chlorine dioxide, methyl bromide, etc. – are also effective.

Chemical decontamination of materials contaminated

Chlorine solutions

Commercially-prepared hypochlorite as supplied to laboratories, hospitals, etc. frequently takes the form of stock solutions having approximately 10% available chlorine (100 000 ppm). Thus, what is familiarly referred to in laboratories as "10% hypochlorite solutions" is a 1:10 dilution of the stock solution containing 10,000 ppm available chlorine. (Note: "bleach" as sold in stores and supermarkets is frequently less concentrated, usually with 3%–5% available chlorine. This needs to be taken into account when making up daily working solutions.) If a solid precursor of hypochlorous acid is available, stock solutions containing 100,000 ppm available chlorine should be prepared and the required dilutions made from this.

Rapid turnover items

Pipettes, disposable loops, microscope slides, sampling spoons, etc. may be immersed overnight in hypochlorite solutions with 10,000 ppm available chlorine. Small plastic items (loops, spoons, etc.) should then be transferred to an autoclave bin or bag for autoclaving, or to a bag for incineration. Glass items should be transferred to a sharps container for autoclaving and/or incineration. It is recommended that long plastic pipettes (1, 5, 10, 25 ml, etc.) are also discarded into sharps containers since they readily perforate autoclave bags.

Benches

Benches should be wiped down after use with hypochlorite solutions containing 10,000 ppm available chlorine. Because of their neutralizing effect on chlorine, wooden benches should be replaced by more suitable materials or covered with plastic or laminated sheeting, or with a proprietary covering designed for the purpose.

Spills and splashes on surfaces

- Some thought should be given to the nature of the material spilled.
- The toweling should be left in place for at least 30 min before being transferred to an autoclave bin or bag and autoclaved, or to a bag for incineration.
- Vertical surfaces should be washed or wiped down thoroughly with cloths soaked in this solution. (*Caution: the operator should wear gloves and safety spectacles or goggles while doing this*.)
- In the event of substantial spills or splashes, fumigation would be advisable after the initial hypochlorite decontamination.
- This would apply to the safety cabinet if the accident occurred within the cabinet or the room if the accident occurred outside the cabinet.
- Solutions of 10% formalin, 4% glutaraldehyde, 3% hydrogen peroxide or 1% peracetic acid are possible alternatives to hypochlorite, but the choice must be weighed against the greater personal protection needed when using these.

Personal exposure

Spills and splashes on clothing

Contaminated gowns/aprons/coats should be removed immediately and placed in autoclave bins or bags and autoclaved. Personal clothing that may still be contaminated – shoes, socks/stockings/upper garments if sleeves or collars are contaminated – should be removed as soon as possible and, if possible, autoclaved.

Types of incineration

In-place incineration

Pit method

For a large things a pit about 0.5 m deep and exceeding the length and breadth of the carcass by about 0.25 m on each side should be dug. A trench approximately 0.25 m wide by 0.25 m deep should be dug along the length of the center of the pit extending beyond the ends by about 0.75 m; this serves the purpose of allowing air for the fire under the carcass. The bottom of the pit and the trench should be covered with straw which is then soaked in kerosene.

Other type of incinerators which can be used

- Commercial incinerators
- Down-directed blow torches
- Portable incinerator
- Centralized incinerators

Autoclave function

Frequent reference is made in this publication to sterilization by autoclaving. Autoclave function should be confirmed by inclusion of a spore strip, especially for “destruction runs” (i.e. where items are being sterilized prior to be disposed of), and even more particularly if the autoclaved items are not going to be incinerated.

Consider these steps to reduce your risk when using disinfectants:

- To avoid chemical exposure when using disinfectants, follow the label's "precautionary statements". If no label guidance is provided, consider wearing gloves, eye protection, shoes with socks, and long sleeves/pants.
- Keep children, pets, and other people away during the application until the product is dry and there is no odor.
- Open windows and use fans to ventilate. Step away from odors if they become too strong.
- Wash your hands after using any disinfectant, including surface wipes.
- Keep lids tightly closed when not in use. Spills and accidents are more likely to happen when containers are open.
- Do not allow children to use disinfectant wipes. Keep cleaners and disinfectants out of reach from children and pets.
- Throw away disposable items like gloves and masks after use. They cannot be cleaned.
- Do not use disinfectants wipes to clean hands or as baby wipes.

SECTION VI: LABORATORY TESTING FOR COVID-19

Background

- This document provides guidance to laboratories and stakeholders involved in COVID-19 virus laboratory testing of patients as well as radiologic imaging.
- Currently the approved and available testing method is RT-PCR.
- Antibody tests are being introduced for surveillance purpose for community level circulation of the virus.

Laboratory testing for coronavirus disease (COVID-19) in suspected human cases

- The decision to test should be based on clinical and epidemiological factors and linked to an assessment of the likelihood of infection.
- PCR testing should have to be done for all suspect cases.
- Rapid collection and testing of appropriate specimens from patients meeting the suspected case definition for COVID-19 is a priority for clinical management and outbreak control
- Safety procedures during specimen collection:
  Ensure that adequate standard operating procedures (SOPs) are in use and that staff are trained for appropriate specimen collection, storage, packaging, and transport under appropriate IPC caution.
- Specimens that can be delivered promptly to the laboratory can be stored and transported at 2-8°C.
- All specimens collected for laboratory investigations should be regarded as potentially infectious.

Collection Instructions Respiratory Specimens

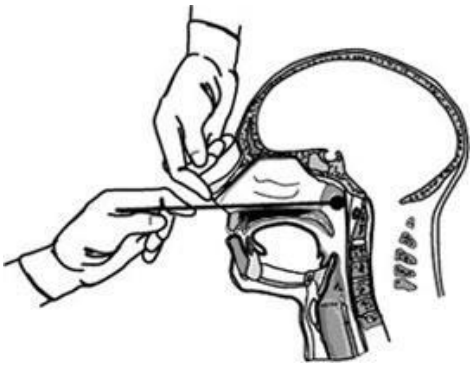
- Sample can be collected by trained health professional working at the facility level

A. Upper respiratory tract:

- **Use the flexible shaft Nasopharyngeal swab:** Tilt the patient's head back 70 degrees & insert the swab into nostril parallel to the palate until resistance is encountered or the distance is equivalent to that from nostrils to outer opening of patient's ear indicating contact with nasopharyngeal.

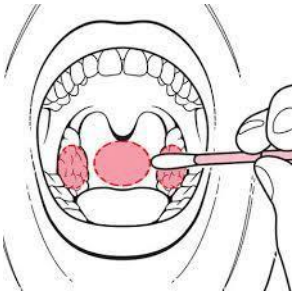
- Leave swab in place for several seconds to absorb secretions, slowly remove the swab while rotating it then insert the swab into the tube and tip is covered by the liquid in the tube.

Figure 6: Nasopharyngeal swab



- **Use a throat swab:** To collect specimen by swabbing the patient's posterior pharynx and tonsillar area (avoid the tongue).

Figure 7: Nasopharyngeal swab



B. Lower respiratory tract:

- Broncho alveolar lavage, tracheal aspirate. Collect 2-3 mL into a sterile, leak-proof, screw-cap sputum collection cup or sterile dry container.
- Sputum specimens should be correctly labeled and accompanied by a diagnostic request form

Laboratory testing for COVID-19 virus

- Laboratories undertaking testing for COVID-19 virus should adhere strictly to appropriate bio-safety practices.
- Routine confirmation of cases of COVID-19 is based on detection of the virus RNA by real-time reverse-transcription polymerase chain reaction (RRT-PCR)
- A number of factors could lead to a negative result in an infected individual, including:
  - Poor quality of the specimen, containing little patient material
  - The specimen was collected late or very early in the infection.
  - The specimen was not handled and transported appropriately
  - Technical reasons inherent in the test, e.g. virus mutation or PCR inhibition.
  - If a negative result is obtained from a patient with a high index of suspicion for COVID-19 virus infection, the lower respiratory tract if possible, should be collected and tested.

Reporting of cases and test results:

- Laboratories should follow national reporting requirements.
- In general, all test results, positive or negative, should be immediately reported to national authorities

Guideline for use of imaging services during COVID-19 pandemic

The purpose of this guideline is to provide guidance and information regarding the safe conduct of imaging and image-guided intervention with particular emphasis on

- When and for what clinical scenarios is imaging services is recommended for suspected/probable/confirmed COVID 19 patients
- Protection of the staffs at the imaging department
- Prevention of the spread of the virus in the imaging facility

I - General imaging services

The strategy is to minimize any possibility of in-hospital transmission and to achieve zero health care worker transmission to ensure a safe environment for both patients and staff.

Recommendations:

- All referring physicians should use the national or WHO surveillance criteria to screen patients before they send patients to the imaging department.
- Imaging facilities recommended to have enough screening space and waiting area which adequate to maintain the recommended social distance from patients
- Personal protective devices for the screening staff like surgical masks and gloves should be provided.
- It is highly recommended to implement capabilities for remote interpretation diagnostic imaging and working from home;
- It is also recommended to decrease the patient load of the department by prioritizing urgent cases and subsequent cancelling non emergent examination.
- Imaging facilities should prepare a checklist for screening of all patients coming to the department for any symptoms/ signs suggestive of COVID19 infection (as per the national guideline, see the checklist below).
- All chest CT examinations should be communicated to the reporting radiologist as soon as possible

- Imaging services specific to probable/suspected/confirmed COVID-19 patients

Recommendations:

- CT is not, currently, recommended for initial diagnosis of COVID-19. Viral testing remains the only specific method of diagnosis even if radiologic findings on CXR or CT are suggestive of COVID-19.
- Those patients who are suspected based on WHO surveillance criteria or confirmed cases and have mild disease are not recommended to have chest CT for patient safety and logistic reasons.
- For those patients with confirmed COVID-19 using RT-PCR, evaluation with chest CT does not affect the management of the patient hence it is not generally recommended.
- If there is suspicion of additional or alternative diagnosis by the treating physician and believed that imaging changes the patient's management, imaging and intervention can be performed.

- Chest CT may be required to rule out alternative emergency diagnosis and can be done for
- COVID-19 probable or suspected patients with moderate and severe acute respiratory illness requiring inpatient treatment and whose test status is not known, cannot be done, inconclusive or negative.
- Imaging is performed in the imaging unit nearest to the patient and, if possible, portable imaging is performed (portable radiography and ultrasound).
- And in case of CT imaging, the dedicated CT scanner should be located in the COVID19 treatment/isolation center.
- And it's not recommended to transfer COVID 19 suspected or confirmed cases from Institution to institution for imaging.
- This approach limits the transit of contagious patients, potential exposure of others and to limit equipment, room, and hallway decontamination requirements.
- After imaging of each COVID19 probable, suspected or confirmed patient, the imaging equipment should get deep disinfection;
- Standard hospital or national protocols for decontaminating equipment and rooms should be followed.
- It's recommended that Patients are masked during imaging and procedures. Air exchange processes are not employed due to patient masking.
- After imaging, the CT room downtime is typically between 30 minutes to 1 hour for room decontamination and passive air exchange.
- All staffs working on the dedicated imaging equipment should follow the infection prevention guideline of the staffs of the COVID19 isolation or treatment center.
- It's recommended that Radiology outposts and isolated reading rooms should be prepared in the treatment/isolation center, or in the outpatient imaging area.
- Staffs that do not need to be on-site and who can work remotely are directed to work from home. Mechanisms for remote reporting shall be availed as much as possible.

SECTION VII: COVID 19 TRIAGE PROTOCOL

Introduction:

This is a protocol to guide a triage officer working on COVID 19 designated or in isolation unit of any facility. An individual suspected to have COVID 19 in a pre-triage area will be directed to triage designated area. Human resource should comprise a minimum of three health professionals the one who triage a patient, the other who supervise the triage and IPC procedure and the third one who facilitate patient transfer as a minimum standard.

Infection prevention and control procedure at triage area should follow the standard of the national IPC protocol.

Table 1: Pre-triage format for COVID 19 infection

Name of the patient				
Date	Time	Age	Sex □ Male □ Female	
COVID 19 specific				
Does the client has COVID 19 defining illness?		Yes		No
A Fever				
B Cough				
C SOB				
Does the patient have travel history to COVID 19 affected country?		Yes		No
Close contact with a confirmed or individual with • Cough, • SOB, • Fever with in the 14 days prior to illness onset		Yes		No
Close contact with a confirmed or individual with cough, SOB, fever in the 14 days prior to illness onset		Yes		No
Worked or attended a health care facility in the 14 days prior to onset of symptoms where patients with hospital associated COVID 19 infections has been reported.		Yes		No
Pre-triage result				

An individual having with any acute respiratory illness (runny nose sore thought) AND at least one of the above (fever, cough, SOB),that individual should be consider as pre-triage COVID 19 suspect and should be direct to facility isolation area.	Suspect	Non-suspect
Suspect corona virus with any acute respiratory illness (runny nose sore thought) AND at least one of the above (fever, cough, SOB), that individual should be considered as pre-triage COVID 19 suspect and should be direct to facility isolation area.		

Conduct triage at the sick patient's first point of contact with health care system.

Prioritize and sort patients based on their severity of illness and need for immediate care.

- Use standardized triage tools to ensure reliability and valid sorting of patients
- Avoid "under-triage" and "over-triage".
- Identify high priority patients that need immediate care.

Figure 8: Patient flow

Diagram 1

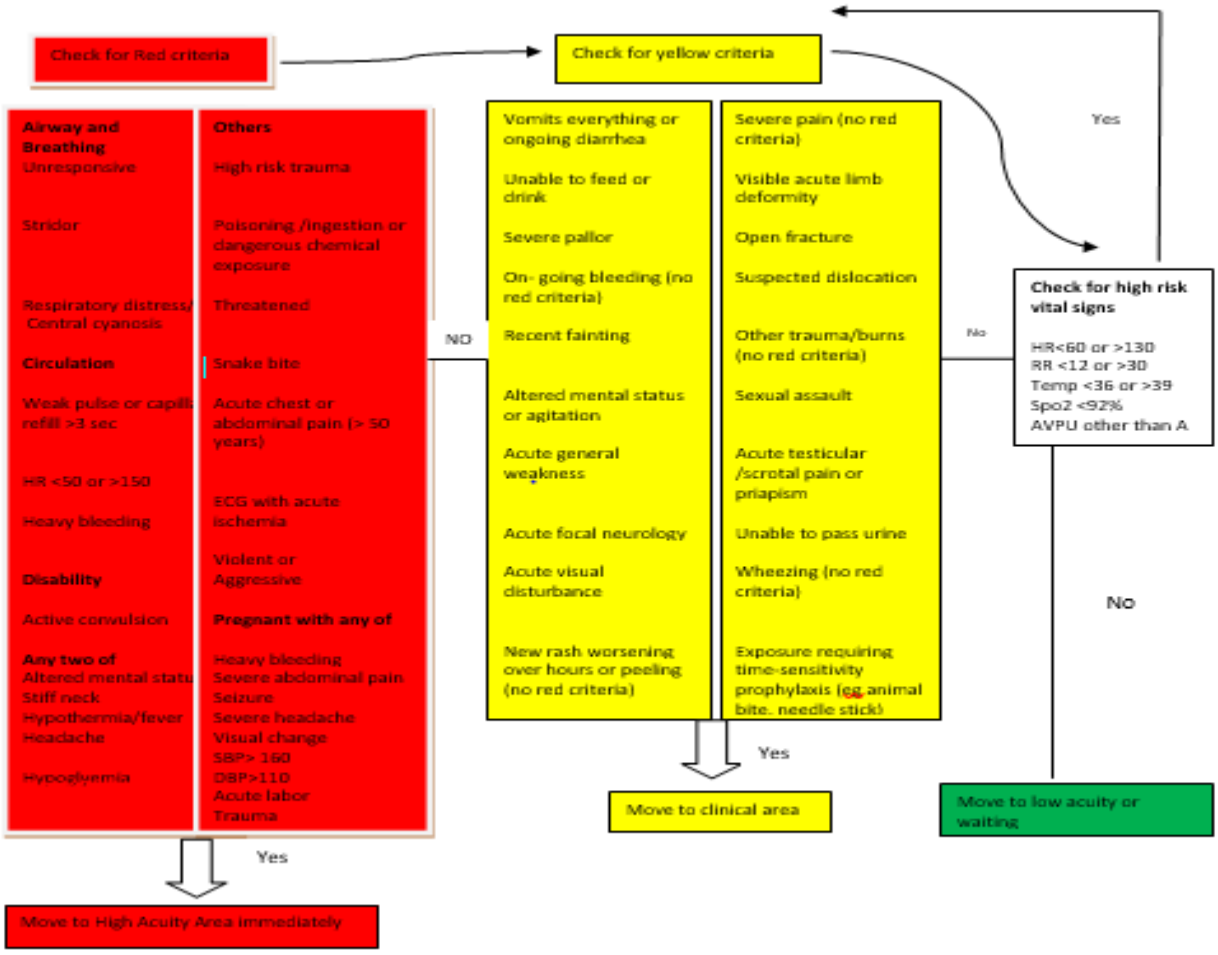
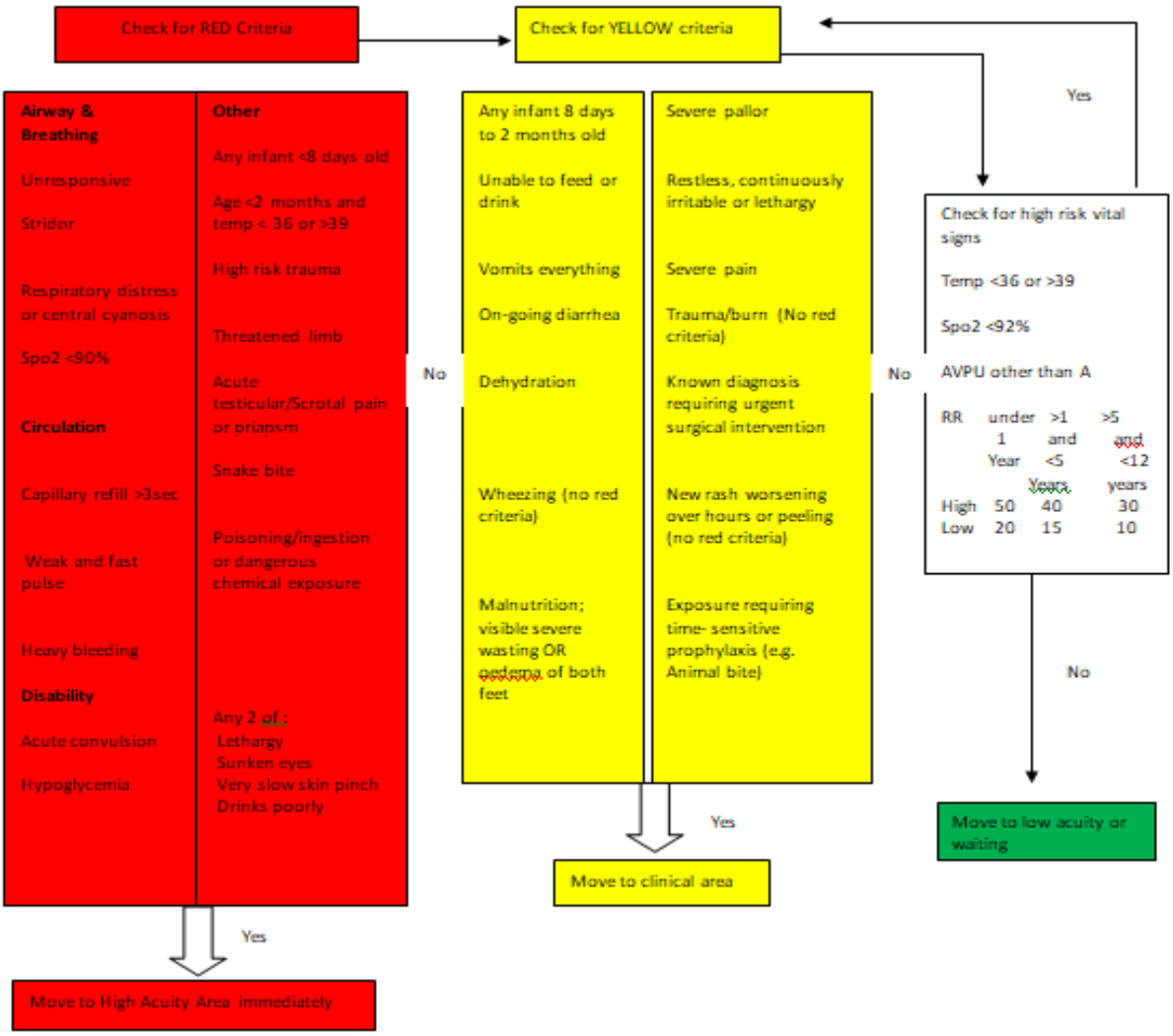


Diagram 2



COVID 19 patient flow protocol

A. For suspect or probable case

1. If suspected case fulfills WHO surveillance case definition quarantine and investigate, if the result is negative and suspected individual don't need medical care discharge to home with counseling.

   The individuals contact address should be recorded. Education materials will be provided so that the individual continues to exercise the approved preventive measures.

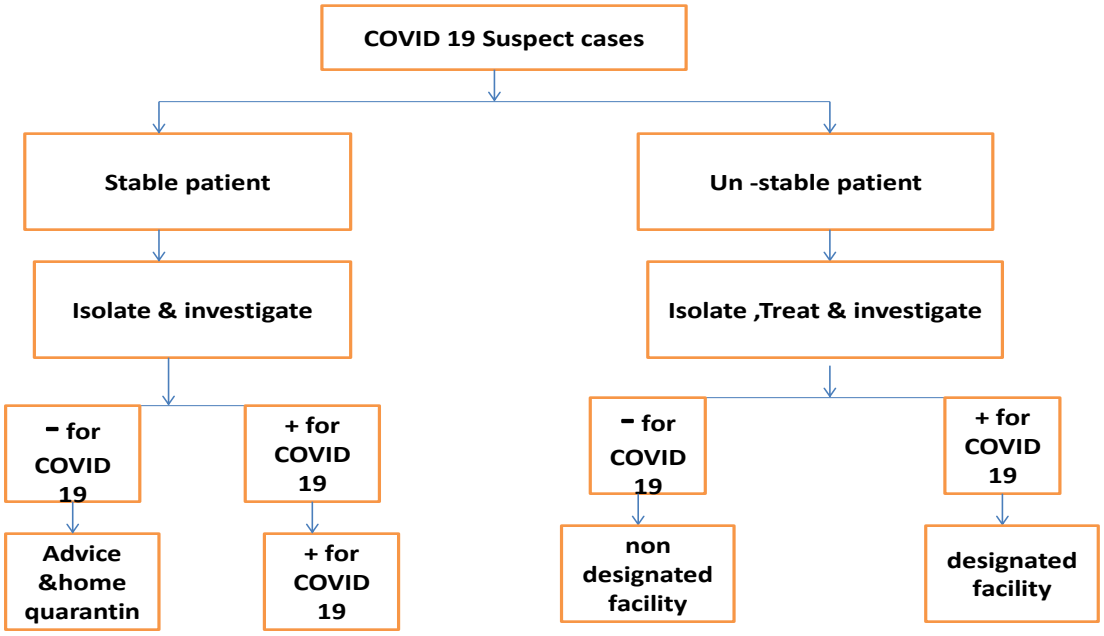
2. If suspected case results become positive admission to quarantine and treatment center regardless of severity of illness

   In a probable case with mild illness, discharge is possible provided the individual continues to self-isolate him or herself for 14 days.
3. A probable case with moderate to severe disease, discharge should be delayed. The individual should be investigated and given treatment and decision is made by the clinical experts in consultation.
4. In mildly ill patient repeated result is negative ,link to health facility
5. Suspect critically sick individual, should be treated in designated facility till the result arrives.

B. Discharge criteria for Hospitalized Confirmed case

1. A normal temperature lasting longer than three days AND
2. Resolved respiratory symptoms AND
3. Two consecutive negative PCR test result that were at least one day apart AND /OR
4. Substantially improved acute exudative lesion on chest CT,

Figure 9: COVID-19 patient flow



SECTION VIII: CASE MANAGEMENT (TRIAGE and MANAGEMENT of SUSPECT and CONFIRMED CASES)

Introduction

This protocol is mainly intended for health care workers taking care of adult and pediatric patients with COVID-19 either at health facilities with isolation centers or dedicated COVID 19 treatment centers. It is not meant to replace clinical judgment or specialist consultation but rather to strengthen clinical management of these patients and provide to up-to-date guidance.

General principle of clinical management for COVID-19

- Identify severe cases during pre-triage and triage screening and initiate supportive therapy as soon as possible.
- Apply strict IPC measures when managing patients (contact, droplet and airborne precautions should be applied).
- Specimens for detecting COVID-19 can be obtained from nasopharyngeal (NP) or oropharyngeal (OP) swabs or deep expectorated sputum (if produced) or bronchoalveolar lavage in specialized conditions.
- Underlying /chronic diseases should be identified as early as possible with detailed history from patient, close family members or friends.
- Drug interactions, adverse effects of drugs and drug allergies must be considered during managing the patient with COVID-19.
- Patient care should be with respect and dignity which include: respect/dignity, medical support, food/water, and information.
- Give supplemental oxygen therapy to patients with low oxygen saturation:
    - Oxygen therapy is effective supportive measure in COVID-19 pts and target saturation is >90% in non-pregnant adults and >92% in pregnant mothers and children. For children with emergency signs (airway obstruction, shock, severe respiratory distress, convulsion and resuscitation) it has to be >94%
    - Titrate oxygen therapy up and down to reach appropriate targets using nasal prongs or canulae (maximum flow 6L/min), a simple face mask or face mask with reservoir bag(>6L/min).

- Use conservative fluid management in patients with COVID-19 patients when there is no evidence of shock. Aggressive fluid administration may worsen oxygenation and be cautious unless there is justification.

Specific treatments

Immuno-modulators

- No proven anti-viral therapy or vaccine against COVID-19 so far necessitating supportive care for specific symptoms.
- Use Chloroquine and/or Azithromycin as immune-modulators for patients with moderate to severe infection and in patients with milder symptoms if they are elderly and/or with underlying diseases.

  Dose: Chloroquine phosphate 1000mg (4tabs) stat, then 500mg (2 tabs) after 12 hours then 500mg (2tab) bid for 5 days and Azithromycin 500mg PO daily for 3 days.
- **Pediatrics dose**: Chloroquine Total dose: 25mg/kg given over three day

  Day 1: 10mg/kg, followed by 5mg/kg 6-8 hours later

  Day 2: 3.5 mg/kg in a single dose
    - Hydroxychloroquine: 13 mg/kg(10mg/kg as base) (maximum: 800 mg 620 mg as base) PO followed by 6.5 mg/kg (maximum: 400 mg) PO in 6-8hours after the initial dose on day 1; then 6.5 mg/kg (maximum 400 mg) PO as single dose on day 2 and on day 3 (maximum maintenance dose:400 mg, 310mg as base)
- Durations of up to 10 days can be considered on a case-by case basis relying on clinical response and risk/benefit ratio for the individual patient, though the safety of longer durations has not been evaluated.
- Baseline EKG and CBC/comprehensive metabolic panel (CMP). If therapy is extended beyond 3 days, obtain a CBC/CMP on day 3 and day 7.

Specific management in different clinical categories

1. Mild illness

Clinical features

- 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
- The elderly, immunosuppressed and infants may present with atypical symptoms.
- These patients may not have any signs of dehydration, sepsis or shortness of breath.

Management

- Maintain standard Infection prevention and control procedures
- Minimize contact with household members and ask patient to wear a surgical mask if contact is necessary
- Close monitoring for signs of clinical deterioration such as respiratory failure, sepsis/ septic shock has to be done for early management of such complications.
- Advise patients to keep hydrated, but not to take too much fluid as this can worsen oxygenation
- Monitor patients closely and look out for worsening of their symptoms
- Provide symptomatic therapies with antipyretic/ analgesic
- Antipyretics / analgesics in
- Adults: **Paracetamol** 1gm paracetamol PO every 6–8 hours, maximum 4g/ 24hr
  Tramadol 50–100 mg PO/IV every 4–6 hours for analgesics purpose as needed, daily maximum 400 mg/day can be given alternatively or combined with paracetamol.
  Pediatrics: Paracetamol 15 mg /kg PO, Suppository every 6-8 hours: Avoid Ibuprofen, and Aspirin use

2. COVID-19 patients with pneumonia (mild or moderate)

Clinical features

- Patient with above symptom and pneumonia with no signs of severity.

Management

- Management as in the mild illness +empiric oral antibiotics
- Adult: Amoxicillin 500mg po TID or Amoxicillin-clavulanate 1gm PO BID or 625 mg poTID for 5-7days

- Pediatrics: Azythromycin 10mg /kg/day for day 1 and 5mg/kg/day for the rest of 4 days **OR** Amoxicillin-clavulanic acid TID dosing: 20–40 mg/kg/24 hr ÷ Q8 hr PO, BID dosing: 25–45 mg/kg/24 hr ÷ Q12 hr PO, extended release 600: ≥3 mo and <40 kg: 90 mg/kg/24 hr ÷ Q12 hr PO × 10 days.

3. COVID-19 Patients with severe Pneumonia or who developed SARI

Clinical feature

- **Adult:** assess severity using CURB-65 criteria. The CURB-65 criteria (Confusion, Urea>7mmol/L or abnormal Creatinine value, Respiratory rate >30, Blood pressure <90/60, Age >65)
- For all patients, the CURB-65 score should be interpreted in conjunction with clinical judgment. Patients with a CURB-65 or CURB-65 score of >2 patient should be admitted
- **Pediatrics**: Pneumonia + general danger sign: inability to breastfeed or drink, lethargy or unconsciousness, or convulsions

Management:

- Provide oxygen supplementation for an SpO_2 target ≥ 90% (for pregnant mother, children, patient in shock SpO_2 target >92-94%)
- Conservative IV fluid management should be instituted except when patient is in shock
- In COVID 19 superimposed bacterial infection is common and to treat all likely pathogens antibiotics administration is common depending on the treating physician judgment
- Empiric antimicrobials should be started after taking specimen for culture and sensitivity (preferably broader spectrum antibiotics). Don‘t delay antibiotics intake if culture service isn’t available

Adults:

- In patients with who are critical, hospitalized, immune-compromised or previous structural lung disorder: Ceftazidime/Cefepime *2g iv Tid +or +/-Vancomycin 1 gm IV BID.

**Ceftriaxone 1gm IV bid is alternative to ceftazidime/Cefepime but nowadays it is not routinely used in severe pneumonia or sepsis because of high rate of resistance.*

- If there is no response with the above antibiotics or culture and sensitivity result suggests it Meropenem (or other available carbapenemes) 1g IV q8hours +/- vancomycin 1g IV q12 hours can be used.

- When patients improve and are able to take PO Amoxicillin-clavulanate can be given (look dose at mild/moderate pneumonia section above).

Pediatrics:

- Pediatrics: Ceftriaxone 75-100mg /kg 12 hourly + Azythromycin 10mg /kg/day for day 1 and 5mg/kg/day for the rest of 4 days
- Vancomycin40-60 mg /kg every 6 hourly can be added for hospital acquired infection , previous intake of antibiotics and underlying lung structural problem

Management of patients with hypoxemic respiratory failure and ARDS

- Some patients fail to maintain oxygen saturation despite standard oxygen flow administration. Such condition is usually due to intrapulmonary ventilation-perfusion mismatch with hypoxemic respiratory failure.
- Clinical features of acute hypoxemic respiratory failure: dyspnea, cyanosis, tachycardia, tachypnea, use of accessory muscles, nasal flaring, intercostal and subcostal retraction and patients may develop altered mental status.
- Patients with COVID-19 develop acute respiratory failure 2^0 to ARDS

ARDS is characterized by:

- Onset: new/worsening respiratory symptoms within one week

- Chest imaging: bilateral opacities not fully explained by other features like effusions, lobar opacity, lung collapse or nodules

- Origin of edema: respiratory failure not fully explained by cardiac failure or fluid overload

- Oxygenation: severe hypoxemia regardless high oxygen input .

- Impaired oxygenation;

- **Adult**: Kigali's definition may be used to assess oxygenation: - when SpO2/ FiO2 ≤ 315 it suggests ARDS.
- **Pediatrics:** CPAP) ≥ 5 cmH2O via nasal interface: SpO2/FiO2≤ 264

Management of acute hypoxemic respiratory failure 2^0 to ARDS

- Oxygen via face mask with reservoir bag-flow rates 10-15l/min
- In pediatrics high flow of oxygen is described as provision of oxygen >2L/kg /min,
- If no response with oxygen, bubble CPAP can be used in infants.
- 2-HFNO/NIV should only be used in selected patients without comorbidities and non-pregnant.
- Monitor closely for one hour and deliver invasive ventilation if acutely deteriorate or no improvement
- Endotracheal intubation should be performed by a trained and experienced provider using airborne precautions
- Use lung protective strategy in Mechanical ventilator setting adjustment -low tidal volume (4-8 ml /KG), low inspiratory pressure, and high PEEP (Max PEEP suggested in pediatrics :15mmHg).
- If no improvement, consider prone ventilation except in pediatrics patient.

Management of septic shock

- Apply the six sepsis management bundles with in 1hr: appropriate fluid management, oxygen delivery, antibiotics, sending specimen for culture and sensitivity, and monitoring of lactate if possible and hourly urine out.
- Start immediate agressive volume expansion with isotonic solution, preferrably R/L or R/L alternative with N/S
- Give at least 30ml/kg in the first 3hrs
- For pediatrics 40-60ml /kg (20ml /kg hourly bolus) can be given.

NB : Precautious administration of fluids is needed for malnourished pediatric patients.

- Further fluid administration depend on the response to fluid resuscitation

- Closely monitor for signs of fluid overload (jugular venous distension, crackles on lung auscultation, pulmonary edema on imaging, or hepatomegaly in children)
- Stop or decrease fluid administration if signs of fluid overload.
- Watch also for signs of target perfusion achievement (Mean Arterial Pressure (MAP)>65 mmHg or age appropriate target for children, urine output (>0.5 ml/kg/hr in adults, 1 ml/kg/hr in children), and improvement of skin mottling, capillary refill, level of consciousness)
- If target perfusion is not achieved or hemodynamic response is poor with standard fluid administration within one-hour start vasopressor administration.
- The vasopressor of choice in adults is norepinephrine (NE) (2-30 μg/min/ (0.1-1 μg/kg/min) but epinephrine (2-30 μg/min, (0.1-1 μg/kg/min) and dopamine (2-20 μg/kg/min) can be used respectively. Titrate dose based on response.
- For children, epinephrine (0.1–0.3 μg /kg/min) is the first-line vasopressor, but dopamine can also be used.
- Closely monitor the veins for any extravasations of vasopressors as it may cause tissue swelling and necrosis.
- Broad spectrum antibiotics should be administered for possible superimposed infection

Adults:

- In patients with who are critical, hospitalized,immunocompromized or previous structural lung disorder:Ceftazidime/Cefepime 2g iv TID +/-Vancomycin 1 gm IV BID
- Meropenem 1g IV q8hours +/- vancomycin 1g IV q12 hours in critical patients if there is no response with the above alternative or culture and sensitivity result is suggestive
- When patients improve and are able to take PO Amoxicillin-clavulinate (Augumentin) 2 gm PO BID for 7-10 days

Pediatrics:

- Ceftriaxone 75-100mg /kg 12 hourly + Azithromycin 10mg /kg/day for day 1 and 5mg/kg/day for the rest of 4 days

- Vancomycin 40-60 mg /kg every 6 hourly can be added for hospital acquired pneumonia, underlying lung structural problem, previous antibiotic use
- Other antibiotics can be administered based on the clinical judgment of the clinician
- Surgical drainage or debridement of an abscess or dead /necrotized tissue.
- Blood transfusion if Hgb is ≤ 7mg/dl in adults, Hgb is < 10 mg/dl in pediatrics to keep adequate O2 saturation.
- Collect C/S, organ function tests, electrolytes, and imaging results and manage if there is any complication.
- Stress dose steroid (Hydrocortisone 2 mg/kg IV hydrocortisone (maximum 100 mg), followed by 1 mg/kg (maximum 50 mg) of hydrocortisone dosed every six hours for a maximum of seven days or until all vasoactive infusions have been discontinued for at least 12 hours, whichever comes first: may be considered for pediatric refractory) can be given for refractory septic shock in children.

Invasive respiratory support for COVID 19

Current data indicate that 5% of the COVID 19 affected patients are critically ill. Hence, supporting the respiratory system with positive pressure is needed expansively

Intubation protocol for COVID 19 suspected or confirmed cases

- The most experienced person should intubate the patient

Prepare

- Apply monitoring – Spo2, ECG and BP on 3-minute cycle at the very least
- Prepare for difficult air way, resuscitation equipment and drugs
- Prepare suction, ETT differ size, paralytic drug (preferably Rocuronium, Suxamitonium) and sedative drugs (preferably Fentaly, Ketamin, Midazolam)
- Check IV access (ideally x2)
- Put patient in sniffing position or sit them up slightly to minimize further reduction in FRC
- Prepare Glydoscope if possible or Video laryngoscopy)

Pre-oxygenation

- Pre-oxygenation with 100% oxygen for 5min or 5 vital capacity breaths
- Avoid manual ventilation as it aerosolizes infectious droplets to the atmosphere
- Give opioid or IV lidocaine to blunt airway reflex if appropriate

Paralyze and sedate (be care full for difficult air way)

- Rapid sequence induction with larger doses of ketamine 1-2mg/kg and suxamethonium 2mg/kg to avoid coughing during intubation and to rapidly intubate patient with the first attempt
- Ketamine should ideally be first line drug due to its bronchodilator effects as well as haemodynamic stability

Place the tube

- Use Glidescope if available to reduce the risk of transmission by keeping distance from patient's airway

Placement check

- Do not check tube placement through manual ventilation, immediately inflate the cuff and connect patient to machine and look for the chest rise push and twist connections to prevent/ minimize accidental leaks in the circuit

Post intubation care

- Keep the laryngoscope, stylet and bougiein plastic bag or specially prepared tray to be disinfected
- If available, use HME filter. The filter needs to be placed after the tube and before the y piece
- Follow the guideline when removing PPE
- Appropriate level of sedation and paralysis

PPE guideline for performing aerosolizing procedures

- Apply PPE with aerosol precaution
- Wash hands with soap and water for at least 20 seconds
- Put on gown, Foot ware, N-95 mask and face shield

- Wear two pairs of surgical glove
- Perform the procedure
- Remove the first pair of glove when you finish the procedure
- Remove gown, foot ware, face shield and mask and dispose to a container according the international doffing protocol
- Remove the 2nd pair of glove and wash hands with soap and water for at least 20 seconds

Mechanical Ventilator Management of COVID19 Patients

Recommendation regarding management of patients with COVID19 ARDS

- In patient suspected of COVID 19 ARDS use Kigali's modification of Berlin criteria to diagnose ARDS
    - New onset/worsening respiratory symptom
    - Spo2/FIo2 < or =315
    - Bilateral opacities not explained by effusion, lobar/lung collapse or nodules by chest radiograph or ultrasound
    - Respiratory failure not fully explained by cardiac failure or fluid overload (may need objective assessment, such as echocardiography, to exclude hydrostatic edema if no risk factor present)
        - If Spo2 unavailable: suspect ARDS in any patient with worsening respiratory failure despite receiving supplemental oxygen via nasal cannula at 5l/min

1. Setting on Mechanical Ventilator

Invasive Mechanical Ventilation (IMV) for Acute Respiratory Distress Syndrome (ARDS)

Initiation of LPV

- Set TV 6–8/kg based on adult and children predicted body weight**.**
- Reduce TV to reach target of 6 mL/kg over couple of hours
- If TV is at 6 mL/kg and Pplat remains > 30 cm H_2O, then reduce TV by 1 mL/kg each hour, to a minimum 4 mL/kg:
- At the same time, increase RR to maintain MV
- Set RR to approximate minute ventilation (MV):

- Do not set > 35/min
- Remember MV = VT × RR.

- Set I: E ratio so 1:3- 1:4
- May require higher flow rates
- Set inspiratory flow rate above patient demand(Commonly > 60 L/min)
- Monitor for intrinsic PEEP
- Set FiO_2 at 1.00, titrate down. Titrate the FiO_2 to the lowest value that maintains target SpO_2 88–93%
- Set PEEP 5–10 cm H_20 or higher for severe ARDS.
- Target SpO_2 88–93%
- Set PEEP corresponding to severity of oxygen impairment:
    - Higher PEEP for moderate-severe
    - Reduce high levels of PEEP should be done gradually: 2 cm H_2O, once or twice a day

Lower PEEP/higher FiO2

FiO_2	0.3	0.4	0.4	0.5	0.5	0.6	0.7	0.7
PEEP	5	5	8	8	10	10	10	12

FiO_2	0.7	0.8	0.9	0.9	0.9	1.0
PEEP	14	14	14	16	18	18-24

Higher PEEP/lower FiO2

FiO_2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5
PEEP	5	8	10	12	14	14	16	16

FiO_2	0.5	0.5-0.8	0.8	0.9	1.0	1.0
PEEP	18	20	22	22	22	24

LPV in young children and infants

Principles are similar for children with following considerations:

- Prefer to use cuffed tubes
- Pressure mode is advisable for newborn use, by monitoring tidal volume
- Set respiratory rate based on patients age

- PEEP: maximal levels to be determined on individual basis, range between 10–15 cm H_20, monitor hemodynamic status while escalating PEEP.

2: Treat underlying cause

3: Monitor and respond as per protocol

- Weaning from Mechanical Ventilator
- Conduct spontaneous breathing trial daily when
    - FIo2<= 0.4 and PEEP <=8 Or PEEP<=5 and FIO2<=0.5
    - Patients has acceptable spontaneous breathing efforts (may decrease ventilator support by 50% to see the effort)
    - Systolic BP>= 90mmHg without vasopressor support
    - No neuromuscular blocking agents or blockade

NB: For pediatrics, make sure that vital signs are stable and patients are off vasopressors

- Spontaneous Breathing trial
    - If the above criteria are met perform spontaneous breath trial for 120 minutes with FIO2< =0.5 and max pressure support of 8cmH20
    - Assess for tolerance as below for two hours
        - Spo2 >=92
        - Spontaneous TV >4ml/PBW
        - RR<=35
        - No respiratory distress (distress= 2 or more)
            - HR>120 or 20% increase from baseline
            - Marked accessory muscle use
            - Abdominal paradoxical breathing
            - Diaphoresis

- If tolerated at least for two hours consider extubation , if not tolerated resume pre weaning setting

Prevention of Complication

- Reduce days on mechanical ventilation by assessing readiness for spontaneous breathing (spontaneous breathing trial)
- Reduce Ventilator Associated Pneumonia
- Oral intubation preferred over nasal intubation in adolescents and adults
- Keep the head of patients up in 30-45^{O}
- Use closed suctioning method to prevent contamination
    - Use new clean breathing circuit if possible for each patient, change the circuit only if damaged and soiled
- Reduce incidence of venous thromboembolism
    - LMW heparin or unfractionated heparin
    - Intermittent pneumatic compression
- Turn patients every 2 hours to prevent pressure ulcer
- Initiate early enteral nutrition with in the 24-48hours of admission
- Start H2 blocker or PPI prophylaxis for GI bleeding

Discharge criteria for COVID-19 cases admitted to treatment center

1. Patient diagnosed with COVID-19 pneumonia can be discharged when the symptoms have subsided, patients get stable and able to feed, and the body temperature remains at a normal range for at least three days without antipyretics, and two consecutive laboratory tests are negative collected ≥24 hours apart.
2. If laboratory tests are not available or significantly delayed decision should be based on clinical judgment
3. Patients can remain infectious for 2 weeks after symptoms have improved, thus maintain isolation and IPC.
4. Any person who has contact with confirmed COVID-19 case has to be followed for 14 days:
    - If no symptoms develop within 14 days follow up, discharge the person from the follow up.

- If symptoms develop during the 14 days follow up, admit the patient, treat and follow the same protocols to discharge.

5. Patient diagnosed with COVID-19 pneumonia can be discharged when the symptoms have subsided, patients get stable and able to feed, and the body temperature remains at a normal range for at least three days without antipyretics,
6. Patients can remain infectious for 2 weeks after symptoms have improved, thus maintain isolation and IPC.
7. Any person who has contact with confirmed COVID-19 case has to be followed for 14 days:
    - If no symptoms develop within 14 days follow up, discharge the person from the follow up.
    - If symptoms develop during the 14 days follow up, admit the patient, treat and follow the same protocols to discharge.

Special considerations:

A. Obstetrics Patients with COVID 19

Facts from Evidence so far

- COVID-19 has been identified in respiratory sections, fomites and feces but not in vaginal secretions, amniotic fluid, placental tissues and breast milk.
- A higher rate of intra-partal fetal compromise and preterm birth thus the need to monitor labor continuously
- Higher rate of cesarean section due to intra-partal fetal compromise or as a management of severe acute respiratory distress syndrome in the laboring mother.
- No perinatal transmission
- Postpartum care needs the same precaution and care to reduce transmission to the neonate.
- Generally, give special attention for the management of pregnant women.

Case management

- Air born precautions and contact precaution should be instituted (N95 mask, eye shield and protective clothes including gloves, with appropriate disposal sites)
- Isolation room with CTG, Oxygen and ventilator for mother coming pregnant or in labor

- Emergency/Elective CS to be done on the OR table and anesthesia machine dedicated for COVID -19 patients
- Spontaneous or induced labor to be monitored continuously. I.e. we need to dedicate CTG machine to the isolation room
- Oxygen saturation must be measured hourly and respiratory compromise need be diagnoses When the SaO2 <94mmHg
    - Note: pulse oximeter must be available at the isolation rooms
- Temperature to be measured with thermometer not by hand for early identification of sepsis on the background of COVID 19 for management purposes.
    - Avail thermometer 24/7 at the labor and delivery unit and wards.
- Lab tests should include CBC, CRP, Organ function tests and Imaging including x-ray and CT with abdominal shields.

    NB: Investigation including imaging should not be delayed for the sake of fetal reasons.
- For those laboring mother with ARDS or impending respiratory compromise; second stage needs to be shortened if the prerequisites for instrumental delivery are met.
- Regional anesthesia is appropriate for most but when GA is the option additional PPE has to be considered.
- Neonatal care can continue with the existing protocol of care
- Breast feeding should be encouraged as there is no evidence not to.
- Postpartum care can continue either at the isolation room or patient can be transferred to the designated center of care for COVID-19

Antenatal care: pregnancy with COVID -19

- Antenatal evaluations for pregnant women with COVID-19 can safely be postponed for 2-4 weeks.
- Elective CS are recommended to be postponed by 2wks if the obstetric conditions allow
- Breast feeding considerations:
- Infants born to mothers with suspected, probable, or confirmed COVID-19 should be fed according to standard infant feeding guidelines, while applying necessary precautions for IPC.

- In situations when severe illness in a mother with COVID-19 or other complications mothers should be encouraged and supported to express milk, and safely provide breast milk to the infant, while applying appropriate IPC measures.

B. COVID-19 Suspected Case Management Protocol

Definition:

Suspect case

A. A patient with acute respiratory illness, and with no other etiology that fully explains the clinical presentation and a history of travel to or residence in a country/area or territory reporting local transmission of COVID-19 during the 14days prior to symptom onset.

OR

B. A patient with any acute respiratory illness and having been in contact with a confirmed or probable COVID-19 case in the last 14 days prior to the onset of symptoms.

OR

C. A patient with severe acute respiratory infection and requiring hospitalization and no other etiology that fully explains the clinical presentation

Management

1. Mild cases in home or dedicated isolation site:
    - Supportive care: bed rest, fluid intake, healthy diet, anti-pain (Paracetamol), exercise…
    - Continue treatment for comorbidities
    - If further care is required:
        - Facilitate test result as quick as possible
        - Assessment by mobile care team and treatment (if available)
        - Consult on call senior and act accordingly
        - Transfer to better care center if recommended by the senior physician with all IPC precautions after informing the center prior to transfer
2. Moderate-severe/critical cases: evaluation at COVID 19 isolation or treatment centers
    - Facilitate test result as quick as possible
    - Give supportive and lifesaving care under proper IPC airborne precaution
    - Start antibiotics and other medications as per protocol

- Treat co morbidities and underlying condition

Oxygen therapy for COVID-19

Hypoxemia is recognized is as a cause of death in patients with severe respiratory illness. Hence, oxygen therapy is a known intervention to reduce mortality in severe respiratory diseases.

Objective:

- Improve the detection and management of hypoxaemia.
- Improve the delivery and monitoring of patients on oxygen therapy.

Indications:

In the hospital setting, give oxygen immediately to patients (adults and children) with sever acute respiratory illness SARI:

- Severe respiratory distress
- Sepsis with hypo-perfusion or shock
- Alteration of mental status
- Hypoxaemia
    - SpO2 < 90% (if patient is haemo-dynamically normal)
    - SpO2 < 94% (if patient with any emergency signs of airway, breathing or circulation)
    - SpO2< 92–95% (if pregnant woman).
- Short of pulse oximeter clinical signs that trigger oxygen therapy in:

In Adult:

- Dyspnea or difficult breathing on minimal exertion
- Inability to talk in sentences
- Fast respiratory rate
- Prominent use of accessory muscles to breathe
- Central cyanosis
- Chest crackles
- Tachycardia
- Restlessness

- Drowsiness or confusion

In children:

- Central cyanosis
- Nasal flaring
- Inability to drink or feed (when due to respiratory distress)
- Grunting with every breath
- Depressed mental state (i.e. drowsy, lethargic)
- And in certain conditions (severe lower chest in drawing, RR ≥ 70 bpm, head nodding).

Sources of oxygen

- Oxygen cylinders
- Oxygen concentrators
- Central piped oxygen

Method of oxygen delivery system:

- Initiate high flow oxygen therapy in severe acute respiratory infection
  - In adults and older children, start with 10–15 l/min via face mask with reservoir bag.
  - Less ill patients can start with 5 L/min by nasal cannula
- Paediatric: >2l/kg/min of flow of oxygen with appropriate delivery method

NB: Airborne precautions shall be instituted in case of nebulisations and high flow oxygen delivery

Table 2: Use appropriate dose and delivery device

Oxygen delivery method	Recommended flow of oxygen	Estimated delivered FiO_2
Adult		
Nasal prongs	O2 dose 1–5 L/min	0.25-0.40
Simple Face	O2 dose 6–10 L/min	0.40–0.60
Face mask with reservoir	O2 dose 10–15 L/min	0.60–0.95
Paediatric		
Nasal cannula • New-born • Infant • 2-5 years • >6 year s	 0.5–1.0 L/min 1–2 L/min 1–4 L/min 1–6 L/min	 0.25-0.40 0.25-0.40 0.25-0.40 0.25-0.40

Monitoring of oxygen therapy:

- Monitor vital signs hourly for critically ill and 3-4 hourly for moderate pneumonia cases
- If low oxygen, check
    - Patient airway
    - Equipment
    - Circulation
    - Consider complications
    - Escalate support with invasive mechanical ventilation

SECTION IX: DEATH CARE AND BURIAL

Dead body handling in case of death due to COVID-19

All facilities managing COVID-19 will have dedicated morgue and burial personnel trained on IP and PPE techniques to manage all dead bodies due to COVID-19. The personnel will be involved in preparing body in the morgue and transporting the body until the burial site. These personnel will be dedicated morgue staff and trained individuals (volunteers or contract hires). Ministry of health and regional health bureaus in collaboration with other sectors will introduce similar dead body handling mechanisms in case of COVID 19 deaths in the community in rural and urban areas.

This section details the steps and standards to be followed while deceased in in bed, in the morgue and the burial process.

While deceased is in bed,

1. Adhere to standard precautions and use appropriate personal protective equipment (PPE) at all times.
2. Notify the family and provide grief counseling according to the ethical standards
3. After the physician declares death, perform the following tasks to prevent exposure to blood and body fluid during transportation to protecting morgue personnel:
   a. Remove all disposable tubes and lines appropriately.
   b. Dress all wounds with impervious material to prevent oozing of body fluids or bleeding from wounds or previous catheter sites.
   c. Request an appropriately sized plastic body bag and place the body in the bag.
4. Follow the proper identification of the body, transportation, and documentation in the morgue.
5. Patients with COVID 19 should have body tags labeled with the appropriate category.
6. The nurse in charge or dedicated personnel will inform the morgue supervisor if the deceased was known to harbor COVID 19 (This information will also be confirmed in writing on the identification tag)

In The Morgue

1. All morgue staff and especially body washers must be oriented and provided training on COVID 19 regarding the proper infection control practices (i.e., hand hygiene, modes of disease transmission, and the importance of PPE) and how to apply these practices.
2. Always use standard precautions and use appropriate personal protective equipment (PPE) at all times. Avoid direct contact with blood and body fluids.
3. Use PPE (mask, goggles, latex/vinyl gloves, boots, and water proof full-length apron) to prevent splashing and contamination with body fluids. Remove disposable PPE and discard immediately after the task is completed.
4. Better to avoid Autopsy examination unless required by court. If it is done it has to be carried out under strict IP procedure.
5. Close families should be allowed to see the body after tubes removed and wound sites dressed under strict IP precautions and standard PPE used. But no family member should be allowed to touch, kiss or hug the body even under PPE.
6. Do standard body preparation and put the body in plastic bag, zipped or tied water tight so that there is no leakage of body fluids
7. Put the body in coffin, seal the coffin and disinfect the coffin with disinfectant. Body should be directly transported to burial site (mortuary) the same day and should not be allowed to be transported to home or religious places.
8. Those carrying the coffin from the morgue to the mortuary until burial are the same individuals until the body is buried. The individuals observe standard IP procedures and use standard PPE.

Staffs handling dead bodies of unknown category at the time of COVID-19 outbreak:

Staff may need to handle dead bodies of unknown categories. For example, dead bodies found on the street or abandoned in a house with unclear history or suspected COVID-19 should strictly observe all the recommendation put in this guideline for confirmed COVID-19 cases.

Burial

Burial site

Regular burial sites can be used to bury bodies of patients died from COVID-19

Burial process

1. It is recommended that bodies of suspected or probable COVID 19 infection (after postmortem examination) shall be disposed off (burial or cremation) as soon as practicable.
2. Religious rituals are to be conducted at the mortuary but coffin should not be opened
3. Embalming (preserving body by drying) must be avoided.
4. Relatives are prohibited from opening the sealed coffin.
5. Vehicle used to transport the body should be disinfected

Transport of Dead body in case of death due to COVID 19 to Ethiopia from other foreign countries and vice versa

To date there are no enough guideline as to how to deal with transport of dead bodies due to COVID 19 from one country to another country by air plane or other means of transport when requested by families.

All available documents from Ebola epidemics, SARS outbreak recommendations and recent European CDC COVID 19 dead body transport guideline do not encourage transport of dead body out of the country where the death has occurred in case of death due to infectious diseases during disease outbreak. These recommendations are used to come up with the following recommendations regarding international transport of dead bodies to and from Ethiopia.

1. Since dead body due to COVID 19 is highly infectious and the transport requires strict IPC procedures and trained personnel dedicated for this purpose, it is not advised to transport dead body from abroad to Ethiopia or from Ethiopia to foreign country by airplane or other means of transport for the safety of the public. This has to be communicated to all Ethiopian communities living abroad and all foreign communities residing in Ethiopia that transport of dead body due to this disease from and to Ethiopia is not allowed.
2. If it has become mandatory to transport dead body in case of death due to COVID 19 from or to Ethiopia, chartered plane transport mechanism has to be used with strict IPC procedures observed and coffin accompanied by IPC trained personnel throughout the transport process.
3. National guide line on dead body handling should be strictly observed

SECTION X: ETHICAL ISSUES IN COVID 19 MANAGEMENT

As COVID-19 is an unanticipated outbreak, there will be a number of ethical dilemmas in prevention and case management. There are a number of issues that may arise during the period of the epidemics not covered by the existing ethical standards and laws of the country. In order to address this and related challenges, WHO issued a document on how to manage ethical issues during infectious disease outbreaks *(Guideline in Managing Ethical issues in Infectious disease outbreaks, WHO 2019)*. Relevant ethical principles included in the guide line are justice (fairness), beneficence (acts that are done for the benefit of others), utility (actions are right insofar as they promote the well-being of individuals or communities), respect for persons (treating individuals with humanity, dignity and inherent rights), liberty (social, religious and political freedom), reciprocity (making a fitting and proportional return).

Other ethical issues that may arise include prioritization of limited resources, withdrawal of treatment and termination of care/life support. The Ethiopian Federal constitution also restricts certain rights during emergency situations. Relevant provisions on Civil and Penal code also apply in line with Public Health emergency. This section of the Ethiopian COVID-19 case management and facility preparedness guideline aims to address anticipated ethical issues in the case management of COVID-19 and the roles and responsibilities of involved parties.

Obligations of governments and the international community

Governments can play a critical role in preventing and responding to infectious disease outbreaks by improving social and environmental conditions, ensuring well-functioning and accessible health systems, and engaging in public health surveillance and prevention activities. Health professionals and institutions cannot handle identification of COVID-19 cases in the community, tracing of contacts and isolation of the exposed as these require involvement of different security and law enforcement bodies of the government. Ensuring the sufficiency of national public health laws, participating in global surveillance and preparedness efforts, providing financial, technical and scientific assistance are key government and international community obligation during this COVID-19 outbreak.

Obligations of the local community

All aspects of infectious disease outbreak response efforts, including COVID-19, should be supported by early and ongoing engagement with the affected communities. In addition to being ethically important in its own right, community engagement is essential to establishing and maintaining trust and preserving social order. Involvement of the media and artists in educating the community, youth in community services, companies and private investors in fundraising will assist the control process. The community is expected to obey orders to be given by the government and the health institutions. Individuals are treated with respect and dignity. Suspected and confirmed cases should not be stigmatized by the community; rather they should be actively involved in the control effort after recovery.

Allocating scarce resources

Most of the resources in the health care system need to be diverted to control the outbreak while giving attention to continuing care to emergency non COVID-19 cases and chronic conditions that need continuous follow up. Saving the resources for the outbreak helps to mitigate scarcity of important supplies at the time and places where it is highly needed to stop the spread of the outbreak and save more lives. Unless planned in advance, COVID-19 can quickly overwhelm the capacities of government and health-care systems, requiring them to make difficult decisions about the allocation of limited resources such as hospital beds, medications, and medical equipment to control the epidemic.

In case of limited supply of life saving interventions like mechanical ventilators, the decision of health care provider should be guided by the principle of first come first served and chances of survival based on the severity and reversibility of organ damage. This decision to discontinue life support in terminal cases depends on the existing practice in the country (i.e. brain death confirmed).

Restrictions on freedom of movement

Restrictions on freedom of movement within the border and across the border are ethical decisions in case of COVID-19 outbreak in order to prevent the spread of this contagious disease. This is also in accordance to the provisions in our constitutions in cases of disaster and emergency situations. Isolation, quarantine, restriction of movement in suspected and confirmed cases should be in accordance with the principles mentioned in the WHO guideline mentioned

above. Quarantine Regulations of Ethiopia: Council of Ministers Regulations No. 4/1992, Ensures the legal ground for quarantine and isolation of ill patients to prevent the spread of infection, control of hazardous exposure to the community in case of emergencies and disasters reduction also applies in this situation.

Obligations related to medical interventions for the diagnosis, treatment, and prevention of COVID 19

Individuals offered medical interventions for the diagnosis, treatment, or prevention of COVID - 19 should be informed about the risks, benefits, and alternatives, just as they would be for other significant medical interventions. The presumption should be that the final decision about which medical interventions to accept, if any, belongs to the patient.

In COVID-19 outbreak, owing to its high contagious nature and threat to the public safety at large, there may be legitimate reasons to override an individual's refusal of a new or existing diagnostic, therapeutic, or preventive measure that has proven to be safe and effective and is part of the accepted medical standard of care unless there is medical contraindication in that particular patient. Similarly, it is ethically sound to conduct research including randomized controlled trial that will have an impact in disease control and improving survival.

Emergency use of unproven interventions outside of research

Considering the high mortality of the COVID-19 outbreak in certain group of the population it is ethical to offer patients experimental intervention provided that:

- No proven effective treatment exists;
- It is not possible to initiate clinical studies immediately;
- Data providing preliminary support of the intervention's efficacy and safety are available, at least from laboratory or animal studies.
- The national ethics authorities, as well as an appropriately qualified ethics committee, have approved such use;
- Adequate resources are available to ensure that risks can be minimized;
- the patient's informed consent is obtained;
- The emergency use of the intervention is monitored and the results are documented and shared in a timely manner with the wider medical and scientific community.

Frontline response workers' rights and obligations

As the risks of occupational exposure, physical and mental health stress on HCWs run high during public health emergencies like COVID-19 many ethical issues arise. Clients at the care in health facilities during these emergencies are also at increased risk of stigma and may suffer in accessing safe, timely and equitable care. The below section provides guidance to common ethical issues in this setting.

- HCWs should not be expected to take on risky work assignments during an infectious disease outbreak unless they are provided with the training, tools, and resources necessary to minimize the risks to the extent reasonably possible.
- HCWs are also ethically and legally entitled to health insurance coverage especially for occupational related adverse events.
- As professionals with high civil societal capital HCWs should be availed priority access to highest health care even for family members who become ill through contact, as the nation's capacity allows.
- In case of adverse events incurred by HCWs in an occupational setting appropriate compensation should be provided to them. This can be devised and implemented by Ministry of Health and relevant sectors according to need.
- HCWs should be availed appropriate support for reintegration into the community including advocacy to reduce impact of stigma as well as providing job placement and relocation by government as situations dictate.
- HCWs are obliged to follow the standard IP precautions on their return to community and family.
- HCWs are also ethically obliged to uphold the ethos of their profession, abide by their oath and professional code of conduct in caring for patients at all times.

Ethical issues related to access of essential and emergency care, disclosure and facility responsiveness

During the care of patients with COVID-19 at facilities many ethical issues are expected to arise in the clinical care process, equitable distribution of scare resources (such as access to life support equipment, staff time, and termination or withdrawal of care).

- Facilities are obliged to prepare contingency plans to provide screening, isolation and emergency care for patients with COVID 19.
- Facilities are also expected to develop and implement a COVID-19 facility preparedness and readiness plan including setting up a pre-triage screening for COVID-19, isolation areas with access to essential and emergency care.

  N.B. Resource allocation of a particular facility will be governed by facility COVID-19 protocol.
- Facilities should put in place processes and structures to ensure care provided for patients with COVID19 is as safe, effective, proven, equitable and dignified as possible. Patients should also be allowed to access family members and significant others through phone.
- For public health measures disclosure of pertinent information on patients with COVID-19 (or SARS Cov-2 infection) and their contacts is allowed. Disclosing the infection to contacts does not require obtaining consent.
- Facility should provide adequate and of good quality food/drink/cloth to patients.
- Information on patient's condition should be communicated to their family regularly and upon request by the treating physician.
- Facilities should establish a clinical Ethical Committee (CEC) and put in place protocol that address difficult clinical decision making in caring for patients with COVID-19 as well as to ensure safety, equity and quality of care and use of scarce resources.
- Facilities should put in place necessary resources to ensure safety of patients and staff alike in dead body handling, disinfection of equipment for reuse and other ethical issues at the hospital.
- Any COVID-19 patient who requires emergency surgical or other interventions should not be denied these emergency services at any health facility, denying the service amounts to stigmatization.

SECTION XI: RISK ASSESSMENT AND MANAGEMENT OF EXPOSURE OF HEALTH CARE WORKERS IN THE CONTEXT OF COVID-19

Background:

Spread of SARS Corona virus 2 is known to be via respiratory droplets, but aerosol transmission is suspected in health care setting. Hence, health care workers (HCW) are by default in high risk for infection.

Objective:

- To determine the risk categorization of each HCW after exposure to a COVID-19 patient
- To inform the management of the exposed HCWs based on risk categorization.

Risk assessment tool

Assessment of HCW community exposure

- HCW have a history of staying in the same household or classroom environment with a confirmed COVID-19 patient
- HCW have a history of travelling together in close proximity (within 1 meter) with a confirmed COVID19 patient in any kind of conveyance
- HCW travel history within the last one month

Assessment for HCW exposed to COVID-19 virus in health care setting

- Exposure to CoViD-19 in health care setting is determined by:
    1. Provision of direct care to a confirmed COVID-19 patient
    2. Presence of face-to-face contact (within 1 metre) with a confirmed COVID-19 patient in a health care facility
    3. Presence and possible contact when any aerosol-generating procedures were performed on the patient
    4. Presence of direct contact with the environment where the confirmed COVID-19 patient was cared for eg: bed making, bathroom cleaning, etc
    5. Involvement in health care interaction(s) (paid or unpaid) in another health care facility during the period above
- Risk assessment depends on
    1. Strict adherence to recommended PPE

2. Accidental exposure to biological
3. Working in high areas: department /ER, ICU, bronchoscopy, endoscopy surgery, ambulance, COVID 19 centre.

The management of HCWs exposed to COVID-19 varies according to the risk categorization, as above.

Recommendations for HCWs at high risk for infection:

Defined as breach in of PPE and exposure to bacteriological material exposure

- Stop all health care interactions with patients for a period of 14 days after the last day of exposure to a confirmed COVID-19 patient;
- Be tested for COVID-19;
- Quarantine for 14 days in a designated setting.1

Health care facilities should:

- Provide psychosocial support to HCW during quarantine, or throughout the duration of illness if HCW is confirmed to have COVID-19;
- Provide compensation for the period of quarantine and for the duration of illness (if not on a monthly salary) or contract extension for duration of quarantine/illness;
- Provide review of IPC training for the health care facility staff, including HCWs at high risk for infection after 14-day quarantine period.

Recommendations for HCW at low risk for COVID-19:

Self-monitor temperature and respiratory symptoms daily for 14 days after the last day of exposure to a COVID-19 patient. HCWs should call the health care facility if they develop any symptoms suggestive of COVID-19

- Reinforce contact and droplet precautions when caring for all patients with acute respiratory illness and standard precautions for all patients;
- Reinforce airborne precautions for aerosol-generating procedures on all suspected and confirmed COVID-19 patients;
- Reinforce the rational, correct, and consistent use of personal protective equipment;3

- Apply WHO's "My 5 Moments for Hand Hygiene" before touching a patient, before any clean or aseptic procedure, after exposure to body fluid, after touching a patient, and after touching a patient's surroundings
- Practice respiratory etiquette at all times.

Recommendations for HCW who is COVID 19 positive with symptom

- HCW would be managed with priority as the national protocol for managing COVID 19 case management protocol.

Reporting of exposure and management

- Exposed HCW should report to the facility incident manager
- The incident manager will determine the risk assessment and decide further management of the HCW
- The facility should adapt its own protocol on the management of exposed HCW
- Reporting of the incident should be done using the WHO reporting format

SECTION XII: RIGHTS, ROLES, RESPONSIBILITIES, OCCUPATIONAL SAFETY AND HEALTH OF HEALTH CARE WORKFORCE IN THE MANAGEMENT OF COVID-19 PATIENTS IN ETHIOPIA

Health care workers are at the front line of any outbreak response and as such are exposed to hazards that put them at risk of infection with an outbreak pathogen (in this case COVID-19). Many countries have experienced many challenges in responding to COVID 19 in clinical settings. Experience has proven that health care workforce (HCW) is one of the most vulnerable groups for COVID 19 infection, particularly of nosocomial nature. It is therefore essential to clearly delineate the roles, rights, responsibilities and occupational risks involved in health care workforce providing clinical care for patients in the face of SARS Cov-2 infection. This section of the national protocol will also serve to facilitate the proper human resource management in the response to SARS Cov-2 infection across the nation.

Hazards include:

- Pathogen exposure
- Long working hours
- Psychological distress
- Fatigue
- Occupational burnout
- Stigma
- Physical and psychological violence

Hence, specific measures should be taken to prevent /minimize risk. The following sections serve as a guidance to delineate the rights, roles and responsibilities of health professionals managing patients in the face of widespread community transmission of COVID 19.

Health care workers (Health Work Force) Rights

Employers and managers in health facilities should:

1. Assume overall responsibility to ensure that all necessary preventive and protective measures are taken to minimize occupational safety and health risks
2. Provide information, instruction and training on occupational safety and health, including

3. Refresher training on infection prevention and control (IPC) as per protocol
4. Provide adequate IPC and PPE supplies (masks, gloves, goggles/face shield gowns, hand sanitizer, soap and water, cleaning supplies) in sufficient quantity per standard to healthcare or other staff caring for suspected or confirmedCOVID-19 patients, such that workers do not incur expenses for occupational safety and health requirements
5. Familiarize personnel with technical updates on COVID-19 and provide appropriate tools to assess, triage, test and treat patients and to share infection prevention and control information with patients and the public
6. Provide with appropriate (federal/regional law enforcement) security measures for personal safety
7. Provide a blame-free environment for workers to report on incidents, such as exposures to blood or bodily fluids from the respiratory system or to cases of violence, and to adopt measures for immediate follow up, including support to victims
8. Advise workers on self-assessment, symptom reporting and staying home when ill after appropriate triage and decided to do so.

   N.B Based on the burden COVID-19 in the nation and at facilities health workforce who have mild SARS Cov-19 infection could be called on to care for patients with COVID-19
9. Maintain appropriate working hours with breaks as per the capacity and burden of the facility.
10. Consult with health workers on occupational safety and health aspects of their work and notify of facility incident commander of cases of occupational diseases
11. Not be required to return to a work situation where there is continuing or serious danger to life or health, until the employer has taken any necessary remedial action
12. Honor the right to compensation, rehabilitation and curative services if infected with COVID-19 following exposure in the workplace. This would be considered occupational exposure and resulting illness would be considered an occupational disease and HCW should be given priority in treatment.

    N.B. In case of death of a HCW with COVID-19 special considerations should be given.

13. Provide access to mental health and counseling resources
14. Enable co-operation between management and workers and/or their representatives
15. Leaders and health facilities should give special considerations for HCW with higher risk of infection and subsequent illness outcomes (e.g. HCW belonging in older age groups, those with chronic illness and comorbid conditions, as well as pregnant women and postpartum and lactating mothers).

Health care workers (Health Work Force) Responsibilities:

1. Follow established occupational safety and health procedures, avoid exposing others to health and safety risks and participate in employer-provided occupational safety and health training
2. Use provided protocols to assess, triage and treat patients
3. Treat patients with respect, compassion and dignity
4. Maintain patient confidentiality
5. Swiftly follow established public health reporting procedures of suspect and confirmed cases
6. Provide or reinforce accurate infection prevention and control and public health information, including to concerned people who have neither symptoms nor risk.
7. Put on, use, take off and dispose of personal protective equipment properly
8. Self-monitor for signs of illness and self-isolate or report illness to managers, if it occurs advise management if they are experiencing signs of undue stress or mental health challenges that require support interventions
9. Report to their immediate supervisor any situation which they have reasonable justification to believe presents an imminent and serious danger to life or health
10. Take any responsibility given by the employer
11. Try and use helpful coping strategies such as ensuring sufficient rest and respite during work or between shifts, eat sufficient and healthy food, engage in physical activity, and stay in contact with family and friends.
12. Avoid using unhelpful coping strategies such as tobacco, alcohol or other drugs.
13. Staying connected with your loved ones including through digital methods is one way to maintain contact.

Recommendation for different stakeholders

Federal authorities such as Ministry of Health, Civil Service Authority, Ministry of labor, Federal prosecutor, Regional government authorities, professional societies as well as front line staff should be engaged to ensure proper working environment, take measures to minimize and address risk to HCWs caring for patients in the face of COVID-19 as well as respond to necessary compensation and work environment standards. Facilities should also strive to provide a safe work environment and address existing and emerging concerns. As outlines in the document health professionals are also expected to respond to the national public health emergency in a professional and ethical manner.

SECTION XIII: HEALTH CARE FACILITY COVID 19 PREPAREDNESS PROTOCOL

As it is known COVID 19 is a highly contagious disease with high attack and case fatality rate. During such pandemic situation most burden goes to health care system and facilities hence health care facilities should prepare for this pandemic in the following regards

Administrative activities:

A. Facilities should prepare COVID 19 response team involving different departments lead by senior management.
B. Selected facilities should dedicate an area for COVID 19 case management and isolation.
C. All facilities should be care full not to compromise important patient care.
D. Non COVID 19 managing centers should prepare patient isolation center and dedicate and train staffs for deployment to COVID 19 treatment center.
E. Collaborate with immediate political leadership for decisions and potential resource allocation for COVID 19 response.
F. Determine methods for patient/family information provision including alternate languages/interpretive services.
G. Determine strategies to maintain services for at-risk patients during outbreak period (e.g., pregnant, dialysis) but unrelated to COVID
H. Develop service restriction plans in case of staff shortages or increased demand (e.g., respiratory care, nutritional support, pharmacy, laboratory, radiology, elective surgeries/procedures).
I. Modify staff responsibilities and shifts as required (supervisory staff work clinically, suspend most education and other administrative burdens, determine where less-trained staff can safely provide support and the extent of family member support).
J. Specialty hospitals including Ghandy memorial hospital, AaBET hospital and Amanuel hospital may not be obliged to decrease their service until the other facilities have used all their capacity. But strict IPC measures stated below should be followed.

Infection prevention and control activities

A. Facilities should assign one IPC person dedicated for this pandemic response.

B. Provide staff education about COVID-19 infection control and update polices as required.
C. Facilities should plane the amount of IPC needed with contingency plane
D. Facilities should avail adequate amount of PPE including medical masks, N95 masks, and goggles, adequate amount of water, soap, and alcohol based sanitizer.
E. Develop guide line on appropriate use of PPES
F. Develop monitoring guide for staff illness and work leave
G. Develop a plane to reduce patient and attendants over crowed less than one meter distance depending on the hospital condition. There may be a focus in emergency rooms, waiting areas, triage, and attendants' area.
H. Plane to postpone none emergency services and high risk elective procedures.
I. Samples taken from suspected cases for diagnosis should be handled by trained staff and processed in suitably equipped laboratories.

Emergency room preparedness

A. Prepare pre triage area per protocol
B. Prepare isolation area for suspected cases near to pre triage area until patient get transferred.
C. Determine how suspect cases will be isolated from other waiting patients and during ED care.
D. Emphasize hand and respiratory hygiene and other infection prevention techniques through education, policies, signage, and easy availability of supplies.
E. Develop referral plans for patients that do not need emergency care.
F. Develop care plans that reduce the number of staff caring for suspect/confirmed cases until transferred.
G. Create `fast-track' or other methods for rapid evaluation and prescribing for minor illness.
H. Develop risk communication and transportation plane for suspected cases

Outpatient services

A. Develop staffing plan to allow for expanded service hours when needed.

B. Determine if outpatient locations and services should remain open if the threat is too great to staff and patients.
C. Determine pre triage in central triage area.
D. Develop a plan to expedite medication refills, obstetrician visits
E. Develop a process for screening and triage of phone and email requests for care to limit office visits to those that require an in-person provider evaluation.
F. Develop a process to limit/cancel non-essential visits which can `flex' with the demands of the COVID-19 outbreak.
G. Emphasize hand and respiratory hygiene and other infection prevention techniques through education, policies, signage, and easy availability of supplies.
H. Develop referral/deferral plans for patients that do not need acute care

Surgical and Anesthesia care Guideline for COVID19 Patients

Emergency surgical Procedure

Emergency surgeries in COVID19 patients have become a concern. These patients deserve surgical care. However, there must be maximum care that other surgical patients should not contract the disease due to material and environmental contamination during the care. Medical personnel also should be protected while handling these patients. Therefore, it is imperative to have a separate operation theatre and patient isolation room. In addition, Covid 19 surgical center should be opened per demand but not in all centers.

Infrastructure

The operation theatre will be easy access able and close to ICU.

Five rooms are required:

1. Changing room
2. Ante room/ preparation room/ supply room
3. Induction room/ main operation room
4. Recovery room
5. Utility room

General guideline

- A designated OR should be allocated and signs posted on the doors to minimize staff exposure.
- There should be a separate access to the OR
- Patients should be recovered in the operating room or transferred to ICU directly.
- Ensure a high quality HMEF (heat and moisture exchanging filter) rated to remove at least 99.97% of airborne particles 0.3 microns or greater is placed between the endotracheal tube and reservoir bag during transfers to avoid contaminating the atmosphere.
- The same OR and the same anesthesia machine should only be used for COVID-19 cases for the duration of the epidemic.
- An additional heat and moisture exchanger (HME) filter should be placed on the expiratory limb of the circuit.
- Both HME filters and the soda lime are changed after each case.
- Only Anesthesia machine, monitor and suction machine should be kept in the operation theatre induction room completely covered by transparent plastic. All other necessary anesthesia equipment and drugs will be prepared and kept in Ante room/preparation room and brought when needed to the induction room after patient is transferred to OR table.
- Patient should wear surgical mask all the time during transfer and in the OR before intubation and after Extubation.
- The operation room should not be cleaned for 1 hour after completion of surgery to minimize risk of infection transmission to the cleaners

Transport of COVID 19 Suspected or confirmed cases

- Hospital security is responsible for clearing the route from the ward or intensive care unit (ICU) to the OR, including the elevators.
- The transfer from the isolation ward to the OR will be done by the ward nurses in full personal protective equipment (PPE) including a well-fitting N95 mask, goggles or face shield, splash-resistant gown, and boot covers.

- For patients coming from the ICU, a dedicated transport ventilator is used. To avoid aerosolization, the gas flow is turned off and the endotracheal tube clamped with forceps during switching of ventilators.
- Circulating nurse and runner will send back patient to Isolation ward
- Circulating nurse and Anesthetist will send back patient to ICU

Preparation before bringing patient to OR

- Personal protection of health care providers is important. Planning ahead of time is important to allow sufficient time for staff to apply personal protective equipment (PPE) and barrier precautions.
- Use check list to make sure all PPE are in place before bringing patient to OR and start anesthesia
- Remove all jewelry and watches, leave your cell phone behind
- Prepare all the necessary Anesthesia equipment and Drugs using the designated checklist
- PPE for aerosol precaution is necessary including long sleeve gown, Face shield , N95 mask, Double glove, Foot wear, Locally prepared plastic coat.

Minimize number of people in the OR

For surgery have

- Senior surgeon
- Resident/ Assistant
- Scrub nurse
- Circulating nurse
- Runner (should not enter the induction/main OR)

To provide anesthesia care, avail

- One senior airway operator (Anesthesiologist/ senior Anesthetist)
- Second airway operator(Anesthesiologist/Anesthetist/Anesthesia resident)

Allocate roles

- Team leader
- Most senior intubator

- Second intubator
- Cricoid pressure
- Drugs
- Monitor patient
- Runner outside room
- Who do we call for help?

During Airway Manipulation

- For detail of air way management please refer to airway section of case management section
- Apply standard ASA monitoring (blood pressure cuff, ECG, Spo2 and ETCO2).
- Apply plastic to cover patients face.
- Prepare to pre-oxygenate for a minimum of 5minutes with 100% oxygen
- Perform a rapid sequence induction in order to avoid manual ventilation of patients' lungs and potential aerosolization of virus from airways.
- Intubate with endotracheal tube attached to HMEF
- If initial intubation fails and manual ventilation is required, apply small tidal volumes
- Keep wearing the personal protective equipment throughout surgery
- Maintain anesthesia with inhalational anesthesia and muscle relaxant
- Extubate patient and allow recovery in the OR if possible
- If patient is to be transferred intubated, ensure a high quality HMEF (heat and moisture exchanging filter) is placed between the endotracheal tube and reservoir bag during transfers to avoid contaminating the atmosphere
- Transfer patient still wearing PPE
- After transfer of patient remove PPE and place them in a bag
- After removing protective equipment, remember to avoid touching your face or hair before washing hands with soap and water.

Figure 10: Safe removal of PPE

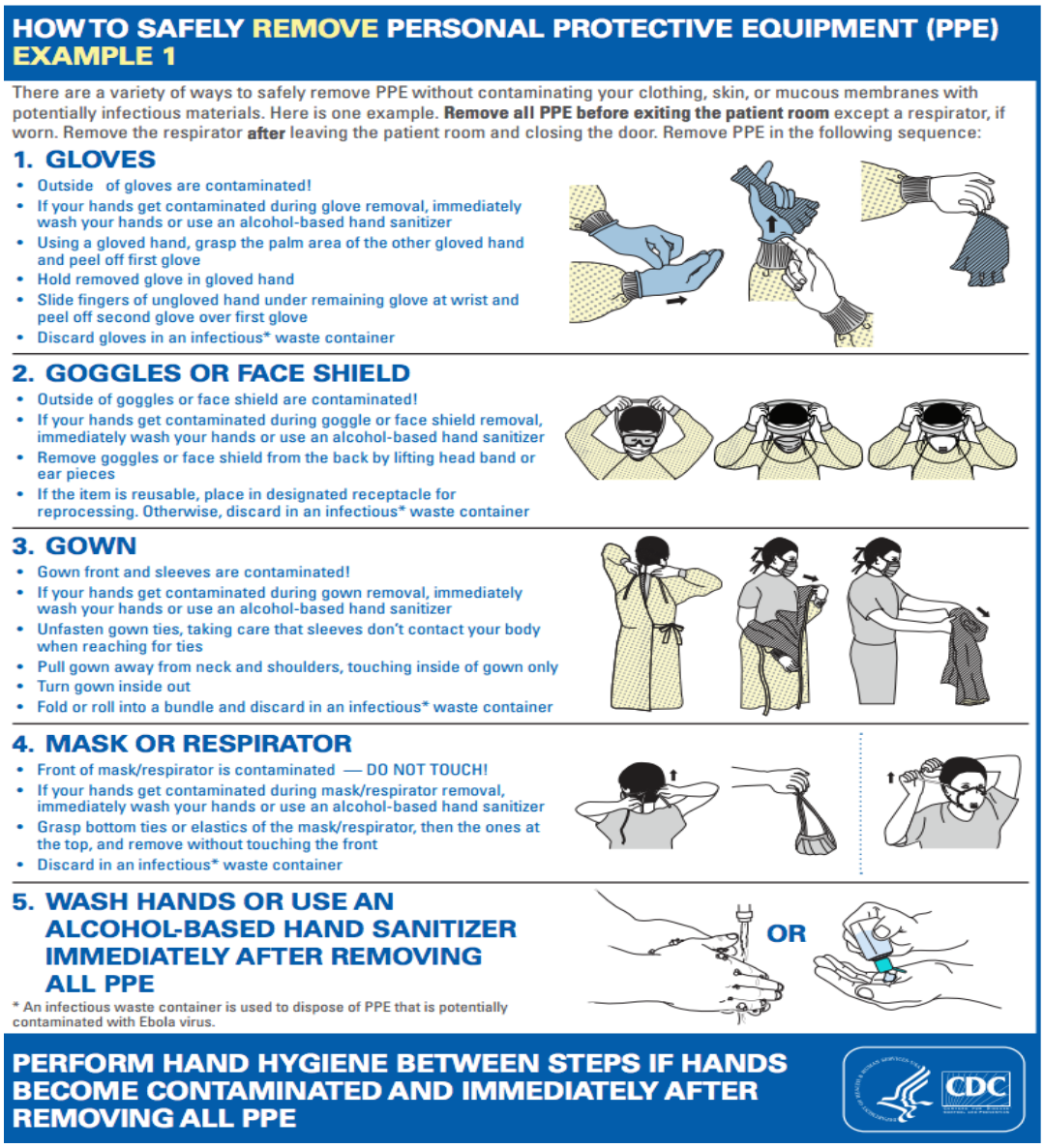


Table 3: Check list to be used before giving anesthesia for suspected or confirmed COVID19 patient

Prepare to enter room	Prepare equipment	Prepare patient	Prepare team	Prepare for difficulty
Minimize number of people in the OR -Senior airway operator -2nd airway operator Ensure runner Outside room in case of difficulty Correct PPE -Long sleeve gown -Respiratory hood -Eye protection -N95 mask -Double glove Check RSI drug box -Thiopental 3-5mg/kg -Ketamin 1-2mg/kg -Fentanyl 1-2mcg/kg -Sux 1-2mg/kg Emergency drugs -Atropine -Adrenalin	Checked equipment -Self inflating bag -Working suction -Two endotracheal tubes -Two laryngoscope -Bougie/stylet -Guedel airway -Supraglotic airway device -Video laryngoscope -Tube clamp -HME Do you have the drugs required? - Long acting relaxant -Pressor/inotrope -Verbalize quantity and volume of drugs -Plan of Maintenance of anesthesia	Apply monitor -ETCO2 - SPO2 - BP -ECG -Reliable and secured IV access -Optimize position -Pre-oxygenation With 100% oxygen for 5 mins -Avoid CPAP/bagging -Optimize patient state -Fluid/pressor Aspirate NG tube if it's in place	Allocate roles -Team leader -Most senior intubator -Second intubator -Cricoid pressure -Drugs -Monitor patient -Runner outside room -Who do we call for help?	Verbalize airway plan Plan Plan A -Drugs and laryngoscope -Intubate with HMEF attached to endotracheal tube -Inflate endotraceal tube -No hand ventilation , pre-intubation -Connect circuit and ventilator immediately after intubation Plan B/C Supraglotic airway Plan D Surgical Airway pre RSI briefing -No chest auscultation -Minimize circuit disconnection and if needed , clamp endotracheal tube No open suction

Check list to be used in the Operation room for suspected or confirmed COVID19 patient

Sign In

Staff = Anesthetist, Surgeon, Circulating Nurse

- Site marking, consent and appropriately informing family members should be completed
- Sign in at reception should be modified to ensure minimal unnecessary staff exposure. Hospitals departments should agree this locally and advise staff.

Intubation

Staff= Anesthetic medical & nursing staff only

- This is considered an Aerosol Generating Procedure (AGP)
- Requires standard contact and airborne procedure protocols.
- Surgeons should not be in the operating theatre for intubation unless concurrent management of bleeding etc. requires their presence.
- Under no circumstances should staff enter the operating room without properly applied PPE

Scrubbing

Staff= Most senior surgical staff available

- Work in teams of two to ensure correct application of equipment.
- Equipment advice: Masks: FFP3 or Higher. (FFP3 Mask should fit face securely and if not surgeon should be fitted for an N95 or PAPR).
- Eye Wear: Full Coverage Eye Protection.
- Footwear: Though not part of COVID-19 PPE, consider the use of shoe covers as with any operation.
- Gloves: Double Glove. Alcohol-based hand prep of PPE gloves may be appropriate.
- Gown: Waterproof Gown. If not available Waterproof apron underneath standard gown.

Intra Op

Staff anesthetic, Surgical and Nursing Staff

All surgery should be performed in a quick and efficient manner; the following principles apply to all surgeries but particularly laparoscopic:

- Strict Haemostasis
- Electrocautery at low settings
- Liberal use of suction
- Reduce Trendelenburg
- • Low pneumoperitoneum pressure levels; consider open surgery as an alternative
- Avoid long dissection in one area
- Avoid Harmonic or Ultrasound Dissection if possible
- All PPE should be removed inside the operating room.
- Exposed skin, outside of gown, mask, goggles, and gloves are presumed to be infected and should not be touched directly.
- Follow PPE removal and disposal guidelines on CDC website.
- Order is important: First gloves then gown, then wash or alcohol rub hands, then eyewear and mask, then wash or alcohol.

Elective Surgical Procedures

Guided by the trajectory of cases in other countries, it is very likely that health care infrastructure and resources, particularly as it relates to care of the most critically ill patients, are likely to be strained over the coming weeks. Social distancing, crowd avoidance, and other techniques do help to flatten the curve of the dissemination of Coronavirus Disease 2019 (COVID-19), but beyond that, it is appropriate to be forward thinking regarding those patients who will, nevertheless, become infected.

Following a careful review of the current situation, we recommend the following:

- Each hospital, health system, and surgeon should thoughtfully review all scheduled elective procedures with a plan to minimize, postpone, or cancel electively scheduled operations, endoscopies, or other invasive procedures until we have passed the predicted inflection point in the exposure graph and can be confident that our health care infrastructure can support a potentially rapid and overwhelming uptick in critical patient care needs.

- Immediately minimize use of essential items needed to care for patients, including but not limited to, ICU beds, personal protective equipment, terminal cleaning supplies, and ventilators. There are many asymptomatic patients who are, nevertheless, shedding virus and are unwittingly exposing other inpatients, outpatients, and health care providers to the risk of contracting COVID-19.

Surgical Outpatient clinics

- Develop a system, prior to attendance (e.g. phone call, SMS), to ask patients whether they've been overseas or have had close contact with a person with confirmed COVID-19 while infectious, in the 14 days before the scheduled outpatient appointment.
- If the patient meets the above criteria:
    - If it is not possible to conduct the appointment in an alternate way, reschedule their appointment unless it is medically necessary
    - Reschedule the appointment for as soon as possible after the 14 day exclusion
    - Remind them they are to self-isolate at home for 14 days after they returned or if they have had close contact with a person with confirmed COVID-19 while infectious
    - Remind them if they develop respiratory symptoms or fever report to incident manager of the facility
- Note, facilities will need to develop a system to implement the above steps, including appointing an appropriate person to assess whether or not it's safe to defer the outpatient appointment.

During outpatient attendance

- Consider options to identify patients in the outpatient clinic waiting room, e.g. waiting room signage
- asking patients at reception whether they have been overseas in the last 14 days or have had close contact with a person with confirmed COVID-19 while infectious, in the previous 14 days
- For patients who meet the above criteria:
    - Ask the patient to wear a surgical mask
    - Ask the patient if they have any respiratory symptoms or fever.

- For patients who meet the above criteria within 14 days of their appointment and who do not report any respiratory symptoms or fever:
- The attending doctor should make a clinical assessment about the presence of respiratory symptoms
- If no symptoms/signs continue the outpatient consultation as normal, with the patient wearing a surgical mask
- Remind the patient that they should self-isolate themselves at home for 14 days after they returned or have had contact with a person with confirmed COVID-19 while infectious.

Inpatient Facilities

- Reschedule elective surgeries as necessary.
- Shift elective urgent inpatient diagnostic and surgical procedures to outpatient settings, when feasible.
- Limit visitors to COVID-19 patients.
- Plan for a surge of critically ill patients and identify additional space to care for these patients. Include options for:
    - Using alternate and separate spaces in the ER, ICUs, and other patient care areas to manage known or suspected COVID-19 patients.
    - Separating known or suspected COVID-19 patients from other patients ("cohorting").
    - Identifying dedicated staff to care for COVID-19 patients.

Time is of the essence. Please be vigilant and take a leadership role in your practice setting so that these recommendations begin to take hold immediately.

Human resource composition of CORNA treatment center

- The overall Coordination activity should be led by MoH
- The Clinical management covid-19 Team should be led by internists/Pediatricians /Anesthesiologist /Pulmonology and Critical care or Emergency physicians and critical care

- When this is not applicable any Health profession with a proper knowledge of the subject matter can lead the team

COVID-19 health work force coordination in Addis Ababa

- All Hospitals on agreed rotation bases especially those with more expertise and experience should deploy the necessary number and mix of physician to the designated treatment center.

  For example
- Emergency service will be handled by emergency departments of TASH and SPHMMC alternatively every month the other hospitals physicians will act as third team (each team should composed of senior consultant physicians , residents /GP, Nurses as needed).
- ICU service will be handled by ICU teams of TASH and SPHMMC alternatively every month the other hospitals physicians will act as third team(each team should composed of senior consultant physicians , residents /GP, Nurses as needed).TASH/SPHMMC should capacitate /train the designated facility to handover in long run.
- Other specialties will be Designated from Different hospitals will be pulled and serve as duty consultant

COVID-19 health work force coordination in Regions

- The overall Coordination activity should be led by RHB with the collaboration of MoH
- The university hospitals, referral and General hospitals deploy the necessary number and mix of physician to the designated treatment center based on their human resource capacity and mix on rotations bases

COVID 19 In patient Care

In facility where confirmed cases of COVID-19 are admitted there will be team of health professionals assigned to specific number of beds depending on the availability of professionals and the case load. Each team will be responsible for 15-20 beds in mild CORNA cases with co morbidity and 5-10 beds in case of severe and critical cases.

Members of each team include:

1. One Internist/ Emergency physician as team leader

2. Two general practitioners or three health officers depending on which one is available in the locality
3. Four to six clinical nurses or other health professional who can be assigned as Nurse
4. One porter
5. One Cleaner

The overall health work force number of a particular COVID-19 treatment center depends on the number of inpatient bed capacity.

COVID-19 Triage area

Depending on the case load of the center One General practitioners/ HO, two to three triage nurses, preferably emergency medicine trained nurse will be assigned.

COVID-19 ICU

- The intensive care units will be run by internists/Anesthesiologist /Pulmonologist and critical care Emergency physicians.
- The ICU team is composed of above mentioned specialists other consultant, ICU trained nurses and certified anesthetist. The nurse to ICU bed ratio is One Nurse to one/two ICU bed.
- A consultant and one anesthetist will be assigned to 10 ICU beds.

NB: senior residents can play the role of consultants and junior residents will be assigned in placer of general practitioners.

SECTION XIV: RISK COMMUNICATION AND COMMUNITY ENGAGEMENT (RCCE) 2019 NOVEL CORONA VIRUS (COVID-19) DISEASE PREPAREDNESS

This tool is designed to support risk communication, community engagement staff and responders working with national health authorities, and other partners to develop, implement and monitor an effective action plan for communicating effectively with the public, engaging with communities, local partners and other stakeholders to help prepare and protect individuals, families and the public's health during early response to COVID-19.

Situation analysis Ethiopia Preparedness for COVID-19:

- Present communication channels: local FM radio, mini-media
- Established national risk communication plan and structure
- Current Socio-economic contexts:
    - Different levels of literacy rate, diverse languages and health beliefs
    - Influencers and active citizens include women association, youth groups, elderly, religious leaders, etc.
- While there are always new lessons to be learned, there are actions we know will work. This is a call to leaders to ensure RCCE is an essential role in your health emergency preparedness and response for the following reasons.

General Objectives: To prepare and coordinate for timely response on COVID-19 communication

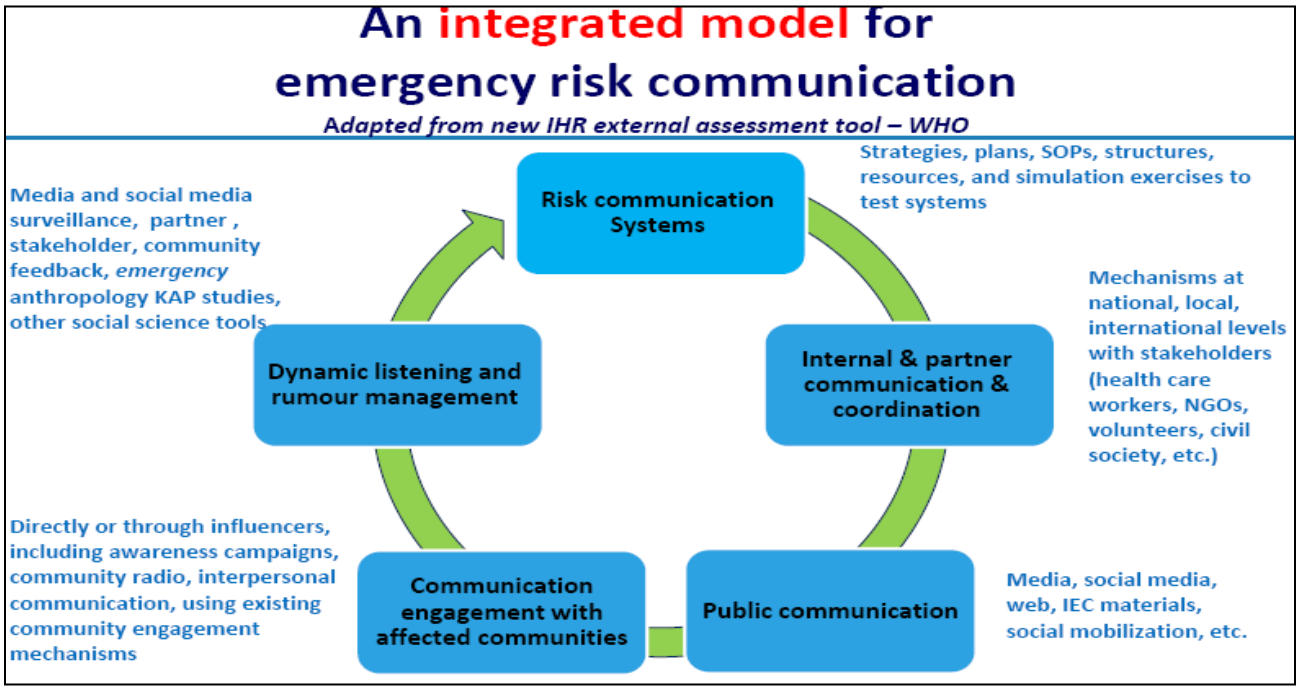
- To establish effective emergency risk communication
- To build leadership, community and health care work force engagement effectively
- To mitigate COVID 19 disease outbreak by promoting informed decision
- To ensure that health authorities maintain public trust as a source of COVID-19 information and guidance
- Ensuring consistency between public health recommendations from health authorities and other partners, being pro-active in monitoring, detecting, and preventing the spread of COVID-19.

Risk communication and Community engagement system and structure (RCCE)

Risk Communication uses a mix of communication and engagement strategies and tactics, including but not limited to Media communication, Social media, Mass awareness campaigns, Health promotion, Stakeholder engagement, Social mobilization and community engagement.

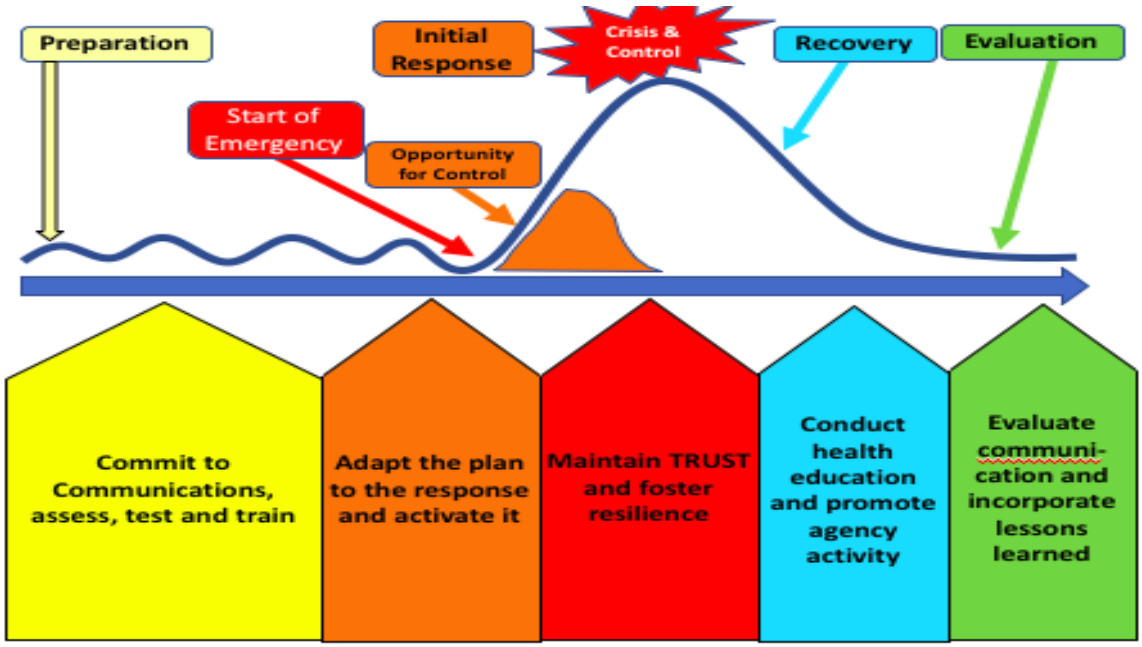
Each domain is reinforcing one another to provide effective communication to contain any public health emergencies.

Figure 11: The five domains of risk communication



- In case of RCCE for COVID-19, sensational global media coverage about the pandemic raised public concerns and everyone are potentially at risks. Health authorities need to prepare to communicate about the threat, even if there are no cases within their borders.
- Risk communication is dynamics and its objectives of communication are evolved through phases of emergencies from preparedness, to initial response, to crisis and control, recovery and evaluation to move toward resilience system (figure 12).

Figure 12: Preparedness, implementation and evaluation phase of RCCE



Preparedness phase of RCCE: represents an on-going process, rather than an event, and should constitute extensive planning and coordination activities and regular capacity assessments and training opportunities. Expected actions and steps to be taken by RCCE are listed on annex 1

Ethiopia RCCE Preparedness strategy for COVID-19:

Following Activation of the COVID-19 EOC within the EPHEOC, each level of the response has sets of responsibilities.

The Incident Manager (IM) is expected to send compiled reports and updates to EPHI/PHEM and MOH/RHB leadership on a daily basis or immediately upon receipt when urgent.

1. The IM, EPHI/PHEM and MOH/RHB leadership should meet every week, and on an ad hoc basis as needed, to monitor progress of the response.
2. The Public Information Officer must share updates and SITREPs which have been approved by the IM to a list of pre-identified and approved partners and stakeholders on a weekly basis.

3. Technical working group for risk communication to meet and provide technical clearance for messages and products needed for relevant target audiences and develop SOP and timeframe to product timely messages
4. Risk communication team to implement RCCE plan, monitor, and report the progress of their function and responsibilities on regular basis

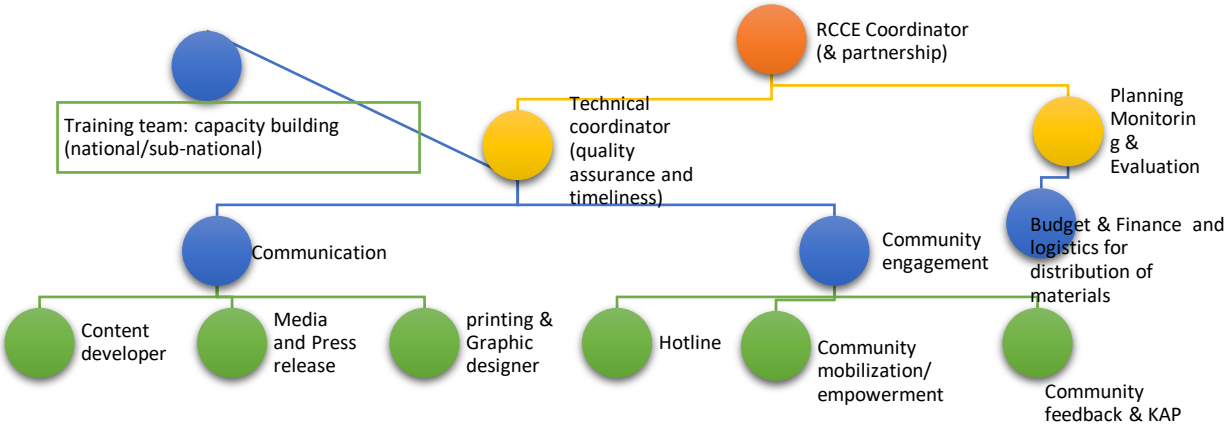
Primary responsibilities of the Risk Communication Team within the EPHI/PHEM in the RHB COVID-19, EOC

I. Coordinate, plan, and put in place a RCCE system for emergency preparedness and response for COVID-19,
II. Implement the RCCE preparedness plan for COVID-19
III. Development of evidence-based communication strategies and content suitable for various target audiences
IV. Mapping and analyzing capacities of national and sub-national risk communication human resources across agencies
V. Monitor the system is functioning and ready to be activate for in time of initial outbreaks and crisis.

Composition of RCCE team (see recommended structure on figure 3):

a) **Minimum requirement:** RCCE Coordinator + PM&E, Technical coordinator, Communication officer (s), and Community engagement officer (s)
b) **Surge capacity:** in time of initial alert (confirmed case in country) and crisis, numbers of staffs to be increased by 3-35% particularly at the level of communication officers (content development, press release officer, graphic designers) and community engagement (hotline staffs, community mobilizers, community feedback and researchers), as well as trainers to increase capacities of all communication partners

Figure 14: Recommended structure for RCCE team



Guidance for all the Task forces to communicate risk with target persons, families, communities

1. **Leadership: public communication and media handling**
    - Align risk communication and community engagement interventions across different components of the COVID19 preparedness and response pillars.
    - Designate a spoke-person (or team of spoke-persons) to response to public concerns and timely communicate with media.
    - Equip spoke-person(s) to be skillful in handling media, press conference, public communication, and engage with mass audiences
    - Ensure response teams are informed on the key social, cultural, economic, and political implication of all actions are being taken to prevent and control the COVID 19, considering possible stigmatization and discrimination against people from particular country of origins, and preventing potential negative reactions from the community or public fear.
    - Request that social scientists and risk communication officers review strategies and continually adapt them to the local context.
    - Be mindful that a proportionate effort to support the health system is maintained to address other health issues during the outbreak response period.
    - Consider impacts of remuneration for health-care workers, volunteers and response staff – consider staff payments with fairness as appropriate across agencies.
    - Ensure supervisors are informed of fair staff management plans (e.g. payments, compensatory time off, psychosocial support, etc.).
2. **Case Management: Communicating risks for affected case, families and communities**
    - Ensure regular and timely communication with and feedback to family, friends or other relations of patients who are admitted regarding their health status. Make note of contact information for patients and their family members and inform the family as soon as possible about any change in patient status.
    - It may be difficult to establish trust with sick patients and/or family members when wearing PPE. Make sure to speak to patients in a tone that is customary for

providing comfort and building trust when speaking to family or community members.

- Ensure appropriate explanation is provided to patients and their families on the importance of collecting samples, how to understand the result, treatment, the care they will be provided with and isolation if this measure is necessary.
- Keep in mind that families in the affected areas may seek self-treatment or traditional medicine when ill – engage with traditional healers to explain patient care to individuals or family members if appropriate.
- Do not make promises regarding if a family member will recover – this may lead to mistrust if the patient does not recover.
- Maintain fairness when providing treatment to patients and ensure adequate explanation to patients receiving investigational therapeutics. Due to marginalization of vulnerable populations, appearing to favor or disfavor persons may encourage social tensions and rumors.
- Make considerations for patients to ensure they can receive timely information regarding their health status and family.
- Allow family members to view patients or provide for basic needs of their family members (e.g. clean clothes, food, etc.) as per appropriate IPC protocols.
- If a patient dies, be sure to inform the family as soon as possible and calmly explain the process of body treatment (burial ground or cremation options as culturally appropriate).
- This information may need to be relayed through a trusted family member, traditional healer or community representative in a manner that respects local customs of death and grieving.
- Delays in communication may lead to mistrust or rumors linking treatment centers to death, which can prevent people from seeking help.
- Store body bags in an appropriate location. The presence of body bags may keep communities away from health care centers or start rumors connecting health centers to inevitable death.

3. **IPC: Communication within health facilities, Intensive care unit, quarantine/ isolation center, and community engagement**
    - Consider the cultural or social context during specimen collection, especially when collecting bodily fluids or samples from suspected individuals.
    - Ensure to involve essential community members when collecting specimen from deceased persons, according to IPC protocols. Women may need to be engaged in the process.
    - Timely relay of test results to clinicians and family members is key to maintaining community trust.
    - Ensure patients are provided with clear, appropriate and timely information regarding the collection of samples and the testing process.
    - Encourage affected community to understand non-pharmaceutical prevention protocol (e.g. hand washing, chlorinated water, utilize masks, etc.) and take part in protecting themselves from COVID-19.
    - If collecting patient specimens in the community, make sure to provide clear and appropriate information to family or community members on the specimen collection process to reduce fears.
4. **Point of Entry: Communicating risks to target population (passengers, travelers, transport providers, etc.)**
    - Inform passengers, travelers, and target groups on screening procedure at the points of entry, and advice on how to protect themselves
    - Provide information for passengers, travelers, and target population on self-protection, monitoring, and treatment facilities where they can reach if symptoms developed.
    - Provide timely inform passengers, travelers, transport providers, airline and crews, on alert of suspect cases and procedure for isolation
    - Encourage passengers, travelers, target population to give accurate personal information to facilitate contact tracing if needed
    - Practice respectful communication and keep personal information confidential

5. **Surveillance: communicating risk with affecting communities and interpersonal communication for contact tracing**
    - Engage the community members in the process and ask for their support to help with the identifying contacts. Identify cultural sensitivities that might arise when working in the community and discuss potential solutions with key members of the community.
    - Consider hiring contact tracers and other volunteers from the local community. Be sure to pay careful attention to minimize marginalization of vulnerable groups and tensions between ethnic groups.
    - Ensure the community and religious leaders and traditional healers are aware of contact tracing activities in their communities. Address community concerns, rumors and misperceptions.
    - Explain clearly the reasons for contact tracing with contacts and the community. Appropriately communicate the specifics of contact follow-up, including timing and duration of follow-up, who will conduct follow-up visits or phone calls if relevant, when contacts can expect the follow-up period to be completed, and details about who can be contacted if they or a family member falls ill during or after the follow-up period.
    - Remember that contacts are dealing with stress; fear and stigma– treat them with respect and try to understand the reasons behind their behaviors or reactions. If contacts refuse follow-up, work with trusted community or family members to clearly communicate the importance of contact tracing and address any concerns.
    - Engage with psychosocial and social mobilization teams so that they can provide mental health and psychosocial support to the contact(s).
    - Consider providing compensatory packages with food and basic items for contacts to support them during the 21 days follow-up period. Be sure to pay careful attention to minimize marginalization of vulnerable groups and tensions between ethnic groups.
    - Ensure adequate, clear and timely communication with the community and community representatives around safe and dignified burial procedures for any deaths that occur in treatment centers or in the community.

- Ensure that safe and dignified burial teams respond timely to alerts from the community and address community concerns, fears, or misperceptions.

6. Risk communication and partner coordination

- Establish mechanisms to listen to and address community concerns, rumors and misinformation. Keep the community updated on the response. Involve trusted community influencers as much as possible to disseminate information.
- Make sure to involve traditional healers, community leaders and influencers in the response as much as possible.
- Ensure that the changing needs of the community are communicated back to key social mobilization, risk communication and community engagement focal points and are addressed through the overall response.
- Inform and advise outbreak response pillars about cultural or social specifications to consider for implementing the response.
- Ensure standardized and coordinated messaging, community engagement and risk communication interventions across response pillars and partner agencies.
- Continually adapt the risk communication and social mobilization strategy to address community concerns and rumors.
- Ensure that partners are updated on the activities across all relevant response pillars.
- Ensure that rumors, concerns and other issues from the community reported by partner agencies are addressed within the risk communication, social mobilization and community engagement pillar.
- Ensure that all partners fairly compensate volunteers and team members, particularly when hired from the local community.
- Be careful with incentives provided to family members, contacts, survivors or field teams (e.g. food, allowances, etc.) to ensure fairness, limit stigmatization and reduce marginalization of vulnerable populations.
- Ensure standardized and coordinated interventions to maintain fairness. Keep in mind that stigmatization will also affect the contacts and families of people sick with COVID-19 and their villages or communities.

Monitoring & Evaluation

- To be linked with EOC-planning & M&E

RCCE Partners (internal & external coordination)

- List of partners within government, NGOs, WHO, UNICEF, CDC (focus on communication partners)
- External partners (donors)

A. Communicating early about COVID-19

With sensational global media coverage about COVID-19, health authorities should be prepared to communicate about the threat, even if there are no cases within their borders. Based on amount and tone of news coverage, people around the world are worried, although most are not currently at-risk.

The purpose of sharing information about the virus is to ensure the public has early, primary information about COVID-19 from credible sources. If the government does not speak out, less accurate and non-credible sources are likely to fill the void

B. Communicating about COVID-19 in the Midst of Uncertainty

- The COVID-19 epidemic is moving and changing quickly. A major challenge to effective COVID-19 communication is that we don't know everything we need to know to help people protect themselves.
- In addition, information that is uncovered over time may be different than at the beginning of an emergency and also different than originally anticipated, based on past experience.
- In the context of a frightening new virus, and uncertainties about its source, severity, incubation period, and transmission; credibility is the most powerful asset that health agencies have.
- Order to influence people to follow public health recommendations, agencies will be successful to the extent that they have the public's trust. That means communicating with the public early and often, in the midst of uncertainty.
- It means telling the truth—what is known about the situation and what is unknown. It also means explaining what health authorities are doing to get answers, and the assurance that when new information is available, it will be publicly shared

C. Communicating to Lower the Public's Concern and Fear about COVID-19

- When there is a confirm case in country, public perception changes dramatically. Public perception of COVID-19 outbreak has been driven largely by media descriptions, including words such as "deadly," "galloping," and "extraordinarily grim."
- The emerging picture is frightening. When unfamiliar health threats emerge, many people react with high levels of concern, even when their individual risk of infection is

low.

- In the case of COVID-19, risk perception is complicated by the fact that the virus's symptoms are similar to influenza which is currently circulating in some countries.
- The fear may drive people to stigmatize certain group of population, and some particularly group of population may be discriminated. Careful messages have to be responsive and conscious of social and economic implications.

People who are highly fearful about contracting the virus are more likely to:

- Take unnecessary or counterproductive actions (such as self-diagnosis, hoarding medical supplies, or self-medicating).
- Demand unneeded medical care and treatment
- Engage in stigmatizing behaviours that harm others.
- Pressure governments to impose visible, but ineffective, measures (such as border closings).

Countries can communicate about COVID-19 in ways that lower fear and concern and encourage appropriate levels of actions, even in the midst of uncertainties that make it difficult to conduct accurate risk assessment.

SOP for Managing Misinformation and Rumours

Reviewing and responding to public/community concerns and rumours.

Regularly review the information that you gather about public/community rumours and concerns (daily at the height of an outbreak) to determine:

What rumours or misinformation is circulating? For each rumour, ask:

- Is the misinformation harmful? Will it lead to harmful action? If so, your health authority must address it and correct it.

Are people worried about issues that aren't considered big threats nor realistic risks? Are they not worried about COVID risks that health authorities consider the biggest threats? If so:

- Address public/community worries with respect,

- Communicate the factual information that points to more accurate risk perception.

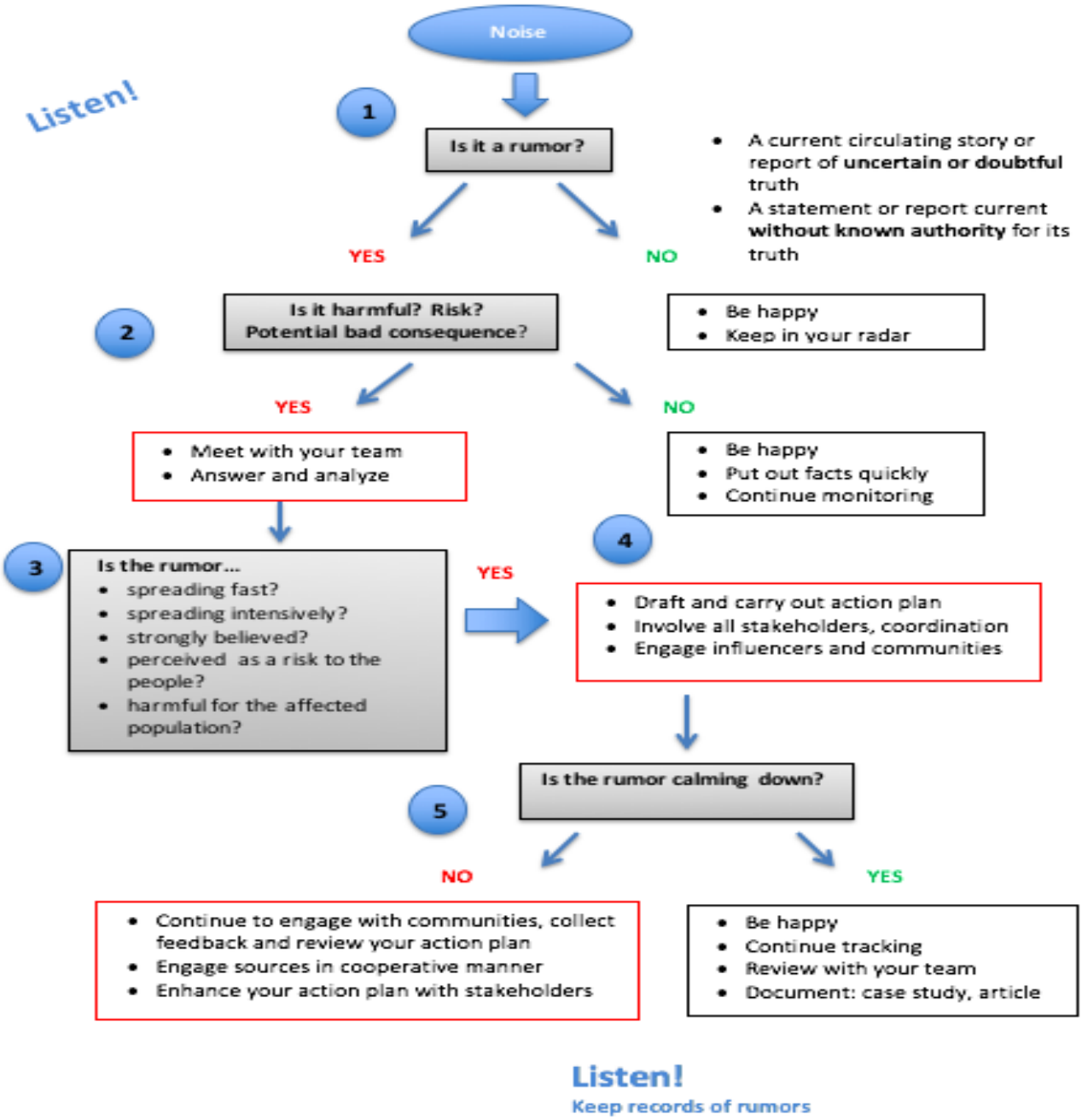
Does the monitoring reveal questions that your health agency hasn't answered? If so:

- Find or develop answers, even if questions are unresolved (See Appendix B for communicating in the midst of uncertainty).
- Add answers to talking points, post them on the health authority's web site, and disseminate them through social media and other channels.

Monitoring can help you create a relevant Q&A list that, overtime can address a broad range of audience and stakeholder concerns.

Recommend the RCCE team to develop rumour management strategies and flow of information to address the rumours as per example given below.

Figure 13: Example for rumour management strategies and flow of information to address the rumours



SECTION XV: COVID-19 OPERATIONAL GUIDANCE FOR MAINTAINING ESSENTIAL HEALTH SERVICES DURING AN OUTBREAK

Introduction and overview

Health systems are being confronted with rapidly increasing demand generated by the COVID-19 outbreak. When health systems are overwhelmed, both direct mortality from an outbreak and indirect mortality from vaccine-preventable and treatable conditions increase dramatically. Analyses from the 2014-2015 Ebola outbreaks suggest that the increased number of deaths caused by measles, malaria, HIV/AIDS, and tuberculosis attributable to health system failures exceeded deaths from Ebola. A system's ability to maintain delivery of essential health services will depend on its baseline capacity and burden of disease, and the COVID-19 transmission context (classified as no cases, sporadic, clusters, or community transmission). Maintaining population trust in the capacity of the health system to safely meet essential needs and to control infection risk in health facilities is key to ensuring appropriate care-seeking behavior and adherence to public health advice. A well-organized and prepared health system has the capacity to maintain equitable access to essential service delivery throughout an emergency, limiting direct mortality and avoiding increased indirect mortality.

With a relatively limited COVID-19 caseload, health systems may have the capacity to maintain routine service delivery in addition to managing COVID-19 cases. When caseloads are high, and/or the health workforce is reduced due to infection of health workers, strategic shifts are required to ensure that increasingly limited resources provide maximum benefit for a population.

Countries will need to make difficult decisions to balance the demands of responding directly to COVID-19, while simultaneously engaging in strategic planning and coordinated action to maintain essential health service delivery, mitigating the risk of system collapse. Many routine and elective services may be postponed or suspended. In addition, when routine practice comes under threat due to competing demands, simplified purpose-designed governance mechanisms and protocols can mitigate outright system failure. Establishing effective patient flow (including screening, triage, and targeted referral of COVID-19 and non-COVID-19 cases) is essential at all levels.

Successful implementation of these strategic shifts will require transparency and frequent communication with the public, specific protections to ensure access for socially vulnerable populations, active engagement of communities and other stakeholders, and a high degree of cooperation from individuals.

Action point 1

Establish simplified purpose- designed governance and coordination mechanisms to complement response protocols

A designated focal point for essential health services should be a member of the COVID-19 Incident Management Team. In the early stages of the epidemic, when COVID-19 caseload can still be managed and routine services are not yet compromised, this focal point can assist in repurposing human, financial, and material resources from routine services and mobilizing additional resources.

When routine services begin to be compromised, the essential health services focal point leads on triggering a phased reprioritization of services, as described in the sections below, working through relevant authorities to coordinate with public and private service providers, and reorient referral pathways.

- Establish (or adapt) simplified mechanisms and protocols to govern essential health service delivery in coordination with response protocols.
- Establish triggers/thresholds that activate a phased reallocation of routine comprehensive service capacity towards essential services, through the specific mechanisms identified below.
- Assess and monitor ongoing delivery of essential health services to identify gaps and potential need to dynamically remap referral pathways.

Action point 2

Identify context-relevant essential services

Countries should identify essential services that will be prioritized in their efforts to maintain continuity of service delivery. High-priority categories include:

- Essential prevention for communicable diseases, particularly vaccination;
- Services related to reproductive health, including care during pregnancy and childbirth;
- Care of vulnerable populations, such as young infants and older adults;
- Provision of medications and supplies for the ongoing management of chronic diseases, including mental health conditions;
- Continuity of critical inpatient therapies;
- Management of emergency health conditions and common acute presentations that require time-sensitive intervention;
- Auxiliary services, such as basic diagnostic imaging, laboratory services, and blood bank services.

The selection of priorities will be guided by health system context and the local burden of disease, but should initially be oriented to preventing communicable disease, averting maternal and child morbidity and mortality, preventing acute exacerbations of chronic conditions by maintaining established treatment regimens, and managing emergency conditions that require time-sensitive intervention.

If the outbreak period is prolonged, authorities will need to regularly reconsider the status of outpatient services that are time dependent and lifesaving. Decisions about when to initiate cancer treatments, for example, may need to be integrated with an analysis of the benefits of early treatment, the risk of immuno-compromise during an outbreak, and the estimated duration of service limitations. And the priority for surgical procedures initially deemed elective may change over time. Strategies for the restoration of comprehensive and elective services should be revisited and revised periodically as the outbreak evolves.

Key Points:

- Generate a country-specific list of essential services (based on context and supported by WHO guidance and tools).
- Identify routine and elective services that can be delayed or relocated to non-affected areas.
- Create a roadmap for progressive phased reduction of services (see also governance above)

Action point 3

Optimize service delivery settings and platforms

The settings where specific essential services are delivered may need to be modified for many reasons, including:

- Existing service locations may be unavailable because they have been designated for the exclusive care of people affected by COVID-19;
- Routine health service delivery may need to be adapted (e.g. vaccinations delivered by targeted approaches; postnatal care delivered at home);
- Need to limit the number of provider encounters due to increased demand and decreased staff;
- The primary venue for maintaining acute care services may be shifted to first-level hospital emergency units in order to concentrate services in a setting suited to high-volume high-acuity care available 24 hours per day.
- Conduct a functional mapping of health facilities, including those in public, private, and military systems.
- Taking into account re-purposed facilities, concentrate 24-hour acute care services at designated first-level hospital emergency units (or similar) and ensure public awareness.
- Redirect chronic disease management to focus on maintaining supply chains for medications and needed supplies, with a reduction in provider encounters.
- Establish outreach mechanisms as needed to ensure delivery of essential services.

Action point 4

Establish effective patient flow (screening, triage, and targeted referral) at all levels

Basic infection-prevention measures (hand hygiene, respiratory etiquette, physical distancing) should be promoted universally.

Frontline care sites - including primary health centres, clinics, and hospital emergency units, as well as ad-hoc community settings (schools, etc) that have been designated as care sites will need to expand their capacity for screening, isolation and triage, including with designated physical areas and appropriate security.

All frontline sites will need to be ready to assess and refer patients appropriately and safely to reduce transmission and ensure rational use of scarce advanced care resources. In some settings, specific facilities may be designated for the care of patients affected by COVID-19. In other settings, there may only be one hospital. Instituting targeted referral and counter-referral criteria and processes will be crucial to keep the system from becoming overwhelmed

- Disseminate information to prepare the public and guide safe care-seeking behavior.
- Establish screening of all patients on arrival at all sites using the most up-to-date COVID-19 guidance and case definitions.
- Establish mechanisms for isolation of patients in all care sites using the most up-to-date COVID-19 guidance
- Ensure acuity-based triage at all sites providing acute care.
- Establish clear criteria and protocols for targeted referral (and counter-referral) pathways.

Action point 5

Rapidly re-distribute health workforce capacity, including by re-assignment and task sharing

The combination of increased workload and reduced number of health workers is expected to pose a severe strain on the capacity to maintain essential services. These predictable challenges should be offset through a combination of strategies.

- Critical support measures include ensuring appropriate working hours and enforced rest periods; providing guidance, training and supplies to limit health worker exposures;
- Providing physical security and psychosocial support; monitoring for illness, stress and burnout; and ensuring timely payment of salaries, sick leave, and overtime (including for temporary staff to eliminate perverse incentives for staff to report to work while ill)
- Health workers in high-risk categories for complications of COVID-19 may need to be reassigned to tasks that reduce risk of exposure.
- Offering accommodation arrangements to reduce staff travel time and protect health workers' families from exposure may be appropriate.

Mechanisms to identify additional health workforce capacity includes

- Request part-time staff to expand hours and full-time staff to work remunerated overtime

- Re-assign staff from non-affected areas (ensuring alignment of clinical indemnity arrangements where necessary);
- Utilize registration and certification records to identify additional qualified workers, including licensed retirees and trainees for appropriate supervised roles;
- Mobilize non-governmental, military, Red Cross/Crescent, and private sector health workforce capacity, including through temporary deployment to the public sector where relevant;
- Where appropriate, consider establishing pathways for accelerated training and early certification of medical, nursing, and other key trainee groups, ensuring supportive supervision;
- Identify high-impact clinical interventions for which rapid training would facilitate safe task sharing, and consider expansion of scopes of practice where possible;
- Utilize web-based platforms to provide key trainings (e.g: on management of time-sensitive conditions and common undifferentiated presentations in frontline care), clinical decision support and direct clinical services where appropriate.
- Formalize organized lay provider systems (such as Community First Aid Responders, Red Cross/Crescent volunteers);
- Train and repurpose government and other workers from non-health sectors to support functions in health facilities (administration, maintenance, catering, etc.);
- Increase home-based service support by appropriately trained, remunerated and supplied community health workers;
- Increase capacity of informal care givers for home care support such as family, friends, and neighbors.

Key Points

- Map health worker requirements (including critical tasks and time expenditures) in the four COVID-19 transmission scenarios.
- Maximize occupational health and staff safety measures in all categories listed above.
- Create a roadmap for phased implementation of the strategies above for timely scale-up.
- Allocate finances for timely payment of salaries, overtime, sick leave, and incentives or hazard pay, including for temporary workers.

- Initiate rapid training mechanisms and job aids for key capacities, including diagnosis, triage, clinical management, and essential infection prevention and control.

Action point 6

Identify mechanisms to maintain availability of essential medications, equipment, and supplies

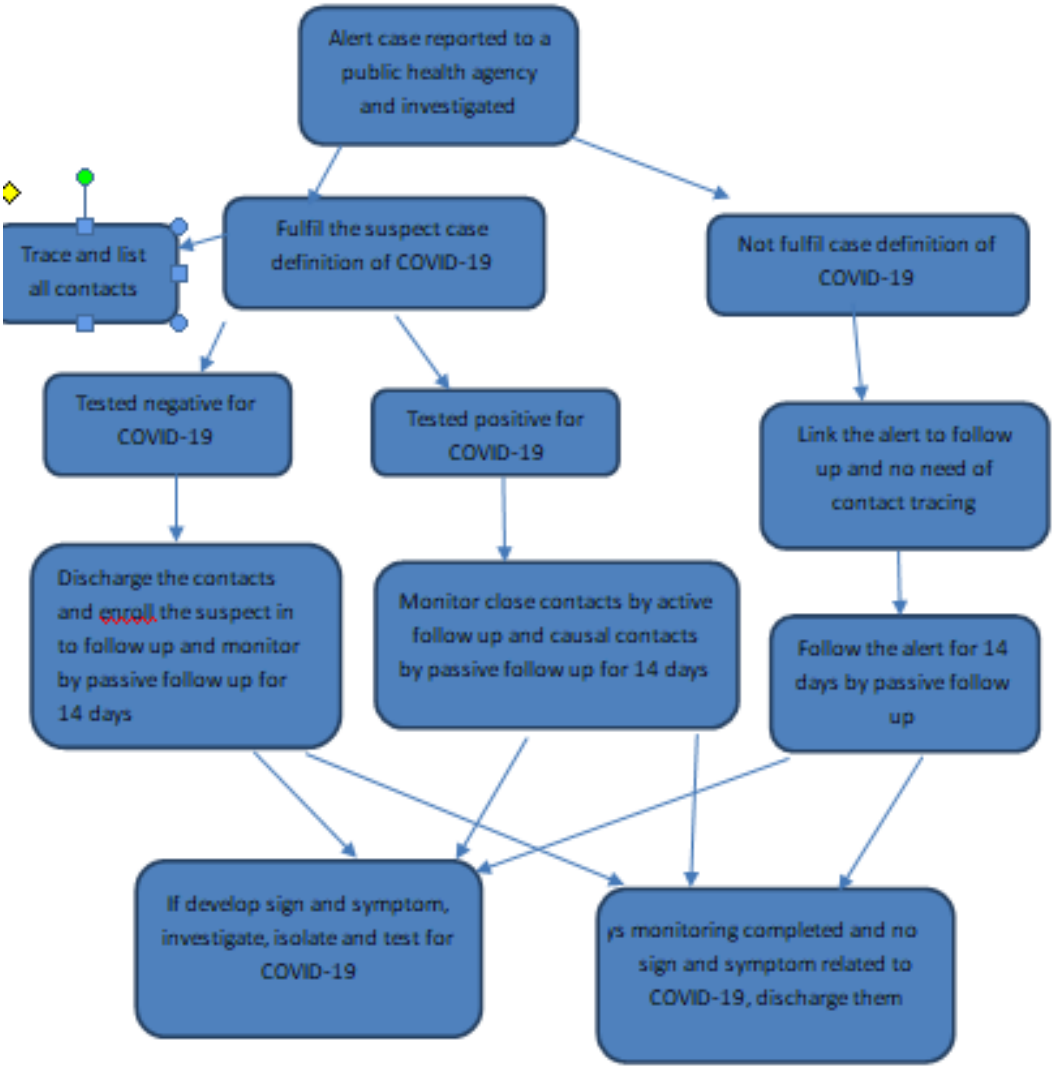
The need to redirect supplies to the treatment of patients with COVID-19, compounded by general supply chain disruptions due to the effects of the outbreak on other sectors, is likely to lead to stock outs of resources needed to maintain essential services.

Priority resource lists should be developed (or adapted from existing lists), and planning should be executed in coordination with the overall outbreak response. Suppliers and pharmacies (public and private) can be networked to allow dynamic inventory assessment and coordinated re-distribution

- Map essential services list to resource requirements.
- Map public and private pharmacies and suppliers.
- Create a platform for reporting inventory and stock outs, and for coordination of re-distribution of supplies.

ANNEXES

Annex 1: Diagram of contact tracing



Annex 2: Contact tracing data collection tool

S.N	Contact name	Age	Sex	Last contact date	Country of origin	Region	District	Phone number	Health worker Y/N	If yes HF name

Annex 3: Expected actions and steps to be taken by RCCE

A. RCCE System During the Preparedness Phase: table annex	• Integrate RCCE into national response • Develop RCCE plan, with human and financial resources • Agreeonproceduresfortimelyreleaseofinformation suchasclearanceproceduresformessagesandinform ation products – keep clearance chains short • Draw up timelines for communication activities andproducts including transparency and early announcement with agreed procedure, produce and pretest messages • Build RCCE team, analysing capacities to response to COVID-19 given the nature and speed of transmission, train the team and prepare surge capacity and training • Identify and activate spokespeople for the emergency, if case is confirmed provide timely press conference • Initial needs and challenges can be anticipated and preliminary materials developed • Establish system to understand public concerns, and identify effective channels and key influencers and medias, including community channels. • MonitorRCCEresponsebyidentifyingprocessesthatde layinformationreleaseandcreateconfusionamongaffec ted populations
B. Internal and Partner Coordination	• Activate SOPs for RCCE coordination with other response agencies and partners • Link national, regional and local RCCE operations • Assess the communication capacity of all relevant partners • Plan and agree on communication roles and responsibilities for internal (to each response agency) and external (to the public) communication

	• Set up a multi-sectoral working group and define roles and responsibilities • Identify partners that includes other agencies, organizations, community planners, health care workers, etc., with their contact information (in the case of this outbreak consider Ministry of Agriculture, Travel and Tourism, hospital systems, etc.) – should an outbreak occur, these partners should be activated into a multi-sectoral RCCE response team • Identify typical target audiences and channels of communication used by partners • Coordinate message preparation, consistency and dissemination • Set Standard Operating Procedures (SOPs) e.g. which agency speaks first on which issue, what specific topics and audiences will be best addressed through which agency/partner, how will messaging be aligned. •
C. Public Communication	• Build relationship with public medias, influencers, audience/channel mapping • Review the roster of spokespeople at all levels, listing their expertise in anticipated public health threats, and, if necessary, train them • Prepare standard messages, including produce and pre-test message templates • Identify key media; create and update a list of journalists, and foster media relations • Identify media and other communication channels and influencers and assess their potential reach for potential target audiences – use channels and influencers trusted, preferred and regularly used by target audiences **After a case confirmed in country:** • Announce the health threat early and often and update after

	a risk assessment and an analysis of risk perception
D. Communication engagement with community	• Preparing to inform public and communities at all levels • General rapid assessment of people's perception including barriers to control the epidemic • Identify target population, vulnerabilities, and social networks • Understand the social landscape, potential impact on livelihood, political unrest, etc. • Establish methods for understanding the concerns, attitudes and beliefs of key audiences • Conduct a rapid risk perception analysis based on existing formal and informal information • Identify target audiences, and gather information on their knowledge and behaviours e.g. who they trust, how they are likely to receive information, their daily habits, their concerns, etc. • Identify existing community influencers such as: Community leaders, religious leaders, health workers, traditional healers, etc. social networks: e.g. women's groups, community health volunteers, unions, social mobilizers for polio, malaria, HIV that can be repurposed for community engagement • Segment the audiences for the communication response (e.g. affected people, health care workers, political leaders, donors, etc.) • Translate materials into relevant languages and adapt to literacy levels
E. Addressing uncertainty, perceptions and misinformation	• Prepare to begin communicating before the full picture is known by ensuring leaders are to communicate with • Communicate what is known and what is not known - explain degree to which uncertainty still exists

management	• Establish and activate if case is confirmed, a system for monitoring, verifying and, if necessary, responding to rumours, misinformation and frequently asked questions **A.** Monitor mass and social media, hotlines, health care worker • feedback from patients and community concerns and continually apply feedback into adapted RCCE strategy
F. Capacity building	• Consider training for surge staff needed for RCCE responders on what is known and unknown about novel coronavirus, current plans and procedures as well as sub-national preparation for RCCE response • Plan regular updated guidance to all RCCE responders • Consider training for leaders, responders and spokespeople

Annex 4: Responsibilities of each functional position in RCCE

<table>
<tr><th colspan="2">Responsibilities of each functional position</th></tr>
<tr><td>RCCE coordinator

• Responsible for liaising with other pillars of the response, planning, organizing, monitoring and evaluation
• Map and reactivate partnership with stakeholders
• Developing ToRs
• Guide implementation of SOPs
• Developing work plans
• Mobilize resources, trained human resources looking for specific skills
• Convene regular meeting
• Compile and submit reports
• Update other pillars
• Enhance inter-pillar communication and information sharing</td><td>Training team lead

• Identify training needs of responders, community mobilizers, communication partners
• Develop or adapt training modules
• Coordinate capacity-building training activities on risk communication and implementation strategies
• Adapt quality check tools
• Supervise to check for quality implementation</td></tr>
<tr><td>Communication

• Develop external communication strategies
• Coordinate planning and implementation of hotline, community engagement, and media communication interventions
• Produce analytical reports
• Monitor media and provide feedback for officials to inform press releases</td><td>Planning, Monitoring and Evaluation

• Gather surveillance information and data (person, time and location of cases (confirmed cases)
• Identify audiences
• Development of evidence-based communication strategies for various target audiences, interventions
• Conduct rapid assessments and conduct to identification of appropriate message-</td></tr>
</table>

<table>
<tr><th colspan="2">Responsibilities of each functional position</th></tr>
<tr><td>

- Documentation of risk communication (including video & photographic documentation) lessons learned and best practices
- Achieving of RCCE works

M**essage and Press release**

- Agree on the designated spokesperson
- Gather updates from all pillars for preparing press release)
- Draft messages for press release and share for verification/approval
- Share press release for identified media houses and during press conference

</td><td>

delivery mechanism and to gather the necessary information on the target community for which to tailor risk communication messages.

- Identification and reinforcement of effective redundant communication mechanisms to secure multiple, reliable communication platforms.
- Conduct monitoring of implementation of activities
  I. Conduct evaluation of RCCE activities
  II. Document lessons learnt.

</td></tr>
<tr><td>

Content developer and production

- Develop key messages addressing the issues/topics and for different audience groups identified
- Identify IEC materials and channels of communication for effective delivery of messages to the targeted audiences
- Quantify number of materials and prepare production of ready-to-print public information and communication products.
- Identify multimedia IEC/BCC materials for different topics to be

</td><td>

Community engagement and Feedback

- Develop community engagement strategies based on identified community influences
- Identify community assets for information sharing through social and traditional networks
- Engage communities to identify persons who have come from other parts of the country with history of travel from affected regions/parts of the country who may have come to the community

</td></tr>
</table>

<table>
<tr><th colspan="2">Responsibilities of each functional position</th></tr>
<tr>
<td>used at field-level.
• Develop and produce risk communication products for local and national media, such as TV, radio, newspaper, and social media networks.
• Develop and production of risk communication products for health care providers to support household awareness and preparedness.

Graphic designer
• Produce graphics design matching for developed messages</td>
<td>with
• Engage communities to identify and manage rumours
• Engage community volunteers to convey messages house to house, appropriate measures what should be done, not to be done
• Link community engagement and high level of response platform
• Monitor community rumours and misconceptions about COVID-19 that may affect the efficacy of operational interventions, using the COVID-19 Toll-Free Line, social media, and other channels, and evaluating and redesigning the risk communication strategy to account for identified misinformation.</td>
</tr>
<tr>
<td>Media

• Prepare list or update list of mainstream media
• Provide orientation for journalists from selected media houses
• Provide updates or information pack on the country situation of coronavirus
• Work with to organize press conference, interviews, news and stories</td>
<td>Hotline services
▪ Receive calls from public, document questions forwarded for advice and information
▪ Provide advice and counselling services
▪ Provide consistent information and messages for callers and inform what to do and don’t do
▪ Share alerts immediately if calls requests are for medical assistance
▪ Submit report daily using the form</td>
</tr>
</table>

Responsibilities of each functional position	
• Conduct media including social media monitoring to identify and manage rumours	provided by the RCCE planning team

Annex 5: RCCE Action plan

Nature of impact	**Scenario 1** **(Low impact)** There will be no confirmed case of COVID19 in Ethiopia, the country will continue strengthening its capacity as part of the preparedness				
Target	Action	Timeframe	Supply /Tool	Responsible agency	Budget
Set up RCCE system preparedness for potential outbreaks	• Set up RCCE team and strategic plan • Prepare a risk communication plan • Create linkage among the national and regional risk communication operations • Preparing SOP, and guidelines	Within 7 days (1st week of announcement)		MOH with support from WHO	
Raise public awareness and communicating Risk	• Prepare a message, content & press release about the current outbreak the preparedness efforts of the public	Within the first week	Staff & materials for media		

Nature of impact	**Scenario 1 (Low impact)** There will be no confirmed case of COVID19 in Ethiopia, the country will continue strengthening its capacity as part of the preparedness				
Target	Action	Timeframe	Supply /Tool	Responsible agency	Budget
	• Prepare a schedule for public communication				

Pubic communication with target audiences	• Prioritize target groups and analyse effective modes and channels of communication
	• Design message delivery channels (TV, Radio, social medias of MOH and EPHI)
	  • Numbers of printed materials (for specific messages and target audiences)
	  • Number of
		Daily
		
		Weekly
			Staff/ graphic design, visual aids, printing cost		

Nature of impact	**Scenario 1 (Low impact)** There will be no confirmed case of COVID19 in Ethiopia, the country will continue strengthening its capacity as part of the preparedness				
Target	Action	Timeframe	Supply /Tool	Responsible agency	Budget
	multimedia to be produced/adapted for target audiences (travellers, health workers, airport crews, etc.)				
Internal communication and partner coordination	• Identify a spoke-person who will respond for media inquires • Identify partners who are working on this response at national and regional level • Create	Daily internal com & coordination Weekly coordination meeting Weekly TWG			

Nature of impact	**Scenario 1 (Low impact)** There will be no confirmed case of COVID19 in Ethiopia, the country will continue strengthening its capacity as part of the preparedness				
Target	Action	Timeframe	Supply /Tool	Responsible agency	Budget
	Coordination platform and lead the efforts • Coordination Meetings • Technical working group meetings •	meeting			
Building capacities	• Map RCCE capacities across agencies and prepare for response in second phase • Develop training materials and guidance for TOT • Organize training(s) for media, health	First week of the operation	Training materials, deployment of experts, Technical staffs		

Nature of impact	**Scenario 1 (Low impact)** There will be no confirmed case of COVID19 in Ethiopia, the country will continue strengthening its capacity as part of the preparedness				
Target	Action	Timeframe	Supply /Tool	Responsible agency	Budget
	workers, PRs of sector ministries • Roster risk communication HRH				
Misinformation management	D. Monitoring media for public perception of the COVID 19 (daily) E. Analyse public perception and plan to mitigate misconception F. Rapid KAP G. Regional officers monitor concern from local population H. Rumour mitigation strategy and implementation	Weekly report of monitoring and actions	J. Media monitoring tool K. Social science research L. Hotline staffs M. Soft wear to monitor media		

Nature of impact	**Scenario 1 (Low impact)** There will be no confirmed case of COVID19 in Ethiopia, the country will continue strengthening its capacity as part of the preparedness				
Target	Action	Timeframe	Supply /Tool	Responsible agency	Budget
	plan I. Hotline daily record shared with RCCE				

Nature of impact	**Scenario 2 (Moderate impact)** • Ethiopia confirms an outbreak of COVID-19 with a few secondary cases needing medical care and with moderate to severe disease				
Target	Action	Timeframe	Supply /Tool	Responsible agency	Budget
Implement RCCE system & plan	- Coordinate meeting with all technical teams and plan to communicate with public and affected families/communities - Plan and monitor the needs for risk communication surround the cases - Adjust communication strategies and plan for engagement with affected communities -	Daily coordination and weekly monitoring			
Accelerate partner coordination and activate RCCE teams across agencies	- Partner coordination meeting - Rapid response training for community engagement and support surviellence, case management, IPC, and	Daily			

	operation -				
Accelerate Public communication	- Announce the health threat early and often and update after a risk assessment and an analysis of risk perception - Develop message to alert the public to take cautions	Daily			
Activate community engagement and communication with affected communities	- Engaged with the affected community and family - Work with women and youth associations and engage the leaders and religion leaders - Develop tailored message for the community - Work with schools to minimize public panic potential hysteria - Create RRT to provide Psychosocial support for the affected community	Daily			

	-				
Rigorous misinformation management	- Monitoring rumour, misperception, mis information - Implement mitigation strategy	Daily			

Nature of impact	**Scenario 3** **(Severe impact)** Ethiopia confirms an outbreak of COVID-19 outbreak, cases reported in more than two Regions with high morbidity and mortality				
Target	Action	Timeframe	Supply /Tool	Responsible agency	Budget
Strengthen Risk communication systems	Increase surge capacity of communicators and community engagement experts at national and sub-national response teams (such as risk communication, health education/promotion and social science experts, will be activated at national, state, zonal and woreda health departments, in health posts, health centers and hospitals, at transit points and at other community gathering points)	24 – 48 hours (repurpose, recruit, deployed) Minimum number of ?? persons	Communication tools to coordinate with all staffs (telephone, sim card & credits)	Partners who contribute manpower	(Fees & allowance?) Transportation

Nature of impact	**Scenario 3** **(Severe impact)** Ethiopia confirms an outbreak of COVID-19 outbreak, cases reported in more than two Regions with high morbidity and mortality				
Target	Action	Timeframe	Supply /Tool	Responsible agency	Budget
	Increase monitoring capacity and analysis for the RCCE needs				
Strengthen engagement with partners	regular meeting to share information in a timely information to avoid inconsistent and potentially conflicting guidance;	1 hour meeting/ day		Who lead the meeting	Any cost for coordination meeting
	Develop joint communication materials (SitRAP, press release, health protection guidance)	Daily		Who	Cost of production?
Timely, effective and appropriate messages, increase coverage	Develop different messages for different segments of population through multiple channels • For the people who are suspected or confirmed				

Nature of impact	**Scenario 3** **(Severe impact)** Ethiopia confirms an outbreak of COVID-19 outbreak, cases reported in more than two Regions with high morbidity and mortality				
Target	Action	Timeframe	Supply /Tool	Responsible agency	Budget
	nCoV communicate through health professionals, reading material, videos on TV in the isolation and quarantine rooms. • For the families of suspected nCoV cases disseminate message through health care providers, SMS, community				

Nature of impact	**Scenario 3** **(Severe impact)** Ethiopia confirms an outbreak of COVID-19 outbreak, cases reported in more than two Regions with high morbidity and mortality				
Target	Action	Timeframe	Supply /Tool	Responsible agency	Budget
	health workers. • For health care providers disseminate message through training, reading materials, video messages and by creating continuous communication to the EOC. • For the general public disseminate message through mass media, social				

Nature of impact	**Scenario 3** **(Severe impact)** Ethiopia confirms an outbreak of COVID-19 outbreak, cases reported in more than two Regions with high morbidity and mortality				
Target	Action	Timeframe	Supply /Tool	Responsible agency	Budget
	Media, webpage, hotline, audio and video vans, road shows, community health workers, community volunteer's social and religious gatherings, key influencers etc.				
	Identify and disseminate messages through social and community				

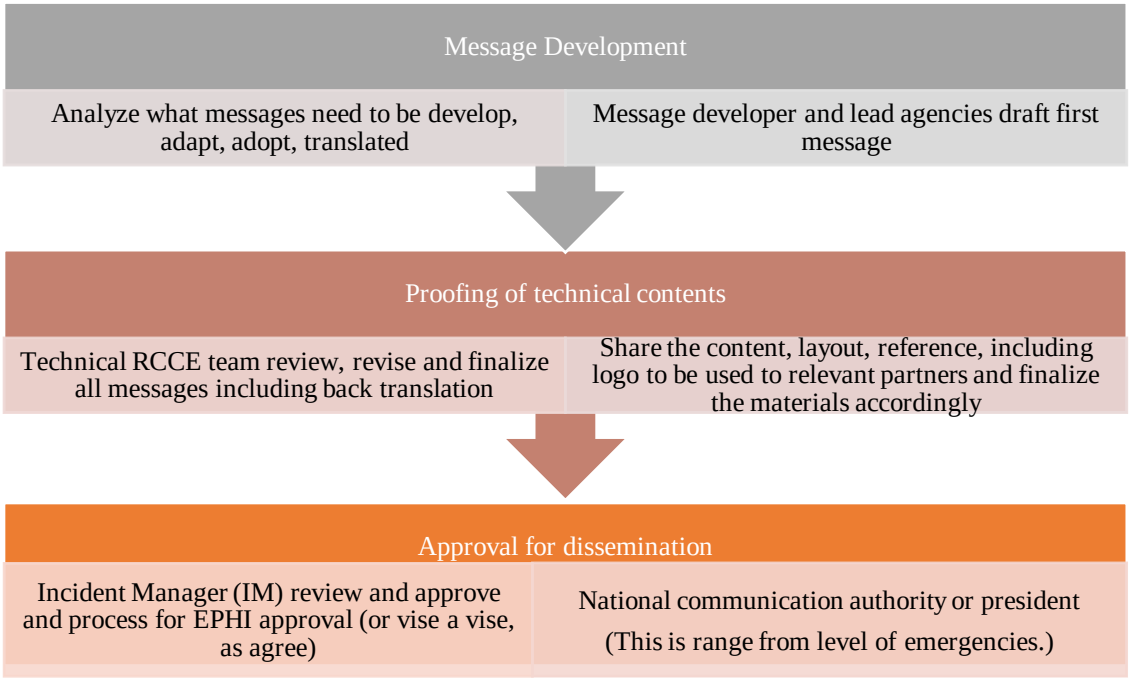
Nature of impact	**Scenario 3** **(Severe impact)** Ethiopia confirms an outbreak of COVID-19 outbreak, cases reported in more than two Regions with high morbidity and mortality				
Target	Action	Timeframe	Supply /Tool	Responsible agency	Budget
	Gatherings, informal groups. • WDA • Social and religious gatherings • Edir, • Ekub • Government and community meetings				
Strengthen community engagement and manage misinformation, rumours	Identify key influencers in the community and use them to disseminate messages and address misconceptions. • Religious leaders				

Nature of impact	**Scenario 3** **(Severe impact)** Ethiopia confirms an outbreak of COVID-19 outbreak, cases reported in more than two Regions with high morbidity and mortality				
Target	Action	Timeframe	Supply /Tool	Responsible agency	Budget
	• Clan leaders • Women and youth associations • Community leaders • CBO leaders • Government officials				
	Conduct Interpersonal communication training (response teams, health workers, response partners, policy makers) .		Materials and cost of trainings		
	Implement psychosocial support for HWs, response				

Nature of impact	**Scenario 3** **(Severe impact)** Ethiopia confirms an outbreak of COVID-19 outbreak, cases reported in more than two Regions with high morbidity and mortality				
Target	Action	Timeframe	Supply /Tool	Responsible agency	Budget
	teams, people with suspected or confirmed cases, families of suspected or confirmed cases and the community at large				
	Gather feedback from the affected public-listen, learn, and assess and Correct misunderstandings, rumours, or unclear facts.		staff, internet, …		

Annex 6: SOP for Communication COVID-19

Procedure to develop communication contents, content testing, quality control, and protocols need to be in placed



NOTE: the process need to be agreed by the EOC.

Annex 7: Early communication of COVID 19

What should be communicated?	

Countries should address the most important questions that people are likely to ask:
• What is happening in the outbreak spread and response?
  ◦ To combat sensational news coverage, accurately report what is known about the location and numbers of cases and actions being taken to address the threat.
• Am I (or my family) at risk for being infected with the virus?
  ◦ Highlight key elements of risk that <u>are relevant to national situation</u>:
  ▪ Currently no cases diagnosed in your country.
  ▪ Travelers to areas of China where the virus is circulating (include symptoms) should watch symptoms and where to report them).
• What is the government doing now to prevent the disease from coming (or preparing for it)?
  ◦ Messages should highlight
  ▪ The country's engagement with WHO to monitor situation and related recommendations.
  ▪ National preparedness plans for pandemics that can be rapidly activated.
  ▪ Any actions government has taken related to COVID-19 specifically.
• How can I protect myself from the virus if cases come here?
  ◦ Major message should be that people in good health are at lowest risk. Include recommendations for regular hand cleaning, disinfecting surfaces, and social distancing. can
• Where can I get more information?
	Targets: General population, media personnel,
	
	Mode of Communication: Public media, radio
	
	Tool: Use the answers to these questions as talking points, web content, and in news and social media.
	Timeline: as early as possible

• Draw attention to channel or source of updates where information will be updated on a regular basis. Communicate that current messages are based on what is scientifically verified now, and new information and recommendations are expected and will be communicated as soon as they are known.	

Annex 8: Communicating about COVID 19 in the midst of uncertainty

What should be communicated?	
1. Acknowledge and communicate about what is known and what is unknown. Example: "Much remains to be understood about COVID-19. The source of the outbreak and the extent to which it has spread in China are not yet known. While the current understanding of the disease remains limited, most cases reported to date have been milder, with around 20% of those infected experiencing severe illness. . . . Better understanding of the transmissibility and severity of the virus is urgently required to guide other countries on appropriate response measures." (WHO) 2. Say what is being done to rapidly find answers to unanswered questions. Example: "Currently, there is no vaccine for the COVID-19, and we don't know when one might be available. However, the Chinese government announced the start of its vaccine development on January 26, 2020. WHO is also working with other partner organizations from Norway, Australia, and the United States to advance COVID vaccine into testing as quickly as possible." 3. Set expectations that information/guidance will change as investigators learn more. Example: "The current criteria for screening possible COVID-19 cases have been developed based on what is known about MERS-CoV and SARS-CoV. It is subject to change as additional information becomes available." 4. Label statements, reports, and guidelines in ways that signal expected change. Example: Use terms such as "provisional" or "interim" prominently in titles. Mark changes and additions with as "Updates."	**Targets:** General population, media personnel **Monitor public perception and misinformation:** Social media, hotlines, etc. **Mode of Communication:** Public information public broadcast, radio talk, etc. **Tool:** Use the answers to these questions as talking points, web content, and in news and social media, feedback to public perception. **Timeline:** within the first few days or within a week of emergency public health concerns, daily reports

5. Communicate that actions being taken to protect the public even in the midst of uncertainty. "Although much is unknown about COVID-19, but these unanswered questions do not prevent us from preparing and responding."	

Annex 9: Communicating to lower the public concern and fear about COVID 19

What should be communicated?	
Communicate the status of the outbreak early, and update it often. The more people know about a health threat, the more in control, and less fearful, they feel. When information is not provided, individuals may take action to try to solve problems on their own, and those actions are often out of alignment with health authorities' recommendations. 2. Give people something to do. When people experience anxiety or fear, many feel an urgent need to act. If health authorities clearly explain actions that people can take to protect themselves and loved ones; the public is less likely to participate in potentially counterproductive behaviors. 3. Use familiar language and references when describing the outbreak. People are less threatened by events that are familiar to them. Because COVID-19 is unfamiliar, it is more frightening. Health authorities can lower public concern by relating COVID-19 to more familiar diseases. For example: "So far COVID-19 is behaving like seasonal flu, mostly affecting the elderly and people with chronic diseases." 4. Explain different risk levels in terms that are easy to understand. Most people do not understand terms like "low" or "high" risk. Provide definitions of those levels in plain language. For example, "No person-to-person transmission of COVID-19 has occurred in our country, so currently the risk to the public is low." 5. Where risks are uncertain, include a range of outcomes so people don't assume the worst.	**Targets:** General population, media personnel, concerned population expressed fears (passengers, airport workers, transport providers, health care workers) **Monitor public perception and misinformation:** Listen to community feedback, Social media, hotlines, etc. **Mode of Communication:** Public information public broadcast, radio talk, community dialogues, target group, etc. **Tool:** Use the answers to these questions as talking points, web content, and in news and social media,

Example: "It's important to note that how easily a virus spreads person-to-person can vary. Some viruses are highly contagious (like measles), while other viruses are less so. It's important to know this in order to better understand the risk associated with this virus."	feedback to public perception. **Timeline:** within the first few days or

Annex 10: Rumour monitoring tool

Date of rumour	Location reported	Fact or perception	Sources /channel	Harmful/damaging/ to whom, rate the risks			Action (what, how, who?)	Resolve	
				high	mid	low		yes	no

Annex 11: Guideline for submitting specimen for laboratory testing for SARS-CoV-2

All specimens must be labeled with:

- Patient (or contact) Name _____
- nCoV ID (formerly PUI ID) _____
- Specimen type_____
- Date collected_____

Laboratory examination requested

Test order name _____ Institution Name_____

Test order code _____

Patient information

Patient Name _____

Age _____ Case ID_____

Sex_____ pregnancy Status_____

Clinical diagnosis _____

Date of onset_____

Complete the remaining required fields

Patient first name and last name_____
Patient date of birth_____

State Public Health Laboratory contact information

Address and telephone of the submitter_____
Specimen collected date_____
Specimen source (type)_____
State of Illness _____

Annex 12: Contact listing form

S/No	Contact Name	Sex	Age	Last contact date	Country of Origin	Region	District	Phone Number	Health worker (Y/N)	If yes HF name

Annex 13: WHO information sources & guidance

General information needed by most audiences about nCoV	
Topics for multiple audiences	**Location of content**
What is CoV?	https://www.who.int/news-room/q-a-detail/q-a-coronaviruses
How is it transmitted?	https://www.who.int/news-room/q-a-detail/q-a-coronaviruses
What are its symptoms?	https://www.who.int/news-room/q-a-detail/q-a-coronaviruses
How severe is it?	
How contagious is it?	https://www.who.int/news-room/q-a-detail/q-a-coronaviruses
How can I prevent becoming infected?	https://www.who.int/news-room/q-a-detail/q-a-coronaviruses
What is happening now in the COVID-19 outbreak?	
How many cases are there?	Regularly updated information can be found at https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/
Where are the cases occurring?	Regularly updated information can be found at https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/
How many deaths have occurred because of COVID-19?	Regularly updated information can be found at https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/
What are health authorities and other partners doing to respond to the outbreak? (these topics will need to be continuously updated)	
What	Regularly updated information can be found at

international agencies are doing	https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/
What are your country's national and local health authorities and partners doing?	Seek this information during COVID-19 management meetings or from national situation reports
What important issues are emerging about the outbreak and what needs to be done? These are likely to be controversial because they often have policy implications or focus on overcoming barriers.	
Vaccine development and challenges	https://www.who.int/news-room/q-a-detail/q-a-coronaviruses
Risks and advice to travellers	https://www.who.int/ith/COVID-19_advice_for_international_traffic/en/
Availability of medical supplies and personnel	Seek this information during COVID-19 management meetings or from national situation reports
Capacities of health facilities to meet COVID-19 demand	Seek this information during COVID-19 management meetings or from national situation reports
Specific Content Needed for Varied Stakeholders	
Health care providers	
Laboratory testing for COVID-10	https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance WHO has international protocols, but local guidelines and locations need to be communicated as well

Travelers	
Screening protocols at airports and borders	
Recommended precautions for travelers	
Add more stakeholders, boxes and content needs below	

Annex 14: Quarantine care protocol

Condition	Test status			
	Not tested	**Pending**	**Negative**	**Positive**
Asymptomatic	14 days quarantine	-	-	-
Symptomatic-COVID-19 related	Urgent test	Mild case-wait result, mobile clinic care Moderate/severe case/critical-Transfer to COVID-19 dedicated hospital for negative cases after evaluation by mobile clinic team	Mild case- mobile clinic care, home care Moderate/severe case/critical-Transfer to COVID-19 dedicated hospital for negative cases after evaluation by mobile clinic team	Transfer to COVID-19 dedicated facility
Non COVID-19 Health problem	Urgent test	Mild case-wait result, mobile clinic care Moderate/severe case/critical-Transfer to COVID-19 dedicated hospital for negative cases after evaluation by mobile clinic team	Mild case- mobile clinic care, home care Moderate/severe case/critical-Transfer to COVID-19 dedicated hospital for negative cases after evaluation by mobile clinic team-IPC for the patient	Transfer to COVID-19 dedicated facility

Diplomatic community, Health professionals and other designated people	Care per above protocol at specially dedicated site
Non health problems	To be managed by the team for social problem management

Annex 15: Utilization of medical/Surgical and N95 mask

When to wear a medical/surgical mask

1. When you have a respiratory symptom like cough and sneezing.
2. When you are in a crowed place and unable to do one meter physical distancing.
3. When you are approaching a COVID 19 suspected or confirmed patient less than one matter.
4. Where you are in a health care environment carrying for a patient having respiratory symptom.
5. Homemade mask like four layered goose and textile may be used if we do not have medical mask but not in a places where N95 is needed. And cotton based material is not advised to use.
6. Masks are effective only when used in combination with frequent hand-cleaning with alcohol-based hand rub or soap and water.
7. Replace the mask with a new one as soon as it is moist and do not re-use single-use masks.
8. The mask can be used for one use 4 hours

When to wear an N 95 mask

In all patients that require droplet precautions and are undergoing aerosol-generating procedures

Like:

1. Aspiration or open suctioning of respiratory tract secretions
2. Intubation
3. Specimen collection for COVID 19 patients.
4. Cardiopulmonary resuscitation
5. Bronchoscopy/ endoscopy/dental procedure and ENT procedure
6. Aerosolized nebulizer
7. Non-invasive ventilation
8. High-flow oxygen

Note:

- When using N95 mask, mask fit test should be done and adjusted accordingly.
- Health personnel can wear the same N95 mask for several patients without removing as long as those patients are infected with the same pathogen
- As long as the mask continues to fit securely they can be worn for a maximum of 8 hours.

How to do mask fit test

Exhale sharply.

A positive pressure inside the respirator, there should be no leakage.

If leakage, adjust position and/or tension straps. Retest the seal.

Repeat the steps until respirator is sealed properly.

Inhale deeply.

If no leakage, negative pressure will make the mask cling to face.

Leakage will result in loss of negative pressure in the respirator due to air entering through gap in the seal.

How to re-use an N95 mask

It is possible to sanitize N95 mask safely, without destroying the filtering function. In the presence of shortage the following methods can be used to disinfect and re use N95 mask.

Good Options	Bad Options
✓ Time – Current research suggests the virus cannot survive for longer than 3 days (72 hours) on plastic, and less on other materials. So leaving the respirator for this period or longer will kill the virus*	✗ Washing – Whilst washing respirators can remove Covid-19, it reduces the filtering capacity significantly*
✓ Oven Heat – 70C (148F) in an oven for 30 minutes may be adequate to kill Covid-19*	✗ Alcohol – Whilst cleaning with 70%+ alcohol can kill Covid-19, it reduces the filtering capacity significantly*
✓ UV Light – In particular, UV-C light, at	

adequate dosage, can kill Covid-19 without damaging the respirator*	
✓ Steam – Whilst research showed this method to be effective, the potential complexity of its setup has drawbacks	

Note 4C Air 70C (148F) oven heat for 30 minutes was capable of killing E.coli bacteria, which they used as a substitute for the coronavirus (SARS-C0V-2), due to the lack of availability to study live novel coronavirus directly. After heat treatment, the respirator loose less than 1% of its "meltdown fiber filtration media" and 8% of its "static-charged cotton" filtration efficacy

Annex 16: Existing Non COVID-19 Health Facility level COVID-19 suspect management

Severity	Test	
	Negative	**Waiting result**
Mild	Counselling Home isolation and management per home care protocol	IPC measures-Face mask to suspect Dedicated quarantine centres
Moderate/Severe	IPC measures Clinically diagnosed case management Will be transferred to COVID-19 dedicated hospital for negative cases*	IPC measures Isolation at the same facility Treat the patient Transfer the patient after the result accordingly
Critical	IPC measures Clinically diagnosed case management Start lifesaving treatment Will be transferred to COVID-19 dedicated hospital for negative cases	IPC measures Start lifesaving treatment Transfer the patient before the result to COVID-19 dedicated hospital for negative cases

*This will be the hospital selected by FMOH/RHB for moderate/severe and critical ill patients who are clinically diagnosed

REFERENCES

1. Country and Technical Guide-Coronavirus disease (COVID-19), who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance
2. Coronavirus (COVID-19), Updated and Interim Guidance on Outbreak of Coronavirus Disease 2019 (COVID-19), CDC
3. Handbook of COVID-19 Prevention and Treatment Compiled According to Clinical Experience, the First Affiliated Hospital, Zhejiang University School of Medicine
4. Handbook for the care of people with disease-COVI 19 Edition 2.0, March 13, 2020, SIMIT Italian Society of Infectious and Tropical Diseases SECTION Regione Lombardia
5. COVID-19: Operational guidance for maintaining essential health services during an outbreak Interim guidance 25 March 2020,WHO
6. Emergency Care of COVID-19 in adults in low resource settings, AFEM
7. CORONA Virus Disease (COVID-19) Outbreak: Rights, Roles and Responsibilities OF health workers, including key considerations for occupational safety and health, WHO
8. Health workers exposure risk assessment and management in the context of COVID-19 virus Interim guidance 4 March 2020, WHO
9. AMERICAN COLLEGE OF SURGEONS: COVID-19, Elective Case Triage Guidelines for Surgical Care, Emergency General Surgery, Revised 3/25/20
10. Multiple-Patient-Single-Vent-Statement, Joint Statement (SCCM,AARC,ASA,ASPF,AACN,CHEST) on Multiple Patients Per Ventilator, March 26,2020
11. INTERPOL, COVID-19 PANDEMIC, Guidelines for law enforcement, 26 March 2020