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Guide for Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19)



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Operational Definition

- **Personal Protective Equipment(PPE):-**

Items are the protective barriers and respirators used alone or in combination by a health care worker (HCW) to protect mucous membranes, airways, skin, and clothing from contact with harmful or infectious agents. PPE may also be used on an infectious patient to prevent the spread of infectious agents (e.g., surgical mask worn by a patient to control the spread of illness).

- **Medical/surgical mask:-**

A loose-fitting, disposable device that creates a physical barrier between the mouth and nose of the wearer and potential contaminants in the immediate environment. These are often referred to as face masks, although not all face masks are regulated as surgical masks. Note that the edges of the mask are not designed to form a seal around the nose and mouth.

- **N95/FFP2(NIOSH N95, EN 149 FFP2) mask:-**

A respiratory protective device designed to achieve a very close facial fit and very efficient filtration of airborne particles. Note that the edges of the respirator are designed to form a seal around the nose and mouth. Surgical N95 Respirators are commonly used in healthcare settings and are a subset of N95 Filtering Face piece Respirators (FFRs), often referred to as N95s.

- **Isolation gown: -**

It should be long-sleeved, fluid-resistant, single use, and preferably disposable. Isolation gowns are designed to prevent contamination of HCWs' arms, exposed areas of the body, and clothing from blood and body fluids and other potentially infectious material.

- **Disposable cover all suit:-**

An item of personal protective equipment (PPE) designed to cover the whole body and other clothing to protect against dirt or other outside contaminants. Coveralls are one piece and loose fitting for ease of movement, with sleeves, full leggings and often a hood to cover the head. These can also include overshoe pieces to cover footwear and protect against contamination.



Introduction

This guide is developed to ensure rational use of personal protective equipment (PPE) in healthcare and community. In this context, PPE includes gloves, medical masks, goggles or a face shield, and gowns, as well as for specific procedures, respirators (i.e., N95 or FFP2 standard or equivalent) and aprons, head cover and boots.

It aims to provide information about when PPE use is most appropriate as to guide those who are involved in distributing and managing PPE, health care workers as well as public health authorities and other individuals working in non-health care sector and community settings.

Disruptions in the global supply chain of PPE

The current global stockpile of PPE is insufficient, particularly for medical masks and respirators; the supply of gowns and goggles is also soon expected to be insufficient. Surging global demand – driven not only by the number of COVID-19 cases but also by misinformation, panic buying and stockpiling will result in further shortages of PPE globally. The capacity to expand PPE production is limited, and the current demand for respirators and masks cannot be met, especially if the widespread, inappropriate use of PPE continues

Recommendations for optimizing the availability of PPE

The following strategies can facilitate optimal PPE availability:

1. Minimize the need for PPE in health care setting
 - Consider using telemedicine to evaluate suspected cases of COVID-19 disease (2), thus minimizing the need for these individuals to go to healthcare facilities for evaluation.
 - Use physical barriers to reduce exposure to the COVID-19 virus, such as glass or plastic windows. This approach can be implemented in areas of the healthcare setting where patients will first present, such as triage areas, the registration desk at the emergency department or at the pharmacy window where medication is collected.
 - Restrict healthcare workers from entering the rooms of COVID-19 patients if they are not involved in direct care. Consider bundling activities



to minimize the number of times a room is entered (e.g., check vital signs during medication administration. plan which activities will be performed at the bedside

- Consider using runners to deliver sample collected to laboratory to minimize the use of PPE, and try to use one central pharmacy, try to minimize the need to open additional pharmacies

2. Ensure PPE use is rationalized and appropriate

PPE should be used based on the risk of exposure (e.g., type of activity) and the transmission dynamics of the pathogen (e.g., contact, droplet or aerosol). The overuse of PPE will have a further impact on supply shortages. Observing the following recommendations will ensure that the use of PPE is rationalized.

- The type of PPE used when caring for COVID-19 patients will vary according to the setting and type of personnel and activity.
- Healthcare workers involved in the direct care of patients should use the following PPE: Long sleeved isolation gowns, gloves, medical mask and eye protection (goggles or face shield), Boots or covered work shoe.
- Specifically, for aerosol-generating procedures (e.g., tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy) healthcare workers should use respirators, eye protection, gloves and long sleeved isolation gowns; aprons should also be used if gowns are not fluid resistant.

3. Coordinate PPE supply chain management mechanisms.

The management of PPE should be coordinated through essential national and international supply chain management mechanisms that include but are not restricted to:

- Using PPE forecasts that are based on rational quantification models to ensure the rationalization of requested supplies



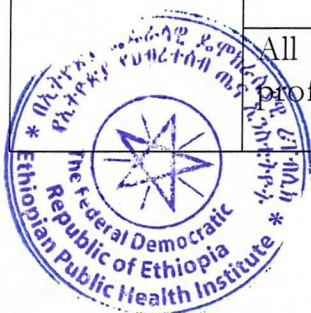
- Monitoring and controlling PPE requests from large responders;
- Promoting the use of a centralized request management approach to avoid duplication of stock and ensuring strict adherence to essential stock management rules to limit wastage, overstock and stock ruptures
- Monitoring the end-to-end distribution of PPE
- Monitoring and controlling the distribution of PPE from medical facilities stores.

Recommended type of personal protective equipment (PPE) to be used in the context of COVID-19 disease, according to the setting, personnel and type of activity

Setting	Target personnel or patients	Activity	Type of PPE
COVID-19 Treating Healthcare Facilities			
Out- patient facilities			
Triage (Contaminated Zone)	Healthcare workers	Preliminary screening not involving direct contact	Maintain spatial distance of at least 1 m. Medical mask, Boots or closed work shoes
	Patients	Any	Maintain spatial distance of at least 2 m. Provide medical mask if tolerated by patient.
Waiting area (Contaminated Zone)	Healthcare Providers	Any	Maintain spatial distance of at least 2 m. Medical mask, Boots or closed work shoes
	Patients	Any	Provide medical mask if tolerated. Ensure spatial distance of at least 2 m from other patients
Inpatient facilities			



Patient room (Contaminated Zone)	Health workers	Providing direct care to COVID-19 patients	Respirator N95 or FFP2 standard, or equivalent, Long sleeved isolation gown, Gloves, Eye protection (goggles or face shield), Boots or closed work shoes.
		Aerosol-generating procedures performed on COVID-19 patients	Respirator N95 or FFP2 standard, or equivalent. Cover all suit, Gloves Eye protection Apron, Boots or closed work shoes
	Cleaners	Entering the room of COVID-19 patients.	Medical mask, Long sleeved isolation gown, Heavy duty gloves, eye protection in case of splash Boots or closed work shoes
	Laboratory Personnel	Taking and Manipulation of nasopharyngeal sample	N-95, Long sleeved isolation gown, Gloves, Eye protection (if risk of splash), Boots or closed work shoes
	Visitor/Care givers (mother of a child)	Entering the room of COVID-19 patients	Medical mask, Gloves, Gown, Eye protection
ICU (Contaminated Zone)	All healthcare professionals	Aerosol Generating procedures	N-95, Cover all Suit, Gloves, Eye protection (if risk of splash), Boots or closed work shoes
	All healthcare professionals	Assisting Aerosol Generating procedures	N-95, Cover all Suit, Gloves, Eye protection (if risk of splash), Boots or closed work shoes
	All healthcare professionals	Non Aerosol Generating procedures	N-95, Long sleeved isolation gown, Glove, eye protection in case of



			splash Boots or closed work shoes
Other areas of patient transit (e.g., wards, corridors). (Contaminated Zone)	All staff including healthcare workers.	Any activity that does not involve contact with COVID-19 patients.	Medical mask, Long sleeved Isolation gown, Boots or closed work shoes Physical distancing
Morgue	All staff including healthcare workers.	Any activity that involve coming in contact with COVID-19 related death	Medical Mask, Long sleeved isolation gown, Apron, Heavy duty gloves, eye protection in case of splash, Boots or closed work shoes
Laboratory (Clean Zone)	Laboratory Personnel	Any	Medical mask, Long sleeved isolation gown, Gloves, Eye protection (if risk of splash), Boots or closed work shoes
Pharmacy (Clean Zone)	Pharmacy Personnel	Any	Medical Mask, Gown, Boots or closed work shoes
General Facility (Contaminated Zone)	Cleaners	Any	Medical mask, Long sleeved isolation gown, Apron, Heavy duty gloves, eye protection in case of splash Boots or closed work shoes
	Laundry Personnel	Any	Medical mask, Long sleeved isolation gown, Apron, Heavy duty gloves, eye protection in case of splash Boots or closed work shoes
	Runners	Any	Medical mask, Long sleeved isolation gown, Gloves, Eye protection (if risk of splash), Boots or closed work shoes



Administrative areas (Clean Zone)	All staff including health care workers	Administrative tasks that do not involve contact with COVID-19 patients.	Medical Mask, Physical distancing
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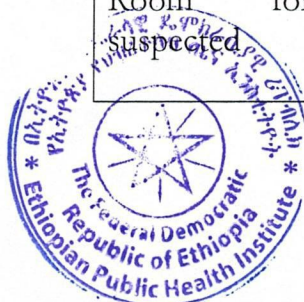
Non-COVID-19 Treating Healthcare Facilities

Out-patient facilities

Consultation room	Health workers care	Physical examination of patients with respiratory symptoms	Medical mask, Long sleeved isolation gown, Glove, Eye protection
	Health workers care	Physical examination of patients without respiratory symptoms	PPE according to standard precautions and risk assessment Physical distancing
	Patient with respiratory symptoms	Any	Provide medical mask if tolerated Physical distancing
	Patient without respiratory symptoms	Any	Medical mask/cloth mask
	Cleaners	After and between consultations with patients with respiratory symptoms	Medical mask, Long sleeved isolation gown, Heavy duty gloves, Eye protection (if risk of splash from organic material or chemicals). Boots or closed work shoes Physical distancing
Waiting room	Healthcare Worker	Any	PPE according to standard precautions and risk assessment
	Patient with respiratory symptoms	Any	Provide medical mask if tolerated. Immediately move the patient to an isolation room or separate area away from others; if this is not feasible, ensure spatial distance of at least 2 m



			from other patients and healthcare provider.
	Patients without respiratory symptoms	Any	Medical mask/cloth mask Physical distancing
Triage	Healthcare workers	Preliminary screening not involving direct contact	Maintain spatial distance of at least 2 m. Medical mask
	Patients with respiratory symptoms.	Any	Maintain spatial distance of at least 2 m. Provide medical mask if tolerated by patient.
	Patients without respiratory symptoms.	Any	Medical mask/cloth mask Physical distancing
Inpatient facilities			
Patient Rooms	Health workers care	Providing direct care to patients	PPE according to standard precautions and risk assessment Physical distancing
	Cleaners	Entering the room of patients.	PPE according to standard precautions and risk assessment Physical distancing
	Laboratory Personnel	Taking and Manipulation of nasopharyngeal sample	N-95, Gloves, Eye protection (if risk of splash) Physical distancing
	Caregiver/Visitors	Any	Medical mask/cloth mask (If available) Physical distancing
ICU	Healthcare Providers	Any	PPE according to standard precautions and risk assessment Physical distancing
Isolation Room for suspected	Healthcare Workers	Any	Medical mask, Long sleeved isolation gown, Gloves, Eye protection (goggles or face shield),



COVID-19 Patient			Boots or closed work shoes. Physical distancing of 2 m
	Cleaners	Entering the room of suspected COVID-19 patients.	Medical mask, Long sleeved isolation gown, Heavy duty gloves, Eye protection (if risk of splash from organic material or chemicals). Boots or closed work shoes
	Patients suspected with COVID-19	Any	If in a single room no need to wear Medical masks but if single rooms are not available should wear Medical mask and Physical distancing from other suspected patients healthcare provider and care givers
Other areas of patient transit (e.g., wards, corridors).	All staff including healthcare workers.	Any activity that does not involve contact with COVID-19 Suspected patients.	PPE according to standard precautions and risk assessment Physical distancing
Morgue	All staff including healthcare workers.	Any activity (reason for death has no indication related to COVID-19)	Apron, Heavy duty gloves, , eye protection in case of splash, Boots or closed work shoes
	All staff including healthcare workers.	Any activity (reason for death might be related to COVID-19)	Medical Mask, Long sleeved isolation gown, Apron, Heavy duty gloves, eye protection in case of splash Boots or closed work shoes
Laboratory	Laboratory personnel	Any	PPE according to standard precautions and risk assessment Physical distancing



Pharmacy	Pharmacy personnel	Any	PPE according to standard precautions and risk assessment Physical distancing
General Facility	Cleaners	Any	PPE according to standard precautions and risk assessment Physical distancing
	Laundry Personnel	Any	PPE according to standard precautions and risk assessment Physical distancing
	Runners	Any	PPE according to standard precautions and risk assessment Physical distancing
Administrative areas	All staff including health care workers	Any	Medical Mask, Physical distancing
Community			
Home	Patient with respiratory symptoms	Any	Maintain spatial distance of at least 2 m. Provide medical mask if tolerated, except when sleeping. Change mask each day
	Care taker	Entering the patient's room, but not providing direct care or assistance.	Medical mask, glove maintain spatial distance of at least 2 M
	Care taker	Providing direct care or when handling stool, urine or waste from COVID-19 patient being cared for at home.	Gloves, Medical mask Apron (if risk of splash or excretion), Eye protection
	Health care worker	Providing direct care or assistance to a COVID-19 patient at home	Medical mask, Long sleeved isolation gown, Gloves, Eye protection
Public areas (e.g., shopping malls, train stations)	Individuals without respiratory symptoms	Any	Medical mask or cloth mask or cover nose and mouth with scurf



Point of entry			
Administrative areas	All staff	Any type	Medical mask
Screening area	Staff	Screening (temperature Measurement, interviewing passengers)	Medical mask, Gown, Glove, Spatial distance
	Cleaners	When cleaning the area where passengers with fever are being screened	Medical mask, Gown, Heavy duty gloves, Apron, Eye protection (if risk of splash of organic material or chemicals) Boots or closed work shoes
Temporary isolation area	Staff	When entering isolation area, but not providing direct assistance	Spatial distance of at least 2 meter Medical mask, Gloves
	Staff/Health care workers	Providing assistance to the passenger for transportation to a healthcare facility	Medical mask, Long sleeved isolation gown, Gloves, Eye protection
	Cleaners	Cleaning isolation areas	Medical mask, Long sleeved isolation gown, Apron, Heavy duty gloves Eye protection (if risk of splash from organic material or chemicals). Boots or closed work
Ambulance or transfer vehicle	Health care workers	Transporting suspected COVID-19 patients to the referral healthcare facility	Medical mask, Long sleeved isolation gown, Gloves, Eye protection Physical distancing
	Drivers	Involved only in driving the patient with suspected COVID-19 disease and the driver's compartment	Medical Mask/ cloth mask, Maintain spatial distance of at least 2 m.



		is separated from the COVID-19 patient.	
		Assisting with loading or unloading patient with suspected COVID-19 disease	Medical mask, Long sleeved isolation gown, Gloves, Eye protection
		No direct contact with patient with suspected COVID-19, but no separation between driver's and patient's compartments.	Medical mask, Long sleeved isolation gown, Gloves, Eye protection
	Patient with suspected COVID-19 disease	Transport to the referral healthcare facility.	Medical mask if tolerated
	Cleaners/ Disinfectors/ Sprayers	Cleaning after and between transport of patients with suspected COVID-19 disease to the referral healthcare facility	Medical mask, Scrub suit, Long sleeved isolation gown, Heavy duty gloves, Apron, Eye protection (if risk of splash from organic material or chemicals). Hair cap, Boots or closed work shoes

Rapid Response Team (RRT)

Anywhere	RRT	In-person interview of suspected or confirmed COVID-19 patients without direct contact.	Medical mask Maintain spatial distance The interview should be conducted outside the house or outdoors, and confirmed or suspected COVID-19 patients should wear a medical mask if tolerated
		Assisting with loading or unloading patient with suspected COVID-19 disease	Medical mask, Long sleeved isolation gown Gloves, Eye protection
		Assisting but only involved in observation	Medical mask (If available)



		(no direct contact with the suspected or conformed case)	Physical distancing of 2 m
		If a member involved in taking and Manipulation of respiratory sample	N-95, Long sleeved isolation gown, Gloves Eye protection (if risk of splash)



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