



MINISTRY OF HEALTH AND MEDICAL SERVICES

**STANDARD OPERATING PROCEDURE ON  
THE RATIONAL USE OF  
PERSONAL PROTECTIVE EQUIPMENT  
FOR COVID-19**

<b>Ministry of Health and Medical Services</b>	<b>STANDARD OPERATING PROCEDURES</b>	<b>SOP #</b>	11/04/2020
		<b>Drafter:</b>	Sr Colleen Wilson (Logistics Pillar IMT) Koila Gavidu Sereima Vatuvatu (IMT IPC Team Leader) Margaret Leong (SPC IPC advisor) IMT IPC Cell
		<b>Revision #</b>	2
<b>SOP Title: Rational use of personal protective equipment for COVID-19</b>	<b>Rational use of personal protective equipment for COVID-19 SOP</b>	<b>Implementation Date</b>	15-04-2020
<b>Page # :</b>	Page 2 of 11	<b>Last Reviewed/ Update Date</b>	03 June 2021
<b>SOP Owner: Logistics Pillar IMT</b>	<b>Approval / Date:</b>	Combined IMT-Taskforce Meeting / 03-06-2021	

## Table of Contents

1.	INTRODUCTION .....	3
2.	PURPOSE.....	3
3.	SCOPE .....	3
4.	KNOWLEDGE and DEFINITIONS .....	4
5.	PROCESSES.....	5
7.	RESPONSIBILITY.....	12
8.	MONITORING AND REVIEW.....	12
	SOURCE.....	13

## **1. INTRODUCTION**

The COVID-19 disease pandemic was declared by the World Health Organization (WHO) on 11 March 2020.

Based on current evidence, the SARS-CoV-2 virus that causes COVID-19 is a respiratory disease that is transmitted via droplets through close contact with infected individuals and bodily fluids following coughing, talking, singing and sneezing. These droplets may land on objects and surfaces around the infected person, and the virus can be contracted by touching these contaminated objects or surfaces. The main route of entry into a host is via the eyes, nose or mouth. People can also catch COVID-19 if they breathe in droplets from a person with COVID-19 who coughs, sneezes, or exhales droplets within 1 meter apart.

Additionally, current evidence suggests that the virus may survive for hours to days on surfaces made from a variety of materials such as:

- On cardboards, papers and fabrics up to 3 hours
- Stainless steel, plastic and glass for up to 3 days
- Nonporous surfaces for at least 28 days

Airborne transmission may be possible in specific circumstances and settings such as in the ICU in which procedures or support treatments that generate aerosols are performed; i.e., endotracheal intubation, bronchoscopy, open suctioning, administration of nebulized treatment, manual ventilation before intubation, turning the patient to the prone position, disconnecting the patient from the ventilator, non-invasive positive-pressure ventilation, tracheostomy, and cardiopulmonary resuscitation. However, given the increased transmissibility of the Delta variant, airborne transmission in other clinical areas is possible.

## **2. PURPOSE**

This SOP sets out guidance to health care and other frontline works on the appropriate use of PPE, and what level of PPE is required across a range of operational settings

The purpose of this SOP is:

- To ensure the safety of staff, patients, and visitors by providing clear guidance for the use of PPE;
- To provide information about when PPE use is most appropriate;
- To provide guidance on the appropriate use of PPE, and what level of PPE is required across all operational settings; and
- To provide guidance on what level of PPE is required across all settings to those involved in distributing and managing PPEs.

## **3. SCOPE**

This SOP applies to:

- All health care workers involved in the COVID-19 response including isolation and quarantine personnel; and
- All contracted workers including other government department employees and volunteers involved in the COVID-19 response, including (but not limited to) drivers, cleaners, security guards, and administrators).

#### 4. KNOWLEDGE and DEFINITIONS

Based on the available evidence, transmission of COVID-19 can occur through direct, indirect, or close contact with infected people through infected secretions such as saliva and respiratory secretions or their respiratory droplets, which are expelled when an infected person coughs, sneezes, talks or sings.

The people most at risk of infection are those who are in close contact with a suspected or confirmed case of COVID-19 or who care for COVID-19 patients. In this context, PPE must be prioritized for health care workers and caregivers, as shortages may threaten their safety in the delivery of essential health services. Prevention and mitigation measures are key based on:

- There is continuing pressure on the supply pipeline for PPE;
- Shortages of PPE at the frontline due to supply issues will have significant impact on the ability of frontline workers to safely manage patients. Hence, all health care workers must take actions to ensure that current stocks of PPE are used appropriately so that adequate supplies are available during times of peak demand; and
- The protection of our frontline workers is paramount and PPE including medical masks, respirators, gloves, gowns, and eye protection, must be prioritized for health care workers and others caring for COVID-19 patients.

**Standard and transmission based precautions** are the basic Infection Prevention and Control (IPC) measures that should be applied in all operational settings including emergency situations. The elements of standard precautions are hand hygiene, use of PPE according to risk assessment, respiratory hygiene, safe injection practice, injury prevention, sharps management, waste management, environmental cleaning, safe handling of the deceased, cleaning and disinfection of patient care equipment, and safe handling of soiled linen and waste care management.

**Transmission-based precautions** are applied when standard precaution measures alone are insufficient to prevent cross-transmission of an infectious agent. Transmission-based precautions are designed for patients known or suspected to be infected by pathogens spread by airborne, droplet, or contact transmission.

All those identified in *Section 3: Scope* are required to understand the component of this SOP that are relevant to their role and position.

## **5. PROCESSES**

### **5.1 Minimize the need for PPE**

The following interventions can minimize the need for PPE while protecting health care workers and others from exposure to COVID-19.

5.1.1 Consider using telemedicine to evaluate suspected cases of COVID-19, thus minimizing the need for these persons to go to health care facilities for evaluation.

5.1.2 Use physical barriers to reduce exposure to COVID-19, such as glass or plastic windows. This approach can be implemented in areas of the health care 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.

5.1.3 Restrict health care workers from entering the rooms of COVID-19 patients if they are not involved in direct care.

5.1.4 Consider bundling activities to minimize the number of times a room is entered (e.g. check vital signs during medication administration or have food delivered by health care workers while they are performing other care) and plan which activities will be performed at the bedside.

5.1.5 Ideally, visitors should not be allowed however exceptions may be made based on humanitarian grounds:

5.1.5.1.1 The number of visitors to areas where COVID -19 patients are isolation must be restricted

5.1.5.1.2 The amount of time visitors are allowed to spend in the area must be restricted

5.1.5.1.3 Clear instructions on how to put on (don) and remove (doff) PPE must be provided with supervision during donning and doffing of PPE; and

5.1.5.1.4 Hand hygiene following the correct steps must be performed to ensure that visitors avoid self – contamination

5.2.6 Extend the use of PPE in quarantine and isolation centers when caring for a cohort of COVID-19 patients in the same room.

5.2.7 Depending on the level of contact between suspected cases, there is a need to change PPE in between suspected cases.

### 5.3 Ensure PPE use is rational 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 may contribute to supply shortages.** Observing the following recommendations will ensure rational use of PPE.

5.3.1 All health care workers, including community health workers, quarantine workers and caregivers, should wear a surgical mask at all times while at work.

5.3.2 Health care workers providing care to suspected or confirmed COVID-19 patients must wear the following PPE for standard, droplet and contact precautions (this includes: gown, gloves, goggle or face-shield) and the following type of mask/respirator:

- 5.3.2.1 Respirators (N95/FFP2 or equivalent standard) when Aerosol Generating Procedures (AGP)s are performed (e.g. in COVID-19 intensive and semi-intensive care units). E.g. tracheal intubation, non-invasive ventilation, tracheostomy, cardiopulmonary resuscitation, manual ventilation before intubation or bronchoscopy.

Note: N95, FFP2 or equivalent standard respirators can be used for an extended time similar to previous public health emergencies involving acute respiratory illness when PPE was in short supply. This refers to wearing the same respirator while caring for multiple patients who have the same diagnosis without removing it, and evidence indicates that respirators maintain their protection when used for extended periods. Health care workers can use a single respirator for a maximum of 6 hours whilst caring for COVID-19 patients.

5.3.3 If a surgical mask is dirty, wet or damaged, it must be changed to a new one.

Note: At the time of reviewing this guidance, Fiji has adopted universal masking in all settings including the general public setting throughout Fiji.

### 5.4 Coordinate PPE supply chain management mechanisms

To ensure efficient distribution, monitoring and control of PPE, the MHMS has adopted the use of PPE forecasts based on rational quantification models to ensure the rationalization of requested supplies.

- 5.4.1 All requests for PPE are coordinated via the Infection Prevention and Control Officers (IPCO) or IPC link Nurse. For health facilities that do not have an IPCO or IPC link nurse, request must be coordinated via by the Sub Divisional Nurse Manager (SDNM)
- 5.4.2 Promoting a centralized request management approach to avoid duplication of stock and ensuring strict adherence to essential stock management rules to limit wastage, overstocking, and stock ruptures;
- 5.4.3 Monitoring and controlling the distribution of PPE from the warehouse to medical facilities.

## 6. PROCESS GUIDE: RECOMMENDED PPE DURING THE COVID-19 OUTBREAK

Table 1: Recommended PPE during the COVID-19 outbreak in health care settings, according to the setting, personnel, and type of activity.

SETTING	TARGET PERSONNEL OR PATIENTS	ACTIVITY OR PROCEDURE	TYPE OF PPE
<b>HEALTH CARE FACILITIES: FOR IN-PATIENT <sup>1</sup></b>			
<b>COVID WARD/UNIT</b>	Health care workers	Providing direct care to COVID 19 patients in the absence of Aerosol Generating Procedures (AGP), including specimen collection/swabbing of COVID-19 patients.	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Gloves</li> <li>• Gown (with cap)<sup>2</sup></li> <li>• Eye Protection (Goggles or Face Shield)</li> </ul>
		Providing direct care to COVID-19 patients with AGP	<ul style="list-style-type: none"> <li>• Respirator N95 or FFP2 standard, or equivalent.</li> <li>• Gown + Apron</li> <li>• Gloves</li> <li>• Eye protection (Face Shield or Goggles)</li> <li>• Cap</li> </ul>
	Cleaners	Entering and cleaning the room of COVID-19 patients	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Eye Protection (Goggles or Face Shield if risk of splash from organic material or chemicals)</li> <li>• Gown</li> <li>• Heavy duty gloves</li> <li>• Boots or closed work shoes</li> </ul>
	Visitors <sup>3</sup>	Entering the room of a COVID- 19 patient	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Gown</li> <li>• Gloves</li> <li>• Eye protection</li> </ul>

<sup>1</sup>In addition to using the appropriate PPE, frequent hand hygiene using the correct steps at the right time and respiratory hygiene should always be performed. PPE should be discarded in an appropriate waste container after use, and hand hygiene should be performed before putting on and after taking off PPE.

<sup>2</sup> Coveralls are not required when managing COVID-19 patients due to the high risk of contamination during doffing.

<sup>3</sup>The number of visitors should be restricted. If visitors must enter a COVID-19 patient's room, they should be provided with clear instructions about how to put on and remove PPE and about performing handhygiene before putting on and after removing PPE; this should be supervised by a health care worker.

<b>ISOLATION UNIT FOR SUSPECTED CASES OR PRIMARY CONTACTS</b>	Health care workers	Providing direct care to suspected COVID 19 patients	<ul style="list-style-type: none"> <li>• N95/P2 Respirators (use respirator mask + apron when performing AGP)</li> <li>• Eye Shields</li> <li>• Gown</li> <li>• Gloves</li> </ul>
	Cleaners	Entering and cleaning the room of suspected COVID-19 patients	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Eye Protection (Goggles or Face Shield) (if risk of splash from organic material or chemicals)</li> <li>• Gown</li> <li>• Heavy duty gloves</li> <li>• Boots or closed work shoes</li> </ul>

**HEALTH CARE FACILITIES: FOR OUT-PATIENTS**

<b>TRIAGE</b>	Health Care workers	Preliminary screening not involving direct contact. <sup>4</sup>	<ul style="list-style-type: none"> <li>• N95/P2 Surgical Mask</li> <li>• Maintain physical distance of at least 1 meter</li> <li>• Perform hand hygiene (Sanitizer or hand washing)</li> </ul>
	Patients with respiratory symptoms	Any procedure or activity	<ul style="list-style-type: none"> <li>• Provide surgical mask</li> <li>• Maintain physical distance of at least 1 meter</li> <li>• Provide seat away from other patients &gt; 1 meter</li> </ul>
	Patients without respiratory symptoms	Any procedure or activity	<ul style="list-style-type: none"> <li>• surgical mask can be provided if patient does not have a mask</li> </ul>
	Cleaners	After and between consultations with patients	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Eye Protection (Goggles or Face Shield) (if risk of splash from organic material or chemicals)</li> <li>• Gown</li> <li>• Heavy duty gloves</li> <li>• Boots or closed work shoes</li> </ul>
<b>CONSULTATION ROOM</b>	Health Care workers	Physical Examination of patient with respiratory symptoms	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Gown</li> <li>• Gloves</li> <li>• Eye Protection (Face Shield or Goggles)</li> </ul>
		Physical Examination of patient without respiratory symptoms	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Other PPE according to standard precautions and risk assessment</li> </ul>
	Patients with respiratory symptoms	Any procedure or activity	<ul style="list-style-type: none"> <li>• Provide surgical mask if tolerated</li> </ul>
	Patients without respiratory symptoms	Any procedure or activity	<ul style="list-style-type: none"> <li>• Surgical mask is required</li> </ul>
	Cleaners	After and between consultations with patients.	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Eye Protection (Goggles or Face Shield) (if risk of splash from organic material or chemicals)</li> <li>• Gown</li> <li>• Heavy duty gloves</li> <li>• Boots or closed work shoes</li> </ul>

<sup>4</sup>This category includes the use of no-touch thermometers, thermal imaging cameras, and limited observation and questioning, all while maintaining a spatial distance of at least 1 m.



<b>WAITING ROOM</b>	Patients with respiratory symptoms	Any procedure or activity	<ul style="list-style-type: none"> <li>• Provide surgical mask</li> </ul>
	Patients without respiratory symptoms	Any procedure or activity	<ul style="list-style-type: none"> <li>• Mask (Surgical) or Fabric</li> </ul>
	Cleaners	After and between consultations with patients.	<ul style="list-style-type: none"> <li>• N95/P2 Masks</li> <li>• Eye Protection (Goggles or Face Shield) (if risk of splash from organic material or chemicals)</li> <li>• Gown</li> <li>• Heavy duty gloves</li> <li>• Boots or closed work shoes</li> </ul>

**HEALTH CARE FACILITIES: OTHER AREAS OF PATIENT TRANSIT**

<b>ADMINISTRATIVE AREAS</b>	All staff, including health care workers	Administrative tasks	<ul style="list-style-type: none"> <li>• Surgical Masks</li> </ul>
<b>LABORATORY</b>	Laboratory Technicians	<p>Manipulation of respiratory samples</p> <p>Specimen handling for molecular testing requires biosafety level (BSL) 2 or equivalent facilities</p> <p>Handling and processing of specimens from cases with suspected or confirmed COVID-19 infection that are intended for laboratory tests, such as hematology or blood gas analysis, should apply standard precautions</p>	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Gown + apron</li> <li>• Gloves</li> <li>• Eye protection (if risk of splash)</li> <li>• Closed work shoes</li> </ul>
<b>X-RAY, SCAN, ECHO, CATH LAB</b>	Radiology Technicians	Medical Imaging and Ultra Sound Scan	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Other PPE according to standard precautions and risk assessment</li> </ul>

**COMMUNITY**

<b>SCREENING CLINICS</b>	Health care workers	First screening (Temperature measurement) not involving direct contact	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Maintain physical distance of at least 1 meter</li> </ul>
	Health care workers	Second screening (ie. Interviewing clients with fever suggestive of COVID 19 symptoms and travel history)	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Maintain physical distance of at least 1 meter</li> </ul>
	Health care workers	Specimen collection from cases with suspected or confirmed CPVID-19 infection	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Gown + Apron</li> <li>• Gloves</li> <li>• Eye protection</li> <li>• Closed work shoes</li> </ul>
	Cleaner	Cleaning the area where clients with fever are being screened	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Eye Protection (Goggles or Face Shield) (if risk of splash from organic material or chemicals)</li> <li>• Gown</li> <li>• Heavy duty gloves</li> <li>• Boots or closed work shoes</li> </ul>
		Assisting client if and when	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Gown</li> </ul>

<b>TEMPORARY ISOLATION AREA</b>	Health care workers	necessary	<ul style="list-style-type: none"> <li>• Gloves</li> <li>• Eye protection</li> </ul>
		Entering the isolation area but not providing direct assistance	<ul style="list-style-type: none"> <li>• Maintain spatial distance of at least 1 meter</li> <li>• N95/P2 Respirators</li> <li>• Gloves</li> </ul>
		Assisting client and driver being transported to a health care facility	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Gown</li> <li>• Gloves</li> <li>• Eye protection</li> </ul>
	Cleaners	Cleaning Isolation area	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Eye Protection (Goggles or Face Shield) (if risk of splash from organic material or chemicals)</li> <li>• Gown</li> <li>• Heavy duty gloves</li> <li>• Boots or closed work shoes</li> </ul>
<b>AMBULANCE OR TRANSFER VEHICLE</b>  <i>(also applicable to border and quarantine facilities)</i>	Health care workers	Transporting suspected COVID-19 patients to the referral health care facility	<ul style="list-style-type: none"> <li>• N95 or equivalent</li> <li>• Gloves</li> <li>• Gown</li> <li>• Eye Protection (Face Shield)</li> </ul>
	Driver	Assisting with loading and unloading patient with suspected COVID-19	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Gloves</li> <li>• Gown</li> <li>• Eye Protection (Face Shield)</li> </ul>
		Involved in driving the suspected or confirmed COVID-19 patient to the referral Health Care Facility	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Maintain spatial distance of about 1 meter</li> </ul>
	Patient with suspected COVID-19 <sup>5</sup>	<b>Transport to the referral Health Care Facility</b>	<ul style="list-style-type: none"> <li>• <b>Surgical mask (if tolerated)</b></li> </ul>
	Driver and Cleaner	Cleaning before and after transporting of suspected or confirmed COVID-19 patients to the referral Health Care Facility	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Heavy duty gloves</li> <li>• Gown</li> <li>• Eye Protection (Face Shield or goggles: if risk of splash from organic materials or chemicals)</li> <li>• Boots or closed work shoes</li> </ul>

**COMMUNITY**

**Special considerations for rapid-response teams assisting with Public Health Investigations**

<b>MOBILE</b>	Rapid Response Team /	Screening (Temperature measurement) not involving direct contact	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Hand Sanitizers</li> <li>• Maintain physical distance of at least 1 meter</li> </ul>
---------------	-----------------------	--	---

<sup>5</sup> All positive or suspected cases for transfer to quarantine or isolation facilities are only required to wear surgical masks (if tolerated) and not full PPE.

<b>SCREENING</b>	Investigators <sup>6</sup>	In-person interview of suspected or confirmed COVID-19 cases without direct contact	<ul style="list-style-type: none"> <li>• N95/P2 Respirators</li> <li>• Hand Sanitizers</li> <li>• Maintain spatial distance of 1 meter</li> <li>• The interview should be conducted outside the house or outdoors, and confirmed or suspected COVID-19 patients should wear a surgical mask if tolerated.</li> </ul>
		In-person interview asymptomatic contacts of COVID-19 patients	<ul style="list-style-type: none"> <li>• Mask (Surgical)</li> <li>• Hand Sanitizers</li> <li>• Maintain spatial distance of 1 meter</li> <li>• The interview should be conducted outside the house or outdoors, and confirmed or suspected COVID-19 patients should wear a surgical mask if tolerated.</li> </ul>
		Swabbing (Only the trained HCW who will conduct swabbing will need to be in full PPE)	<ul style="list-style-type: none"> <li>• Mask (Surgical)</li> <li>• Gloves</li> <li>• Gown</li> <li>• Eye Protection (Face Shield)</li> </ul>

### Border and Quarantine facilities

<b>SCREENING AREA</b>	Border - Administrative staff at airports and ports	Admin activities	<ul style="list-style-type: none"> <li>• Surgical mask</li> <li>• Perform hand hygiene</li> </ul>
	Border/quarantine staff	First screening (temperature Check with no touch thermometers) not involving direct Contact. Also asking questions all while maintaining a physical distance of at least 1 metre.	<ul style="list-style-type: none"> <li>• Maintain physical distance of at least 1 metre</li> <li>• Surgical mask</li> <li>• Perform hand hygiene</li> </ul>
		Second screening (interviewing passengers with fever for clinical symptoms suggestive of COVID-19 disease and travel history)	<ul style="list-style-type: none"> <li>• Maintain physical distance of at least 1 metre</li> <li>• Surgical mask</li> <li>• Face shield/or goggle</li> <li>• Perform hand hygiene</li> </ul>
	Cleaners	Cleaning the area where passengers with fever are being screened	<ul style="list-style-type: none"> <li>• Maintain physical distance of at least 1 metre</li> <li>• Surgical mask</li> <li>• Gown + apron if body fluid exposure is anticipated)</li> <li>• Heavy duty gloves</li> <li>• Eye protection (if risk of splash from organic material or chemicals).</li> <li>• Boots or closed work shoes</li> <li>• Perform hand hygiene</li> </ul>

<sup>6</sup>All rapid-response team members must be trained in performing hand hygiene and how to put on (Don) and remove (Doff) PPE to avoid self-contamination.

<b>COMMUNITY ISOLATION/ QUARANTINE FACILITY</b>	Health care workers	Assisting or caring for a suspected case of COVID-19 transported to a health care facility	<ul style="list-style-type: none"> <li>• Surgical mask</li> <li>• Gown</li> <li>• Gloves</li> <li>• Eye protection</li> <li>• Perform hand hygiene</li> </ul>
	Cleaner	Cleaning isolation area	<ul style="list-style-type: none"> <li>• Maintain physical distance of at least 1 metre</li> <li>• Surgical mask</li> <li>• Gown + apron if body fluid exposure is anticipated)</li> <li>• Heavy duty gloves</li> <li>• Eye protection (if risk of splash from organic material or chemicals).</li> <li>• Boots or closed work shoes</li> <li>• Perform hand hygiene</li> </ul>

## **7. RESPONSIBILITY**

All line managers are responsible for ensuring that staff within their span of authority are aware of this SOP and properly understand the principles of rational use of personal protective equipment for COVID-19.

All line managers are responsible for ensuring this SOP is adhered to at all times.

## **8. MONITORING AND REVIEW**

This SOP is valid for six (6) months from the date of endorsement, and is subject for review at the discretion of the Permanent Secretary for Health and Medical Services

## **SOURCE**

[https://apps.who.int/iris/bitstream/handle/10665/331498/WHO-2019-nCoV-IPCPPE\\_use-2020.2-eng.pdf](https://apps.who.int/iris/bitstream/handle/10665/331498/WHO-2019-nCoV-IPCPPE_use-2020.2-eng.pdf)

<https://www.weforum.org/agenda/2020/03/this-is-how-long-coronavirus-lives-on-surfaces>

[https://www.who.int/publications/i/item/rational-use-of-personal-protective-equipment-for-coronavirus-disease-\(covid-19\)-and-considerations-during-severe-shortages](https://www.who.int/publications/i/item/rational-use-of-personal-protective-equipment-for-coronavirus-disease-(covid-19)-and-considerations-during-severe-shortages)

<https://www.who.int/news-room/commentaries/detail/transmission-of-sars-cov-2-implications-for-infection-prevention-precautions>