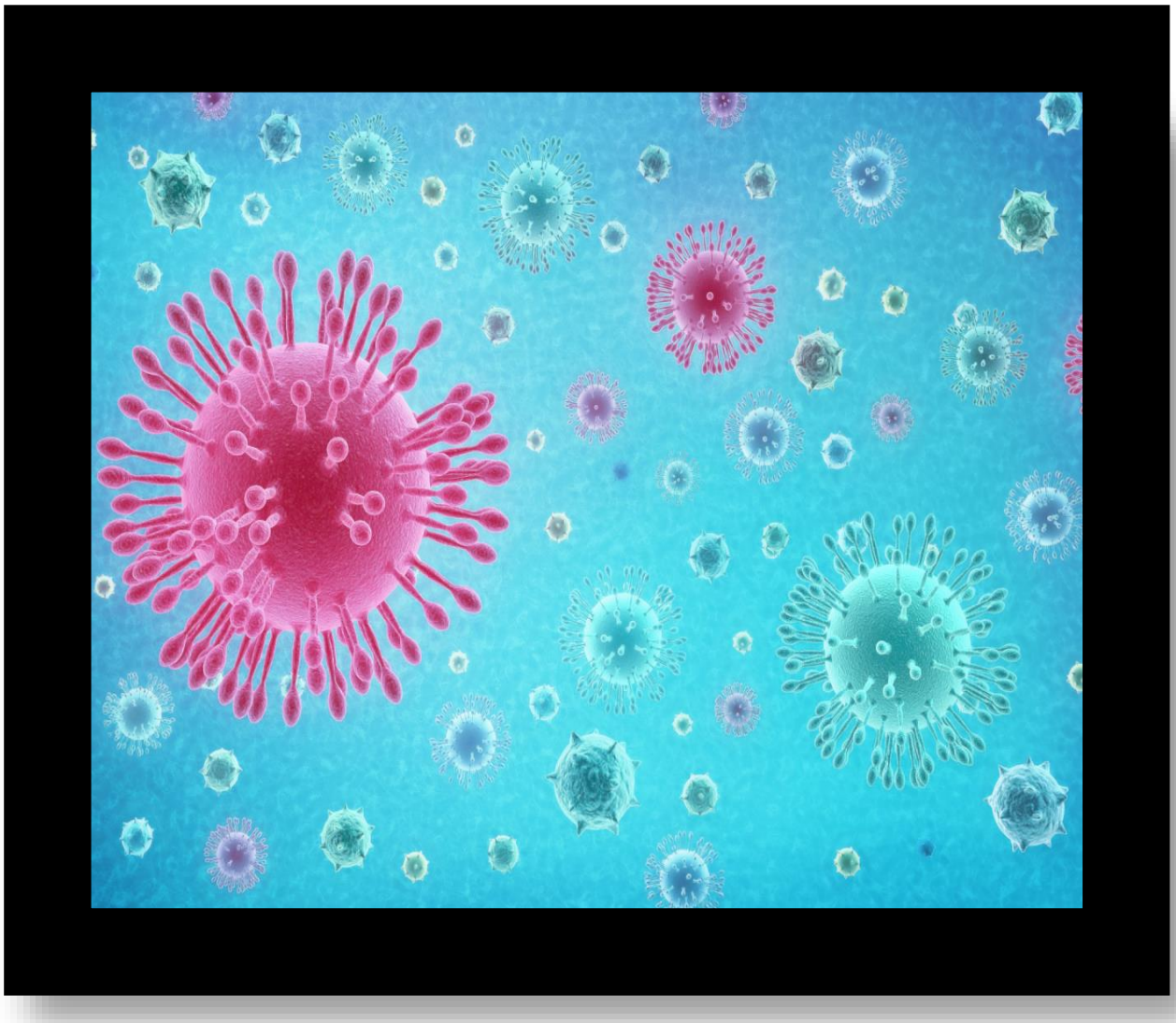
Pocket Book for Infection Prevention and Control Measures for COVID-19 in the Healthcare Setting



Adapted from:

INTERIM CLINICAL GUIDANCE FOR INFECTION PREVENTION AND CONTROL WHEN COVID-19 IS SUSPECTED

12 May 2020

Pocket Book for Infection Prevention and Control Measures for COVID-19 in the Healthcare Setting

I. Purpose of the Infection Prevention and Control (IPC) Pocket Book

The purpose of the IPC pocketbook is to help all staff working in the health care setting to apply appropriate principles of Infection Prevention and Control while providing care in healthcare institutions for patients including those with suspected or confirmed COVID-19 virus.

II. Target groups

The intended target audience is all personnel working in all areas of the health care setting: medical, nursing, technicians, laboratory, administrative, and all support staff.

III. Organizational preparedness for improving IPC measures within the facility and in facilities managing COVID-19 cases

All staff working in the health facility should be educated on standard precautions, transmission-based infection control precautions and prevention of occupational hazards (e.g. sharps management).

Staff should provide education to all patients and carers on the use of standard infection control precautions, especially on how & when to perform effective hand hygiene and use of appropriate PPE when visiting/escorting COVID-19 (suspected or confirmed) relatives or friends.

IV. Infection prevention and control precautions

Four major precautions should be implemented in a health care setting providing care to patients with both the COVID-19 (suspected or confirmed) cases and non- COVID -19 cases. (other morbidities including influenza).

a. Standard Precautions
b. Droplet precautions
c. Contact precautions
d. Airborne precautions

a. Standard precautions

Standard precautions should be applied routinely in all health care settings for all patients to avoid contact with patient`s blood, body fluids, secretions (including respiratory secretions) and non-intact skin or mucous membranes (i.e. eyes, nose, mouth). Standard precautions include:

- ✓ Hand hygiene
- ✓ Use of appropriate PPE
- ✓ Prevention of needle stick injury
- ✓ Safe waste management
- ✓ Cleaning & disinfection of equipment
- ✓ Environmental cleaning

Hand Hygiene: All staff working in the health facility should be trained on appropriate methods for hand hygiene. Hand hygiene is one of the most effective preventative measure against COVID-19. Hand hygiene should be done using:

- Hand sanitizer or alcohol-based hand rub 60% Ethanol or 70% Isopropanolol are the recommended [1] content) are preferred if hands are not visible soiled, using a palmful of sanitizer[2] (see Annex 1)
- Soap and water is preferred if hands are visibly soiled (see Annex 1)

ALL HCWs should apply WHO's 5 Moments for Hand Hygiene approach as follows: and can be seen in Annex 2:

- ✓ Before touching the patient
- ✓ Before and after clean / aseptic or other procedures
- ✓ After body fluid exposure risk
- ✓ After touching the patient
- ✓ After touching the patient's surroundings

The following respiratory hygiene measures should also be ensured:

- ✓ Ensure that all HCWs, patients and relatives in the facility covers their nose and mouth with a tissue or elbow when coughing or sneezing. Discard the used tissue in a waste bin and wash hands
- ✓ Patients with suspected COVID-19 should be given a mask to wear whilst in waiting/public areas or cohorting spaces
- ✓ All HCWs, patients and relatives perform hand hygiene after contact with respiratory secretions, and do not touch their face, eyes, nose or mouth

b. Droplet Precaution

HCWs should wear a surgical mask if working within 2 meters of the patient.
Preferable place patients in adequately ventilated single rooms (ideally with negative pressure or recirculated into the building after filtration through high-efficient particulate air filters) , **or group together those with the same etiological diagnosis**. If an etiological diagnosis is not possible, group patients with similar clinical diagnosis based on epidemiological risk factors, (ideally suspected COVID-

[1] https://www.who.int/gpsc/information_centre/handrub-formulations/en/
https://www.cdc.gov/coronavirus/2019-ncov/hcp/hand-hygiene-faq.html
[2] https://www.who.int/gpsc/5may/Guide_to_Local_Production.pdf?ua=1

19 cases should not be cohorted with confirmed COVID-19 cases) with a physical separation of **at least 2 meter from a bed frame to a bed frame or person to person**.
Limit patient movement and ensure patients wear surgical masks if/when outside their rooms/designated cohort areas.

c. Contact precaution

Use appropriate PPE when entering the single room/cohort ward and remove PPE when leaving (see Annex 3 for donning and doffing).
If possible, use dedicated equipment; e.g. stethoscope, BP cuff, thermometers, for each patient. If equipment needs to be shared among patients, clean and disinfect between each patient use.
Ensure HCW refrain from touching their eyes, nose, mouth with potentially contaminated gloved or ungloved hands.
Avoid contaminating environmental surfaces that are not directly related to patient care e.g. door handles and light switches. To avoid using gloved hands, if possible when entering the isolation or cohort wards:

- ✓ Push the doors open using your feet or elbows
- ✓ Use your elbows to turn on/off light switches

Ensure adequate room ventilation, avoid unnecessary movement of patients.

- Contact and Droplet precautions should continue until all of the following criteria are met:
  - ✓ At least 3 days after resolution of fever without the use of antipyretic/ medication **and**
    resolution of respiratory symptoms

  AND

  - ✓ At least 7 days have passed since the first symptoms appeared

  AND

  - ✓ Negative results for COVID-19 in at least 2 nasopharyngeal swab specimens collected ≥ 24 hours apart.

d. Airborne precautions

Ensure HCWs performing aerosol generating procedures (high risk procedure) use appropriate PPE including N95[3] mask. Aerosol generating procedures can be seen in Table 1. and should only be performed when necessary:

Table 1.
Aerosol generating procedures needing additional PPE

! Cardio-pulmonary resuscitation ! Intubation, extubating and related procedures ! Manual ventilation ! Tracheostomy procedures ! Bronchoscopy ! Open suctioning ! Non-invasive ventilation	! Nebulization therapy ! High flow nasal oxygen ! Sputum induction ! Obtaining nasopharyngeal or oropharyngeal swab ! Dental procedures ! Otorhinolaryngology procedures ! Upper gastrointestinal endoscopy ! Autopsy of the decease suspected or confirmed COVID-19 patient

[3] In case of scarcity, N95 equivalent masks may be procured in accordance with MoHP instructions

Whenever possible, use adequately ventilated single rooms (as described under 'Droplet precautions') when performing aerosol generating procedures. All health care facilities managing COVID-19 patients should implement staffing policies to minimize the number of healthcare providers who enter areas that are designated for the management of COVID-19 cases, including movement of staff, patients and their contacts.

V. Use of PPE while taking care of suspected COVID-19 Patients

The protection of frontline health care workers is paramount and Personnel Protective Equipment (PPE), including surgical masks, respirators, gloves gowns and eye protection must be prioritized for health care workers and others who are caring for COVID-19 patients. As noted in the Nepal Medical Council's Professional Ethics Guidelines for COVID-19 (March 2020), the country and the healthcare institutions have an obligation to provide necessary equipment including appropriate PPE to the healthcare workers (HCW) for their personal protection as well as to minimize transmission of infection between infected and non-infected individuals.

All staff should be trained on the appropriate methods for putting on ("donning:) and removing ("doffing") PPE, including performing a leak test for N-95 masks, surgical masks and goggles.

- ! Ensure all PPE is in good condition,
- ! Reusable PPE should be checked for tears or damage prior and after each use
- ! Torn or damaged PPE should be replaced ASAP; If torn or damaged due to occupational hazard, i.e. needle stick injury while attending to a COVID-19 patient, remove PPE following doffing procedure and follow Post Exposure Prophylaxis Protocol
- ! PPE should be worn according to the risk of exposure to the COVID-19 virus. Annex 4 shows the recommended PPE during the COVID-19 pandemic, according to the setting and type of activity.

VI. In situations of scare or insufficient supply line of PPE

In view of the global PPE shortage, strategies that can facilitate optimal PPE availability[4] can be seen in Annex 5. If there is a severe scarcity of N95 masks, the MoHP may request to use alternative masks that meet the specification of the N95, in the meantime the NMC advises on the adoption of the 'PPE in Scarcity Protocol' (Annex 6)

VII. Cleaning and disinfection practices

Recommended cleaning and disinfection procedures for health care facilities should be followed consistently and correctly. Laundry should be done regularly, and surfaces in all environments in which COVID-19 patients receive care should be cleaned at least once a day and following discharge of the patients. All laundry and linen used in the care of suspected or confirmed COVID-19 patients, is considered as 'Infectious' and should be handled accordingly.

All individuals dealing with cleaning and disinfection procedures or handling soiled linen COVID-19 patients (suspected or confirmed) should wear appropriate PPE (annex 5)

NMC recommendations on disinfectants and laundry management to be used in care of COVID-19 patients can be seen in Table 2 below.

[4] Rational use of PPE for COVID-19 and considerations during severe shortages. WHO-Interim Guidance-6 April 2020

Table 2. Cleaning and Disinfection of items, laundry and handling the deceased COVID-19 patient		
Item	**Solution & Procedure**	**Frequency**
Reusable dedicated equipment (e.g. stethoscope, thermometers etc)	Ethyl alcohol 70% [5]	In between use
Floors	0.5% chlorine solution (e.g. sodium hypochlorite or equivalent disinfectant)	Every 6-8 hours in non-critical areas Every 3-4 hours in critical areas
All high touch surfaces in areas with COVID-19 patients (e.g. door handles, light switches, bed & handrails, toilet bowls, tap knobs, etc)	0.5% chlorine solution (e.g. sodium hypochlorite or equivalent disinfectant)	Every 3-4 hours
Surface disinfection of tabletops, counter tops, furniture surfaces	0.5% chlorine solution or 0.5% sodium hypochlorite or equivalent disinfectant	Between patient consults in OPD
Spillage of blood or bodily fluids	• Confine the spill and wipe it up immediately with absorbent (paper) towels, cloths, or absorbent granules (if available) that are spread over the spill to solidify the blood or body fluid (all should then be disposed of as infectious waste). • Clean and disinfect the area with 1% sodium hypochlorite	As soon as spillage occurs
Reusables: utility gloves, heavy duty gloves, plastic aprons, goggles/visors, boots	• Drop in bucket with soap and water then • Decontaminate with 0.5% chlorine solution after each use.	After each use, ideally all items should be designated and labelled with the users name
Laundry		
Soiled laundry/linen	Machine wash at 60-90◦C (140-194◦ F) with laundry detergent OR in absence of machine • Soak laundry, linen in hot water and soap in a large bucket/drum, use a stick to stir, avoid splashing • Empty the bucket of water, then soak linens in 0.05% chlorine for 30 minutes • Rinse and dry in sunlight	When linens soiled, after each patient use
Handling the deceased		
Management of deceased COVID-19 patient (all person handling the deceased wear PPE (annex 4)	• No need to disinfect the body • Only use a body bag if the body is leaking bodily fluids. • Environmental cleaning of the deceased room should be done as detailed above	Following the death of a patient with COVID-19 (suspected or confirmed case)

[5] Infection Prevention and control during health care when COVID-19 is suspected

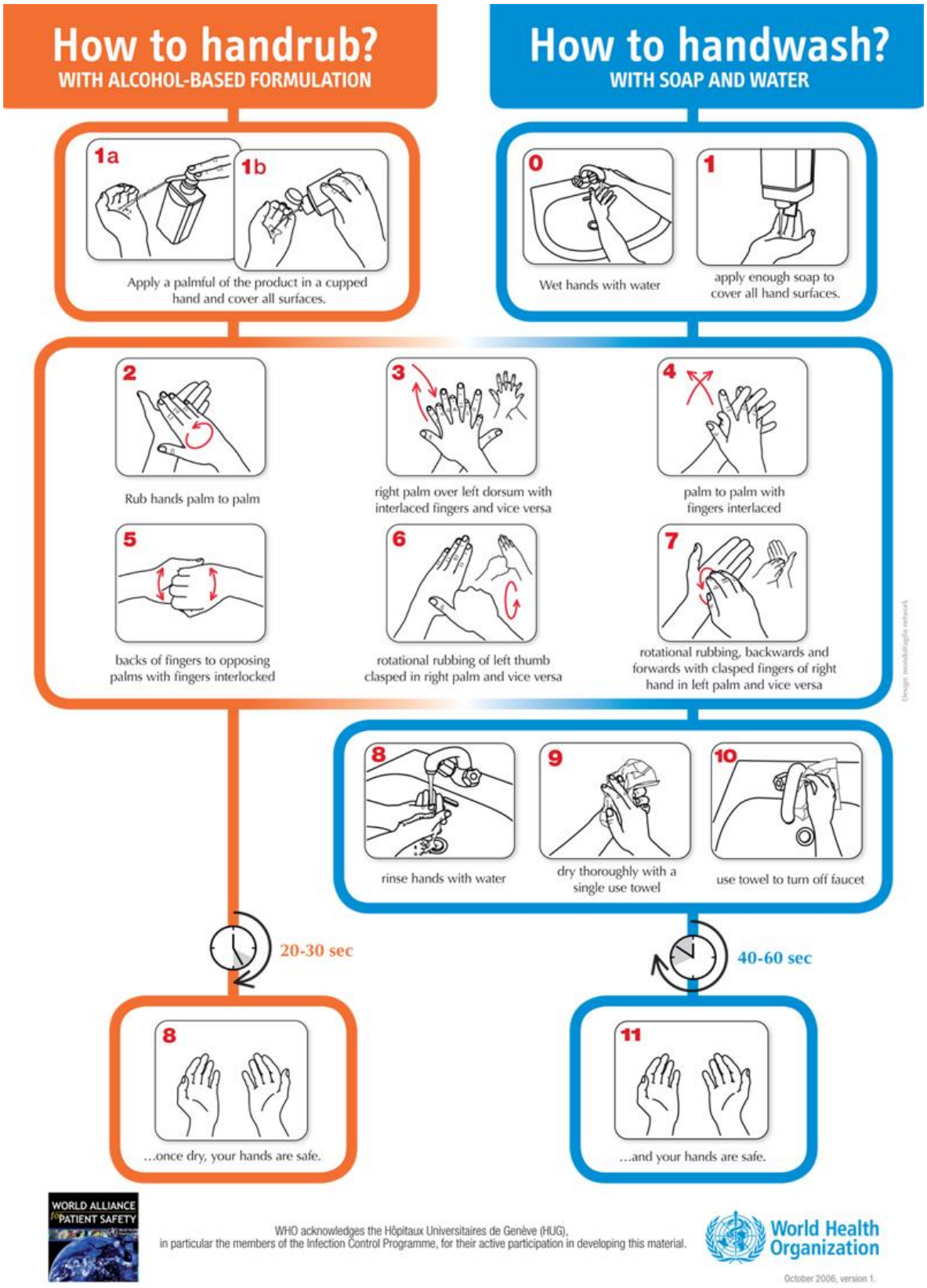
VIII. Waste Management

The management of various types of waste produced during the care of suspected or confirmed COVID-19 should be done according to the Healthcare Waste Management Guidelines (Ministry of Health and Population Department of Health Services, published in 2014)
All persons handling health care waste should wear appropriate PPE (Annex 4)

IX. Handling the deceased COVID-19 patient

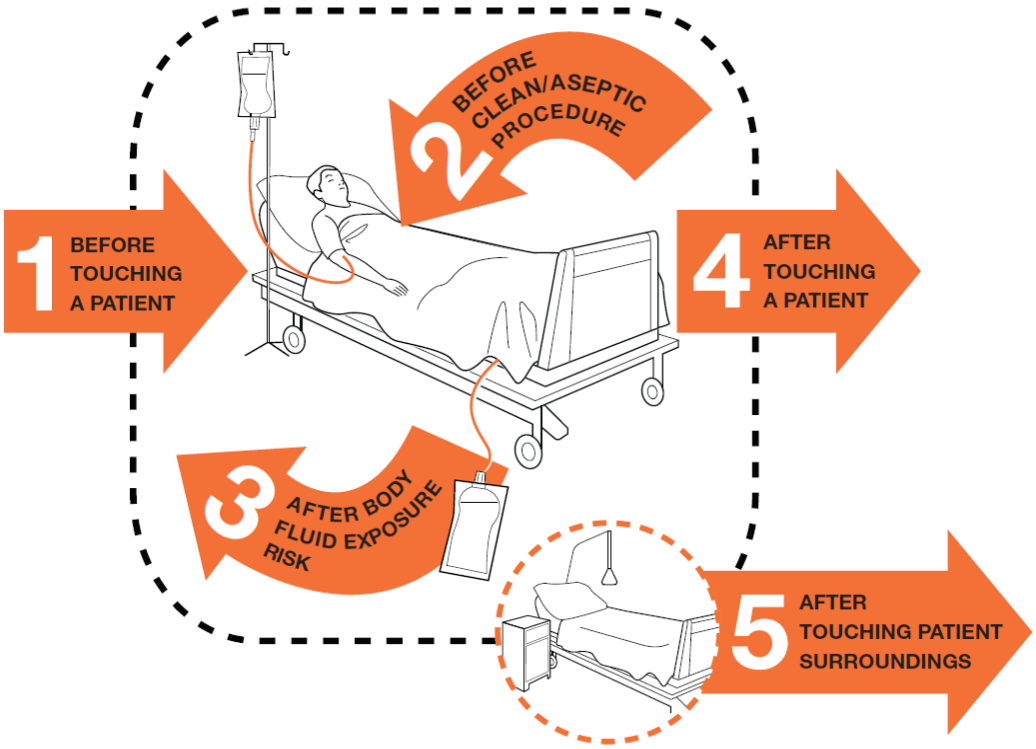
Currently the national Guidelines for management of dead bodies only refers to disasters and not diseases. An IPC for the safe management of a dead body in the context of COVID-19 is currently in development. Based on current evidence the COVID-19 virus is transmitted between people through droplets, formites and close contact, with possible spread through faeces. It is not airborne. Only the lungs in the patients with pandemic influenza if not handled correctly, during postmortem can be infectious. Therefor at this moment it is not advised to disinfect the dead body or routinely use body bags unless indicated as above. These recommendations will be reviewed as and when evidence is available.

Annex 1: How to Perform Hand Hygiene



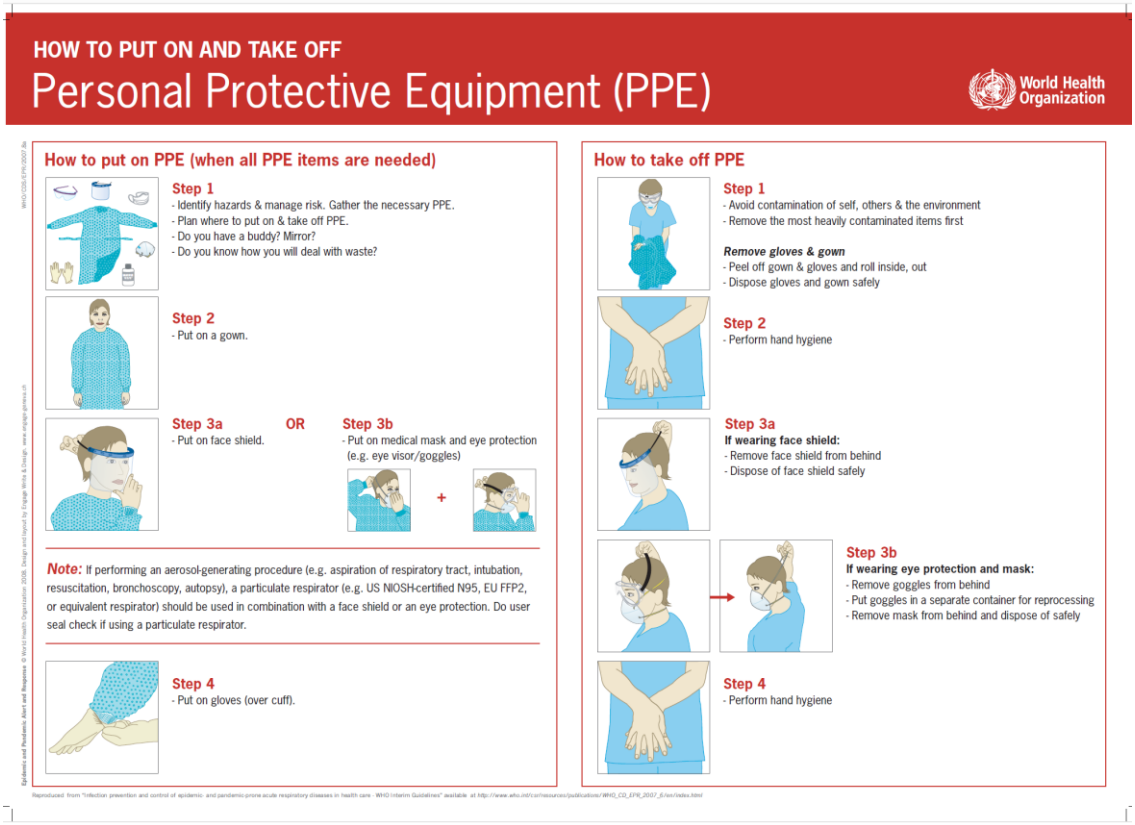
Annex 2: Your 5 Moments for Hand Hygiene

Your 5 Moments for Hand Hygiene



1	BEFORE TOUCHING A PATIENT	WHEN?	Clean your hands before touching a patient when approaching him/her.
		WHY?	To protect the patient against harmful germs carried on your hands.
2	BEFORE CLEAN/ ASEPTIC PROCEDURE	WHEN?	Clean your hands immediately before performing a clean/aseptic procedure.
		WHY?	To protect the patient against harmful germs, including the patient's own, from entering his/her body.
3	AFTER BODY FLUID EXPOSURE RISK	WHEN?	Clean your hands immediately after an exposure risk to body fluids (and after glove removal).
		WHY?	To protect yourself and the health-care environment from harmful patient germs.
4	AFTER TOUCHING A PATIENT	WHEN?	Clean your hands after touching a patient and her/his immediate surroundings, when leaving the patient's side.
		WHY?	To protect yourself and the health-care environment from harmful patient germs.
5	AFTER TOUCHING PATIENT SURROUNDINGS	WHEN?	Clean your hands after touching any object or furniture in the patient's immediate surroundings, when leaving – even if the patient has not been touched.
		WHY?	To protect yourself and the health-care environment from harmful patient germs.

Annex 3 PPE Donning Doffing PPE



HOW TO PUT ON AND TAKE OFF

Personal Protective Equipment (PPE)

World Health Organization

How to put on PPE (when all PPE items are needed)

Step 1
- Identify hazards & manage risk. Gather the necessary PPE.
- Plan where to put on & take off PPE.
- Do you have a buddy? Mirror?
- Do you know how you will deal with waste?

Step 2
- Put on a gown.

Step 3a OR **Step 3b**
- Put on face shield.
- Put on medical mask and eye protection (e.g. eye visor/goggles)

Note: If performing an aerosol-generating procedure (e.g. aspiration of respiratory tract, intubation, resuscitation, bronchoscopy, autopsy), a particulate respirator (e.g. US NIOSH-certified N95, EU FFP2, or equivalent respirator) should be used in combination with a face shield or an eye protection. Do user seal check if using a particulate respirator.

Step 4
- Put on gloves (over cuff).

How to take off PPE

Step 1
- Avoid contamination of self, others & the environment
- Remove the most heavily contaminated items first

Remove gloves & gown
- Peel off gown & gloves and roll inside, out
- Dispose gloves and gown safely

Step 2
- Perform hand hygiene

Step 3a
If wearing face shield:
- Remove face shield from behind
- Dispose of face shield safely

Step 3b
If wearing eye protection and mask:
- Remove goggles from behind
- Put goggles in a separate container for reprocessing
- Remove mask from behind and dispose of safely

Step 4
- Perform hand hygiene

Annex 4: Appropriate use of PPE

Guidelines for use of personal protective equipment (Developed by the Expert Team of NMC and Government of Nepal with reference from WHO, published on March 26, 2020)

A. For Aerosol Generating procedures: Dental procedures, bronchoscopy, Upper GI Endoscopy, ENT procedures, Nebulization, Intubation of a patient, CPR, Non-invasive ventilation, endotracheal suctioning, when obtaining nasopharyngeal or oropharyngeal swab, etc.in **Covid-19 suspected or confirmed cases health personnel need to use the following protective equipment:**

a. N-95 mask
b. Goggles or visor
c. Gloves (loose gloves acceptable)
d. Water resistant OR standard disposable gowns
e. Cap: Regular disposable
f. Closed shoes/boots

B. **For Non aerosol generating covid-19 suspected or confirmed patients: Health personnel need to use the following protective equipment:**

a. Surgical mask (seal the top edge with tape)*
b. Goggles or visor
c. Gloves (loose gloves acceptable)
d. Water resistant or standard disposable gowns
e. Cap: Regular disposable

C. For Physician/Staff running the fever/screening clinics the following PPE is recommended:

a. Surgical mask, (seal the top edge with a tape)*
b. Goggles or visor
c. Water resistant or standard disposable gowns
d. Regular disposable Cap
e. Gloves (loose gloves acceptable)

D. For escorts or drivers, the following PPE is recommended:

a. Surgical masks
b. Gloves
c. If physical contact is expected, depending on circumstances, a gown PLUS goggles or face shield are also recommended, otherwise need to maintain minimum 2 meter distance from the patient.
d. The patient should be given surgical mask and instructed to perform hand-hygiene.

E. For Laboratory staff; depending upon the chance of splash:

a. surgical mask
b. Gown
c. Loose Gloves
d. Eye protection (if risk of splash)

F. For all staff, including health care workers involved in any activity that does not involve contact with COVID-19 patients and working in other areas of patient transit (e.g. wards, corridors). **No PPE required**.

For Everyone:

o ***Maintain 3-6 feet distance while visiting patients, if no need to touch the patient.***

o ***Mandatory hand-hygiene after each use of PPE and between patients.***

Mandatory surface cleaning of bed or furniture with 0.5% Chlorine disinfectant (Virex* or similar) between each

patient in OPD or in an inpatient setting.

***Use N-95 masks if close contact with COVID-19 suspect or confirmed case expected.**

Annex 5: Strategies for temporary measures due to shortage of PPE extended use[6]:

- Minimizing the need for PPE in the health care setting (e.g. use of physical barriers to reduce exposure to the COVID-19 virus, such implementation of glass or plastic windows in areas of the health care facility where patients first present, e.g. at reception/OPD/Triage and screening areas, or at pharmacy windows where medication is collected)

- Ensuring rational and appropriate use of PPE. **Consider using specific PPE only if in direct close contact with the patients or when touching the environment**
    - e.g. Wearing a surgical mask and face shield, not using gloves or gown over the scrub suit if entering the patient's room only to ask questions or make visual checks.
    - Restrict number of HCW from entering rooms of COVID-19 patients if they are not involved in providing direct care.
    - Consider coupling activities to minimize the number of times a room is entered e.g. check vital signs during medicine rounds or have food delivered while they are performing other activities
    - Extended use of surgical mask masks (use without removing for up to 6 hours, when caring for a cohort of COVID-19 patients (however if the mask becomes wet, soiled, splashed with chemicals or body fluids or if it becomes difficult to breath, it should be renewed immediately)
    - Restrict visitors unless absolutely essential, encourage online social media chats and messaging
    - Extended use of gowns when providing care of a cohort or patients with COVID-19 (however if gown becomes wet, soiled or damaged or exposed to splash of chemicals, infectious substances or body fluids, it should be renewed immediately
    - Reprocessing N95 using Vapor or Hydrogen peroxide, Ethylene oxide or UV radiation lamp. Once the N95 is repurpose it should be returned to original owner

[6] "Rational use of PPE for coronavirus disease (COVID-19) and considerations during severe shortages. Interim Guidance, WHO-6 April 2020

Annex 6: NMC protocol for reusing N95

After using N-95 for the first time:

1. Get a clean paper bag and write your name on it.
2. Perform hand hygiene before removing the N-95 mask.
3. Take the N-95 out safely without touching the inner surface of the mask.
4. Keep the mask in a clean paper bag and staple the open end.

- Reusing N-95 masks
  1. Perform hand hygiene
  2. Tear the paper bag open.
  3. Take out the N-95 mask and put it on.
  4. Dispose of the paper bag.
  5. Perform hand hygiene.
  6. When removing the N95 mask, again use the process above and keep the mask safely in a new paper bag