



# Safety Guidelines for Doctors, Nurses and Health Care Workers

During Corona Pandemic

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Stay Home Stay Safe.

Wash Your Hands with soap  
and running water.

Protect yourself and others  
from getting sick.

Show empathy with those  
affected.

## CONTEXT

The coronavirus has made its way around the world. By now, we are all aware of the fact that all ages are vulnerable to COVID-19 especially with close contact with an infected individual. The governments and health care system around the world are under tremendous pressure to limit the spread of the disease and are struggling to control COVID-19. The frontline healthcare workers (HCW) specially doctors and nurses are effortlessly putting themselves at risk, each time as they treat the patient with the disease or even the suspected cases. Although there is no comprehensive accounting of health care workers' mortality around the world, it is reported that more than thousands of health care workers have already lost their life according to the Medscape article published in July 2020.

The physical and psychological well-being of our HCWs are being tested as patient loads continue to rise and fellow co-workers are contacting the infection, contributing significantly to burnout among healthcare workers. This is by the shortage of PPE (Personal Protective Equipment) around the globe. Additionally, due to the ineffective implementation of proper preventive measures among general public, we have not been able to flatten the curve properly. As we emphasize on the importance of following golden rules of safety measures for all, we here bring the guidelines to be followed by our health care workers as part of their daily norms.

Healthcare facilities are obliged to provide care for all patients in the safest way possible. Whether patients need home-based care, outpatient care, urgent care, emergency room care, inpatient care, or intensive care; healthcare workers should follow the safety measures to protect their patient and themselves as well. Through this paper, we have tried to discuss on few important measures to be taken by our front liners, as they march to serve humanity.

## HEIRACHY OF HAZARD CONTROL

The hierarchy of hazard controls is a framework widely used in occupational safety and health, to group hazard controls by effectiveness. Although, we are still uncertain about the elimination of COVID-19 hazards, health care settings can implement the most effective controls through engineering controls, followed by administrative controls, and lastly by providing the personal protective equipment.

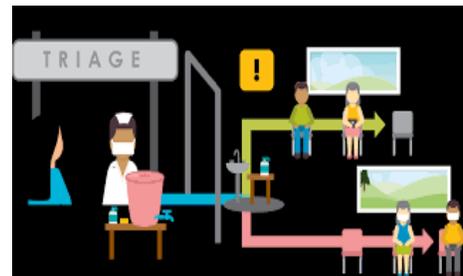
### A. Engineering Controls:

Engineering controls are the preferred methods to reduce transmission of infectious aerosols in areas utilized to house or evaluate patients with respiratory illnesses. There should be evaluation of health care facilities for enhancement of infection control.

1. There should be use of physical barriers such as glass shields or plastic windows at reception areas, curtains between patients, etc. in hospital facilities.
2. Healthcare facilities are suggested to increase the number of isolation rooms and negative pressure rooms.
3. Both suspected and confirmed cases of COVID-19 should be kept in an airborne infection isolation room (AIIR) for aerosol generating procedures.



4. Triage areas should be designed to streamline the patient flow by prioritizing the infection isolation and health care worker protection.



5. Isolation areas should have adjacent rooms for staff to put on and take off scrubs, and to take showers.
6. Facility planning should include storage space for augmented infection control items, including durable goods such as ventilators, portable high efficiency particulate air (HEPA) filtration units, portable x-ray units, and respirators.
7. The ventilation system should be managed properly to provide air movement from a clean to contaminated flow direction.

8. Thoughtful facility design should include rest and recuperation sites for responders.



## B. Administrative Controls

Administrative controls include controlling health care workers' exposure by scheduling their work tasks in ways that minimize their exposure levels. We suggest following controls as part of minimizing the spread of the disease.

1. There should be proper sick leave policy to encourage ill doctors and nurses to stay home.
2. Patients with non-urgent illnesses should be encouraged to contact through tele-visits (videoconference) and hence, decreasing the patient flow at the hospital or clinics.
3. Elective surgery and follow-up visits should be limited.
4. Patients visiting the hospitals and outpatient clinics should be limited and screened for disease symptoms prior to entrance.

5. We recommend telemedicine to screen or manage patients using technologies and referral networks to reduce the influx of patients to healthcare facilities.
6. Visitors accompanying the patients should be discouraged to visit hospitals.
7. A designated team of doctors, nurses and other health care workers should be formed to care patients with suspected or confirmed COVID-19 infection.
8. The confirmed cases of COVID19 should be placed in same ward and their care should be confined to one area.
9. A proper contact tracing guideline should be implemented to identify high risk individuals followed by necessary measures for isolation of the suspected cases.
10. Patients with moderate to severe illnesses should be placed in isolation ward or AIIR. They should be monitored regularly and managed according to the hospital guidelines.
11. All health care professionals should be trained to use N95 respirators and PPE (i.e., proper use, fit, donning and doffing, etc.)
12. There should be a predesigned strategy and plans to evaluate and diagnose the disease among employees for a quick action on whenever necessary during a pandemic situation.

13. There should be proper guideline and instructions on prioritizing the need for intense respiratory protection support.
14. There should be limited use of respirators by HCWs and only the designated team handling COVID-19 should be the priority.
15. Home delivery of medicine supplies should be implemented to avoid influx of patients to health facilities and pharmacy.
16. Emergency communication plans should be implemented among health care providers in order to manage overwhelming patient care.

### C. Personal Protective Equipment

Although administrative and engineering controls are effective in minimizing exposure to the COVID-19, the use of PPE is also indicated as part of control of this pandemic. It is necessary that the PPE should be used correctly in order to prevent frequent exposure. We recommend that PPE required by HCWs should vary according to administrative regions, by risk of exposure and procedure. Additionally, we highly recommend everyone to follow general safety measures throughout even when one is using PPE.

PPE are used to prevent contact with the infectious agent, or body fluid that may contain the infectious agent, by creating a

barrier between the worker and the infectious material.



1. Gloves are used to protect the hands. It protects against contact with infectious materials. However, once contaminated, gloves can become a means for spreading infectious materials to yourself, other patients or environmental surfaces. Hence, it should be used cautiously and only when necessary.
2. Gowns or aprons are used to protect the skin and/or clothing. Clean gowns are generally used for handling cases on isolation. Sterile gowns are necessary only for

performing invasive procedures, such as inserting a central line. In this case, a sterile gown would serve purposes of patient and healthcare worker protection. Also, gowns should be waterproof (Level 2, fluid resistant, or higher) and must have full length sleeves, and should cover as much of the workers body as possible, including neck and back.

3. Different types of PPE are available to protect face from contact with potentially infectious material. These are:

- a. Masks: It should fully cover the nose and mouth and prevent fluid penetration. It should fit snugly over the nose and mouth.
- b. Goggles provides barrier protection for the eyes. Hence, are suggested to use whenever possible.
- c. A face shield can be used as a substitute to wearing a mask or goggles. The face shield should cover the forehead, extend below the chin, and wrap around the side of the face.
- d. Face masks, N95 masks and the respirator has been designed to also protect the respiratory tract from airborne transmission of coronavirus and other infectious agents. It is used to reduce the health care providers risk of inhaling

hazardous airborne particles (including infectious agents), gases or vapors.

- e. N95 respirators or respirators that offer a higher level of protection should be used by doctors and nurses instead of a facemask when performing or present for an aerosol generating procedure.
- f. It is important to dispose facemasks and respirators after exiting the COVID-19 patients' room. Also perform hand hygiene after removing the respirator or facemask.
- g. It is not recommended to use cloth face coverings for HCWs as they are not considered as PPE and should not be worn for the care of patients with suspected or confirmed COVID-19 infection.

#### • Donning and Doffing of PPE

A guideline for PPE can only be effective if it is implemented and adhered to. It is important for the front-line workers to use PPE in the appropriate way to keep themselves and patient safe. We would like to stress on the importance of compliance and good practice when it comes to wearing and removing (donning and doffing) of PPE. The following shows the sequence of appropriate donning and doffing of PPE.

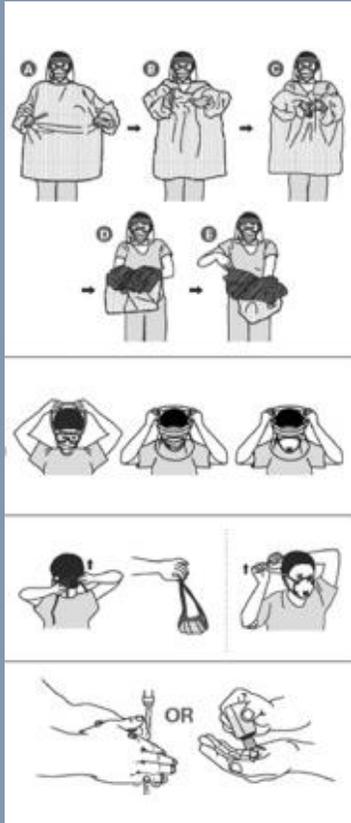
<b>Donning PPE (Putting on)</b>
1. Gather proper fitted PPE
2. Perform hand hygiene
3. Put on shoe covers (if applicable)
4. Put on gown. Cover torso from neck to knees, arms to end of wrists, and wrap around the back. Fasten in back of neck and waist.
5. Put on mask/respirator (if applicable). Secure ties or elastic bands at middle of head and neck. The flexible band to nose bridge should be fitted and fit snug to face and below chin. Also, fit-check respirator.
6. Put on eye protection (if applicable). Place over face and eyes and adjust to fit
7. Put on gloves. It should be extended to cover wrist.

<b>Doffing PPE (Removing)</b>
1. Gloves are removed first. Grasp the outside edge of the glove near the wrist and peel away from the hand, turning the glove inside-out. Hold the glove to opposite gloved hand. Slide an ungloved finger or thumb under the wrist of the remaining glove. Peel the glove off and over the first glove, making a bag for both gloves. Throw the gloves in the trash can designated for infective wastes.
2. Perform hand hygiene either with alcohol based sanitizer or wash hands thoroughly for 20 seconds.
3. Remove the gown. Unfasten the ties. Grasp the outside of the gown at the back of the shoulders and pull the gown down over the arms. Turn the gown inside out during removal. Put in hamper or, if disposable, put in trash can designated for infective wastes.
4. Perform hand hygiene either with alcohol based sanitizer or wash hands for 20 seconds.
5. Remove eye shield and face protection. Handle only by head-band or earpieces. Carefully pull away from face. Put reusable items in appropriate area for cleaning. Put disposable items into trash can designated for infective wastes.
6. Remove eye protection (if applicable). Bend forward slightly and carefully remove the mask from your face by touching only the ties or elastic bands. Start with the bottom tie, then remove the top tie. Throw the mask in the garbage. There are different styles of N95 respirators, but all styles have the same basic steps for doffing.
7. Perform hand hygiene either with alcohol based sanitizer or wash hands thoroughly for 20seconds.

### Donning of PPE



## Doffing of PPE



### HANDLING SUPPLY CHAIN

As the number of cases in Nepal and other countries continues to grow, the hospitals are already reporting shortages of key equipment needed to care for critically ill patients, including ventilators and personal protective equipment (PPE) for medical staffs. Adequate production and distribution of both types of equipment are crucial to caring for patients during the pandemic. Equally worrisome is the lack of adequate PPE for frontline health care workers,

including face masks, respirators, gloves, face shields, gowns, and hand sanitizer. As we advocate the maximum production of key equipment and PPE by the respective industries, we also recommend the appropriate and tactful use of such items. According to WHO, following strategies is advocated while handling these supplies.

#### A. Reduction in the use of PPE:

The following interventions can lessen the need for PPE while protecting healthcare workers and other individuals from exposure to the COVID-19 in healthcare settings.

- Consider using telemedicine to evaluate suspected cases of COVID-19 disease
- Use physical barriers to reduce exposure to the COVID-19 virus, such as glass shields or plastic windows.
- Restrict healthcare workers flow from entering the rooms of COVID-19 patients if they are not involved in direct care. Ideally, visitors should not be allowed but virtual meeting should be encouraged.

#### B. Rationalization of PPE Use:

PPE should be used based on the risk of exposure 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.

- 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: gowns, gloves, medical mask and eye protection (goggles or face shield). 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 gowns; aprons should also be used if gowns are not fluid resistant.
- Respirators (e.g., N95, FFP2 or equivalent standard) can be used for an extended time given that the same respirator is being used while caring for multiple patients who have the same diagnosis without removing it. However, using one respirator for longer than 4 hours can lead to discomfort and should be avoided.
- People with respiratory symptoms or those caring for COVID-19 patients at home should receive medical masks.

### **C. Management and coordination of PPE supply chain management**

The supply chain of PPE management should be coordinated and managed through essential national and international supply chain management mechanisms. These can be done through using PPE forecast through various rational models and thus ensuring requested supplies. It can also be supervised

through monitoring and controlling PPE requests and distribution.

### **ETHICAL CONSIDERATION**

As the COVID-19 pandemic surges to increase, the number of critically ill patient is rapidly rising in the hospitals and clinics. Hence, clinicians are facing an increased shortage in the vital equipment and supplies. In most of these cases, the ethical dilemmas are evident to the health care providers on either to choose patients' safety over themselves or not. In such situations, we suggest that the front-line health care workers should not be the only ones to make the appropriate decisions. Instead, there should be a proper ethical guideline from their working institutions to support their judgement.

A designated committee should be formed by the institution and objective guidelines should be made to approach a patient with COVID-19. Having the institution make the call, in a systematic way, about who gets a ventilator and who doesn't is far preferable from an ethics perspective, then leaving that to the patient's caregiver. Hence, we recommend the respective health care institutions to make their own guidelines to patient's approach and thus reducing the burden on critical decision making by the physicians. Also, balancing the professional commitment to provide urgently needed care in a pandemic situation with responsibility to one's family is a challenging task itself. Having said that, the health care institution should be aware of the psychological impact of this pandemic situation up on their medical staffs

and should provide appropriate support, guidance, reassurance and refreshments to the health care workers during this situation.

### **CONCLUSION**

It is essential to protect the frontline health care workers from contracting the disease in order to ensure the sustained delivery of emergency care during the COVID-19 pandemic. We recommend that the health institutions should follow various measures

such as hazard controls, PPE, training and compliance in order to protect the vulnerable individuals and so on. Furthermore, careful work scheduling of doctors, nurses and staffs should be done. We also recommend specific consideration and initiatives for psychological and peer wellness support for our front-liners.