Infection Prevention and Control Guidelines for COVID

In the current situation, the best way to prevent novel coronavirus disease 2019 (COVID-19) is to avoid exposure to the virus. There is currently no evidence-based treatment and effective vaccine to manage and prevent COVID-19. With the information available now, the main route of spread is between human-to-human, either from a symptomatic affected person or from an asymptomatic carrier, via respiratory droplets or contact. There is still controversy of orofecal and airborne transmission. The limited health infrastructure available and the impending risk of a potentially explosive outbreak necessitates urgent measures to control this pandemic. Social distancing and the following recommendations are found to be most useful to control the pandemic.

The following recommendations apply for all general public as well as to patients with chronic kidney disease, on dialysis and following kidney transplantation.[1,2]

General Advice

1. Avoid agglomerations and closed crowded spaces
2. Maintain a distance of at least 1-2 meters, especially from persons with respiratory symptoms
3. Stay home if sick or with any respiratory symptoms or even if asymptomatic, if there is a history of contact with a suspected COVID patient
4. Avoid non-essential travel
5. Avoid touching various surfaces unnecessarily.

Hand Hygiene

1. Wash hands with soap and water for at least 20 seconds, especially after blowing the nose, coughing, sneezing, or being in any public place
2. If the hands are not soiled and/or soap is not available, use a hand sanitizer containing at least 60% alcohol
3. "My 5 moments for hand hygiene" (https://www.who.int/gpsc/5may/background/5moments/en) are a simple, effective guide on how to perform hand hygiene
4. If soap or alcohol-based hand rub is not available, chlorinated water (0.05%) can be used, though repeated use can lead to dermatitis and should be watched out for
5. Refrain from touching your eyes, nose and mouth with unwashed hands
6. Dry your hands with tissue paper (preferably) or with a clean, dry cloth, single-use towel or hand drier as available.

Respiratory Etiquette

1. Nose and mouth should be covered with a tissue while coughing or sneezing or inside of a flexed elbow should be used. The tissue has to be disposed of in the trash immediately, followed by proper hand hygiene.

Personal Protective Equipment

Personal protective equipment are alone or combination of multiple consumable used by the healthcare worker (HCW) and other individual and include:[2]

1. Face mask
2. Cap or hood
3. Goggle
4. Face shield
5. Shoe cover
6. Gown
7. Full cover or cover all.

Given the area where the HCW is working and the degree of risk involved, decides what all components of PPE one should use. Three different levels of protection are shown in Table 1. The guidance for the use of PPE in different health setting has been shown in Table 2.

Table 1: Different levels of protection

LEVEL-3 PROTECTION	LEVEL-2 PROTECTION	LEVEL-1 PROTECTION
Branded Coverall (Tyvec, Tychem, etc.)	N95 Mask	N95 mask
N95	Coverall/ Gown	Gown
Goggles	Hood	Goggles
Face shield	Goggles	Gloves (Double)
Gloves (Double)	Long shoe cover	
Long Shoe cover	Gloves (Double)	

However, as face mask are most commonly used PPE, little more details are usefull.

Face Mask

Use of face mask and type of face mask is probably the most controversial issue in current pandemic. Its use usually takes into consideration that in which area person is working and what is availability of mask. One should follow the guidelines being provided by the local health authority.[3]

1. Any individual should wear face mask if he has respiratory tract infection, if he cares for those with respiratory symptoms or when entering a healthcare provider's place
2. There are two broad category of face mask; three-layer surgical mask and N-95 mask
3. A triple-layered surgical mask is sufficient for personal protection in usual situation in healthcare setting
4. N-95 mask is necessary for following situations:
   - If HCW is working in COVID screening area

Table 2: Guidance for use of PPE in Different Healthcare Settings

Setting	Target personnel	Activity	PPE type
COVID-ICU+WARD	HCW+HSS	AGP	Level-3
Screening Area potential to have suspected COVID	HCW	Screening	Level-2
	HCW	Respiratory Sampling	Level-3
	HSS	Disinfection/Patient Shifting	Level-2
Non-COVID ICUs	HCW	AGP	Level-2
Emergency Sick Area	HSS	Disinfection/Patient Shifting	Level-1
Emergency Screening Area	HCW	Screening	Level-2
	HSS	Disinfection	TLM+HDG
Hospital Emergency Area	HCW	NAGP	TLM+Gloves
	HSS	Disinfection/Patient Shifting	TLM+HDG
Screening general OPD	HCW	Screening	N95 mask Gloves (Single)
	HSS	Disinfection	TLM+HDG
General OPD	HCW	NAGP	TLM
	HSS	Disinfection	TLM+HDG
General Ward	HCW	NAGP	TLM
	HSS	Disinfection/Patient Shifting	TLM+HDG
Laboratory personnel	HCW	Dealing Respiratory samples	Level-1
Radiodiagnosis If handling COVID Positive/suspect	HCW	NAGP	TLM
Ambulance (HCW travelling inpatient compartment)	HCW	Attending patient (Direct contact >15 min)	Level-2
	HSS	Disinfection	TLM+HDG
	Driver	No Direct contact	Triple layer mask
Dispensary	Pharmacist	Drug Dispensing	TLM
COVID Patient/Suspect	Patient	For Droplet prevention	TLM
Offices Staff	All staff	Patient contact	TLM
Offices Staff	All staff	No Patient contact	No PPE

HCW: Health care worker (doctor, nurses & technician), HSS: Hospital Support Staff (Cleaner/Sweeper/HA), NAGP: Non-aerosol generating procedure, AGP: Aerosol generating procedure, TLM: Triple layer mask, HDG: Heavy duty gloves

- If HCW is performing an aerosol generating procedure like endotracheal intubation, adjustment of C-PAP or ventilator settings, nasogastric tube insertion, cardio-pulmonary resuscitation, etc.
- While respiratory sample collection of suspected COVID-19 patient
- While caring for known COVID-19 positive patient.

Masks Management

1. Mask must cover mouth and nose minimizing all gaps between the mask and face
2. Do not touch the mask when in use
3. Remove masks by removing the lace from behind. If in contact with the front of the mask/damp mask-perform hand hygiene and replace the mask
4. If face masks are not available, homemade masks like scarfs can be used as a last resort, and it should cover the entire front and sides of the face and should extend to the chin or below
5. Do not reuse masks
   - Most of the masks are single use mask, including N-95 mask. However, in situation where there is shortage of N-95 mask, there are guidelines to process N-95 mask for reuse. Such guidelines are available on CDC website. Out of various procedures suggested, one should follow process for reuse as suggested by local health authorities.

General Cleaning[4]

1. Like other coronaviruses, COVID-19 can survive on various surfaces for 2 hours to 9 days, depending on a number of environmental factors
2. Clean frequently used objects/surfaces daily like phones, tablets, handles, keyboards, and switches, etc.
3. Common disinfectants such as 70% ethanol or sodium hypochlorite (0.5%) and diluted household bleach (1 part bleach to 9 parts water) used for one minute should be effective
4. List of household detergents effective against COVID-19 is available in https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2
5. Cleaning with soap and water can be done if surfaces are dirty
6. Clothes of COVID-19 suspected patients should be machine washed separately with warm water at 60-90°C and following any contact with such clothes, proper hand hygiene should be performed.

Water Supply

1. Though COVID-19 has not yet been detected in drinking water, like other coronaviruses, chlorination and disinfection with ultraviolet light as done in conventional, centralized water treatment methods should be effective
2. If a centralized supply is not available, household water treatment methods, including boiling, using nanomembrane filters, chlorine, or UV irradiation, may be used.

Chemoprophylaxis[5]

The National task force for COVID-19 by Indian Council of Medical Research (ICMR) has recommended the use of hydroxy-chloroquine ONLY for prophylaxis in high-risk population viz. asymptomatic HCWs involved in the care of suspected/confirmed cases of COVID-19 and asymptomatic household contacts of laboratory confirmed cases. The doses recommended are 400 mg twice a day on day one followed by 400 mg once a week for seven weeks for health care workers and 400 mg twice a day on day 1, followed by 400 mg once a week for three weeks for asymptomatic household contacts of confirmed cases. However, in view of various side effects of the drug, it should only be given under prescription by registered medical practitioner. Further, as of now efficacy of the drug in above given setting has not been proven by randomized controlled trial.

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Conflicts of interest

There are no conflicts of interest.

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