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# Diploma in Pharmacy 1<sup>st</sup> Year

## Social Pharmacy

### Experiment

To study about using and disposal of various types of masks, PPE gear.

#### Aim:

To study about using and disposal of various types of masks, PPE gear.

#### Reference :

Dr. Gupta G.D , Dr. Sharma Shailesh , Dr. Sharma Anshu , “ Practical Manual of Social Pharmacy ” Published by Nirali Prakashan , Pg.No 26 - 29

#### Material Required

Basic cloth face mask: surgical face mask. N95 respirator, Filtering face piece respirator, P100 respirator/gas mask. Self-contained breathing apparatus. Full face respirator, Full length face shield. KN95 respirator

#### Theory :

- A face mask is a substance that covers the mouth and nose of the wearer. In accordance with the CDC recommendations, face masks are considered as source control by the general public and health care personnel (HCP) and are not considered as to be used as an equipment for personal protection.
- It is not always necessary that face masks meet the efficiency levels of any fluid barrier or filtration efficiency. Hence, they cannot be used as a substitute for N95 respirators or other Filtering Face piece Respirators (FFRs) which however acts as respiratory protective barrier for the wearer or for surgical masks that acts as a fluid barrier protection for the wearer.
- The Centers for Disease Control and Prevention (CDC) and World Health Organisation (WHO) gives approval to the surgical and normal face masks to be used by the general public. However, these types of masks are designed specifically for the purpose of preventing of any disease from spreading any disease one is suffering from

# Usage of Different Masks

- 1) **Cloth Masks:** These masks are used in daily work and routine. However, the ability and effectiveness of these masks limit up to filtering only the environmental air for dust particles rather than filtering the bacterial particles in the air. Therefore, it is always recommended to wear at least a cloth mask rather than not wearing the mask.
- 2) **Layered Surgical Mask:** These types of masks are made up of polypropylene and are highly effective having the ability of blocking particle droplets, air, and sprays containing virus, filtering out pollutants, dust particles and other chemical substances. These masks can be disposed off after use. However, the loose fitting of masks does not block the entry of small particles present in the air inside the mouth and nose.

These masks are considered to be effective most against COVID 19 virus. They are very effective in filtering the pollutants, chemicals and dust particles due to the presence of 3 layers in the mask with an adjustable metal strip for the nose. This mask is very much recommended for the front line workers, healthcare providers, and people taking care of infected patients. Though all face masks are not considered as surgical masks but these are generally called as face masks

N95 respirator present in these types of masks can filter about 95% of very small particle. They are capable of trapping bacterial particles as well as viruses of size up to 0.3 microns. However, these masks cannot be used by general public for daily purpose routine work These are highly recommended for use by front-line workers, doctors, people meeting COVID 19 positive patients

It is a respiratory protective device designed for the purpose of providing very effective airborne particles filtration and a close facial fit. The respirator edges are such designed that it forms a sealed structure around the mouth and nose

Generally, surgical N95 respirators are used commonly in the healthcare departments and subgroup of N95 Filtering Facepiece Respirators (FFRs. generally known as N95s

- 3) **Filtering Facepiece Respirator:** Alike surgical masks, these face masks are disposable types. These masks are used for decreasing the exposure to particles generated from animal dander, wood dust, and pollen grains. Individuals having such types of allergies are recommended for wearing these masks during the pandemic.
- 4) **P100 Respirator/Gas Mask:** A P100 respirator or gas mask is not specifically associated with the healthcare. However, these masks are used by woodworkers, painters, and any person who might get in contact with asbestos, lead or any other chemical. However, these masks should not be worn for preventing COVID-19 spread.
- 5) **KN95 Respirator:** N95 masks are similar to that of KN95 masks with the only difference that N95 masks can capture larger particles in the air. Both the masks have the capacity of capturing about 95% of small particles in the air.

## Disposal of Commonly Used Masks

A used mask is considered as a home to bacteria and viruses. Therefore, it is recommended that used masks must be discarded with care. However, if anyone gets in direct contact with the used mask it can become fatal to the person as the respiratory secretions get transmitted on the mask.

- 1) **Cloth Mask:** A cloth mask must be washed frequently and thoroughly after each use.
- 2) **Layered Surgical Mask:** A layered surgical mask must be always removed using its string assuring that the front should not be touched. It must be removed in upward direction from the chin and then folded half like a roll. Exposure of secretions from the mouth and nose on the mask must be checked and discarded properly without getting in contact. Then after, mask must be wrapped in a newspaper and discarded after putting it in a polythene bag.
- 3) **N95 Respirator:** A N95 mask must be removed by holding the straps edges, thereby avoiding any type of contact with the respirator. After the mask has been used it must be placed in a zip lock or a polythene bag and secured tightly. It is important to remember that the inside of the mask must not be exposed while disposing.

In case of any type of mucus, blood or respiratory secretions on the N95 respirator masks, they must be discarded immediately. It is also recommended that the mask must be thrown if someone using the mask comes in close contact with an infected person. Try using a clean face shield over N95 mask for minimising the contact of the surface of respirator with the contaminated air.

Masks are one of the vital precautionary measures that should be followed by everyone to avoid COVID-19 infections and any virus transmission. Everyone should resort to judicious use of the masks to avoid depletion of resources and mainly to stay safe.

## Uses and Techniques of Wearing and Removing PPE

After performing the surgical scrub, the sterile gown is put on immediately. After wearing the gown, sterile gloves are put on. The only purpose of wearing sterile gowns and gloves is to avoid contamination between sterile and non-sterile areas and to regulate asepsis.

### Procedure for Wearing the Gown

- 1) A sterile gown should be held away from the body by the crease near the neck and allowed to unfold freely without touching anything.
- 2) The gown should be held from the inner side of the shoulder area and the hands should be glided down in the armhole.
- 3) The scrub nurse should make sure that only the inner part of gown is touched and the timing of inserting both the arms is same.
- 4) While gliding hands into the armhole, hands should be raised up to the shoulder level and stretched out.
- 5) The circulating nurse should help the scrubbed person by pulling back the gown from inside and fixing the ties present at the back of the gown.





## Procedure for Removing the Gown

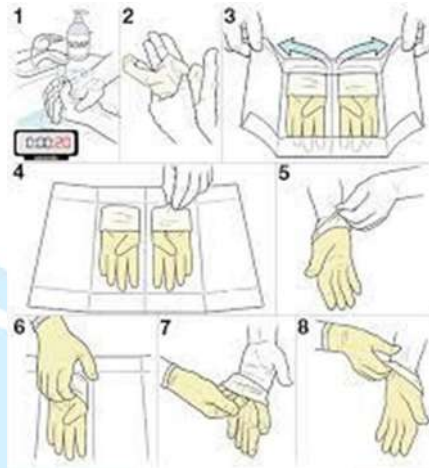
- 1) The strings at the back of the gown should be untied. The loosened right shoulder of the gown should be held with the left hand and pulled down from the shoulder off the right hand by turning the sleeves inside out.
- 2) By the flexed elbows, the outer side of the gown should be turned away from the body.
- 3) The left shoulder of the gown should be held with the right hand and the gown should be removed completely pulling it off inside out to cover outside of the gown
- 4) If the gown is deposable, it should be discarded in a laundry hamper or in a trash container.



## Procedure for Wearing the Gloves

- 1) A sterile pack of gloves should be opened and dropped in a mayo table by an assistant.
- 2) The right hand glove should be raised from the inner side of the cuff with the left hand.
- 3) The right hand should be glided inside the gloves (avoiding its contact with the gown or the outer side of the glove). Adjustment of the cuffs should be avoided till both the hands are gloved.
- 4) The left glove should be picked up by inserting the fingers of the gloved hand between the upturned cuff and glove's outer surface.
- 5) Having the gloved fingers under the cuff, the glove should be glided on the left hand and over the gown's cuff,

- 6) After wearing both the gloves, the right glove should be adjusted in the same way as the left one was adjusted
- 7) After wearing the gloves, the hands should be held above the hip level.



## Procedure for Removing the Gloves

- 1) The first glove should be removed by holding the cuff on its palmar surface and dragging it down so that it turns inside out.
- 2) The removed glove should be held with the gloved hand.
- 3) The non-gloved fingers should be inserted under the cuff of the other hand and the glove should be pulled down so that it covers the first glove.
- 4) Gloves should be disposed in a suitable bin.
- 5) Lastly, hand hygiene should be performed.

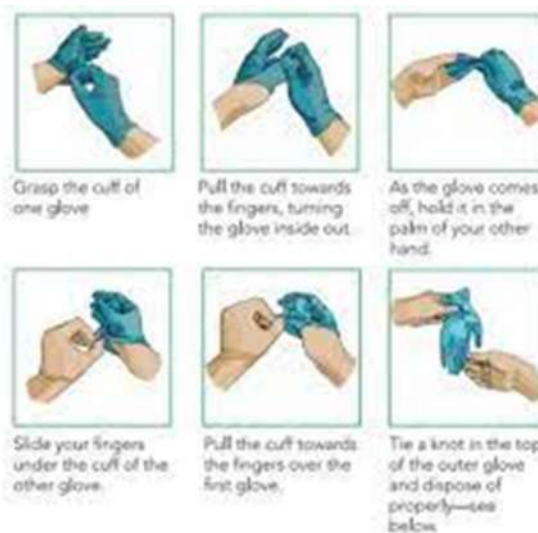


Table 5: PPE Examples and Guidelines

PPE	Uses	Guidelines	Removal Protocol
<b>Eye Protection</b>	<ol style="list-style-type: none"> <li>1) Potential for contact with infectious material.</li> <li>2) Splash or spray hazards.</li> </ol>	<ol style="list-style-type: none"> <li>1) Appropriate eye protection is selected based on the type of hazard exposure, duration of exposure, and availability of other PPE.</li> <li>2) The selected eye protection is pre-tested for suitability and appropriate fit.</li> <li>3) Non-disposable eyewear is cleaned and disinfected before use (e.g., laser glasses, goggles, N95 respirator, and face shields).</li> </ol>	<ol style="list-style-type: none"> <li>1) In case of double gloves, the outer glove is disposed following sterile glove removal protocol before removing eye protection.</li> <li>2) Headband or earpiece is lifted.</li> <li>3) The face shield should not be touched.</li> <li>4) Eye protection is disposed in proper receptacle for reprocessing or disposal.</li> </ol>
<b>Surgical Masks</b>	<ol style="list-style-type: none"> <li>1) While performing invasive procedures (e.g., arterial and central venous access, regional anaesthesia).</li> <li>2) While performing invasive regional neuraxial technique.</li> <li>3) Potential for contact with infectious material.</li> </ol>	<ol style="list-style-type: none"> <li>1) Surgical mask is worn to cover facial hair.</li> <li>2) Surgical mask should cover the mouth and nose and be secured in such a manner that prevents venting at the sides of mask.</li> <li>3) Wet or soiled mask and at the end of a case or procedure should be removed and disposed.</li> <li>4) Hand hygiene is performed immediately after removal and disposal of mask.</li> </ol>	<ol style="list-style-type: none"> <li>1) In case of double gloves, the outer glove is disposed following sterile glove removal protocol before removing surgical mask.</li> <li>2) The ties are unfastened or the elastics are grasped at the top and bottom of the mask and removed without touching the front of mask.</li> <li>3) The mask is disposed in proper waste receptacle.</li> </ol>
<b>Hair Coverings</b>	<ol style="list-style-type: none"> <li>1) Upon entry to semi-restricted and restricted areas.</li> <li>2) While performing regional neuraxial technique.</li> </ol>	<ol style="list-style-type: none"> <li>1) Hair, facial hair, sideburns and the back of neck are covered using a clean covering.</li> <li>2) Reusable cloth caps are washed daily and when visibly soiled.</li> </ol>	<ol style="list-style-type: none"> <li>1) In case of double gloves, the outer glove is disposed following sterile glove removal protocol before removing surgical cap.</li> <li>2) The cap is removed using gloves without touching the inner part of cap.</li> <li>3) The cap is disposed in proper waste receptacle.</li> </ol>
<b>Shoe Coverings</b>	Risk of splash contamination.	<ol style="list-style-type: none"> <li>1) Shoe coverings are worn before putting on gloves and other PPE.</li> <li>2) Shoe coverings are changed each time a worker exits the area.</li> </ol>	<ol style="list-style-type: none"> <li>1) In case of double gloves, the outer glove is disposed following sterile glove removal protocol before removing shoe coverings.</li> <li>2) Shoe coverings should be removed with already donned gloves.</li> <li>3) Shoe coverings are disposed in proper waste receptacle.</li> <li>4) Shoes should be sprayed with disinfectant (if required).</li> </ol>

**Result :** Using and disposal of various types of masks, PPE gear was studied.