What All We Should Know About Masks in COVID-19 Pandemic

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Dear Editor in Chief,

Coronavirus disease 2019 (COVID-19) has been declared as a pandemic by the World Health Organization. Worldwide over 5,880,000 patients have been infected and over 350,000 fatalities have occurred till date. Coronavirus is a large virus with average diameter of around 125 nm [1]. The most common mode of spread of this virus is through aerosols from an infected person [2]. Many people are therefore wondering if masks can capture coronavirus particles.

General population and even the health care workers (HCW) know very less about the types of masks available and their proper use. This knowledge gap can cause some serious harm in the society.

This article aims to provide information about the commonly available masks and their proper use.

1. Surgical masks/Triple layer masks:

It is composed of three layers. The outermost is made of hydrophobic material, middle one is a filter layer, and the innermost is an absorbent layer intended to absorb moisture from the breath. It has a life span of 3 to 8 h and should never be washed and reused. The pleats provided are designed to increase the surface area of the mask. They reduce aerosol transmission by 50% and offer 75–80% protection from getting the disease.

2. Respirator masks:

These include N95, N99, N100, FFP1, FFP2, and FFP3 masks. Further, it can either be with valve or

without valve. The valved masks provide free exit of exhaled breath making them useless for patients who are suffering from COVID-19. A typical respirator mask is firstly a tight fit mask that prevents any air leak [3]. Secondly, it has an air filtering unit, composed of stacks of millions of electrostatically charged polypropylene microfibers. To efficiently filter microorganisms, this charge is of utmost importance. The categorization into N95, N99, and N100 depends upon the filtration efficacy of the mask. N95 masks can filter around 95% of particles which are $>0.3 \mu\text{m}$ size, whereas N99 can filter 99% of these.

All these masks can effectively filter coronavirus provided that there is no air leak. The biggest disadvantage with these masks is that they are not easy to breathe and become uncomfortable on prolonged use. Therefore, they are only meant for HCW who come in direct contact with COVID-19 patients. These masks reduce aerosol transmission by 70% and offer 99% protection from getting the disease.

3. Dust mask and single layer mask:

They do not offer any protection against coronavirus.

4. Cloth masks:

It is a cheap, washable, and an easily available alternative of surgical mask for general population especially in developing countries. These masks reduce aerosol transmission by 40% and offer 50–70% protection from getting the disease.

In conclusion, wearing any mask is better than wearing no mask, both in terms of transmission and protection. For community at large, surgical mask is preferred. Alternatively, 3-layer cotton mask can be used.

For HCW in outpatient department, a surgical mask is recommended.

Respirator masks along with a personal protective equipment should be used by an HCW during aerosol generating procedures in a COVID-19 patient.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

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