

Use of Masks and their Effect on Environment in the Context of COVID-19 Virus-Need of Public Education

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Abstract

One of the most harmful, communicable, and infectious diseases nowadays is COVID-19. The SARS-CoV-2-related illness COVID-19 is extremely contagious. Wuhan, China is where the corona virus first appeared, and it has since spread over the entire world. Common signs of this virus include headache, shortness of breath, fever, cough, cold, and sore throat. At this point, risk assessments and starting outbreak control efforts depend on readiness, openness, and information exchange. Face masks may become quite popular if a pandemic affecting the respiratory system breaks out. Individual and societal steps should be taken to prevent the spread of respiratory viruses because the wearing of a mask alone does not provide an appropriate level of protection or source control. Used masks need to be destroyed or properly disposed of.

Keywords: Covid-19; SARS-Cov-2; Face masks; N 95; respiratory viruses

Introduction

A significant global public health and economic concern was raised by the recent (COVID-19) outbreak brought on by (SARS-CoV-2). Every day, more information is learned about how the COVID-19 virus spreads. In order to open up society during the (COVID-19) crisis, many nations intend to make face masks compulsory. In order to avoid the transmission of (COVID-19) and other respiratory viral illnesses, it is recommended that people use masks as part of a comprehensive package of preventative and control measures.

Face masks are the ubiquitous symbol of a pandemic that has sickened 35 million people and killed more than 1 million. In hospitals and other health-care facilities, the use of medical-grade masks clearly cuts down transmission of the (SARS-CoV-2) virus. But for the variety of masks in use by the public, the data are messy, disparate and often hastily assembled.

Face masks are incredibly popular right now due to the corona virus outbreak. According to prior advice from the World Health Organization, healthy individuals should only use masks when caring for someone who may have (COVID-19) or when they are coughing or sneezing. However, using a

mask alone is insufficient to provide an effective level of protection or source control; additional actions at the individual and community levels should be taken to prevent the spread of respiratory viruses. Whether or not masks are worn, adherence to hand cleanliness, physical segregation, and other infection prevention and control (IPC) measures is essential to preventing (COVID-19) transmission from person to person. The World Health Organization (WHO) has created particular advice on IPC strategies for healthcare settings [1], Long-Term Care Facilities (LTCF) [2] and home care [3].

Face masks can help protect against many respiratory infections that are spread through the droplet route, and that includes coronavirus and the flu. Proper donning and doffing technique are also critical measure to prevent disease transmission. The (WHO) also cautions us that masks are only effective when they are worn in conjunction with regular, effective hand washing. Furthermore, if we choose to wear a mask, we must know how to utilize it and properly dispose of it out of an abundance of caution.

WHO advises health professionals administering direct care to (COVID-19) patients to wear a medical mask in the absence of Aerosol Generating Procedures (AGPs) [4] (in addition to other PPE that are part of droplet and contact precautions). Activated carbon, spun bond, and melt blown materials are used to make facial masks (breathing masks). Combination masks with activated carbon can reduce hazardous pollution. Many diverse approaches exist for masks to protect both the wearer and others. Mechanical interception and inertial impaction are the two “intuitive methods” that masks filter bigger aerosols. A substance filters more effectively the denser its fibers are. Because of this, greater thread counts result in greater efficacy. Just more virus blockers are available. However, some masks (such those made of silk) also possess electrostatic qualities that can attract tiny particles and prevent them from passing through the mask as well. We can reduce our risk of contracting the corona virus by using one of two different types of face masks. The first of the two face masks is a surgical face and of the second type are also referred to as (N 95) masks.

The general public does not need the (N 95) respirator. The (N 95) respirator filters at least 95% of airborne particles but is not resistant to oil [5]. Filtering face piece respirators, commonly referred to as (N 95) masks, are regulated by the National Institute for Occupational Safety and Health.

N: Respirator Rating Letter Class: This. It stands for (“Non-Oil,”) indicating that you can use the mask in a work setting if there are no oil-based particulates present. Other mask classifications include R (eight hours of oil resistance) and P(oil proof).

95: Masks ending in a 95, have a 95 percent efficiency. and that is the same as a High Efficiency Particulate Air(HEPA) and Aerosol Generating Procedures (AGPs).

Microns: Dust, mist, and fume pollutants are filtered out by the masks. Large droplets and particles with a minimum size of.3 microns won’t be able to cross past the barrier, according to the Centres for Disease Control and Prevention (CDC.)

Material: The filtration material on the mask is an electrostatic non-woven polypropylene fiber.

Valve: halation valves are available as an option with some disposable N95 masks. According to the (CDC), “having an expiration valve reduces exhalation resistance, which makes it simpler to breathe (exhale)”.

N 95 masks, which are worn by medical professionals and emergency personnel, offer superior shielding from corona virus particles than fabric or surgical masks. Protecting people who are most at risk of infection requires the use of N 95 respirators. The N 95 mask is designed for healthcare professionals, and the (WHO) states that it can be used for several patients with the same diagnosis for up to four hours. Gloves and labels should be applied to the N 95 masks before disposal. Used masks need to be destroyed or properly disposed of. Even though the majority of readily accessible N 95 pollution masks can be worn and used again, they do have a shelf life. When the mask wears out or the filter becomes clogged by pollutants, it loses its ability to effectively shield us from pollution. Masks contaminated with corona virus debris have recently emerged as a major global environmental issue. In one day, millions of masks are used and subsequently discarded globally. contrary to popular belief, the CO₂ footprint of the cotton face mask is 20% greater than that of the N 95 protective face mask. 850 tonnes of CO₂ are emitted by just 17 million of our protective N 95 masks. Imagine that a straightforward adjustment in the face masks’ material may cut their impact by 20%. If 12 billion masks were used, 144.000 tonnes of

CO₂ emissions would be avoided.

N 99 masks, which are one of the best options for blocking the virus because they can reduce average risk by 94-99% for 20-minute and 30-second exposures, are more effective at filtering airborne particles than N 95 masks. However, they can be difficult to find, and there are ethical considerations such as leaving those available for medical professionals.

From a purely medical perspective, the effectiveness of measures to contain the spread of the virus is independent of the geographic area where these measures are implemented. A well-fitting mask keeps the virus from reaching others. It can also protect the wearer from becoming infected.

Masks should be worn anytime you are in public or people are nearby. Masks act as a physical barrier to protect you and others from viral and bacterial particulates. Many people unknowingly infect others by going out and spreading germs by coughing or touching other. Infections spread from person to person in the community, and it is essential to identify and implement measures to reduce transmission to slow down or even stop spread. Public officials and governments strongly encourage the use of wide spread face masks in public, including the use of appropriate regulation. Research on the efficacy of face shields, including in combination with masks, is needed, along with research into the efficacy of masks with transparent windows for the mouth. It is also important for health authorities to provide clear guidelines for the production, use, and sanitization or reuse of face masks, and consider their distribution as shortages allow.

Diagnosis

Fever, exhaustion, dry cough, dyspnea, and other signs of an upper respiratory infection are also present in SARS-CoV-2 illness cases.

Conclusion

In conclusion, masks and other Personal Protective Equipment (PPE) are essential for individuals battling the pandemic and are frequently utilised by the general people. Environmentalists worry, however, that the fight against mask pollution and adverse effects on animals would result from improper disposal of masks. In the future, we must ensure that we are prepared for pandemics like this one and that we are prepared to respond to them sustainably and one does not have to come at the expense of the other.

References

1. Infection prevention and control during health care when COVID-19 is suspected: interim guidance. Geneva: World Health Organization (2020).
2. Infection prevention and control for long-term care facilities in the context of COVID-19: interim guidance. Geneva: World Health Organization (2020).
3. Home care for patients with COVID-19 presenting with mild symptoms and management of contacts: interim guidance. Geneva: World Health Organization (2020).
4. The WHO list of Aerosol Generating Procedures (AGPs) includes: tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, bronchoscopy, sputum induction induced by using nebulized hypertonic saline, and autopsy procedures.
5. NIOSH-approved N95 Particulate Filtering Facepiece Respirators.