

Improper Disposal of Used Masks during COVID-19: A Health Hazard?

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ABSTRACT

The Novel Coronavirus disease has taught us all to live the new normal way. As the virus transmission is mainly person-to-person through droplets, the outbreak has forced, even the general population to wear mask all the time when outdoors or meeting people. Everyone is educating the public about wearing the masks correctly by covering face and nose completely, however, correct methods of disposal of these used masks, which may be infected, is not being discussed. Proper biological waste management system is not followed while discarding the used masks and hence jeopardising the community health.

Keywords: Coronavirus disease-2019, Discard, Healthcare professionals, Pandemic

It has been more than a year now that the coronavirus disease is known to us and compelled us to live life the “new normal way”. Wearing of mask plays an integral part in protecting oneself from acquiring and spreading the disease apart from maintaining social distances and frequent washing of hands with soap or using sanitiser [1].

The Healthcare Professionals (HCPs) along with the general population are now using face masks (surgical/ N(Non-oil)95/ cloth) for protection from Coronavirus Disease-2019 (COVID-19) causing virus. As the guidelines are being properly followed, the number of used masks is tremendously high. Surprisingly, this number is enormously large in Asian countries. In India, an estimate of face masks used by general population (n=1,381,085,714) was 381,179,657 per day on 31 July 2020 [2]. Earlier these masks were mostly used by HCPs and discarded in yellow plastic container/bag which is designated for infected materials like masks, soiled cotton, human wastes etc. Under the hospital waste management, they undergo centralised disposal with the help of incineration and high-pressure steam sterilisation at 121°C for 110 minutes. However, during the COVID-19 pandemic, COVID-19 infected waste from the hospitals are stored in double yellow or red bags, 0.5% chlorine disinfectant is sprayed multiple times [3] and then packed in another double layered bag with chlorine disinfectant sprayed again, before centralised disposal [4]. But now these masks are also used by common people outside the hospital settings, thus being a part of general waste there by making it an inevitable environmental biohazard [3].

The airborne respiratory pathogens may settle on the outer surface of used masks causing contamination [5]. Though, transmission of Severe Acute Respiratory Syndrome-Coronavirus-2 (SARS-CoV-2) virus through fomites or surfaces is still controversial, it is proven that it occurs through inhalation of aerosols and droplets of infected person who release droplets during breathing, talking, coughing or sneezing [5]. These droplets can settle on the outer surface of masks of close contacts. Also, a mask used by a COVID-19 positive person may cause the droplets to deposit on inner side too, thereby infecting that particular mask. Many different studies have shown a varied survival time of SARS Coronavirus (CoV) that is one to two hours to three to six days on the surfaces of infected fomites like plastic or glass [5-7]. Infected patients are not only admitted in the hospitals now, but also are home-isolated. Even some patients who test positive on Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR), considered as the most sensitive test for diagnosis, are sometimes asymptomatic. The masks used by these persons may be infected with the virus and are thrown in the household dustbins with general waste [3]. This possess the garbage pickers at risk of

getting the infection primarily. Also, these used infected masks are thrown by the people on roads, general dustbins, water bodies, etc., hence, entering into our environment [3]. Proper biological waste management system is not followed and therefore making community at risk for getting exposed with these [8].

A special team which was formed for prevention of infection and control during COVID-19 pandemic as well as World Health Organisation (WHO) [9] recommends appropriate use, storage and cleaning, or disposal of masks to avoid any increased risk of transmission. Infected masks should be kept in a paper bag for a minimum of 72 hours prior to their disposal as general waste. Collection and transportation by municipality under vehicle with 4°C temperature and then centralised disposal [10].

A new challenge faced in this context is that the commercialised surgical and N95 masks pose a serious threat to the environment as these are made up of non woven fabrics like polypropylene which takes 30 years to get completely decompose in landfills if entered in environment. These also contain toxins like lead and cadmium. These masks are also adding onto the prevailing plastic pollution on the planet [11].

A very pertinent question arises-Can this practice of improper disposal of used/infected masks be rectified? The best way to reduce this biohazard is to create awareness among the public about how to discard the masks, along with its correct usage. Currently we are only educating people about the importance and method of wearing masks but not the suitable way of disposing them. Appropriate method of these bio-infective materials should also be added in the safety guidelines which are being published by health authorities on priority basis. Another solution to this can be at the level of segregation of household waste material. In the present times, this is only done as wet and dry waste. However, we now may have to classify them into infective/biological general waste also. This will have to be implemented at the community level.

Hence to conclude, correct practises of disposing the face masks must be followed and adapted to decrease the spread of this highly contagious dreadful disease and environmental problems, before it causes irreparable loss to the human race.

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