Ensuring optimal utilization of personal protective equipment in the coronavirus disease-2019 pandemic

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The Coronavirus Disease-2019 (COVID-19) pandemic, which started from a single city in China in December 2019 has been reported across more than 165 nations and territories and has emerged as one of the most important public health concerns across the world.¹ The cumulative global caseload has increased to 332,930 cases, of which the European region (171,424 cases) and the Western Pacific region (95,637 cases) together accounted for 80% of the overall caseload.¹ Further, a total of 14,509 deaths have been attributed to the infection, with almost 60% of the reported deaths being reported in the European region, which is an alarming concern.¹ All these estimates clearly signify that despite the presence of the disease for more than 2 months, we have failed to effectively contain the disease and this remains true across almost all continents of the world.^{2,3}

Need of a multi-sectoral approach

The available evidence and the findings obtained from the epidemiological studies have given immense emphasis on the need to mount a

multi-sectoral response as the disease cannot be contained by the health sector alone. The other sectors like education, travel, trade, commerce, public administration, etc., all have to join their hands together and deliver a sustained response. In terms of strategies, there is a significant need to expedite the process of case detection, establish active surveillance, and infrastructure support to ensure isolation and appropriate care of the patients. Further the component of risk communication and community engagement needs special attention, as the disease can be only effectively contained through promotion of respiratory hygiene, hand hygiene and social distancing.^{2,3} Conclusive evidence has depicted that the predominant mode of disease transmission is via close contacts and droplets, and thus utilization of appropriate personal protective equipment (PPE) is advocated, provided the use is done in a rational manner.^{4,5} It won't be wrong to put on record that owing to the novel nature of the disease and many uncertainties about the disease with regard to the disease transmission, the use of PPE has been irrational, but in most of the cases, the measures taken in the beginning of the pandemic were appropriate at that time in relation to the dimension of the pandemic and the level of knowledge accumulated up to that point.^{4,5} In fact, the recommendations pertaining to the use of PPE has remained dynamic based on the knowledge gathered during the COVID-19 pandemic and the availability of resources. Considering that the disease is almost universal at present, it is important that we remain really practical and smart in our approach and not indulge in unprecedented usage of PPE.^{4,5}

Public health response to avert global shortage of PPE

The World Health Organization has come out with a three-point strategy to deal with the challenge of PPE shortage across healthcare

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establishments and for the general population. It has been advised that we focus our efforts towards reducing the overall requirement of PPE, encouraging the optimal and proper usage of PPE, and ensuring that the overall logistics supply chain remains intact globally.⁴

A) Requirement for PPE

The requirement for PPE can be reduced in a multiple number of ways across the healthcare establishments. These interventions include encouragement of telemedicine by the health sector, wherein the people suffering from minor respiratory ailments or other complaints, instead of approaching the healthcare facilities in person (and potentially getting exposed to the novel virus) stay at home and receive consultancy from the doctors. Even in the healthcare establishments, to safeguard the health of the hospital staff, the use of physical barriers in the form of glass windows in the patient registration counter can be employed.^{1,5} Moreover, it is extremely important from the healthcare personnel perspective that until they are involved in direct patient care they should not be indiscriminately using PPE.⁶ Also, the relatives of the patients should be strictly advised to not come to the hospital and get exposed to the virus and this will also play an important role in reducing the requirement of PPE.⁴

B) Optimal and rational utilization of PPE

The general population, healthcare personnel and all the users of the PPE should be sensitized through various demonstrations about the ways in which these PPE should be used, removed and appropriately disposed. Apart from the healthcare personnel who are involved in the patient care directly, the general community should be periodically sensitized about how to use face mask and the do's and don'ts involved in the same. However, it is very important to not ignore standard hand hygiene practices including periodic hand washing with soap and water or alcohol-based hand rubs.³ The adoption of all these measures will play a significant role in minimizing the overall risk of acquisition of the infection.

Respirators like N95 have been advocated predominantly by the World Health Organization for the healthcare personnel involved in aerosol generating procedures. The medical masks have been prescribed for those individuals in the local community who are suffering from respiratory symptoms or acting as caregivers for the suspect in the family.⁵ Still, there is an ongoing debate regarding the use of surgical masks by asymptomatic individuals, with China recommending that everyone wear a mask, while European countries do not. Finally, mask use by asymptomatic individuals may disturb the equilibrium of PPE and also enhance the probability of stigma and discrimination.³ However, the most important aspect of using these masks is that it should not give a false sense of safety to the persons who are using it and they should strictly adhere to all other infection prevention and control measures.⁶

C) Maintenance of the logistic supply chain

This is a crucial link in ensuring the availability of PPE where it is required the most. It is the responsibility of the public health authorities to effectively coordinate with the producers and suppliers of PPE and ensure that the supply chain management is sustained. This can be done keeping in mind the projections of the disease after a span of time and thus arranging for the PPE in a planned and coordinated manner.^{4,6}

Conclusions

To conclude, for the effective containment of the COVID-19 pandemic across heterogeneous settings, it is extremely important that the personal protective equipment is utilized in a rational manner by all the stakeholders.

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