

**LETTER**

# Protection comes at a cost: Doctor's life inside personal protection equipment

Dear Editor,

Coronavirus disease 2019 (COVID-19) pandemic is plaguing the world and representing the most significant stress test for many national healthcare systems and services. It was on 11 March 2020 when World Health Organization (WHO) declared it as the first pandemic of this millennium. As the number of cases in India is rising exponentially, healthcare workers (HCWs) of other specialties are expected to be on the frontline and support the health system.<sup>1</sup> In their battle against the raging COVID-19 pandemic, the use of medical masks and respirators as personal protective equipment (PPE) is pivotal to reducing the level of biological hazard to which HCWs are exposed during the outbreak of this highly diffusible pathogen.<sup>2</sup> HCWs employed on the frontline are at maximum risk of catching this deadly infection. It becomes imperative to educate the frontline workers regarding the proper donning and doffing techniques for PPE for controlling the disease spread.

The PPE kits have to be carefully worn to ensure that the body is completely covered. Depending on one's deftness, it takes around 10 to 15 minutes to don the PPE and 15 to 30 minutes to take it off while observing all infection control practices. Once inside, even using a stethoscope to examine patients is a challenging exercise. The PPEs are non-porous and airtight, vital to prevent transmission, as they create an uncontaminated interior considerably limiting the risk of infection. They are so indispensable that there has been a scramble to procure the kits amid complaints from doctors and nurses of a PPE shortage. Rational use and successful reuse of respirators after ultraviolet germicidal irradiation can help to face this shortage to some extent.<sup>3,4</sup> Every day, new "do-it-yourself" solutions regarding PPE and medical devices go viral on various social media platforms.<sup>5</sup> Many companies (eg, automotive or textile) without any experience in manufacturing most needed equipment presently (eg, respirators, face shields, ventilators, etc.) have taken a new venture instead of their traditional production. There is a need for global awareness and knowledge in this chaotic scenario. Various policy makers, international and national standard bodies, along with the WHO should be prompt in establishing guidelines about the importance of respecting the mandatory requirements to guarantee product quality and protect the safety of patients and HCWs.<sup>6</sup>

Even though PPE is imperative for personal protection, its prolonged use has caused certain cutaneous adverse effects. Some of the most enduring images of COVID-19 have been those of the HCWs with red marks and bruising on the face after wearing PPE. Wearing PPE for 8 to 10 hours at a stretch in this scorching heat of India leaves sweat-soaked HCWs, which can lead to dermatitis, acne, miliaria, fungal infections, and folliculitis. Eating, drinking, or even urinating is out of the

question during duty hours which may even stretch to 12 hours in areas facing massive outbreaks, forcing HCWs to wear adult diapers to preserve their PPE. Air conditioners and other central cooling equipment are to be avoided in the light of further spread of the disease, which further exacerbates the problem. Use of fat-soluble disinfectants such as 75% alcohol or chlorine-based disinfectants can develop occupational skin disease (ie, allergic contact dermatitis) due to disruption of the skin barrier leading to desquamation and ultimately hand eczema complicated with itching and bleeding. Hyperhidrosis/hyperhydration of the hands can develop after long use of gloves and increases the risk of allergic contact dermatitis. An odds ratio of 2.17 for occupational hand dermatitis was reported.<sup>7</sup> Even in other parts of the world, HCWs have witnessed numerous cutaneous manifestations due to N95 masks, goggles, and face shields; they squeeze and rub the cheek, forehead, and nasal bridge leading to indentations, ecchymosis, maceration, abrasion, and erosion.<sup>8</sup> Delayed pressure urticaria has also been reported; nose is the most common site of skin damage (83.1%) among first-line HCWs.<sup>7</sup> According to studies, HCWs are at increased risk of moral injury and mental health problems while allocating scanty resources to equally needy patients which should be managed promptly.<sup>9</sup>


As the frontline warriors are going through terrible physical and mental breakdown, especially after wearing these PPE kits on COVID duty, the society must deeply acknowledge all the hard work put in by the HCWs during these challenging times of the pandemic.

## CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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