

Commentary

Risk of COVID-19 infection in workplace settings and the use of personal protective equipment

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Many workers in different occupational settings are occupationally exposed to health and safety hazards [1, 2]. Biological contaminants in workplaces can cause adverse health effects in exposed workers [3, 4]. Coronavirus disease 2019 (COVID-19) (an infectious disease) has spread very quickly and the World Health Organization (WHO) declared the COVID-19 outbreak a global pandemic on 11 March 2020. The outbreak of COVID-19 is considered as a global public health concern [5, 6].

The activities of some industries such as petrochemical plants, power plants, water treatment plants, food manufacturing plants, sanitary ware manufacturing plants, etc., cannot be stopped even during an outbreak of diseases and workers should be present in their workplaces and have to work to provide products/services. Also, the presence of healthcare staff, such as workers providing frontline care for COVID-19 in the hospitals, is essential. In such situations, it seems necessary to protect workers in workplace settings against coronavirus-induced diseases.

The main routes of transmission of COVID-19 appear to occur through close contact between people and droplets [7]. When a person is in close contact with an infected person in families, communities, and other public places, she/he may be at increased risk for exposure to the virus [8, 9]. In workplaces, one of the main ways COVID-19 spreads is through touching of contaminated surfaces by workers. To prevent the spread of COVID-19 in workplaces, surfaces (e.g. desks and tables) and objects (e.g. telephones, keyboards) touched by workers should be wiped with disinfectant regularly. Sanitizing hand rub dispensers should be put in prominent places and face masks (ordinary medical masks) or paper tissues should be provided for those who develop a runny nose or cough at work [10]. In workplace settings, the use of appropriate personal protective equipment (PPE) for protecting workers against COVID-19 infection must also be taken into consideration by employers.

One of the most important and effective pieces of PPE are respiratory protection devices such as face masks. Face masks such as surgical or medical procedure masks are disposable devices and can create a physical barrier between potential contaminants in the environment and human nose and mouth [11]. According to WHO, based on the risk of exposure and the transmission dynamics of the virus, the

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appropriate PPE should be selected. In workplaces and for protecting workers in industrial settings, wearing a medical mask is necessary for persons with respiratory symptoms or those caring for COVID-19 patients in their home [12]. For healthcare staff, caring for multiple patients, the N95, filtering face-piece (FFP) 2, or FFP3 respirator with a tight facial fit can provide efficient filtration and protect healthcare workers against potentially hazardous particles [12, 13]. The use of a fit-tested N95 respirator has been shown to be more effective in clinical respiratory infection and influenza illness for healthcare workers than medical masks [14]. For the COVID-19 pandemic, the effective respirator must fit tightly to the wearer's face and supportive protection using masks or N95 respirators can protect the wearers from microorganism transmission. The better outcome of N95 respirators compared with medical masks against COVID-19 infection transmission has not been fully examined [15]. Also, the half-face medical protection mask (N99) had more than 99% filtration efficiency for the viral aerosol and can protect the wearers from viral aerosol disease transmission [16].

Healthcare workers should also use appropriate PPE such as gowns, gloves, and eye protection (goggles or face shields) [10].

In conclusion, in this critical situation, proper hygiene practices and workplace controls such as using appropriate PPE in workplaces must be considered to protect workers' health from the risks of COVID-19 infection [17].

Conflict of interest

The authors state no conflict of interest.

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