

## Standardized risk assessment and management of exposure amongst healthcare workers to coronavirus disease 2019

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The ongoing coronavirus disease-2019 (COVID-19) pandemic continues to affect the lives of millions and has eventually brought everything to a standstill.<sup>1</sup> Since its beginning, a total of 2,314,621 cases and 157,847 deaths have been reported, and it is worth noticing that there is a sudden upsurge in the number of cases in most of the affected nations.<sup>2</sup>

The maximum share of the reported cases goes to the European region, which has alone accounted for almost 49.6% of the detected cases, and if we introspect, this region is comprised of the developed nations which have the best quality of healthcare delivery system.<sup>2</sup> If this is the status of the developed nations, we have to be really careful with regard to the progression of the disease in low and middle-income nations. It is an extremely challenging situation for the public health authorities worldwide as their capacities and capabilities have been overwhelmed completely.<sup>1,2</sup>

### Healthcare workers and the need to safeguard them

The healthcare workers have been acting as the frontline defense against the disease and have been working beyond their duty hours for extending care and support to the thousands of affected patients in heterogeneous settings.<sup>3</sup> The recent estimates released by the World Health Organization revealed that 22,073 healthcare professionals have been found COVID-19 positive in 52 nations, but it is just the tip of the iceberg as the healthcare professionals are working in 213 nations and territories.<sup>4</sup>

It is quite obvious that these groups of people are extremely vulnerable to acquire the infection in the absence of correct personal protective equipment (PPE) considering the fact that the disease is being predominantly transmitted via close contacts and airborne droplets.<sup>3</sup> In addition, the healthcare workers might also have other risk factors (i.e., presence of comorbid illnesses), or behaviors (like smoking or alcohol consumption) and actions (like visiting relatives or buying groceries, etc.), other than the potential risk in the hospital environment, particularly in settings where community transmission is already occurring. This emphasizes the need to strictly adhere to the infection prevention and control measures both in the hospital as well as in community settings.<sup>5</sup> However, for that to happen, we should have a proper evidence about the risk of acquisition of the infection by the healthcare workers under different settings of exposure.

### Risk assessment protocol for healthcare workers

All health workers working with COVID have exposure to confirmed cases. However, the risk is different based on the type and duration of exposure, type of maneuvers performed and use of correct PPE. In fact, in order to generate this evidence a standard protocol has been

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formulated to get deep insights into categorization of the healthcare workers based on the exposure to a confirmed patient and to develop precise recommendations for their management based on the level of exposure.<sup>5</sup> The protocol to assess the virus exposure amongst healthcare workers comprises of details about interviewer, health worker (i.e., demographics, contact details, nature of work, place where they are employed), and the details about time and place of exposure and history of multiple exposure.<sup>5</sup>

In addition, information pertaining to the nature of contact (like direct care, interview, aerosol-generating procedure, and contact with contaminated environment) with the patient also need to be obtained.<sup>5</sup> Further, details about adherence to infection prevention and control provisions by the healthcare worker need to be elicited in depth. This can range from the use of personal protective equipment, practicing hand hygiene (such as before and after touching the patient or performing any procedure, after exposure to body fluid or after touching surroundings of patients), and decontamination of the frequently touched surfaces in the patient's environment.<sup>5,6</sup>

Finally, information pertaining to accidental exposure (on the mucosa of eyes, nose or mouth, non-intact skin, or puncture with any sharp instrument) to biological material of the patient needs to be ascertained.<sup>3,5,6</sup> It is important to note that as of now the blood-borne route has not been reported for the transmission of the infection. However, the possibility of transmission of infection through puncture / sharp instrument cannot be completely ruled out, if the instruments are contaminated with biological fluids or respiratory secretions.<sup>5</sup> Based on the analysis of all the questions, health workers can be categorized as having high risk or low risk to acquire the infection.<sup>5</sup> It has been envisaged that all healthcare workers exposed to a confirmed COVID-19 patient should fill this and it has to be cumulatively shared with the World Health Organization.<sup>5</sup>

#### Utility of protocol in management

Depending upon the categorization, the high-risk group of personnel should avoid any kind of

interaction with any kind of patients irrespective of the COVID-19 positive or negative status of the patients for the next 14 days, should get tested and quarantined for 2 weeks for observation.<sup>5</sup> The health facilities should monitor the progress of these exposed health personnel, extend psychosocial support and continue their salary as well during this period.<sup>1,5</sup> However, the health personnel with low-risk of exposure should monitor themselves for the development of symptoms for 14 days after their exposure, and continue to strictly adhere to respiratory hygiene, hand hygiene and correct and persistent use of personal protective equipment.<sup>3,5,6</sup>

#### Conclusions

In conclusion, healthcare workers are one of the most important set of personnel in our battle against this COVID-19 pandemic. It is our utmost responsibility to assess their exposure to the causative virus, and thereby provide appropriate management based on the level of exposure.

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#### References

1. Tian HY. [2019-nCoV: new challenges from coronavirus]. *Zhonghua Yu Fang Yi Xue Za Zhi* 2020;54:235-8.
2. World Health Organization. 2020. Coronavirus disease 2019 (COVID-19) situation report – 91. Accessed on: 20 April 2020. Available at: [https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200420-sitrep-91-covid-19.pdf?sfvrsn=fcf0670b\\_4](https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200420-sitrep-91-covid-19.pdf?sfvrsn=fcf0670b_4)
3. Tanne JH, Hayasaki E, Zastrow M, Pulla P, Smith P, Rada AG. Covid-19: how doctors and healthcare systems are tackling coronavirus worldwide. *BMJ* 2020;368:m1090. <https://doi.org/10.1136/bmj.m1090>
4. World Health Organization. 2020. Coronavirus disease 2019 (COVID-19) situation report – 82. Accessed on: 20 April 2020. Available at: <https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200414-sitrep-82-covid-19.pdf?sfvrsn=3>

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5. World Health Organization. Risk assessment and management of exposure of health care workers in the context of COVID-19 - Interim guidance. Geneva: WHO press; 2020. p: 1-3.

6. Tang B, Bragazzi NL, Li Q, Tang S, Xiao Y, Wu J. An updated estimation of the risk of transmission of the novel coronavirus (2019-nCov). Infect Dis Model 2020;5:248-55. <https://doi.org/10.1016/j.idm.2020.02.001>

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