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# Exploring the reasons for healthcare workers infected with novel coronavirus disease 2019 (COVID-19) in China

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#### Sir:

The outbreak of novel coronavirus disease 2019 (COVID-19) in Mainland China has been declared as a Public Health Emergency (PHE) by World Health Organization (WHO) [1]. Globally, until 28<sup>th</sup> February 2020 there have been reported 83,774 confirmed cases and 2,867 deaths [2]. During the periods of outbreak of COVID-19 or other infectious diseases, implementations of infection prevention and control (IPC) becomes a great importance in healthcare settings [3], particularly the great importance of personal protection of healthcare workers [4]. In order to contain the outbreak of COVID-19 in Mainland China, National Health Commission of the People's Republic of China (NHCPRC) have so far dispatched medical support teams (41,600 healthcare workers from 30 provinces and municipalities) to support the medical treatment in Wuhan and Hubei province [5]. A survey by Health Commission of Guangdong Province released information on the distribution of 2,431 healthcare workers in Guangdong medical support teams [6]. Nurses (around 60%) were the predominant healthcare workers in the teams, followed by clinicians (around 30%). Half of clinicians with job titles were deputy chief physician; and 25% specialized at the respiratory and critical medicine [6]. It is worth mentioning that 5.8% (140/2431) healthcare workers have worked on the outbreak of severe acute respiratory syndrome in 2003 [6].

Recently, Wu and colleagues [7] have reported the problems of COVID-19 IPC in healthcare settings, particularly highlighting the problems of personal protection of healthcare workers. However, sadly, until 24<sup>th</sup> February, NHCPRC reported in press conference of WHO-China Joint Mission on COVID-19 [8] that 3,387 healthcare workers have confirmed infected COVID-19, with 22 (0.6%) deaths. More than 90% of infected healthcare workers were from Hubei province. Therefore, the director of

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National Hospital Infection Management and Quality Control Centre summarized some reasons for such high number of infected healthcare workers during emergency outbreak [9]. First, inadequate personal protection of healthcare workers at the beginning of the epidemic was a great issue. In fact, they did not understand the pathogen well; and their awareness of personal protection were not strong enough. Therefore, the front-line healthcare workers did not implement the effective personal protection before conducting the treatment. Second, long-time exposure to large-scale of infected patients directly increased the risk of infection for healthcare workers. Also, pressure of treatment, work intensity, and lacking of rest indirectly increased the probability of infection for healthcare workers. Third, shortage of personal protective equipment (PPE) was also a serious problem. First-level emergency responses have been initiated in various parts of the country, which has led to a rapid increase in the demand for PPE. This circumstance increased the risk of infection for healthcare workers due to lacking of sufficient PPE. Fourth, the front-line healthcare workers (except infectious disease physicians) received inadequate training for IPC, particularly lacking of the knowledge of IPC for respiratory-borne infectious diseases. After initiation of emergency responses, healthcare workers have not had enough time for systematic training and practices. Professional supervision and guidance, as well as monitoring mechanism were lacking. This situation further amplified the risk of infection for healthcare workers.

Finally, international communities, particularly for other low-and-middle income countries with potential COVID-19 outbreak, should early learn how to protect the healthcare workers. Furthermore, the COVID-19 confirmed cases have been reported to surged in South Korea, Japan, Italy, and Iran in the past few days [2]. The increase of awareness of personal protection, sufficient PPE, and proper preparedness and response would play an important role in lowering the risk of infection for healthcare workers.

Conflict of interest None

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