SYNOPSIS

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COVID-19 – What We Know So Far About…the Risks to Health Care Workers

Preamble

“What We Know So Far About...” documents are intended to provide a brief overview of some of the published and unpublished reports related to emerging issues with respect to coronavirus disease 2019 (COVID-19). The reports are found through ongoing scanning of the published literature and scientific listservs (e.g., ProMED, CIDRAP, Johns Hopkins Situation Reports), as well as media reports. It is recognized that there may be additional information not captured in this document. As this is a rapidly evolving outbreak, the information will only be current as of the date the document was written.

Key Findings

- Based on current information, the proportion of health care-associated COVID-19 infection in health care workers (HCWs) is relatively low compared to Severe Acute Respiratory Syndrome (SARS) and Middle-East Respiratory Syndrome (MERS).
- The exposure history and infection prevention and control practices of the infected HCWs are largely unknown.
- Reports of infections in HCWs are coming from China, which has reported the majority of patients and where there are resource constraints related to the availability of personal protective equipment (PPE), as well as from Japan, Thailand, England and France.

Background

Since December 31, 2019 when China issued a public statement on an outbreak of pneumonia originating in Wuhan, China, the global incidence of confirmed cases of COVID-19 has grown quickly to 75,204 as of February 19, 2020, affecting 26 countries and killing 2,006 persons (based on World Health Organization’s situation report on February 19, 2020). The rapid climb in incidence and death toll, together with the novelty of COVID-19, have raised concerns regarding the risk of health care-associated infections amongst health care workers.
What Do We Know So Far About the Risk of COVID-19 in HCWs?

Currently, there are a limited number of reports on COVID-19 in HCWs, and those identified to date do not provide sufficient information to precisely evaluate the risk of health care-associated acquisition of COVID-19, such as:

- The extent of exposure outside of the health care setting, i.e., in the community.
- HCW knowledge of, and compliance with, routine practices to protect against this novel pathogen.
- Availability and accessibility of hand hygiene facilities for HCWs.
- Performance of hand hygiene at the correct indications and with the correct techniques.
- Availability and accessibility of the right kind and quality of PPE.
- Adherence to best practices when putting on and taking off PPE to avoid self-contamination; adherence to best practices or manufacturers’ recommendations for changing PPE to ensure integrity is not compromised.
- Performance of aerosol-generating medical procedures in an adequately ventilated room to reduce the risk of contaminating the health care environment.
- Effectiveness and frequency of cleaning surfaces and health care instruments to reduce the risk of HCWs contaminating their hands and spreading infection.

While additional studies addressing the above information gaps will help evaluate the risk of COVID-19 to HCWs, evidence from prior SARS and MERS outbreaks, in which 21% and 18% of cases were HCWs, respectively, suggests that protection of HCWs from health care-associated COVID-19 can be achieved when existing best practices are followed.

Reports


- In a study of 138 hospitalized patients at Zhongnan Hospital of Wuhan University, Wuhan, China, 29.0% (40/138) of patients were HCWs. Of these, one HCW was admitted to the intensive care unit (ICU).
  - Of the infected HCWs, 31/40 (77.5%) worked in the general wards; 7/40 (17.5%) worked in the emergency department; and 2/40 (5.0%) worked in the ICU. The authors note that one COVID-19 patient that was transferred to the surgical department with abdominal symptoms is thought to have infected 10 HCWs.


- The authors describe the epidemiologic and clinical characteristics of 1,099 confirmed cases of COVID-19 infections from 552 hospitals in 31 provinces/provincial municipalities in China (data up to January 29, 2020).
Of the 1,099 infections, 23 (2.1%) were in HCWs.
This article has not been peer-reviewed.


This study is a case series of 425 confirmed COVID-19 cases diagnosed between December 2019 and January 22, 2020. The authors state that the proportion of cases who were HCWs increased over the three periods studied.

COVID-19 infections in HCWs:
- Before January 1, 2020: 0/47 (0%) (Note: Most exposures during this period were likely concentrated in the Wuhan seafood market, with little opportunity for HCWs to develop infections)
- January 1-11, 2020: 7/248 (2.8%)
- January 12-22, 2020: 8/122 (6.6%)


In this correspondence, the authors state that a member of the national expert panel on pneumonia in China was infected with COVID-19 while in Wuhan.
- After visiting with a patient, the HCW developed eye redness and then pneumonia.
- The HCW wore an N95 mask, but did not wear eye protection. The authors suggest the HCW acquired the infection via the ocular route.


- On February 1, 2020 (data as of February 1, 2020), the WHO reported on the first case of COVID-19 infections in a HCW from outside China, in France.
- The HCW case cared for two probable COVID-19 patients.


- On February 14, 2020, the WHO quoted data released by China that 1,716 health care workers had been infected with COVID-19, with six deaths.
- At the press conference, it was noted that exposure details of the COVID-19 infections reported in health care workers require further exploration, including whether these infections were acquired while in a healthcare setting; levels of training and awareness; availability, use and handling of PPE; workload; and the circumstances in which transmissions occurred.

- The authors mention the account of a colleague that visited Wuhan on January 20, 2020, noting that 14 healthcare workers had been infected by one person.


- The study examined 210 patients evaluated for COVID-19 infection in the USA (January 17 to January 31, 2020). Of these, 17 (8.1%) HCWs were evaluated; however, none of the HCWs had infection.

Media


- This media article reports that the Vice Minister of National Health Commission in China reported on February 14, 2020 that 1,716 HCWs had acquired COVID-19; as of February 11, 2020, six of these HCWs had died.
- The number of HCWs who became infected while working in hospitals is unclear.
- Extreme workload, mental stress and PPE shortages are cited as contributing towards the risk of infection among HCWs.


- The director of the CDC Center for Immunization and Respiratory Diseases reported that the United States had 15 COVID-19 cases and no HCWs in the United States had become infected.


- This media article reports that a quarantine officer tested positive for COVID-19, a week after having been dispatched to screen contacts for two days on a cruise ship off the coast of Japan, according to the health ministry of Japan.
- The article reports that the officer stated he was washing hands frequently and wearing a mask and gloves, but did not use any eye protection while on board the ship.
This media article reports on a HCW who became infected from contact with a patient who was not yet diagnosed with COVID-19. An investigation found that the HCW did not wear a mask or other protective equipment at the time.

The article reports that 24 of the HCW’s colleagues tested negative for COVID-19.

This media article reports that at least 500 HCWs in Wuhan had been infected with COVID-19 by mid-January 2020.

The article reports at least three fatalities in HCWs infected with COVID-19.

The article also states that doctors and other experts have noted a shortage of PPE, long working hours and a lack of awareness regarding how contagious the virus is and that these have contributed to the large number of infections observed in HCWs.

This media article reports on the death of Li Wenliang, a 33-year-old ophthalmologist who worked in Wuhan, from COVID-19 infection.

This media outlet reports that two of four new cases in England are HCWs; however, they were not infected while caring for patients, but rather when they came into contact with a confirmed UK case at a ski resort in France.

**Citation**

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**Disclaimer**

This document was developed by Public Health Ontario (PHO). PHO provides scientific and technical advice to Ontario’s government, public health organizations and health care providers. PHO’s work is guided by the current best available evidence at the time of publication.