Vancouver CoastalHealth

Keeping our healthcare workers safe: What is known about the occupational exposure risks of COVID-19, prevention and what is being done

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Healthcare workers (HCWs) are the heroes in this crisis - protecting our HCWs is of paramount importance. We know from previous outbreaks of similar diseases that HCWs are at higher risk than the general population; we know from the COVID-19 pandemic internationally that this is the case now as well. However, this risk can be minimized with proper precautions.

Although an estimated 3000 HCWs were infected in China, and at least 22 died, analysis revealed that these cases were due to low awareness of the need for protection before January 20th, and later was due to severe shortage of resources including personal protective equipment (PPE) in hospitals overwhelmed by the numbers of patients. In one study, **HCWs who reported suboptimal hand hygiene before and after contact with patients had a risk 2.43 times that of their counterparts; and those who reported improper PPE had a risk 2.82 times.**

In Spain, where PPE is in critical short supply, 9-13% of the COVID-19 cases are in HCWs. In Italy as well, at least 2,609 HCWs were infected at last count, and some died. However, in one jurisdiction in Milan that had a strong occupational health and infection control approach, only 1% of the healthcare workforce (50 of 5000 healthcare workers in this jurisdiction) became positive for COVID-19 (at the time of writing), and of those 50 HCWs, 45 had very mild symptoms, 5 had moderate symptoms. Importantly, **all the HCWs who became positive had identifiable lapses in infection control.**

Hong Kong and Singapore detected their first cases in late January, the number of cases escalated rapidly, but after six weeks they had the outbreak under control. All HCWs were expected to wear surgical masks for all patient interactions, use gloves and proper hand hygiene, and disinfect all surfaces between patient consults. Patients with respiratory symptoms or possible exposures were separated from the rest and treated in separate locations, with separate teams. Social distancing was practiced within clinics and hospitals; waiting-room chairs were placed six feet apart; direct interactions among staff members were conducted at a distance; doctors and patients stayed six feet apart except during examinations. The use of N95 masks, face-protectors, goggles, and gowns were reserved for procedures that aerosolized respiratory secretions in known or suspected cases of COVID-19. Their quarantine policies were nuanced. In Hong Kong, “close contact” means fifteen minutes at a distance of less than six feet and without the use of a surgical mask; in Singapore, thirty minutes. If the exposure was shorter, workers stayed on the job wearing a surgical mask and with twice-daily temperature checks. People who had incidental contact were just asked to monitor themselves for symptoms. **Transmission generally occurred through sustained exposure in the absence of basic protection or through the lack of hand hygiene after contact with secretions.**

A case report published in the *Annals of Internal Medicine* also provided the same message. A patient who had not traveled nor had had contact with anyone known to have COVID-19 was hospitalized in February 2020 for community-acquired pneumonia. He developed respiratory distress that required a difficult endotracheal intubation; after 3 days of mechanical ventilation he was extubated to non-invasive ventilation. On contact tracing, 41 HCWs were identified as having high risk exposure and placed under home isolation for 14 days, with daily symptom monitoring and twice-daily temperature measurements. They had nasopharyngeal swabs on the first day of home isolation, and a second swab on day 14. None of the exposed health care workers developed symptoms, and all PCR tests were negative. In this case, 85% of HCWs exposed during an aerosol-generating procedure were wearing surgical masks, and the remainder were wearing N95 masks. That none of the health care workers in this

situation acquired infection suggests that surgical masks, hand hygiene, and other standard procedures protected them from being infected. **While international recommendations for use of N95 respirator use for aerosolizing procedures should still be followed, this case, and the data to date, provide some assurance that even if N95s are not used, proper use of medical masks and related PPE, along with meticulous handwashing, offers good protection.**

What we have learned about protecting healthcare workers:

- Strict contact and droplet precautions are needed when caring for COVID-19 patients (surgical mask, gloves, eye protection, gown – donned and doffed properly);
- Surgical mask, gloves and eye protection in all direct patient are;
- N95 respirator as part of PPE if you are in the room during aerosol-generating procedures on patients with suspected or confirmed COVID-19;
- Meticulous hand washing before and after touching a patient, before any procedure, after exposure to body fluids, and after touching patient's surroundings is essential;
- Avoid misuse, overuse, and reuse of PPE; and
- Ensure surfaces are properly cleaned

If you would like a refresher on proper donning and doffing PPE, or have concerns about access to PPE, please also let us know, or contact EmployeeSafety@VCH.ca

The management of health workers exposed to COVID-19 virus will vary according to the risk categorization of the exposure and the nature of the HCWs work. As such, we developed **a risk-assessment tool which we will make available to you in the next few days** – so you can use it to self-assess the risk of your exposures. We will be asking that you use this tool every time you have an unprotected contact with a suspected or confirmed COVID-19 patient. The data captured using this risk assessment tool will help us identify the extent to which our workforce has been able to observe proper infection control practices will help us define the need for further training, additional PPE needs, and/or further policies to mitigate HCW infection. Once you receive the tool, **please complete this anytime you incur a questionable exposure, so we can monitor the situation, keep track of the exposures and needs, and advise accordingly**. Submitting your exposure assessment form to POSH will also allow us to monitor your health and help with follow-up. **These will be completely confidential.**

We also have developed a **tool for HCWs to monitor symptoms** and assess the need for testing. And VCH has created a unit to help Public Health, as well as Infection Control and Prevention, and the Employee Safety Health and Wellness group. This unit will begin with a special focus the concerns of an underserved group with respect to occupational health –namely physicians, hence the name: **Physician Occupational Safety and Health (POSH) unit.**

POSH aims to provide weekly updates on what we are learning about protecting HCWs internationally and the local situation. We aim to keep you healthy and safe in this difficult time. **For confidential questions or questions unique to your own situation** (your concerns, your exposures, your health, etc.), **please contact us at posh.covid@ubc.ca starting next week or as soon as you receive an email from POSH announcing that they are up and running.** POSH operates 8am-8pm Monday-Saturday and aim to get back to you promptly. For general questions open to all, you can also post your questions under the PPE channel or the FAQ safety channel (whichever is appropriate) on Slack. **Thanks for your dedicated work. Stay safe!**

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