

Response to Media Reports about COVID-19 Virus Being Airborne

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There has been a lot of social media attention about how COVID-19 is spread and what we can do to prevent transmission in healthcare settings.

In some cases, this has led to misinformation and misunderstanding when it comes to best practice and the current evidence.

As clinicians, we know we will not be able to care for patients unless we keep ourselves safe. This is first and foremost. However, we need our people to not only be safe but also feel safe.

Understanding the rationale behind our [Personal Protective Equipment \(PPE\)](#) and Infection Prevention & Control Guidelines encourages us to both follow best practice, as well as create psychologically safe environments where our people feel safe coming to work every day.

A Letter to the Editor in the New England Journal of Medicine published online March 17, 2020¹, confirms what we already know about COVID-19: that it can survive on surfaces such as stainless steel and plastic surfaces with viable virus detected out to 72 hours. This is why, as healthcare workers, it's more important than ever to focus on frequent hand hygiene, avoiding touching the facial T-Zone (eyes, nose and mouth) and environmental cleaning of surfaces, to prevent spread and infection. Alcohol hand sanitizer or soap and water are both effective at eliminating coronaviruses from contaminated hands.

This NEJM paper¹ reported the virus could be aerosolized in a highly controlled and artificial laboratory setting. Aerosols are generally defined as particles less than 5 microns; droplets are larger. Although this paper shows we can find COVID-19 in tiny particles at three hours in the air generated under laboratory conditions using a three-jet nebulizer and a drum with very harsh conditions at a very high inoculum of virus with a large volume drop in a system designed to study bioterrorism, it has no relevance to the clinical setting for patients and does not simulate coughing in any way.

This paper and its artificial conditions should be interpreted with great caution and creates no concern in the clinical setting. It's why we have [PPE guidelines](#), which protect us. Studies done to date have demonstrated no evidence of SARS-CoV- 2 in air samples at the bedside and are far more relevant to clinical medicine.^{2,3} As more studies are done, it is

¹ Van Doremalen, N. et al. N Engl J Med online March 17, 2020. DOI: 10.1056/NEJMc2004973

² Cheng, V. et al. Infect Control Hosp Epidemiol. 2020 Mar 5 [Epub ahead of print].

possible some air samples may show polymerase chain reaction (PCR) positivity at the bedside, but the likelihood that there is viable virus that is capable of inhalational transmission would be extremely unlikely.

An extensive review of over 75,000 cases of COVID-19 in Wuhan was conducted by a World Health Organization (WHO) Joint Mission, led by Canadian Dr. Bruce Aylward⁴. The overwhelming evidence from this extensive epidemiologic study showed COVID-19 is transmitted via respiratory droplets and possibly fomites (hand-to face contact with contaminated articles) during close and unprotected contact. The findings from this analysis — that more than 80 per cent of the transmissions were within close contact in intra-familial settings — argues strongly against airborne transmission.

A recent letter published online in the [Annals of Internal Medicine](#) is instructive given its relevance to the clinical setting. Described is an event in which 41 individuals were exposed over 10 minutes and within two meters to a patient with COVID-19 during an intense and difficult scenario involving intubation/extubation and non-invasive ventilation (NIV). In this case, the source patient had not been diagnosed prior to intubation but was found to have COVID-19 after the fact. There was intensive followup of all 41 healthcare workers. None acquired COVID-19 from that event, during which 85 per cent of the staff were wearing a procedure mask while the remainder wore an N95 respirator (together with other appropriate PPE). The lack of transmission during this event suggests procedure masks were equally effective to N95 respirators at protecting healthcare workers from COVID-19.

Does this mean COVID-19 could never be transmitted by an aerosol? Of course not. However, the overwhelming evidence at this point supports the vast majority of transmission is occurring at close range by droplets.

For us as healthcare workers, what all this means is that the nature of transmission of COVID-19 depends on what size particles transmit the pathogen and this, in turn, dictates the type of PPE we recommend. For routine care of patients with COVID-19 (or suspected cases), PPE should consist of gloves, gown, facial protection and a procedure mask. An N95 respirator should be substituted for the procedure mask only during [aerosol-generating medical procedures \(AGMP\)](#).

Safety must be our first priority as Alberta Health Services (AHS) faces the COVID-19 pandemic. Proper use of the right PPE in the right settings is key to ensuring healthcare workers stay healthy, stay safe, and are able to do their best possible work.

This practice is consistent across all of Canada and is what is recommended by the Public Health Agency of Canada (PHAC) [PHAC COVID-19 Acute Healthcare Guidance](#). We continue to monitor PHAC guidance to inform our practice going forward as we treat patients and work to prevent the spread of COVID-19

³ Ong, SW. et al. JAMA. Online March 4, 2020.

⁴ [www.who.int/publications-detail/report-of-the-who-china-joint-mission-on-coronavirus-disease-2019-\(covid-19\)](http://www.who.int/publications-detail/report-of-the-who-china-joint-mission-on-coronavirus-disease-2019-(covid-19))