COVID-19: Risk of SARS-CoV-2 Aerosol Transmission in Health-Care Settings

This information is intended for health-care providers. It is based on known evidence as of September 8, 2021 and replaces the March 5, 2021 version of this document.

SARS-CoV-2, the virus that causes COVID-19, is spread by respiratory droplets from an infected person when they speak, sing, cough or sneeze. The droplets can range in size from large liquid droplets, which quickly fall to the ground usually within two metres, to smaller aerosols, which can linger in the air under certain circumstances. Infection can occur when droplets and aerosols containing sufficient quantities of SARS-CoV-2 virus come into contact with the mucous membranes of another person’s eyes, nose or mouth, or are inhaled into the respiratory tract. The virus can also be spread by touching surfaces with the virus on it and then touching one’s eyes, nose or mouth. The amount of virus, or infectious dose, needed to cause infection is still under investigation.

Global evidence shows that COVID-19 is primarily spread by close-range droplets and direct contact with protection provided by immunization, mask use and hand hygiene. Aerosols can float in the air for a longer period of time and can accumulate in enclosed spaces unless they are diluted with clean air from a ventilation system or the outdoors. Their role in transmission causing infection, however, has been demonstrated in limited circumstances under conditions that contribute to aerosol build-up. Examples of these are enclosed or crowded spaces with poor ventilation, prolonged exposure from people doing activities that involve expiratory exertion and prolonged exposure without the use of medical-grade personal protective equipment (PPE). Transmission of SARS-CoV-2 aerosols is also possible during aerosol generating medical procedures (AGMPs).

In addition to ongoing efforts to strongly emphasize and promote immunization as a key preventative and protective measure, health-care settings are expected to continue implementing public health and infection prevention and exposure control measures. These include hand hygiene, mask and other PPE guidance, staying home when sick, screening for symptoms and risk factors of respiratory illness, maintaining ventilation systems, and enhanced cleaning and disinfection of the environment and equipment. Although medical-grade PPE is an important control measure, it must be used in conjunction with environmental and administrative control measures in health-care settings. Where possible, patients confirmed to have COVID-19 or with COVID-19 risk (e.g., have symptoms of COVID-19 or are required to self-isolate) should be placed in well-ventilated, uncrowded spaces. The risk of SARS-CoV-2 transmission to health professionals from patients is low when public health and infection
prevention and control (IPC) measures are in place, including the appropriate use of PPE. For current COVID-19 PPE information, see the BC Centre for Disease Control (BCCDC) page on PPE and the poster on how to wear a face mask.

Health-care workers should perform a point-of-care risk assessment (PCRA) for potential exposure risks to determine appropriate IPC actions and PPE. The World Health Organization, Public Health Agency of Canada and provincial public health agencies (including Public Health Ontario, Alberta Health Services and the BCCDC) continue to recommend droplet and contact precautions in health-care settings for a person who is confirmed to have COVID-19 or a person with COVID-19 risk. The use of an N95 respirator or equivalent is required for airborne precautions or when performing an AGMP on a person confirmed to have COVID-19 or with COVID-19 risk. Please consult the BCCDC AGMP guidance and your local health authority guidance on AGMPs. Access to additional PPE, such as respirators, will be provided in circumstances where a PCRA performed by a HCW determines there is an elevated risk of COVID-19 transmission through patient interaction.

References


