

CW PRACTICE BRIEF

TOPIC: MODES OF TRANSMISSION OF COVID-19

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OVERVIEW

Airborne transmission of COVID-19 has been greatly debated and is a source of anxiety amongst health care workers. The major route of transmission of COVID-19 continues to be through droplet and contact transmission. However, in November 2020, Public Health Agency of Canada (PHAC) added aerosolization from coughing, sneezing, talking etc. as a route of transmission under some circumstances.

BACKGROUND

Transmission of pathogens from the respiratory tract has traditionally been thought of in terms of the dichotomous categories of droplet (larger particles that fall to the ground within 2 meters) and airborne (smaller aerosols and viral particles that are suspended in the air over longer distances and time). The implications of an airborne disease in the healthcare setting are as follows:

- Health care workers must don an N95 respirator when providing patient care
- A negative pressure room must be used for patient care
- Patient room doors must remain closed until sufficient air exchanges have occurred prior to the appropriate environmental cleaning.

In reality, people produce a variety of particle sizes when talking, sneezing, coughing, etc. and there is increasing recognition of the potential for multiple modes of transmission by the same pathogen, including an intermediate category of short-range aerosol transmission whereby aerosols may remain suspended beyond the 2 meter range for longer periods but not to the same extent as airborne transmission¹⁻³. From early in the pandemic, it was recognized that although COVID-19 was primarily spread through droplets, airborne transmission of COVID-19 may occur in health care settings through aerosol generating medical procedures (AGMP). PHAC and other groups have now recognized that short-range aerosol transmission may occur in certain situations outside of health care settings^{1,2}.

ASSESSMENT

Diseases that are spread primarily through airborne transmission (e.g. measles) have high attack rates. If COVID-19 was primarily spread through airborne transmission, we would have seen a more rapid spread earlier in the pandemic and more people would be

seropositive indicating a prior infection³⁻⁶. The secondary attack rates in hospital has been estimated at 0.7%⁴.

Reports of possible airborne transmission of COVID-19 in the community have often been related to close contact in enclosed spaces and spaces with inadequate ventilation^{3,7,8} and are more consistent with short-range aerosol transmission rather than true airborne spread over long distances. These situations are not representative of health care settings where the ventilation system is vigorously monitored and multiple other layers of control are in place (e.g. screening, medical-grade PPE). There is currently no evidence that the virus efficiently spreads over long distances in the air or remains in a space hours after an infected person has been there, in contrast to predominantly airborne diseases such as measles^{1,2}.

CONCLUSION

Based on current evidence of COVID-19 transmission, consistent with the PHAC guidance for acute care¹ and BC's [PICNET](#) Guidelines, droplet and contact precautions remain the standard of care for patients waiting for COVID-19 test results or who have tested positive for COVID-19 and do not require AGMPs.

RECOMMENDATION

C&W IPAC continues to recommends the following:

- All health care providers will perform a point of care risk assessment before every interaction with a patient or the patient environment to choose the appropriate actions and required PPE to minimize the risk to staff, patients and others in the patient environment
 - Droplet and contact precautions for all patients waiting for COVID-19 test results or who have tested positive for COVID-19, regardless of symptoms
 - Droplet and contact precautions, with the addition of airborne precautions including N95 respirator when [AGMPs](#) are being performed for all patients waiting for COVID-19 test results or who have tested positive for COVID-19, regardless of symptoms

C&W IPAC recognizes in addition to the above recommendation, staff, patient and family safety is paramount and will support the following:

- Health care providers may make the personal choice to don additional PPE (i.e. N95) or other preventative measures, within reason and in accordance with best evidence.
 - Personal choice of donning additional PPE **does not imply** that other airborne precautions must be implemented (e.g. negative pressure room).
 - Personal choice of donning additional PPE **does not mandate** that other health care providers don additional PPE
 - Any health care provider choosing to don additional PPE will do so in accordance with the PPE Utilization Framework.

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