

1. Does the aerosolized transmission of COVID mean risk extends beyond 6 feet, particularly indoors when people are around each other for prolonged periods of time?

Yes. Human expiratory activities (breathing, speaking, singing, coughing) generate aerosols ranging in size from below 1 μm to over 1mm. The vast majority of aerosols generated are small, within the range from about 1 μm , up to 100 μm . They are generated from various parts of the respiratory tract, and if this is where the virus resides in the respiratory tract, the aerosols contain the virus. The small virus-laden aerosols can stay suspended in the air for prolonged periods of time (as gravity is not the most significant force acting on them), can travel significant distances within indoor environments following the air currents, and can remain infectious during this time. People sharing indoor environments with an infected person, inhale the virus-laden aerosols anywhere in the room, beyond the distance of 6 feet. If they inhale enough of the virus (infectious dose), they become infected. Whether they will inhale enough to be infected depends on the concentrations in the air (which will be higher in inadequately ventilated interiors), and the time spent in these environments. Retrospective analysis have linked a number of outbreaks that occurred so far to airborne transmission, well outside the 6 feet distance (eg the Skagit Chorale outbreak in Mt Vermont).

2. Can building managers take steps to reduce transmission risk, including reducing number of people who have to report in person, and improving introduction of outside air and upgrading HVAC filtration?

Yes. In a publication co-authored by a group of international experts (please see attached), we stated that: *“Appropriate building engineering controls include sufficient and effective ventilation, possibly enhanced by particle filtration and air disinfection, avoiding air recirculation and avoiding overcrowding.”*

3. Is universal masking is important in reducing particle spread?

Yes. Mask significantly reduce the amount of virus emitted by infected people, and also reduce the amount inhaled by healthy people, therefore reducing the risk of infection. Of significance is that a large fraction of those who are infected with SARS- CoV-2 are asymptomatic, yet shedding the virus. If everybody wears masks in public places, risk of infection will be significantly reduced.

4. Given diversity of offices and other indoor work environments, should building managers assess all workplaces to implement building improvements?

Yes. All workplaces should be individually assessed to ensure that as best as possible set of building control measures is put in place to minimize the risk of infection. Longer term plans and targets should be developed for retrofitting building, of which current design prevents optimization of control measure, as well as to ensure proper design of future buildings.