

BACKGROUND

COVID-19 is a highly infectious viral illness that is spread by respiratory droplets. While the risks of outbreaks can be reduced by various infection control measures (e.g., hand washing, mask wearing), indoor airflow patterns can also contribute to virus particle spread. A recent [CDC analysis](#) of a COVID outbreak linked to exposure in a restaurant in China, associated the airflow pattern in the restaurant with who developed COVID-19. Because airflow can increase the transmission of viruses the following are environmental considerations that can be used in congregate settings to decrease viral transmission.

RECOMMENDATIONS

When implementing any of these recommendations, particularly in the summer, facilities are reminded to maintain comfortable and safe temperatures as required by state and federal law.

Open windows: Weather and safety permitting, opening windows is the easiest way to delivery outside air directly to a room. This increases the total air change rate thereby decreasing the time viral particles are in the air. Facilities should be mindful of HVAC system operations as open windows will increase strain on air conditioning systems in the summer months.

Increased humidity: A relative humidity rate above 40% has been shown to decrease the survival of coronaviruses. Facilities that can centrally control humidity should target a rate between 40 – 60%. Alternatively, in-room humidification can be used and may decrease the likelihood of over humidification and mold growth.

Open blinds: Sunlight reduces the survival of many viruses. In addition, sunlight has other positive health benefits. Where feasible, facility administrators should encourage blinds and shades to be opened

Air conditioning: Although the flow of air from air condition units has been associated with viral spread, these units should not be turned off. Doing this would increase the duration of time infectious viral particles are suspended in the air. Rather conditioning systems should increase the percentage of outside air mixed in to the highest level possible.

Filters: Although they do not filter out 100% of viral particles, inline filters with higher minimum efficiency reporting values (MERV) can filter out more viral particles. Residential and commercial filtration systems typically require a minimum efficiency reporting value (MERV) of 8, which removes at least 70% of particles ranging from 3.0 to 10.00 um. In critical care settings, MERV-13 or higher are typically recommended. While there is not a specific recommendation by the CDC on what MERV filter should be used, it is generally recommended to use the highest compatible filter with your system. For those facilities with systems that will accommodate them, large-scale high-efficiency particulate (HEPA) air filters can be installed. Regardless of the type of filter, they will need to be replaced more often.

RESOURCES

Additional information and resources for COVID-19 are available at the links below.

- <https://msystems.asm.org/content/5/2/e00245-20>
- https://www.ashrae.org/file%20library/about/position%20documents/pd_infectiousaerosols_2020.pdf
- CDC COVID-19 webpage: <https://www.cdc.gov/coronavirus/>
- ISDH COVID-19 webpage: <https://coronavirus.in.gov>