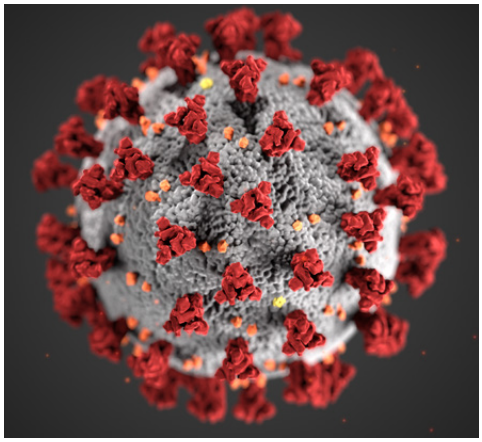
COVID-19 Contamination Control



The Sars-CoV-2 coronavirus —image from CDC

Airborne distribution via droplet nuclei

Sars-CoV-2 can also be spread by surface contact

COVID-19

The Sars-CoV-2 coronavirus has certainly grabbed the attention of the world, governments and financial markets over the past few weeks. COVID-19 is a respiratory disease and much of what is currently known about it and how it spreads is based on what we know about similar viruses—that it is spread from human-to-human through two main methods: airborne and surface contact.

AIRBORNE DISTRIBUTION

Viruses range in size from 0.05 to less than 0.005 microns, but typically attach to larger particles—usually around 1 micron in size—when airborne. Viruses typically become airborne via droplet nuclei—microscopic particles less than 5 µm in size. These leftover particles of evaporated droplets are produced when a person coughs, sneezes, shouts, or sings. Droplet nuclei can remain suspended in the air for prolonged periods of time and can be carried great distances on air currents. This is typically the main method of transmission for viruses.

The information below is from the CDC (Centers for Disease Control and Prevention in the United States) website on how the Sars-CoV-2 virus is spread:

- The virus is thought to spread mainly from person-to-person.
- Between people who are in close contact with one another (within about 6 feet)
- Via respiratory droplets produced when an infected person coughs or sneezes.
- These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.

SURFACE CONTACT

Another method of transmission is via surface contact. Transmission can occur as a result of person-to-person contact, such as a handshake or via fomites. Transmission via fomites occurs when a person becomes infected by touching a surface (such as a door knob) with the flu virus on it, and then touching their mouth or nose. We know that some viruses can live for several hours on fomites.

The CDC website has this information about surface contact:

It may be possible that a person can get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the main way the virus spreads.

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EMERGING DISEASE

The CDC also states that COVID-19 is an emerging disease and there is more to learn about its transmissibility, severity, and other features.

There are already unsubstantiated reports of airborne transmissions over great distances, which is not typical for viruses, so it is recommended to check the CDC and other relevant authorities to keep abreast with the latest information and warnings.

PREVENTION STRATEGY

Contamination control of viruses can present many challenges. An effective prevention strategy should include the following:

- Personal Protective Equipment (safety glasses, gloves, respirators, masks, clothing) for healthcare and maintenance workers
- Isolation (negative pressure) in healthcare diagnostic and treatment areas
- Control air-flow patterns (move droplet nuclei out of breathing zones)
- Air cleaning (portable air cleaners to increase air changes, reduce droplet nuclei)
- HEPA filtration to catch all airborne droplet nuclei
- UV lighting to kill viruses
- Increase HVAC filtration efficiency without sacrificing air flow. Air changes are as critical as efficiency.
- Identify possible exhaust re-entrainment of contaminated air (i.e. exhaust too close to HVAC air intakes)
- Red bag any contaminated waste

Obviously personal hygiene is the first line of defense. UV light systems have been documented to be effective against many bio-aerosols and the use of high intensity ultra-violet germicidal systems can help reduce airborne microbials.

In addition to UV-light systems, portable HEPA filtration systems with UV lights are also useful in creating clean zones and controlling room pressurization.

HVAC air filtration products with documented efficiencies on 1 micron-sized particles can also be an effective tool to help in the reduction of airborne droplet nuclei.

SUMMARY

These technologies and filter upgrades can help reduce the level of Sars-CoV-2 in the air, but no technology can guarantee or completely protect anyone from becoming infected by the virus.

MANN+HUMMEL and Tri-Dim Filter—a MANN+HUMMEL Company—have experienced staff and a complete offering of filtration products and services to assist in implementing your prevention strategy.

Contact your local representative for assistance in developing an effective contamination control strategy for COVID-19.

LOCAL REPRESENTATIVE

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