

Key takeaways from Phase 2 literature review

The **Phase 2 literature review** analyzed and summarized findings from available scientific literature on SARS-CoV-2 (the virus that causes COVID-19) from mid-May through mid-August 2020. This review focused on studies of how the virus is spread, virus attenuation on commonly found materials, and effectiveness of prevention and decontamination measures.

HOW THE VIRUS SPREADS

The infectious dose (i.e., how much virus is needed to cause infection) remains unknown. More is understood about how the virus is transmitted. Track the “known unknowns” about the virus with the [DHS Master Question List for COVID-19](#).

Droplets. SARS-CoV-2 is generally understood to spread primarily through virus-containing water droplets expelled from infected persons from sneezes, coughs, speaking, and other respiratory activities. Other pathways for spreading the virus may include:

Aerosols:

Breathing air that the virus is suspended in, such as after an aerosolization event (e.g., a sneeze).



Fomites:

Touching objects that are contaminated with virus-containing droplets.



Environment. Higher temperatures, higher humidity, and increased intensity of ultraviolet (UV) light (e.g., sunlight) seem to lead to SARS-CoV-2 decaying more quickly.

Ventilation. Air heating/cooling systems and other air circulation mechanisms can contribute to spreading the virus through the air. On the other hand, poor ventilation may also lead to airborne virus remaining in indoor environments longer.

Decontamination and prevention strategies

Researchers suggest several options for reducing the presence of SARS-CoV-2 in environments, which may help prevent transmission among people in those environments.

Strategy	Details
Cleaning hands	<ul style="list-style-type: none"> • Wash hands for 20 seconds from fingertip to forearm with soap and warm water • Rub hands with 60–80% ethanol hand sanitizer for 30 seconds • Rub hands with 75% 2-propanol hand sanitizer for 30 seconds
Mask wearing	<ul style="list-style-type: none"> • Wear face masks that cover the nose and mouth, such as medical and triple-layer cotton masks • Provide masks to all guests and staff
Social distancing	<ul style="list-style-type: none"> • Maintain a physical distance of at least 5.2–9.8 ft • Implement intermittent occupancy • Schedule visits
Disinfecting	<ul style="list-style-type: none"> • Refer to list of disinfectants and surface cleaners that meet the EPA's criteria for use against SARS-CoV-2
Heating and cooling systems	<ul style="list-style-type: none"> • Use continuous air renewal from fresh outdoor air • Use UVC energy with HVAC systems • Use nickel filters with HVAC systems
Ventilation	<ul style="list-style-type: none"> • Use local air exhaust • Use high-efficacy particulate air (HEPA) and MERV 14 filters • Mix fresh outdoor air with existing air • Ensure cool air enters the room at floor level and exhausts at ceiling level • Use stand-alone air purifiers
UV light *	<ul style="list-style-type: none"> • Expose to combined UVA/UVC light for 9 minutes • Expose to pulsed-xenon UV for 1 minute

* UV light is known to cause damage to collections materials.

For more information, view the REALM webinar [Collections and Facilities: Caring for Your Resources During COVID-19](#).

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