

NIEHS Activities, Tools and Resources to Protect Workers from COVID-19
Thursday, November 12th, 2020

Related Resources Shared or Mentioned During the Webinar:

- Workplace Checklist for Prevention of Exposure to SARS-CoV-2 Virus in Non-Healthcare Industries: https://tools.niehs.nih.gov/wetp/public/hasl_get_blob.cfm?ID=12001
- NIEHS Webinars: <https://tools.niehs.nih.gov/wetp/index.cfm?id=2592>
- NIEHS Newsbrief Sign-up: <https://tools.niehs.nih.gov/wetp/subscribe/subscribe.cfm>
- NIEHS Clearinghouse website: <https://tools.niehs.nih.gov/wetp/>
- Brosseau, L.M. (2010) Fit Testing Respirators for Public Health Medical Emergencies, Journal of Occupational and Environmental Hygiene, 7: 11, 628 — 632, First published on: 16 September 2010 (iFirst). URL: <http://dx.doi.org/10.1080/15459624.2010.514782>
- Washington guidance on "greener" cleaners for public spaces: <https://www.doh.wa.gov/Portals/1/Documents/1600/coronavirus/CleaningandDisinfectingGuidanceforPublicSpaces.pdf>
- Protecting Yourself from COVID-19 in the Workplace Fact Sheet: https://tools.niehs.nih.gov/wetp/public/hasl_get_blob.cfm?ID=11881
- Information on paid leave under families first: <https://www.federalregister.gov/documents/2020/04/06/2020-07237/paid-leave-under-the-families-first-coronavirus-response-act>
- NIEHS COVID-19 Resource List: https://tools.niehs.nih.gov/wetp/public/hasl_get_blob.cfm?ID=11923
- NIEHS COVID-19 Worker Resources: <https://tools.niehs.nih.gov/wetp/covid19worker/>
- Milwaukee Tool Cleaning Protocol: <https://www.milwaukeeetool.com/Tool-Cleaning-Protocol>
- EPA - *Will an Ozone Generator protect me and my family from COVID-19?*: <https://www.epa.gov/coronavirus/will-ozone-generator-protect-me-and-my-family-covid-19>
- EPA - *Can I use fogging, fumigation, or electrostatic spraying or drones to help control COVID-19?*: <https://www.epa.gov/coronavirus/can-i-use-fogging-fumigation-or-electrostatic-spraying-or-drones-help-control-covid-19>
- OSHA - *Understanding Compliance with OSHA's Respiratory Protection Standard During the Coronavirus Disease 2019 (COVID-19) Pandemic*: <https://www.osha.gov/sites/default/files/respiratory-protection-covid19-compliance.pdf>
- CPWR Mental Health Resources: <https://www.cpwr.com/research/research-to-practice-r2p/r2p-library/other-resources-for-stakeholders/mental-health-addiction/>

Pre-Webinar Questions Submitted by Participants: Responses and Resources

1. What is latest research on inoculum / dose response?

A relationship between the infecting dose and the risk of disease severity has not been demonstrated for SARS-CoV-2 infection. Source: María Pilar Gualla, et al, Inoculum at the time of SARS-CoV-2 exposure and risk of disease severity, Int J Infect Dis. 2020 Aug; 97: 290–292.
<https://www.sciencedirect.com/science/article/pii/S1201971220304707>

2. What guidance is available on ventilation of indoor spaces? (I'm familiar with ACGIH's for industrial spaces) and the recommendation of a limit of 600 ppm CO2)

Reducing the Risk of COVID-19 Using Engineering Control, American Industrial Hygiene Association, https://www.aiha.org/public-resources/consumer-resources/coronavirus_outbreak_resources/aiha-covid-19-pandemic-efforts/free-covid-19-public-resources

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)
ASHRAE resources: <https://www.ashrae.org/technical-resources/resources>

Guidance for Building Operations During the COVID-19 Pandemic
https://www.ashrae.org/file%20library/technical%20resources/ashrae%20journal/2020journaldocuments/72-74_ieq_schoen.pdf

American Conference of Governmental Industrial Hygienists
White Paper on Ventilation for Industrial Settings during the COVID-19 Pandemic
https://www.acgih.org/docs/default-source/vent-committee/iv_position-test.pdf?sfvrsn=4b10ba0d_2

3. What are your thoughts about bipolar ionization technology - advantages, disadvantages, benefits, risks relative to COVID-19 (SARS-CoV-2)?

Source: ASHRAE Website:

Bipolar Ionization/Corona Discharge / Needlepoint Ionization and Other Ion or Reactive Oxygen Air Cleaners

- Air cleaners using reactive ions and/or reactive oxygen species (ROS) have become prevalent during the COVID-19 pandemic.
- Technologies utilize various methods to create reactive ions in air that react with airborne contaminants, including viruses. The design of the systems can be modified to create mixtures of reactive oxygen species (ROS), ozone, hydroxyl radicals and superoxide anions.
- Systems are reported to range from ineffective to very effective in reducing airborne particulates and acute health symptoms.
- Convincing scientifically-rigorous, peer-reviewed studies do not currently exist on this emerging technology; manufacturer data should be carefully considered.
- Systems may emit ozone, some at high levels. Manufacturers are likely to have ozone generation test data.

For more information, see the ASHRAE Position Document on Filtration and Air Cleaning

<https://www.ashrae.org/file%20library/about/position%20documents/filtration-and-air-cleaning-pd.pdf>

CDC Position on Bipolar Ionization

ASHRAE does not currently have a Society position on bipolar ionization. However, the ASHRAE ETF did reach out to CDC for their position on the technology. The following is the response from CDC in its entirety:

Thank you for your question. Although this was pointed out in the earlier CDC responses, it is important for me to re-emphasize that CDC does not provide recommendations for, or against, any manufacturer or manufacturer's product. While bi-polar ionization has been around for decades, the technology has matured and many of the earlier potential safety concerns are reportedly now resolved. If you are considering the acquisition of bi-polar ionization equipment, you will want to be sure that the equipment meets UL 2998 standard certification (Environmental Claim Validation Procedure (ECVP) for Zero Ozone Emissions from Air Cleaners) which is intended to validate that no harmful levels of ozone are produced. Relative to many other air cleaning or disinfection technologies, needlepoint bi-polar ionization has a less-documented track record in regards to cleaning/disinfecting large and fast volumes of moving air within heating, ventilation, and air conditioning (HVAC) systems. This is not to imply that the technology doesn't work as advertised, only that in the absence of an established body of evidence reflecting proven efficacy under as-used conditions, the technology is still considered by many to be an "emerging technology". As with all emerging technologies, consumers are encouraged to exercise caution and to do their homework. Consumers should research the technology, attempting to match any specific claims against the consumer's intended use. Consumers should request efficacy performance data that quantitatively demonstrates a clear protective benefit under conditions consistent with those for which the consumer is intending to apply the technology. Preferably, the documented performance data under as-used conditions should be available from multiple sources, some of which should be independent, third party sources.

4. Of the resources you created and shared, what were the most critical in meeting essential worker needs? How do you feel that the conflicting messages and disinformation that occurred during this pandemic affected your efforts in keeping workers safe?

NIEHS Training resources and tools should be tailored to different industry and occupational needs. The core curriculum in the Essential and Returning Worker course covers key concepts about the virus and worker protection. The checklist is a handy tool that can be used/modified to assess site specific infection control and prevention plans.

The conflicting messages put out by government agencies and on social media have been a major source of confusion and sometimes led to inadequate worker protection. For example, the lack of recognition that SARS CoV-2 is an aerosol transmissible disease, spread by inhalation of viral particles, has sometimes led to inadequate respiratory protection of high-risk workers. Also, the controversy over mask wearing and different guidelines in different states and locales, has led to inconsistent use of masks and even violence. These examples demonstrate why we need a federal OSHA standard and a unified federal strategy to fight the virus.

5. New developments related to COVID-19 management in the workplace?

Fifteen states have passed executive orders or emergency temporary standards for worker protection from SARS CoV-2. Most recently Oregon passed an Emergency Temporary Standard. The National Employment Law Project maintains a list with active links of these requirements: <https://www.nelp.org/blog/which-states-cities-have-adopted-comprehensive-covid-19-worker-protections/> These requirements detail workplace requirements in those states. There are major inconsistencies around the issue of employers notifying workers when they have been exposed and working with public health authorities to conduct contact tracing. Workplace sponsored testing is another area that is evolving. Vaccination and the role of federal, state, local government, employers, and unions is another emerging issue. There is a growing recognition that SARC CoV-2 is an aerosol

transmissible virus, that puts workers at risk of exposure beyond six feet. Additionally, there is a growing understanding that asymptomatic and presymptomatic transmission are important in the spread of the virus.

6. Is there scientific data that shows the difference in effectiveness for surgical style masks vs the effectiveness of properly used N95 respirators for coronavirus?

Yes, surgical masks are not effective for respiratory protection. They are designed to protect patients from healthcare workers' respiratory excretions. They also protect healthcare workers from body fluid splashes during surgery or other procedures. They do NOT provide a tight facial seal and that leakage allows small sub-micron particles to enter the wearer's breathing zone. A properly sized, fit tested N95 will provide respiratory protection against sub-micron particles.

Samy Rengasamy, Ronald Shaffer, Brandon Williams & Sarah Smit (2017) A comparison of facemask and respirator filtration test methods, *Journal of Occupational and Environmental Hygiene*, 14:2, 92-103, DOI: [10.1080/15459624.2016.1225157](https://doi.org/10.1080/15459624.2016.1225157)

<https://www.tandfonline.com/doi/full/10.1080/15459624.2016.1225157>

NIOSH Science Blog, Respiratory Protection During Outbreaks: Respirators versus Surgical Masks, Posted on April 9, 2020 by Christopher Coffey, Ph.D; Maryann M. D'Alessandro, PhD; and Jaclyn Krah Cichowicz, MA <https://blogs.cdc.gov/niosh-science-blog/2020/04/09/masks-v-respirators/>

Understanding the Difference Between N95 and Surgical Mask Infographic, CDC/NIOSH <https://www.cdc.gov/niosh/npptl/pdfs/UnderstandDifferenceInfographic-508.pdf>

7. If your state public health department guidance is different than CDC guidance, which would you follow? IE CDC - quarantine for close contact if wearing mask or not - State- no quarantine if wearing masks.

CDC guidelines are not enforceable but are considered as the gold standard for public health in the United States. Some State health departments incorporate CDC standards into their state public health laws. The State laws and regulations are enforceable. If your state public health requirements are less protective than CDC that may result in increased spread of the virus

CDC's current definition of close contact: <https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/contact-tracing-plan/appendix.html#contact>

Someone who was within 6 feet of an infected person for a cumulative total of 15 minutes or more over a 24-hour period* starting from 2 days before illness onset (or, for asymptomatic patients, 2 days prior to test specimen collection) until the time the patient is isolated.

** Individual exposures added together over a 24-hour period (e.g., three 5-minute exposures for a total of 15 minutes). Data are limited, making it difficult to precisely define "close contact;" however, 15 cumulative minutes of exposure at a distance of 6 feet or less can be used as an operational definition for contact investigation. Factors to consider when defining close contact include proximity (closer distance likely increases exposure risk), the duration of exposure (longer exposure time likely increases exposure risk), whether the infected individual has symptoms (the period around onset of symptoms is associated*

with the highest levels of viral shedding), if the infected person was likely to generate respiratory aerosols (e.g., was coughing, singing, shouting), and other environmental factors (crowding, adequacy of ventilation, whether exposure was indoors or outdoors). Because the general public has not received training on proper selection and use of respiratory PPE, such as an N95, the determination of close contact should generally be made irrespective of whether the contact was wearing respiratory PPE. At this time, differential determination of close contact for those using fabric face coverings is not recommended.

8. If a foreman on a construction site tested positive for COVID-19, what would be the appropriate actions to keep everyone safe and continue working?

See the CDC guidelines above in the answer to question 7 and also refer to your State Public Health guidelines, Executive Order, or Emergency Temporary Standard available at: <https://www.nelp.org/blog/which-states-cities-have-adopted-comprehensive-covid-19-worker-protections/>

9. What would be a recommended testing protocol for the crew, e.g. day 1 vs day 5 testing?

There are a number of issues regarding the use of testing to determine that workers are not infected at the time they begin a job. First, it usually takes 4 to 5 days after exposure before a person will test positive and they may be contagious during that time frame. Furthermore, some of the rapid tests have a high degree of false negative and false positive results. What is needed is a cheap, effective, and rapid test that could be used daily, but that is not currently available. For these reasons, safety measures such as physical distancing, mask or respirator use, and cleaning and disinfection are key.

10. How worried should we be regarding Legionella?

A decrease in water usage in buildings closed or with limited access during the pandemic can increase the risk of bacteria growth in building plumbing and associated equipment. Facility managers and building owners can help mitigate the risk of waterborne pathogens, such as Legionella bacteria, the cause of Legionnaire's disease, by developing a water management plan. ANSI/ASHRAE Standard 188-2018, Legionellosis: Risk Management for Building Water Systems establishes minimum legionellosis risk management requirements for building water systems.

Guidance For Re-Opening Buildings, ASHRAE One-pager
<https://www.ashrae.org/file%20library/technical%20resources/covid-19/guidance-for-re-opening-buildings.pdf>

11. Do you have suggestions how to plan for worksite reductions as we move through the fall and winter months?

We suggest you refer to your union leadership. This is not a topic NIEHS WTP has addressed.

12. Do any studies show if someone can be re infected? If so, can it be immediately? Do we know if there are different strains? If you haven't already, please clearly explain the two different common tests and why one is more accurate?

The degree of protective immunity conferred by infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is currently unknown. As such, the possibility of reinfection with SARS-CoV-2 is not well understood. We describe an investigation of two instances of SARS-CoV-2 infection in the same individual.

Richard L Tillett, et al, October 12, 2020, The Lancet, Genomic evidence for reinfection with SARS-CoV-2: a case study [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(20\)30764-7/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30764-7/fulltext)

There are two different types of tests – diagnostic tests and antibody tests.

A diagnostic test can show if you have an active coronavirus infection and should take steps to quarantine or isolate yourself from others. Currently there are two types of diagnostic tests– molecular tests, such as RT-PCR tests, that detect the virus’s genetic material, and antigen tests that detect specific proteins from the virus.

An antibody test looks for antibodies that are made by your immune system in response to a threat, such as a specific virus. Antibodies can help fight infections. Antibodies can take several days or weeks to develop after you have an infection and may stay in your blood for several weeks or more after recovery. Because of this, antibody tests should not be used to diagnose COVID-19. At this time researchers do not know if the presence of antibodies means that you are immune to COVID-19 in the future.

Antibody tests may provide quick results, but should not be used to diagnose an active infection. Antibody tests only detect antibodies the immune system develops in response to the virus, not the virus itself. It can take days to several weeks to develop enough antibodies to be detected in a test.

Source: FDA Coronavirus Testing Basics <https://www.fda.gov/consumers/consumer-updates/coronavirus-disease-2019-testing-basics>