



**HEALTHIER WORKPLACES | A HEALTHIER WORLD**

November 18, 2021

Douglas L. Parker  
Assistant Secretary of Labor for Occupational Safety and Health  
Occupational Safety and Health Administration  
U.S. Department of Labor

## **AIHA Comments on COVID-19 Vaccination and Testing; Emergency Temporary Standard**

*Docket No. OSHA-2021-0007 | RIN: 1218-AD42*

Dear Assistant Secretary Parker:

AIHA, the association for scientists and professionals committed to preserving and ensuring occupational and environmental health and safety (OEHS) in the workplace and community, appreciates the opportunity to provide feedback on the Occupational Safety and Health Administration's (OSHA) emergency temporary standard (ETS) and proposed final rule to protect unvaccinated employees of large companies from the risk of contracting COVID-19. We hope you find our comments useful and would be happy to provide you with additional information as warranted.

### **Employers with Fewer than 100 Employees**

AIHA recommends that businesses of all sizes develop and implement an infection prevention and control plan for all their workers.

### **Prior COVID-19 Infections**

#### [1910.501\(g\)\(3\)](#)

*When an employee has received a positive COVID-19 test or has been diagnosed with COVID-19 by a licensed healthcare provider, the employer must not require that employee to undergo COVID-19 testing as required under paragraph (g) of this section for 90 days following the date of their positive test or diagnosis.*

AIHA agrees with this approach, as the 90-day exemption period is in line with the current CDC position and data. However, it should be noted that current CDC guidance for

quarantine and isolation (updated October 19, 2021)<sup>1</sup> states that “people who had COVID-19, recovered, and completed 10 days of isolation and then during the 90 days following the end of isolation come into close contact with someone with COVID-19 do not have to quarantine or get tested **if they do not have symptoms**” (emphasis added), however those individuals should isolate immediately if symptoms develop.

The CDC lists a few limitations of current evidence regarding infectiousness in the “Isolation Guidance Interim update” dated September 14, 2021<sup>2</sup> that should be kept in mind when applying the 90-day timeframe.

AIHA feels it is worth noting that employers should set a standard for what type of test result and report is adequate for an employee to provide that would indicate the start of the 90-day period. For instance, employers may or may not want to accept evidence of over-the-counter (OTC) rapid tests that lack a lab report indicating the identification, date, and test type for record. AIHA recommends that employers do not reduce or waive any other protective measures in the workplace such as masking, hygiene, and/or physical distancing for employees within their 90-day window, as this can lead to confusion of protocol within the workplace.

We also urge OSHA to consider the data associated with natural immunity and its role in COVID-19 infection prevention.

## **Experience with COVID-19 Vaccination Policies**

AIHA encourages OSHA to clarify that a final rule, if issued, presents options to both employers and employees. The employer should be required to develop, implement, and enforce a COVID-19 vaccination plan. The plan should encourage vaccination; however OSHA should encourage employers to refrain from using the word “mandatory” in their plan.

## **COVID-19 Testing and Removal**

### [1910.501\(g\)\(2\)](#)

*If an employee does not provide documentation of a COVID-19 test result as required by paragraph (g)(1) of this section, the employer must keep that employee removed from the workplace until the employee provides a test result.*

We suggest that OSHA clarifies what type of test result OSHA is referring to, either a negative test result or a positive test result. We also recommend clarifying that removal pertains to a temporary medical removal.

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<sup>1</sup> <https://www.cdc.gov/coronavirus/2019-ncov/your-health/quarantine-isolation.html>

<sup>2</sup> <https://www.cdc.gov/coronavirus/2019-ncov/hcp/duration-isolation.html>

### [1910.501\(h\)\(1\)](#)

*Require each employee to promptly notify the employer when they receive a positive COVID-19 test or are diagnosed with COVID-19 by a licensed healthcare provider;*

We suggest that OSHA reiterates here that this does not apply to employees exempt from the requirements of the ETS (i.e., those that work exclusively outdoors or those that do not come into contact with other employees).

### [1910.501\(h\)\(2\)\(i\)](#)

*Receives a negative result on a COVID-19 nucleic acid amplification test (NAAT) following a positive result on a COVID-19 antigen test if the employee chooses to seek a NAAT test for confirmatory testing;*

We appreciate that OSHA is specifying here what type of test is required; however throughout section 1910.501(g) and 1910.501(h), the types of tests have not been specified. We suggest adding the type of tests that OSHA requires/recommends in these two sections when referring to a “COVID-19 test” or “COVID-19 test result”.

If testing is part of an employers’ infection control and prevention strategy, AIHA strongly urges OSHA to require that COVID-19 tests be paid for by the employer, as opposed to the employee. OSHA should be clear that it is inappropriate for employers to put employees on unpaid leave, bear the cost of testing or personal protective equipment (PPE), or for an employer to engage in any form of retaliation against an employee because an employee is not vaccinated.

We recommend that OSHA encourage employers to promote the importance of SARS-CoV-2 testing, at the employer’s expense, for those employees who are symptomatic of COVID-19.

In a final rule OSHA should explore the role and methods of testing as a control measure and should refer to CDC guidelines. AIHA recommends that OSHA also explore the feasibility of random testing and/or pooled testing for both vaccinated and unvaccinated workers.

## **Modes of Transmission**

The ETS states, in its definitions, that “SARS-CoV-2 is a highly transmissible virus that spreads primarily through the respiratory droplets that are produced when an infected person coughs, sneezes, sings, talks, or breathes.” This definition does not fully capture the manner in which SARS-CoV-2 is transmitted from person to person, while the Preamble provides a fuller examination and explanation of transmission: “COVID-19 spreads when an infected person breathes out droplets as well as very small particles that contain the virus. These droplets and particles can be breathed in by other people or land on their eyes, noses or mouths.” (Preamble, Section I. Face Coverings, p.421)

Small infectious particles are, by far, more hazardous than large droplets. They occur in much higher concentrations than droplets during respiratory exhalations (breathing, talking, etc.) and are much more likely than droplets to remain airborne for long periods of time, during which they can be easily dispersed throughout an indoor space. The SARS-CoV-2 virus is relatively hardy in air, staying viable for many hours, which means that exposures can occur during and after the presence of an infectious person.

We strongly urge OSHA to expand the definition of SARS-CoV-2 in the final rule to encompass both droplet transmission (propulsion of droplets into the face and mucus membranes) and airborne transmission (inhalation of droplets and small particles). While OSHA fails to discuss or require controls other than vaccination, testing or face coverings in the ETS, a definition that encompasses both droplet and airborne (inhalation) as transmission modes for SARS-CoV-2 will encourage employers to consider using a broader range of controls, including engineering controls such as enhanced ventilation and filtration. It will also encourage employers (and the health and safety professionals working for them) to consider both exposure time and airborne concentration as important features of inhalation exposure. Droplet transmission may be a one-time, single event exposure, but airborne (inhalation) exposure requires consideration of on-going exposure over time.

## Face Coverings

Because many workers cannot get vaccinated due to pre-existing health conditions the option to wear a face covering or facemask is a critical element in the ETS and should be maintained in a final rule.

While face coverings can limit the emission and inhalation of larger droplets, OSHA should clarify the definition of an acceptable face covering. The emission and inhalation of smaller particles are an important feature of SARS-CoV-2 exposure and transmission. Work by Lindsley et al. (2021) demonstrated that cloth masks (face coverings) exhibit, on average, 75% inward and outward leakage of small particles. Surgical masks (facemasks) are only slightly better, with an average inward and outward leakage of 50%.<sup>3</sup> A non-fit tested respirator can offer better protection than face coverings or facemasks, with an average inward and outward leakage of 20%.<sup>4</sup>

To illustrate the difference in protection from a face covering, facemask and respirator (fit tested or not), the following table demonstrates the “time to infectious dose” that a worker would experience when the source (infected person) or receptor (uninfected person) (or both) are wearing different types of facepieces.<sup>5</sup> This table builds on the CDC definition of an infectious contact, which is thought to occur during a close encounter lasting 15 cumulative minutes or more in a day. As the table demonstrates, a typical cloth mask (face

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<sup>3</sup>Lindsley WG, Blachere FM, Beezhold DH, et al. A comparison of performance metrics for cloth masks as source control devices for simulated cough and exhalation aerosols. *Aerosol Sci Technol* 2021 Oct 3;55(10):1125-42

<sup>4</sup> Brosseau, Lisa M. "Fit testing respirators for public health medical emergencies." *Journal of occupational and environmental hygiene* 7.11 (2010): 628-632.

<sup>5</sup> <https://www.cidrap.umn.edu/news-perspective/2021/10/commentary-what-can-masks-do-part-1-science-behind-covid-19-protection>

covering) can extend that time to 20 minutes – or just an additional 5 minutes – on the source or receptor. If both are wearing a face covering, the time to an infectious dose is 26 minutes. A facemask extends the time to 30 minutes if worn by the source or receptor if the receiver is wearing nothing, and 40 minutes if both are wearing a facemask. It is only when a respirator (fit tested or otherwise) is worn as source control that the time to infectious dose extends to hours. Caution: As noted below, these timeframes may decrease due to more transmissible variants.

**Table 1. Time to Infectious Dose for an Uninfected Person (Receiver)\***

		Receiver is wearing (% inward leakage)				
		Nothing	Typical cloth mask	Typical surgical mask	Non-fit-tested N95 FFR	Fit-tested N95 FFR
Source is wearing (% outward leakage)						
	Nothing	100%	75%	50%	20%	10%
Nothing	100%	15 min	20 min	30 min	1.25 hr	2.5 hr
Typical cloth mask	75%	20 min	26 min	40 min	1.7 hr	3.3 hr
Typical surgical mask	50%	30 min	40 min	1 hr	2.5 hr	5 hr
Non-fit-tested N95 FFR**	20%	1.25 hr	1.7 hr	2.5 hr	6.25 hr	12.5 hr
Fit-tested N95 FFR	10%	2.5 hr	3.3 hr	5 hr	12.5 hr	25 hr

\*The data for % inward and outward leakage of cloth and surgical masks were derived from a study by Lindsley et al (2021). Data for non-fit-tested N95 FFRs come from a study by Brosseau (2020). Data for fit-tested N95 FFRs are derived from the OSHA-assigned protection factor of 10 for half-facepiece respirators. Also, times were established before wide circulation of the more transmissible Delta variant.

\*\*FFR = filtering facepiece respirator; N95 = not oil-proof, 95% efficient at NIOSH filter test conditions

In light of this data, an option for OSHA would be to consider allowing employees to voluntarily wear N95 respirators in lieu of face coverings and facemasks for source control, similar to OSHA’s COVID-19 Healthcare ETS. The voluntary use of respirators, preferably fit tested, for unvaccinated workers in jobs that involve more than a few minutes of cumulative exposure time over the course of a shift would provide added benefit.

As shown in Table 1, face coverings (cloth masks) and facemasks (surgical and medical masks) are not the first line of defense against COVID-19 and they are far from a “silver bullet” in controlling the spread of this pathogen. While masks are the most visible evidence of compliance for preventing the spread of SARS-CoV-2, they should not be the only form of infection prevention and control. There has been much debate about efficacy of the N95 filtering facepiece respirator (FFR) versus the surgical mask in preventing the spread of this disease. The N95 FFR is clearly superior in personal protection compared to the surgical mask (which is not a form of personal protective equipment). Additionally, the N95 FFR is one of the most widely used respirators in the world (Brosseau & Ann, 2009). As occurred during other pandemics, such as SARS and novel H1N1, the N95 FFR has been called into action to protect workers from SARS-CoV-2 (NIH, NIAID, 2020). The N95 FFR is the

respirator of choice because it is relatively inexpensive, disposable, and has been certified by the National Institute for Occupational Safety and Health (NIOSH) to protect the wearer against harmful airborne contaminants and pathogens and many models of N95 FFRs have been cleared by the FDA as surgical N95 respirators for use in the healthcare industry, where fluid resistance is of concern.

There are key human factor challenges for all workers to properly wear N95 FFRs, including, but not limited to: 1) mask size for fit, form and function; 2) face seal; 3) heat exposure; 4) speech intelligibility; 5) breathing resistance; and 6) anxiety, claustrophobia or other medical conditions that can be exacerbated from the use of tight-fitting respirators.

OSHA should emphasize the importance of N95 respirator fit testing for workers to provide additional worker protection against SARS-CoV-2. It is important that OSHA emphasize that the worker be fit tested and know that, if donned correctly, their respirator has a proper fit to provide the protection necessary. OSHA should encourage voluntary wearers of N95 respirators to conduct a user seal check every time they don the respirator.

It is time for OSHA to make clear the conditions for the voluntary use of respirators. This will help assure workers donning an N95 FFR of their personal protection and increased ability to control the spread of SARS-CoV-2 at the source. Knowing the limitations of wearing N95 FFRs and making them more comfortable to wear during long hours of work will help workers know that their respirator helps protect them from the spread of COVID-19.

## **Other Controls**

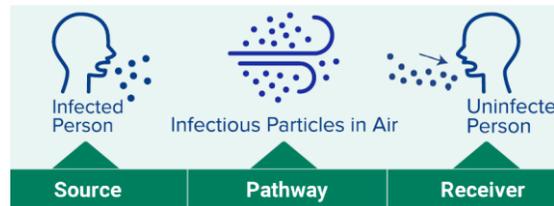
The scope of the ETS is too limited to effectively control SARS-CoV-2 in the workplace because vaccination, while critical, is only one part of the solution in controlling current and future pandemics. The classical approach to controlling all workplace hazards, including biohazards such as SARS-CoV-2, includes the hierarchy of controls with elimination, substitution, engineering controls, administrative controls, and personal protective equipment. This is the typical respective order from most effective to least effective. In the case of the biohazard SARS-CoV-2 and its variants, we must consider the feasibility of each level of the hierarchy.

Beginning with elimination of the viral hazard, not even vaccination eliminates the hazard since vaccinated individuals can still serve as a source of future transmission. To date, technological solutions and controls do not exist to completely eliminate the biohazard; therefore we also must rely on engineering controls, administrative controls and personal protective equipment as a comprehensive “multi-layered” approach. This ETS overlooks engineering controls, such as improved ventilation providing appropriate supply, mixing, filtration, purification, and disinfection of indoor air, despite NIOSH and OSHA guidance and data indicating that poor ventilation can contribute to over half of indoor air quality concerns.

Since the onset of the SARS-CoV-2 pandemic, existing and new technologies for improving indoor air have been available and are being implemented on a large scale. These

technologies include: portable filtration (e.g., HEPA filters); HVAC control system adjustments;; and portable and upper-room UV-C systems.. All of these technologies illustrate germicidal efficacy and/or viral aerosol reductions as well as occupant safety.

AIHA strongly recommends that OSHA include the full range of controls in the final rule. One useful approach for considering controls is a hierarchy that progresses from source to pathway to receiver controls. This approach has been illustrated in an ACGIH fact sheet, available at <https://www.acgih.org/covid-19-fact-sheet-control-banding/> and illustrated below:



Source controls are those that eliminate or minimize the source of infectious aerosols, which means limiting the number of people or time spent in shared spaces. Pathway controls limit the movement of infectious particles from a source to the receiver, either by enclosure, distance, or ventilation. Receiver controls should be implemented only after all source and pathway controls have been put in place; these involve limiting the receiver's inhalation of infection particles, usually by means of personal protective equipment.

Source Controls	Pathway Controls	Receiver Controls
<b>LIMIT NUMBER OF SOURCES OR TIME SPENT IN SHARED SPACES</b> <ul style="list-style-type: none"><li>• Vaccination.</li><li>• Identify &amp; eliminate sources with frequent COVID-19 testing and isolation.</li><li>• Face coverings for public or patients (not workers).</li><li>• Redesign workplace or job to limit sources &amp; contact time.</li></ul>	<b>LIMIT MOVEMENT OF INFECTIOUS PARTICLES FROM SOURCE TO RECEIVER</b> <ul style="list-style-type: none"><li>• Separate and enclose the source or receiver.</li><li>• Increase distance between source and receiver.</li><li>• Remove, replace and clean the air to lower particle concentrations.</li></ul>	<b>LIMIT RECEIVER'S INHALATION OF INFECTIOUS PARTICLES</b> <p>If source and pathway controls do not limit concentration and time, provide fit-tested respirators for medically-cleared workers and a respiratory protection program.</p>

## Reporting and Recordkeeping

The requirement that employers keep each COVID-19 test result as an employee medical record is onerous and AIHA does not support it. Instead, AIHA supports a performance standard where employers have a means to demonstrate how they are ensuring that unvaccinated workers are periodically tested, both vaccinated and unvaccinated workers who are symptomatic are tested, and that those who are positive are effectively treated, isolated, and quarantined and that return to the workplace is controlled.

AIHA encourages employers to identify the source of COVID-19 employee infections; however, current methods of contact tracing employed by most employers may be

ineffective in determining the work-relatedness of infections. We encourage OSHA to work with employers to help develop better methods for identifying COVID-19 employee infections.

## Conclusion and Next Steps

AIHA thanks you for the opportunity to provide feedback on this ETS and proposed final rule. We look forward to our continued work with OSHA to help protect all workers from occupational and environmental health and safety hazards. If you have any questions on these comments or other matters, please contact Mark Ames at [mames@aiha.org](mailto:mames@aiha.org) or (703) 846-0730.

Sincerely,



Lawrence Sloan, MBA, FASAE, CAE  
Chief Executive Officer  
AIHA

## About AIHA

AIHA is the association for scientists and professionals committed to preserving and ensuring occupational and environmental health and safety in the workplace and community. Founded in 1939, we support our members with our expertise, networks, comprehensive education programs, and other products and services that help them maintain the highest professional and competency standards. More than half of AIHA's nearly 8,500 members are Certified Industrial Hygienists and many hold other professional designations. AIHA serves as a resource for those employed across the public and private sectors as well as to the communities in which they work. For more information, please visit [www.aiha.org](http://www.aiha.org).

## References

- Brosseau, L., & Ann, R. B. (2009). N95 respirators and surgical masks. *Centers for Disease Control and Prevention*. <https://blogs.cdc.gov/niosh-science-blog/2009/10/14/n95>
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- Gamio L., (2020, March 15). *The Workers Who Face the Greatest Coronavirus Risk* <https://www.nytimes.com/interactive/2020/03/15/business/economy/coronavirus-worker-risk.html>.