



The National Voice for Direct-Care RNs

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November 3, 2021

Mr. Marty Walsh, Secretary of Labor
Mr. Doug Parker, Assistant Secretary of Labor
U.S. Department of Labor
200 Constitution Avenue, NW
Washington, DC 20210

Dear Secretary Walsh and Assistant Secretary Parker:

On behalf of the more than 175,000 registered nurses represented by National Nurses United, we write to you today regarding the future of the Covid-19 Health Care Emergency Temporary Standard (Covid-19 Health Care ETS).¹ Since its issuance and implementation in June 2021, the Covid-19 Health Care ETS has provided nurses and other health care workers across the country with the tools we need to better ensure we are protected from workplace exposure to SARS-CoV-2. With the Covid-19 Health Care ETS scheduled to sunset in December 2021,² **we strongly urge the U.S. Department of Labor to work quickly towards promulgation of a final standard on Covid-19 in healthcare, and to update and reissue the Covid-19 Health Care ETS until such time as a final standard can be issued.** We further encourage the U.S. Department of Labor to work expediently to issue a permanent infectious disease standard to protect all frontline workers from occupational exposure to aerosol transmissible diseases.

Section 1: OSHA's Covid-19 Health Care ETS Has Improved Protections for Many Nurses, Other Health Care Workers, and Their Patients

Health care employers in the United States have consistently failed to protect nurses, other health care workers, and their patients from Covid-19 over the past 21 months. Before the Covid-19 Health Care ETS was issued, NNU members won improvements in infection control in their facilities through collective action and union advocacy, including winning no reuse of single-use personal protective equipment (PPE), an end to unproven, dangerous "decontamination" of N95 filtering facepiece respirators, and improved access to testing for staff. However, NNU's Covid-19 survey from June and July 2021, which collected results from more than 5,000 health care workers in all 50 states, D.C., and Puerto Rico between June 1 and July 21, 2021, the implementation deadline in OSHA's Covid-19 Health Care ETS, found that many health care employers in the United States still failed to implement essential infection control measures to protect health care workers from Covid-19:³

¹ 29 C.F.R. §1910 Subpart U.

² 29 U.S.C. § 655(c)(3).

³ National Nurses United, "National nurse survey reveals that health care employers need to do more to comply with OSHA emergency temporary standard," Sept 27, 2021, <https://www.nationalnursesunited.org/press/national-nurse-survey-reveals-health-care-employers-need-to-do-more-to-protect-workers>.

- Only two-thirds of hospital nurses reported that all patients are screened for Covid-19 signs and symptoms before or upon arrival at the facility. Less than a third of hospital nurses reported that every patient is tested for Covid before or upon arrival at the facility.
- Only 53 percent of hospital nurses report that every visitor is screened for Covid-19 signs and symptoms before or upon arrival at the facility and a mere 4 percent of nurses reported that all visitors are tested for Covid before or upon arrival.
- Hospital nurses reported that they are not always provided optimal PPE when caring for Covid-positive patients or patients suspected of having Covid-19:
 - About 61 percent of hospital nurses reported wearing a respirator for every Covid-positive patient encounter.
 - Only 40 percent of hospital nurses reported that respirators are worn when caring for patients who are suspected of having Covid-19 or whose tests results are not completed.
 - About 62 percent of hospital nurses reported using surgical masks for patients suspected of having Covid-19 or awaiting test results.
- More than 75 percent of hospital nurses reported not being notified of exposures to Covid-19 in a timely way.

OSHA's Covid-19 Health Care ETS established the first national enforceable standard for health care employers to implement infection control plans to reduce and prevent Covid-19 transmission within health care facilities. This ETS has supported nurses and other health care workers in holding their employers accountable to protect them and their patients from Covid-19. Through collectively organizing and communicating directly with their employers regarding the requirements of the Covid-19 Health Care ETS, union nurses have won improvements to Covid-related health and safety hazards in their facilities, including gaining access to the employer's written Covid-19 policies and procedures and Covid-19 Logs, getting nurses on Covid-19 units fit-tested for N95 filtering facepiece respirators for the first time, and returning all PPE to patient care units instead of being locked up and rationed.

In certain situations where employers have been recalcitrant about following requirements of the Covid-19 Health Care ETS, members of NNU have filed complaints with federal OSHA and OSHA state plans. While OSHA is still conducting investigations in response to many of these complaints, the Covid-19 Health Care ETS has enabled OSHA to more effectively inspect hospital workplaces and to issue citations regarding employers' non-compliance that exposes health care workers to Covid-19. OSHA's action in these situations leads to remedies and improved protections for those health care workers.

For non-union nurses and other health care workers, OSHA's Covid-19 Health Care ETS provides essential protection and, for many non-union health care workers, may be the only protection they have to prevent Covid-19 exposures in the workplace.

Section 2: Because the Covid-19 Pandemic is Far from Over, OSHA Should Issue a Permanent Covid-19 Health Care Standard, Based on an Updated Covid-19 Health Care ETS, to Continue to Protect Nurses and Other Health Care Workers.

The Covid pandemic is far from over. While new daily Covid-19 cases have decreased in recent weeks, the United States is seeing a significant number of new Covid-19 cases reported daily, with a seven-day moving average of 71,207 reported on October 31, 2021.⁴ This represents an increase in the seven-day moving average since October 24, 2021, which saw 62,858 new cases reported.⁵ These reports are likely an undercount.⁶ Additionally, nine states have seen an increase in Covid-19 cases in the past 14 days, including an 81 percent increase in daily new cases in Arizona.⁷ Other countries such as the United Kingdom continue to see resurgence of the highly transmissible Delta (B.1.617.2) SARS-CoV-2 variant, even after cases declined or plateaued.⁸ Further, unfettered widespread transmission has resulted and will continue to result in evolution and spread of new variants of concern. Sub-lineages of the Delta variant are already circulating and spreading in the U.S. and around the world, some of which may have developed increased transmissibility, severity of disease, and/or immune escape.^{9,10} The World Health Organization's International Health Regulations Emergency Committee met recently regarding the status of the Covid-19 pandemic and indicated that "the pandemic is far from finished."¹¹

⁴ U.S. Centers for Disease Control and Prevention, "COVID Data Tracker," November 1, 2021. Available at https://covid.cdc.gov/covid-data-tracker/#trends_dailycases.

⁵ U.S. Centers for Disease Control and Prevention, "COVID Data Tracker," November 1, 2021. Available at https://covid.cdc.gov/covid-data-tracker/#trends_dailycases.

⁶ A study published in July 2021 found that approximately 60 percent of infections have gone unreported in the United States. Irons, N.J. and A.E. Raftery, "Estimating SARS-CoV-2 infections from deaths, confirmed cases, tests, and random surveys," Proceedings of the National Academy of Sciences of the United States of America, Aug 3, 2021, 118(31): e2103272118, <https://www.pnas.org/content/118/31/e2103272118>.

⁷ New York Times analysis, using data from state and local health agencies.

New York Times, "Coronavirus in the U.S.: Latest Map and Case Count, State trends," Updated Nov 2, 2021, <https://www.nytimes.com/interactive/2021/us/covid-cases.html>.

⁸ Our World in Data, "United Kingdom: Coronavirus Pandemic Country Profile, United Kingdom: What is the daily number of confirmed cases?," Updated Nov 1, 2021, <https://ourworldindata.org/coronavirus/country/united-kingdom>.

⁹ U.S. Centers for Disease Control and Prevention, "COVID Data Tracker," November 1, 2021. Available at <https://covid.cdc.gov/covid-data-tracker/#variant-proportions>.

¹⁰ UK Health Security Agency, "SARS-CoV-2 variants of concern and variants under investigation in England, Technical Briefing 27," October 29, 2021, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1029715/technical-briefing-27.pdf

¹¹ World Health Organization, "Statement on the ninth meeting of the International Health Regulations (2005) Emergency Committee regarding the coronavirus disease (COVID-19) pandemic," Oct 26, 2021, [https://www.who.int/news/item/26-10-2021-statement-on-the-ninth-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-coronavirus-disease-\(covid-19\)-pandemic](https://www.who.int/news/item/26-10-2021-statement-on-the-ninth-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-coronavirus-disease-(covid-19)-pandemic).

With no end in sight, a permanent Covid-19 standard is both necessary and vital to protect nurses and other healthcare workers from the grave danger posed by the Covid-19 pandemic. While the Covid-19 vaccines are very effective at preventing severe illness, hospitalization, and death,^{12,13,14} vaccines are not a silver bullet for combatting infectious diseases. Covid-19 vaccines are a critical part of a comprehensive public health program for infection control, but data on breakthrough infections, transmission, and outbreaks underline the importance of maintaining a comprehensive approach to Covid-19 infection control including testing, contact tracing, and isolation.^{15,16,17} Additionally, preliminary studies of Covid-19 breakthrough infections show that vaccination may not effectively prevent post-acute sequelae of Covid-19 or long Covid-19.^{18,19,20} Preventing SARS-CoV-2 transmission while concurrently increasing vaccinations is necessary to maintain the current level of protection that Covid vaccines provide and to prevent the risk of long Covid-19. Covid-19 vaccines must be used within the context of infection control plans such as those required by the Covid-19 Health Care ETS standard.

Therefore, in order to protect nurses and other health care workers from the ongoing Covid-19 pandemic, OSHA should issue a permanent standard, based on an updated Covid-19 Health Care ETS (see Section 3 for recommended updates based upon new and updated scientific evidence). Indeed, Section 6(c) of the Occupational Safety and Health Act (OSH Act) requires that an emergency temporary standard promulgated by OSHA be effective until superseded by a permanent standard promulgated under non-emergency rulemaking

¹² Tenforde et al., “Sustained Effectiveness of Pfizer-BioNTech and Moderna Vaccines Against COVID-19 Associated Hospitalizations Among Adults — United States, March–July 2021,” MMWR Early Release, August 18, 2021, <https://www.cdc.gov/mmwr/volumes/70/wr/mm7034e2.htm>.

¹³ Bajema et al., “Effectiveness of COVID-19 mRNA Vaccines Against COVID-19–Associated Hospitalization – Five Veterans Affairs Medical Centers, United States, February 1 – August 6, 2021, September 10, 2021, <https://www.cdc.gov/mmwr/volumes/70/wr/mm7037e3.htm#:~:text=What%20is%20added%20by%20this,1.617>.

¹⁴ Grannis et al., “Interim Estimates of COVID-19 Vaccine Effectiveness Against COVID-19–Associated Emergency Department or Urgent Care Clinic Encounters and Hospitalizations Among Adults During SARS-CoV-2 B.1.617.2 (Delta) Variant Predominance — Nine States, June–August 2021,” MMWR Early Release, September 10, 2021, <https://www.cdc.gov/mmwr/volumes/70/wr/mm7037e2.htm>.

¹⁵ Farinholt, T., H. Doddapeneni, et al., “Transmission event of SARS-CoV-2 Delta variant reveals multiple vaccine breakthrough infections,” BMC Medicine, Oct 1, 2021, <https://bmcmmedicine.biomedcentral.com/articles/10.1186/s12916-021-02103-4>.

¹⁶ Hagan, L.M., D.W. McCormick, et al., “Outbreak of SARS-CoV-2 B.1.617.2 (Delta) Variant Infections Among Incarcerated Persons in a Federal Prison — Texas, July–August 2021,” MMWR, Sept 24, 2021, https://www.cdc.gov/mmwr/volumes/70/wr/mm7038e3.htm?s_cid=mm7038e3_w.

¹⁷ Jung, J., H. Sung, et al., “Covid-19 Breakthrough Infections in Vaccinated Health Care Workers,” NEJM, Oct 21, 2021, <https://www.nejm.org/doi/full/10.1056/NEJMoa2109072>.

¹⁸ Bergwerk, M., T. Gonen, et al., “Covid-19 Breakthrough Infections in Vaccinated Health Care Workers,” The New England Journal of Medicine, October 14, 2021, <https://www.nejm.org/doi/full/10.1056/NEJMoa2109072>.

¹⁹ Taquet et al., “Six-month sequelae of post-vaccination SARS-CoV-2 infection: a retrospective cohort study of 10,024 breakthrough infections,” medRxiv, October 28, 2021, .

²⁰ While this study reported that the odds of symptoms at 28 or more days after infection were reduced by approximately half in fully vaccinated individuals compared to unvaccinated individuals, it indicates that vaccines may not fully prevent long Covid. Antonelli, M., R.S. Penfold, et al., “Risk factors and disease profile of post-vaccination SARS-CoV-2 infection in UK users of the COVID Symptom Study app: a prospective, community-based, nested, case-control study,” The Lancet Infectious Diseases, Sept 1, 2021, [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(21\)00460-6/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(21)00460-6/fulltext).

procedures for OSHA standards²¹ and that the permanent standard be based on the emergency temporary standard.²² Importantly, Section 6(c)(3) of the OSH Act requires that OSHA promulgate a permanent standard within six months of issuing an emergency temporary standard.²³ In accordance with the statutory requirements of the OSH Act, OSHA should issue a permanent Covid-19 standard, based on the updated Covid-19 Health Care ETS, by December 21, 2021.²⁴

OSHA must take all expeditious and diligent efforts to issue a permanent Covid-19 standard by December 21, 2021. If the time required to issue a permanent Covid-19 Health Care standard despite such expeditious and diligent efforts extends beyond the statutorily required six month period, NNU urges OSHA to update and reissue the Covid-19 Health Care ETS by December 21, 2021, based upon changing conditions of the pandemic (see Section 3), while working to issue a permanent Covid-19 Health Care Standard to ensure ongoing, uninterrupted protection for nurses and other health care workers in the United States. NNU urges OSHA to ensure the permanent standard incorporates updates based upon new evidence and changing pandemic conditions, as outlined in Section 3.

Section 3: While Working to Issue a Permanent Covid-19 Health Care Standard, OSHA Should Update and Reissue the Covid-19 Health Care ETS Based on New and Updated Scientific Evidence and Changing Pandemic Conditions.

While working to issue a permanent standard to protect health care workers from Covid-19, NNU urges OSHA to update and reissue the Covid-19 Health Care ETS to ensure optimal, ongoing, uninterrupted protections for nurses, other health care workers, and their patients. When issuing the Covid-19 Health Care ETS in June, OSHA stated that the agency intended to “continue to monitor trends in COVID-19 infections and deaths as more of the workforce and the general population become vaccinated and the pandemic continues to evolve,” and that where the agency finds “new information indicates a change in measures necessary to address the grave danger, OSHA will update the ETS, as appropriate.”²⁵ The pandemic continues to evolve and new and updated scientific information has emerged; thus, it is appropriate and necessary for OSHA to update the Covid-19 Health Care ETS.

NNU urges OSHA to make the following updates to the Covid-19 Health Care ETS and to include these updates when issuing a permanent standard (scientific evidence and reasoning are provided in more detail below):

1. OSHA should not rely on weak guidance from the U.S. Centers for Disease Control and Prevention (CDC). OSHA’s updated Covid-19 Health Care ETS and permanent

²¹ Section 6(c)(2) of the OSH Act, 29 U.S.C. § 655(c)(2).

²² Section 6(c)(3) of the OSH Act, 29 U.S.C. § 655(c)(3).

²³ 29 U.S.C. § 655(c)(3).

²⁴ Note that Section 6(c)(3) of the OSH Act describes what date OSHA must publish a permanent standard and calculates that date from the date of publication of the emergency temporary standard, not the effective date of the emergency temporary standard.

²⁵ 86 Fed. Reg. 32,376 (June 21, 2021).

standard should require optimal workplace protections for nurses and other health care workers, based on the available scientific evidence and the precautionary principle.

2. OSHA should require employers to proactively establish plans for surge preparation, including plans to expand isolation beds with negative pressure ventilation and HEPA air filtration, plans to provide safe staffing during a surge in Covid-19 patients, and establishment of a PPE stockpile.
3. OSHA should remove all exemptions to the scope of the Covid-19 Health Care ETS when updating the ETS and issuing a permanent standard. The Covid-19 Health Care ETS currently allows exemptions where all employees are fully vaccinated, and all non-employees are screened for Covid-19 prior to entry and individuals who have or may have Covid-19 are not allowed to enter the facility.
4. OSHA should ensure that fully vaccinated individuals and individuals recovered from Covid-19 in the previous 90 days are not exempted from medical removal and medical removal protection benefits.
5. OSHA should require precautionary screening and testing of all patients, visitors, and others entering the facility, including screening for Covid-19 symptoms and recent exposure history to Covid-19 as well as testing using a reliable diagnostic test for SARS-CoV-2.²⁶
6. OSHA should update requirements so that screening of nurses and other health care workers for Covid-19 includes weekly surveillance testing in addition to existing requirements for symptom screening and exposure surveillance. Testing should occur regardless of vaccination status. OSHA should also expand the list of symptoms that trigger medical removal and testing to the full list of symptoms congruent with Covid-19, not the extremely limited symptoms specified in the Covid-19 Health Care ETS.
7. OSHA should require optimal PPE for nurses and other health care workers caring for patients with suspected or confirmed Covid-19. Optimal PPE includes a powered air-purifying respirator (PAPR), virus impervious coveralls that incorporate head and shoe coverings, and medical-grade gloves. NNU urges OSHA to fully ban reuse of single use PPE and to ban the use of decontamination methods to reuse PPE.

²⁶ National Nurses United, “Covid Testing and Screening in Health Care Settings » A Science-Driven Approach to Protecting Patient, Health Care Worker, and Public Health,” June 11, 2021, https://www.nationalnursesunited.org/sites/default/files/nnu/documents/0621_Covid19_IssueBrief_TestingScreening.pdf.

8. OSHA should strengthen the definition of close-contact exposure in the updated Covid-19 Health Care ETS and in issuing a permanent standard to reflect the available scientific evidence regarding aerosol transmission. The CDC's definition of close contact exposure for health care workers (within six feet for cumulative total 15 minutes or more over a 24-hour period)²⁷ is based on arbitrary assumptions and fails to account for up-to-date scientific data and the precautionary principle.
 - NNU commends OSHA on already improving on the CDC's definition of close contact exposure for health care workers in the Covid-19 Health Care ETS by not considering a facemask to be equivalent protection to a respirator. We urge OSHA to maintain this protection in an updated ETS and a permanent standard.
 - OSHA should remove the exemption for exposure notification to staff due to the presence of a Covid-positive patient in areas where suspected and confirmed Covid-19 patients are normally cared for. All staff have the right to be informed of a hazardous exposure that occurs at the worksite, and OSHA should ensure an updated Covid-19 Health Care ETS and permanent standard provides that right to all employees.

9. OSHA should strengthen ventilation and patient isolation requirements, including:
 - Requiring employers to establish dedicated Covid-19 units in the permanent Covid-19 standard and prohibiting mixing Covid-positive patients, patients who may have Covid-19, and patients who do not have Covid-19 in the same units or on the same assignment.
 - Requiring employers to make improvements to ventilation systems to reduce the risk of aerosol transmission in both patient care and non-patient care areas, such as by increasing outdoor air proportion and filtration levels for recirculated air or by placing and maintaining portable high efficiency particulate air (HEPA) filter units.
 - Requiring employers to convert patient rooms to negative pressure/airborne infection isolation ventilation if there is a need for more rooms than exist.

The following subsections summarize new and updated scientific evidence and application of the precautionary principle underlining the nine updates that NNU urges OSHA to make when reissuing the Covid-19 Health Care ETS and to ensure are addressed in a permanent standard.

²⁷ U.S. Centers for Disease Control and Prevention, "Interim Guidance for Managing Healthcare Personnel with SARS-CoV-2 Infection or Exposure to SARS-CoV-2," Updated Sept 10, 2021, <https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-risk-assesment-hcp.html>.

Recommended Updates #1 and #2: OSHA's Covid-19 Health Care ETS Relies Too Heavily on Weak CDC Guidance; OSHA Should Update the ETS Based on the Precautionary Principle and Up-To-Date Scientific Evidence.

In addition to establishing important mandates around Covid-19 plans, PPE, and other workplace protections, OSHA's Covid-19 Health Care ETS draws on and incorporates by reference certain CDC Covid-19 guidance documents.²⁸ It is understandable that, in the face of a novel infectious disease pandemic, OSHA relied upon guidance from the federal government's public health agency. However, it is important to note that CDC guidance falls short in vital ways—CDC guidance fails to recognize the precautionary principle and fails to account for available scientific evidence regarding SARS-CoV-2. The precautionary principle states that taking action to protect people's health should not await scientific certainty of harm. Application of the precautionary principle to decisions about protections is required to protect people's health during a novel infectious disease pandemic, like Covid-19, especially with the frequent mutation, emergence, and spread of variants that are more transmissible, deadlier, and vaccine resistant.^{29,30}

The CDC's guidance on Covid-19 infection control in health care facilities falls short in the following ways:

- The CDC fails to fully recognize that symptom-based testing strategies will miss asymptomatic and pre-symptomatic Covid-19 infections.³¹ Both asymptomatic and pre-symptomatic cases play a significant role in Covid-19 transmission, making up

²⁸ U.S. Occupational Safety and Health Administration, Department of Labor, "Materials Incorporated by Reference in § 1910.502." Available at <https://www.osha.gov/coronavirus/ets/ibr> (Accessed Oct 29, 2021).

²⁹ Many features of the response to the current SARS-CoV-2 pandemic are reminiscent of the SARS outbreak response in 2003. The SARS Commission's Final Report is a detailed account of what happened that very clearly underlines the need to apply the precautionary principle in these kinds of situations and to protect nurses and other health care workers from exposure:

*"Some of the same Ontario hospital leaders who argued against the N95 respirator required to protect nurses and who actually denied there was a safety law that required the N95 to be fit tested still insist that science, as it evolves from day to day, comes before safety. **If the Commission has one single take-home message it is the precautionary principle that safety comes first, that reasonable efforts to reduce risk need not await scientific proof.** Ontario needs to enshrine this principle and to enforce it throughout our entire health system." (13)*

"What we do need is a common-sense approach to worker safety in hospitals coupled with a measure of scientific humility in light of the terrible and sometimes fatal failures in scientific advice and hospital safety systems during the SARS outbreak... It is better to be safe than sorry." (1047)

Campbell, A., The Honourable Mr. Justice (Dec 2006), "The SARS Commission Final Report," online at http://www.archives.gov.on.ca/en/e_records/sars/report/.

³⁰ World Health Organization, "Tracking SARS-CoV-2 variants," Updated Oct 29, 2021, <https://www.who.int/en/activities/tracking-SARS-CoV-2-variants/> (Accessed Oct 30, 2021).

³¹ U.S. Centers for Disease Control and Prevention, "Interim Infection Prevention and Control Recommendations for Healthcare Personnel During the Coronavirus Disease 2019 (COVID-19) Pandemic," Updated Sept 10, 2021, <https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html>.

approximately half of all transmission events.^{32,33} Identification and isolation of all SARS-CoV-2 infections – among patients, visitors, and health care workers – is paramount to preventing transmission within health care facilities. Yet, the CDC still says that “a symptom-based strategy for determining when HCP healthcare personnel with SARS-CoV-2 infection could return to work is preferred in most clinical situations.”³⁴

- The CDC’s definition of “exposure” that warrants precautionary removal from the workplace fails to recognize aerosol transmission of SARS-CoV-2.³⁵
 - The CDC ignores the latest scientific evidence that show that fully vaccinated individuals with asymptomatic breakthrough infections can spread the virus to others.^{36,37} The CDC wrongly excludes fully vaccinated, asymptomatic health care workers from work restriction following exposure.
 - While the CDC guidance acknowledges that exposures to Covid-19 can occur less than 15 minutes and beyond 6 feet, it still fails to fully recognize the latest scientific evidence on aerosol transmission. The CDC currently tells health care employers that, “it is reasonable to consider an exposure of 15 minutes or more as prolonged...the presence of extenuating factors could warrant more aggressive actions even if the cumulative duration is less than 15 minutes.”³⁸ While this is an improvement on previous versions of this

³² Hu, S., W. Wang, et al., “Infectivity, susceptibility, and risk factors associated with SARS-CoV-2 transmission under intensive contact tracing in Hunan, China,” *Nature Communications*, March 9, 2021, <https://www.nature.com/articles/%20s41467-021-21710-6>.

³³ Subramanian, R., Q. He, and M. Pascual, “Quantifying asymptomatic infection and transmission of COVID-19 in New York City using observed cases, serology, and testing capacity,” *PNAS*, March 2, 2021, <https://www.pnas.org/content/118/9/e2019716118>.

³⁴ U.S. Centers for Disease Control and Prevention, “Interim Guidance for Managing Healthcare Personnel with SARS-CoV-2 Infection or Exposure to SARS-CoV-2,” Updated Sept 10, 2021, <https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-risk-assesment-hcp.html>.

³⁵ U.S. Centers for Disease Control and Prevention, “Interim Guidance for Managing Healthcare Personnel with SARS-CoV-2 Infection or Exposure to SARS-CoV-2,” Updated September 10, 2021, <https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-risk-assesment-hcp.html>.

³⁶ Gounder, P.P., M.R. Saint, et al., “COVID-19 Outbreak Among Vaccinated Staff and Residents at a Skilled Nursing Facility in Los Angeles County,” *Infection Control & Hospital Epidemiology*, Sept 21, 2021, <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/covid19-outbreak-among-vaccinated-staff-and-residents-at-a-skilled-nursing-facility-in-los-angeles-county/5ABFEF099CFF861BFD31F94D96058086>.

³⁷ Susky, E.K., S. Hota, et al., “Hospital Outbreak of the SARS-CoV-2 Delta Variant in Partially and Fully Vaccinated Patients and Healthcare Workers in Toronto, Canada,” *Infection Control & Hospital Epidemiology*, October 28, 2021, <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/abs/hospital-outbreak-of-the-sarscov2-delta-variant-in-partially-and-fully-vaccinated-patients-and-healthcare-workers-in-toronto-canada/9E02D8008E995B8D52A8BF166BE85189>

³⁸ U.S. Centers for Disease Control and Prevention, “Interim Guidance for Managing Healthcare Personnel with SARS-CoV-2 Infection or Exposure to SARS-CoV-2,” Updated September 10, 2021, <https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-risk-assesment-hcp.html>.

guidance document, this language gives too much space for interpretation by employers.

- The CDC still fails to account for the fact that face masks and respirators are not equivalent levels of protection. Transmission even with the use of face masks and surgical masks has been documented.^{39,40,41} The CDC erroneously assumes equivalency between face masks and respirators in determining whether a health care worker has been exposed (row 1 of the table in this guidance).⁴²
- Despite repeated surges of Covid-19 cases, many of which continue to be driven by new variants of concern that have emerged and spread since the beginning of the pandemic such as the Alpha and Delta variants, the CDC maintains guidance on crisis standards on its website—referred to as “optimization” and “mitigation” strategies.^{43,44} While the CDC has added notes regarding current non-applicability of many of these guidance documents, the CDC can reactivate these dangerous crisis standards in a future surge. These crisis standards have been used by health care employers to neglect preparations for future surges in Covid-19 cases and to race to the lowest standard, such as by embracing reuse of single-use PPE and unproven decontamination processes rather than more protective respirators designed to be reusable such as powered air-purifying respirators (PAPRs) and elastomeric respirators.

Recommended Update #1: OSHA should not rely on weak CDC guidance. OSHA’s updated Covid-19 Health Care ETS and permanent standard should require the optimal workplace protections for nurses and other health care workers, based on the available scientific evidence and the precautionary principle.

Recommended Update #2: OSHA should require employers to proactively establish plans for surge preparation, including plans to expand isolation beds with negative pressure ventilation and HEPA air filtration, plans to provide safe staffing during a surge in Covid-19

³⁹ Goldberg, L., Y. Levinsky, et al., “SARS-CoV-2 Infection Among Health Care Workers Despite the Use of Surgical Masks and Physical Distancing—the Role of Airborne Transmission,” *Open Forum Infectious Diseases*, January 27, 2021, <https://academic.oup.com/ofid/advance-article/doi/10.1093/ofid/ofab036/6121257>.

⁴⁰ Klompas, M., M.A. Baker, et al., “A SARS-CoV-2 Cluster in an Acute Care Hospital,” *Annals of Internal Medicine*, February 9, 2021, <https://www.acpjournals.org/doi/full/10.7326/M20-7567>.

⁴¹ Pringle, J.C., J. Leikauskas, et al., “COVID-19 in a Correctional Facility Employee Following Multiple Brief Exposures to Persons with COVID-19 — Vermont, July–August 2020,” *MMWR Early Release*, October 30, 2020, <https://www.cdc.gov/mmwr/volumes/69/wr/mm6943e1.htm>.

⁴² U.S. Centers for Disease Control and Prevention, “Interim Guidance for Managing Healthcare Personnel with SARS-CoV-2 Infection or Exposure to SARS-CoV-2,” Updated September 10, 2021, <https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-risk-assesment-hcp.html>.

⁴³ U.S. Centers for Disease Control and Prevention, “Optimizing Personal Protective Equipment (PPE) Supplies,” Updated July 16, 2020, <https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/index.html>.

⁴⁴ U.S. Centers for Disease Control and Prevention, “Strategies to Mitigate Healthcare Personnel Staffing Shortages,” Updated March 10, 2021, <https://www.cdc.gov/coronavirus/2019-ncov/hcp/mitigating-staff-shortages.html>.

patients, and establishment of a PPE stockpile. To include PPE stockpile requirements in the updated Covid-19 Health Care ETS and permanent standard, OSHA should follow the model established in California Labor Code Sec. 6403.3 by California Assembly Bill 2537 (2019-2020 Session), sponsored by the California Nurses Association/NNU and signed into law in September 2020, which now requires California hospitals to create and maintain a three-month stockpile of new N95 filtering facepiece respirators, gowns, and other PPE.⁴⁵

Recommended Updates #3 and #4: Based on New Data about the Delta Variant and Covid-19 Vaccines, and in Preparation for New Variants of Concern that May Emerge and Spread, OSHA Should Remove Any and All Exemptions Based on Covid-19 Vaccination.

OSHA's Covid-19 Health Care ETS currently provides exemptions to the scope of the ETS and to the medical removal and medical removal protection benefits protections subsection based on employee Covid-19 vaccinations:

- The Covid-19 Health Care ETS exempts well-defined hospital ambulatory care settings where all employees are fully vaccinated, and all non-employees are screened for Covid-19 prior to entry and individuals who have or may have Covid-19 are not allowed to enter the facility.⁴⁶
- For hospitals and other settings covered by the Covid-19 Health Care ETS, exemptions from certain subsections pertaining to facemask usage, physical distancing, and physical barriers are provided for fully vaccinated employees in well-defined areas.
- Fully vaccinated employees and employees who have had a SARS-CoV-2 infection in the previous 90 days are not required to be medically removed from the workplace following an exposure to Covid-19 unless they are experiencing the limited symptoms specified in the ETS.⁴⁷

These exemptions were premature in June when the Covid-19 Health Care ETS was issued—symptom-based screening of patients and visitors does not provide assurance that all SARS-CoV-2 infections will be identified and, while Covid-19 vaccines are effective at preventing severe illness and death, the vaccines are not 100 percent effective.⁴⁸ Now, with

⁴⁵ See National Nurses United, “New law requiring hospitals to maintain a three-month supply of PPE takes effect April 1,” March 31, 2021, <https://www.nationalnursesunited.org/press/new-law-requiring-hospitals-maintain-three-month-supply-of-ppe-takes-effect-april-1>.

California Assembly Bill 2537 was codified at Cal. Code Lab. § 6403.3.

⁴⁶ 29 C.F.R. §1910.502(a)(2)(iv)

⁴⁷ 29 C.F.R. §1910.502(a)(4) and (l)(4)(iii)(B)

⁴⁸ Bajema, K.L., R.M. Dahl, et al., “Effectiveness of COVID-19 mRNA Vaccines Against COVID-19–Associated Hospitalization – Five Veterans Affairs Medical Centers, United States, February 1 – August 6, 2021, September 10, 2021, <https://www.cdc.gov/mmwr/volumes/70/wr/mm7037e3.htm#:~:text=What%20is%20added%20by%20this,1.617>.

new data about the Delta variant and updated data on the Covid-19 vaccines, and in preparation for new variants of concern that may emerge and spread, OSHA should remove all exemptions based on vaccination status and Covid-19 screening when updating and reissuing the Covid-19 Health Care ETS and issuing a permanent standard.

New evidence regarding the Delta variant and Covid-19 vaccines has emerged since OSHA issued the Covid-19 Health Care ETS that underlines the importance of vaccines in the context of a broader infection control plan. The Delta variant is significantly more transmissible, is tied to increased severity of infection, and evades immune protection compared to the wildtype strain and other variants:

- People infected with the Delta variant shed significantly more virus earlier in the course of infection. A report on epidemiological data from China found a shorter incubation period with the Delta variant (4.0 days vs 6.0 days) and longer duration of viral shedding with the Delta variant (14.0 vs 8.0 days) compared to the wildtype strain.⁴⁹ Viral loads are approximately 1000 times higher among individuals infected with the Delta variant than earlier strains,^{50,51} and may reach peak viral loads more quickly after exposure (approximately 3.7 days from exposure to viral load peak with the Delta variant compared to 5.61 and 4.00 days in previous peaks with other variants).⁵²

Farinholt, T., H. Doddapeneni, et al., “Transmission event of SARS-CoV-2 Delta variant reveals multiple vaccine breakthrough infections,” *BMC Medicine*, Oct 1, 2021, <https://bmcmmedicine.biomedcentral.com/articles/10.1186/s12916-021-02103-4>.

Grannis, S.J., E.A. Rowley, et al., “Interim Estimates of COVID-19 Vaccine Effectiveness Against COVID-19–Associated Emergency Department or Urgent Care Clinic Encounters and Hospitalizations Among Adults During SARS-CoV-2 B.1.617.2 (Delta) Variant Predominance — Nine States, June–August 2021,” *MMWR Early Release*, September 10, 2021, <https://www.cdc.gov/mmwr/volumes/70/wr/mm7037e2.htm>.

Hagan, L.M., D.W. McCormick, et al., “Outbreak of SARS-CoV-2 B.1.617.2 (Delta) Variant Infections Among Incarcerated Persons in a Federal Prison — Texas, July–August 2021,” *MMWR*, Sept 24, 2021, https://www.cdc.gov/mmwr/volumes/70/wr/mm7038e3.htm?s_cid=mm7038e3_w.

Jung, J., H. Sung, et al., “Covid-19 Breakthrough Infections in Vaccinated Health Care Workers,” *NEJM*, Oct 21, 2021, <https://www.nejm.org/doi/full/10.1056/NEJMoa2109072>.

Tenforde, M.W., W.H. Self, et al., “Sustained Effectiveness of Pfizer-BioNTech and Moderna Vaccines Against COVID-19 Associated Hospitalizations Among Adults — United States, March–July 2021,” *MMWR Early Release*, August 18, 2021, <https://www.cdc.gov/mmwr/volumes/70/wr/mm7034e2.htm>.

⁴⁹ Wang, Y., R. Chen, et al., “Transmission, viral kinetics and clinical characteristics of the emergent SARS-CoV-2 Delta VOC in Guangzhou, China,” *EClinicalMedicine* Published by The Lancet, Sept 12, 2021, [https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370\(21\)00409-0/fulltext](https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(21)00409-0/fulltext).

⁵⁰ Li, B., A. Deng, et al., “Viral infection and transmission in a large well-traced outbreak caused by the Delta SARS-CoV-2 variant,” *Virological*, July 7, 2021, <https://virological.org/t/viral-infection-and-transmission-in-a-large-well-traced-outbreak-caused-by-the-delta-sars-cov-2-variant/724>.

⁵¹ Linsenmeyer, K., K. Gupta, et al., “Cryptic Transmission of the Delta Variant AY.3 Sublineage of SARS-CoV-2 among Fully Vaccinated Patients on an Inpatient Ward,” *medRxiv*, Aug 10, 2021, <https://www.medrxiv.org/content/10.1101/2021.08.05.21261562v1>.

⁵² Li, B., A. Deng, et al., “Viral infection and transmission in a large well-traced outbreak caused by the Delta SARS-CoV-2 variant,” *Virological*, July 7, 2021, <https://virological.org/t/viral-infection-and-transmission-in-a-large-well-traced-outbreak-caused-by-the-delta-sars-cov-2-variant/724>.

- Public Health England reported secondary attack rates for contacts of cases were higher with the Delta variant (12.4 percent) compared to the Alpha variant (8.2 percent).⁵³ Similarly, an outbreak investigation report published in the Morbidity and Mortality Weekly Report (MMWR) reported high facility and household attack rates of 20 percent and 53 percent, respectively.⁵⁴

Several reports have documented higher rates of hospitalization, intensive care unit admission, oxygen requirement, and death associated with the Delta variant compared to previous strains.^{55,56,57} While the Covid-19 vaccines remain highly effective at preventing severe illness, hospitalization, and death,^{58,59,60} there is evidence of immune escape and decreased vaccine effectiveness against infection has been well-documented with the Delta variant:

- Studies have found reduced neutralization of the Delta variant by sera from vaccinated individuals,⁶¹ a mutation in the spike protein of Delta (E484K) is associated with increased infection rates in vaccinated persons,⁶² and higher rates

⁵³ Public Health England, “SARS-CoV-2 variants of concern and variants under investigation in England: Technical briefing 14,” June 3, 2021, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/991343/Variants_of_Concern_VOC_Technical_Briefing_14.pdf (Accessed Oct 29, 2021).

⁵⁴ Dougherty, K., M. Mannell, et al., “SARS-CoV-2 B.1.617.2 (Delta) Variant COVID-19 Outbreak Associated with a Gymnastics Facility — Oklahoma, April–May 2021,” MMWR, July 16, 2021, <https://www.cdc.gov/mmwr/volumes/70/wr/mm7028e2.htm>.

⁵⁵ Ong, S.W.X., C.J. Chiew, et al., “Clinical and virological features of SARS-CoV-2 variants of concern: a retrospective cohort study comparing B.1.1.7 (Alpha), B.1.315 (Beta), and B.1.617.2 (Delta),” Clin Infect Dis, Aug 23, 2021, <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab721/6356459>.

⁵⁶ Sheikh, A., J. McMenamin, et al., “SARS-CoV-2 Delta VOC in Scotland: demographics, risk of hospital admission, and vaccine effectiveness,” The Lancet, June 14, 2021, [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)01358-1/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)01358-1/fulltext).

⁵⁷ Fisman, D.N. and A.R. Tuite, “Progressive Increase in Virulence of Novel SARS-CoV-2 Variants in Ontario, Canada,” medRxiv, Aug 4, 2021, <https://www.medrxiv.org/content/10.1101/2021.07.05.21260050v3>.

⁵⁸ Griffin, J.B., M. Haddix, et al., “SARS-CoV-2 Infections and Hospitalizations Among Persons Aged ≥16 Years, by Vaccination Status — Los Angeles County, California, May 1–July 25, 2021,” MMWR, Aug 27, 2021, <https://www.cdc.gov/mmwr/volumes/70/wr/mm7034e5.htm>.

⁵⁹ Scobie, H.M., A.G. Johnson, et al., “Monitoring Incidence of COVID-19 Cases, Hospitalizations, and Deaths, by Vaccination Status — 13 U.S. Jurisdictions, April 4–July 17, 2021,” MMWR, Sept 17, 2021, <https://www.cdc.gov/mmwr/volumes/70/wr/mm7037e1.htm>.

⁶⁰ Grannis, S.J., E.A. Rowley, et al., “Interim Estimates of COVID-19 Vaccine Effectiveness Against COVID-19–Associated Emergency Department or Urgent Care Clinic Encounters and Hospitalizations Among Adults During SARS-CoV-2 B.1.617.2 (Delta) Variant Predominance — Nine States, June–August 2021,” MMWR, Sept 10, 2021, <https://www.cdc.gov/mmwr/volumes/70/wr/mm7037e2.htm>.

⁶¹ Planas, D., D. Veyer, et al., “Reduced sensitivity of SARS-CoV-2 variant Delta to antibody neutralization,” Nature, July 8, 2021, <https://www.nature.com/articles/s41586-021-03777-9>.

⁶² Feder, K.A., A. Patel, et al., “Association of E484K spike protein mutation with SARS-CoV-2 infection in vaccinated persons—Maryland, January – May 2021,” Clin Infect Dis, Sept 2, 2021, <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab762/6362726>.

of breakthrough infections and outbreaks among fully vaccinated individuals with the Delta variant.^{63,64,65,66,67,68}

- In a cohort of health care workers and other frontline workers who were tested for SARS-CoV-2 weekly, vaccine effectiveness against infection declined from 91 percent before predominance of the Delta variant to 66 percent since the Delta variant became predominant.⁶⁹
- Breakthrough infections, especially with the Delta variant, can result in onward transmission.^{70,71,72} A study published in *The Lancet Infectious Diseases* reported that onward transmission to exposed fully vaccinated household contacts was similar to exposed unvaccinated household contacts (25 percent vs 23 percent), and that 39 percent of infections in fully vaccinated contacts arose from fully vaccinated

⁶³ Baj, A., F. Novazzi, et al., “Breakthrough Infections of E484K-Harboring SARS-CoV-2 Delta Variant, Lombardy, Italy,” *Emerging Infectious Diseases*, Sept 9, 2021, https://wwwnc.cdc.gov/eid/article/27/12/21-1792_article.

⁶⁴ Fowlkes, A., M. Gaglani, et al., “Effectiveness of COVID-19 Vaccines in Preventing SARS-CoV-2 Infection Among Frontline Workers Before and During B.1.617.2 (Delta) Variant Predominance — Eight U.S. Locations, December 2020–August 2021,” *MMWR* Aug 24, 2021, <https://www.cdc.gov/mmwr/volumes/70/wr/mm7034e4.htm>.

⁶⁵ Tene, Y., K. Levytskyi, et al., “An outbreak of SARS-CoV-2 infections among hospital personnel with high mRNA vaccine uptake,” *Infection Control & Hospital Epidemiology*, Sept 20, 2021, <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/an-outbreak-of-sarscov2-infections-among-hospital-personnel-with-high-mrna-vaccine-uptake/7CAB2EFD0F1473AA3689F26782535472>.

⁶⁶ Nanduri, S., T. Pilishvili, et al., “Effectiveness of Pfizer-BioNTech and Moderna Vaccines in Preventing SARS-CoV-2 Infection Among Nursing Home Residents Before and During Widespread Circulation of the SARS-CoV-2 B.1.617.2 (Delta) Variant — National Healthcare Safety Network, March 1–August 1, 2021,” *MMWR*, Aug 27, 2021, <https://www.cdc.gov/mmwr/volumes/70/wr/mm7034e3.htm>.

⁶⁷ Keehner, J., L.E. Horton, et al., “Resurgence of SARS-CoV-2 Infection in a Highly Vaccinated Health System Workforce,” *NEJM*, Sept 1, 2021, <https://www.nejm.org/doi/10.1056/NEJMc2112981>.

⁶⁸ Tartof, S.Y., J.M. Slezak, et al., “Effectiveness of mRNA BNT162b2 COVID-19 vaccine up to 6 months in a large integrated health system in the USA: a retrospective cohort study,” *The Lancet*, Oct 4, 2021, [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)02183-8/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)02183-8/fulltext).

⁶⁹ Fowlkes, A., M. Gaglani, et al., “Effectiveness of COVID-19 Vaccines in Preventing SARS-CoV-2 Infection Among Frontline Workers Before and During B.1.617.2 (Delta) Variant Predominance — Eight U.S. Locations, December 2020–August 2021,” *MMWR* Aug 24, 2021, <https://www.cdc.gov/mmwr/volumes/70/wr/mm7034e4.htm>.

⁷⁰ Farinholat, T., H. Doddapeneni, et al., “Transmission event of SARS-CoV-2 Delta variant reveals multiple vaccine breakthrough infections,” *BMC Medicine*, Oct 1, 2021, <https://bmcmmedicine.biomedcentral.com/articles/10.1186/s12916-021-02103-4>.

⁷¹ Hagan, L.M., D.W. McCormick, et al., “Outbreak of SARS-CoV-2 B.1.617.2 (Delta) Variant Infections Among Incarcerated Persons in a Federal Prison — Texas, July–August 2021,” *MMWR*, Sept 24, 2021, https://www.cdc.gov/mmwr/volumes/70/wr/mm7038e3.htm?s_cid=mm7038e3_w.

⁷² Jung, J., H. Sung, et al., “Covid-19 Breakthrough Infections in Vaccinated Health Care Workers,” *NEJM*, Oct 21, 2021, <https://www.nejm.org/doi/full/10.1056/NEJMoa2109072>.

epidemiologically linked index cases.⁷³ Outbreaks can occur even with a high proportion of vaccinated individuals, including in health care facilities.^{74,75,76,77}

- Authors of a study published in *Nature* concluded that, “Compromised vaccine efficacy against the highly fit and immune evasive B.1.617.2 Delta variant warrants continued infection control measures in the post-vaccination era.”⁷⁸

Additional information has been reported regarding the impacts of post-acute sequelae of Covid-19 or long Covid-19, which can have long-term, disruptive impacts that should not be downplayed or ignored. Long Covid-19 has been found to impact and disrupt most major organ systems.^{79,80,81} Long-term, serious impacts can occur even when initial infection was mild or asymptomatic.⁸² For instance, researchers in the U.K. found a significant loss of grey matter thickness or volume in several regions of the brain of Covid survivors whose initial infections were mild to moderate or asymptomatic.⁸³ Another study found an increased number of damaged blood vessels, signifying microvascular pathology

⁷³ Singanayagam, A., S. Hakki, et al., “Community transmission and viral load kinetics of the SARS-CoV-2 delta (B.1.617.2) variant in vaccinated and unvaccinated individuals in the UK: a prospective, longitudinal, cohort study,” *The Lancet Infectious Diseases*, Oct 29, 2021, [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(21\)00648-4/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(21)00648-4/fulltext).

⁷⁴ Brown, C.M., J. Vostok, et al., “Outbreak of SARS-CoV-2 Infections, Including COVID-19 Vaccine Breakthrough Infections, Associated with Large Public Gatherings — Barnstable County, Massachusetts, July 2021,” *MMWR*, Aug 6, 2021, <https://www.cdc.gov/mmwr/volumes/70/wr/mm7031e2.htm>.

⁷⁵ Gounder, P.P., M.R. Saint, et al., “Coronavirus disease 2019 (COVID-19) outbreak among vaccinated staff and residents at a skilled nursing facility in Los Angeles County,” *Infection Control & Hospital Epidemiology*, Sept 21, 2021, <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/covid19-outbreak-among-vaccinated-staff-and-residents-at-a-skilled-nursing-facility-in-los-angeles-county/5ABFEF099CF861BFD31F94D96058086>.

⁷⁶ Tene, Y., K. Levytskyi, et al., “An outbreak of severe acute respiratory coronavirus virus 2 (SARS-CoV-2) infections among hospital personnel with high mRNA vaccine uptake,” *Infection Control & Hospital Epidemiology*, Sept 20, 2021, <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/abs/an-outbreak-of-sarscov2-infections-among-hospital-personnel-with-high-mrna-vaccine-uptake/7CAB2EFD0F1473AA3689F26782535472>.

⁷⁷ Keener, J., L.E. Horton, et al., “Resurgence of SARS-CoV-2 Infection in a Highly Vaccinated Health System Workforce,” *NEJM*, Sept 30, 2021, <https://www.nejm.org/doi/10.1056/NEJMc2112981>.

⁷⁸ Mlcochova, P., S.A. Kemp, et al., “SARS-CoV-2 B.1.617.2 Delta variant replication and immune evasion,” *Nature*, Sept 6, 2021, <https://www.nature.com/articles/s41586-021-03944-y>.

⁷⁹ Al-Aly, Z., Y. Xie, and B. Bowe, “High-dimensional characterization of post-acute sequelae of COVID-19,” *Nature*, April 22, 2021, <https://www.nature.com/articles/s41586-021-03553-9>.

⁸⁰ Evans et al., “Physical, cognitive, and mental health impacts of COVID-19 after hospitalisation (PHOSP-COVID): a UK multicentre, prospective cohort study,” *The Lancet Respiratory Medicine*, October 7, 2021, <https://www.sciencedirect.com/science/article/pii/S2213260021003830?via%3Dihub>

⁸¹ Davis et al., “Characterizing long COVID in an international cohort: 7 months of symptoms and their impact,” *EClinicalMedicine*, July 15, 2021, [https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370\(21\)00299-6/fulltext](https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(21)00299-6/fulltext)

⁸² National Nurses United, “Scientific Brief: Long Covid and Its Implications,” June 25, 2021, https://www.nationalnursesunited.org/sites/default/files/nnu/graphics/documents/0621_Covid19_HS_ScientificBrief_LongCovid.pdf.

⁸³ Douaud, G., S. Lee, et al., “Brain imaging before and after COVID-19 in UK Biobank,” *medRxiv*, August 18, 2021, <https://www.medrxiv.org/content/10.1101/2021.06.11.21258690v3>

in the brains of SARS-CoV-2-infected individuals.⁸⁴ Preliminary evidence indicates that vaccines may not effectively prevent long Covid-19.^{85,86,87}

Additionally, reports indicate that previous SARS-CoV-2 infection does not necessarily result in ongoing, long-term protection against future infections.⁸⁸ For example, a study published in the journal *Clinical Microbiology and Infection* reported on reinfection rates in a cohort of approximately 75,000 individuals who had a previous positive test for SARS-CoV-2.⁸⁹ In this cohort, hospitalization was more common at reinfection than initial infection (11.4 percent vs 5.4 percent). Additionally, a study published in the *Journal of Infectious Disease* reported that, while the mean time to reinfection in a cohort was 89.1 days, the 95 percent confidence interval ranged from 75.3 to 103.5 days, indicating that reinfections can occur at intervals shorter than 90 days.⁹⁰

Further, there are increasing reports of sub-lineages of the Delta variant emerging and spreading in the United States and other countries. Public Health England is tracking increasing sub-lineages of the Delta variant with additional mutations in spike proteins that may lead to increased transmissibility, severity of disease, and/or immune escape.⁹¹ The Nevada State Public Health Laboratory recently identified a reinfection with Delta sub-lineage AY.26 in an unvaccinated, young individual with no underlying health conditions just 22 days after an initial Delta variant infection.⁹² In such situations, the precautionary

⁸⁴ Wenzel, J., J. Lampe, et al., “The SARS-CoV-2 main protease M^{pro} causes microvascular brain pathology by cleaving NEMO in brain endothelial cells,” *Nature Neuroscience*, October 21, 2021, <https://www.nature.com/articles/s41593-021-00926-1>

⁸⁵ Taquet, M., Q. Dercon, et al., “Six-month sequelae of post-vaccination SARS-CoV-2 infection: a retrospective cohort study of 10,024 breakthrough infections,” *medRxiv*, October 28, 2021, <https://www.medrxiv.org/content/10.1101/2021.10.26.21265508v2>.

⁸⁶ Bergwerk, M., T. Gonen, et al., “Covid-19 Breakthrough Infections in Vaccinated Health Care Workers, The New England Journal of Medicine, October 14, 2021, <https://www.nejm.org/doi/full/10.1056/NEJMoa2109072>

⁸⁷ While this study reported that the odds of symptoms at 28 or more days after infection were reduced by approximately half in fully vaccinated individuals compared to unvaccinated individuals, it indicates that vaccines may not fully prevent long Covid. Antonelli, M., R.S. Penfold, et al., “Risk factors and disease profile of post-vaccination SARS-CoV-2 infection in UK users of the COVID Symptom Study app: a prospective, community-based, nested, case-control study,” *The Lancet Infectious Diseases*, Sept 1, 2021, [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(21\)00460-6/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(21)00460-6/fulltext).

⁸⁸ Letizia, A.G., Y. Ge, et al., “SARS-CoV-2 seropositivity and subsequent infection risk in healthy young adults: a prospective cohort study,” *The Lancet Respiratory Medicine*, April 15, 2021, [https://www.thelancet.com/journals/lanres/article/PIIS2213-2600\(21\)00158-2/fulltext](https://www.thelancet.com/journals/lanres/article/PIIS2213-2600(21)00158-2/fulltext).

⁸⁹ Slezak, J., K. Bruxvoort, et al., “Rate and severity of suspected SARS-Cov-2 reinfection in a cohort of PCR-positive COVID-19 patients,” *Clinical Microbiology and Infection*, Aug 18, 2021, [https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X\(21\)00422-5/fulltext](https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X(21)00422-5/fulltext).

⁹⁰ Biggerstaff, B.J., L.J. Akinbami, et al., “Duration of Viral Nucleic Acid Shedding and Early Reinfection with the Severe Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) in Health Care Workers and First Responders,” *J Infect Dis*, Oct 5, 2021, <https://academic.oup.com/jid/advance-article/doi/10.1093/infdis/jiab504/6381635>.

⁹¹ UK Health Security Agency, “SARS-CoV-2 variants of concern and variants under investigation in England, Technical Briefing 27,” October 29, 2021, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1029715/technical-briefing-27.pdf

⁹² Gorzalski, A., C. Boyles, et al., “Rapid Repeat Infection of SARS-CoV-2 by Two Highly Distinct Delta-Sub-Lineage Viruses,” *SSRN*, Oct 21, 2021, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3940720.

principle should determine protections—start with or maintain the highest level of protections; we can take layers off as we go, but we cannot add them back after the fact.

Recommended Update #3: Based on this updated scientific information regarding Delta variant immune escape, transmission from breakthrough infections, the potential for long-term health harm from breakthrough infections, reports of Delta sub-lineage and new variants, and the precautionary principle, OSHA should remove all exemptions to the scope and application of the Covid-19 Health Care ETS when updating the ETS and issuing a permanent standard.⁹³

Recommended Update #4: OSHA should ensure in the updated Covid-19 Health Care ETS and in a permanent standard that fully vaccinated individuals and individuals recovered from Covid-19 in the previous 90 days are not exempted from medical removal and medical removal protection benefits protections.⁹⁴

Recommended Updates #5 and #6: Given New Data on the Delta Variant and Increasing Data on Asymptomatic and Pre-symptomatic Transmission, OSHA Should Strengthen Screening, Testing, and Contact Tracing Requirements in the Covid-19 Health Care ETS.

OSHA's Covid-19 Health Care ETS currently requires covered health care employers to limit and monitor points of entry to health care facilities and screen and triage all patients, clients, visitors, contractors, and others entering the facility for Covid-19, and to screen employees before each workday and each shift.⁹⁵ As stated above, the Covid-19 Health Care ETS exempts non-hospital ambulatory care settings from the standard where all non-employees are screened prior to entry and people with suspected or confirmed Covid-19 are not permitted to enter.⁹⁶ The Covid-19 Health Care ETS defines screening for Covid-19 as “asking questions to determine whether a person is COVID-19 positive or has symptoms of COVID-19.”⁹⁷ OSHA's definition of screening for Covid-19 should be updated based upon increasing data regarding asymptomatic and pre-symptomatic transmission of SARS-CoV-2 as well as new information regarding the Delta variant.

Additionally, the Covid-19 Health Care ETS defines a specific list of symptoms that trigger medical removal and SARS-CoV-2 testing: recent loss of taste and/or smell with no other explanation or both fever ($\geq 100.4^{\circ}\text{F}$) and new unexplained cough associated with shortness of breath. This list of symptoms is too limited to be effective and should be expanded when OSHA updates the Covid-19 Health Care ETS and issues a permanent standard.

⁹³ Including all exemptions based on vaccination status and Covid-19 screening of patients and visitors in 29 C.F.R. §1910.502(a)(2)(iv) and (a)(4).

⁹⁴ 29 C.F.R. §1910.502(l)(4)(iii)(B).

⁹⁵ 29 C.F.R. §1910.502(d) and (l)(1).

⁹⁶ 29 C.F.R. §1910.502(a)(2)(ii).

⁹⁷ 29 C.F.R. §1910.502(b).

OSHA should update the Covid-19 Health Care ETS based on the new information about the Delta variant summarized above in addition to scientific data regarding the role asymptomatic and pre-symptomatic cases play in transmission of SARS-CoV-2:

- A high proportion of SARS-CoV-2 cases are asymptomatic.⁹⁸ Individuals who are infected with SARS-CoV-2 but not showing symptoms— asymptomatic or pre-symptomatic case— can shed infectious virus and transmit SARS-CoV-2.⁹⁹ In fact, studies estimate that approximately half of all SARS-CoV-2 transmission events come from cases that are asymptomatic or pre-symptomatic at the time of onward transmission.¹⁰⁰ A study published in the journal *Clinical Infectious Diseases*

⁹⁸ Sah, P., M.C. Fitzpatrick, et al., “Asymptomatic SARS-CoV-2 infection: A systematic review and meta-analysis,” *Proceedings of the National Academy of Sciences of the United States of America*, Aug 24, 2021, <https://www.pnas.org/content/118/34/e2109229118.short>.

⁹⁹ Krieg, S.J., J.J. Schnur, et al., “Symptomatic, Presymptomatic, and Asymptomatic Transmission of SARS-CoV-2,” *medRxiv*, July 8, 2021, <https://www.medrxiv.org/content/10.1101/2021.07.08.21259871v1>.

Xiao, T., Wang, Y., et al., “Early Viral Clearance and Antibody Kinetics of COVID-19 Among Asymptomatic Carriers,” *Frontiers in Medicine*, March 15, 2021, <https://www.frontiersin.org/articles/10.3389/fmed.2021.595773/full>.

Rothe C., Schunk M., Sothmann P., et al., “Transmission of 2019-nCoV Infection from an Asymptomatic Contact in Germany.” *NEJM*, Jan 30, 2021, https://www.nejm.org/doi/full/10.1056/NEJMc2001468?query=featured_home.

Zhang, W., Cheng, W., et al., “Secondary Transmission of Coronavirus Disease from Presymptomatic Persons, China,” *Emerging Infectious Diseases*, August 2020, https://wwwnc.cdc.gov/eid/article/26/8/20-1142_article.

Li C, Ji F, Wang L, et al. 2020. “Asymptomatic and Human-to-Human Transmission of SARS-CoV-2 in a 2-Family Cluster, Xuzhou, China,” *Emerging Infectious Diseases*, July 2020, https://wwwnc.cdc.gov/eid/article/26/7/20-0718_article.

Kim GU, Kim MJ, Ra SH, et al. “Clinical characteristics of asymptomatic and symptomatic patients with mild COVID-19,” *Clinical Microbiology and Infection*, May 1, 2020, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7252018/>.

Yin, G., & JIN, H., “Comparison of transmissibility of coronavirus between symptomatic and asymptomatic patients: Reanalysis of the Ningbo COVID-19 data (Preprint),” *JMIR Public Health and Surveillance*, April 18, 2020, <https://publichealth.jmir.org/2020/2/e19464/>.

Wei, W.E., Li, Z., et al., “Presymptomatic Transmission of SARS-CoV-2 — Singapore, January 23–March 16, 2020,” *MMWR*, April 10, 2020, https://www.cdc.gov/mmwr/volumes/69/wr/mm6914e1.htm?s_cid=mm6914e1_e&deliveryName=USCDC_921-DM24694.

Kimball A, Hatfield KM, et al., “Asymptomatic and Presymptomatic SARS-CoV-2 Infections in Residents of a Long-Term Care Skilled Nursing Facility — King County, Washington, March 2020.” *MMWR*, March 27, 2020, https://www.cdc.gov/mmwr/volumes/69/wr/mm6913e1.htm?s_cid=mm6913e1_w

Guoqing Q., Yang, N., et al., “COVID-19 Transmission within a family cluster by presymptomatic infectors in China,” *Clinical Infectious Diseases*, March 23, 2020, <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa316/5810900?searchresult=1>.

Lu S, Lin J, Zhang Z, et al. “Case Report of Familial Cluster With Three Asymptomatic COVID-19 Patients,” *Journal of Medical Virology*, March 19, 2020, <https://onlinelibrary.wiley.com/doi/10.1002/jmv.25776>.

Zou, L., Ruan, F., et al. “SARS-CoV-2 Viral Load in Upper Respiratory Specimens of Infected Patients” *NEJM*, March 19, 2020, <https://www.nejm.org/doi/full/10.1056/NEJMc2001737?query=TOC>.

Du, Z., Xu, X., et al. “Serial Interval of COVID-19 among Publicly Reported Confirmed Cases,” *Emerging Infectious Diseases*, March 19, 2020, https://wwwnc.cdc.gov/eid/article/26/6/20-0357_article.

¹⁰⁰ Ng, Cheng, et al., “Comparison of Estimated Effectiveness of Case-Based and Population-Based Interventions on COVID-19 Containment in Taiwan,” *JAMA Internal Medicine*, April 6, 2021,

reported that, of the health care workers who tested positive for SARS-CoV-2 antibodies, only 57.9 percent reported symptoms of prior illness, indicating that asymptomatic infections among health care providers are important to consider in Covid-19 infection control plans.¹⁰¹ In a letter to the editor published in the journal *Open Forum Infectious Diseases*, Gupta et al. summarized evidence on transmission from asymptomatic and pauci-symptomatic Covid-19 patients.¹⁰² Several reports have documented transmission in health care settings from patients with unrecognized asymptomatic infections.^{103,104} As discussed above, with the more transmissible Delta variant leading to higher viral loads and earlier peak viral shedding, addressing the role of asymptomatic and pre-symptomatic transmission is essential to effective Covid-19 infection control.

- Symptom-based screening for Covid-19 misses cases.^{105,106} A study published in the *Journal of Hospital Infection* reported that of the SARS-CoV-2-positive patients identified via universal pre-admission testing, 46 percent were asymptomatic and would have been admitted without Covid-19 precautions if the testing program had not been in place.¹⁰⁷ Other studies have found that longer time to diagnosis of

<https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2778395>. i. Study looked at 158 Covid cases in Taiwan. Estimated 55% of transmission occurred during presymptomatic stage.

He X, Eric HY, Wu P, et al., “Temporal dynamics in viral shedding and transmissibility of COVID-19,” *Nature Medicine*, April 15, 2020, <https://www.nature.com/articles/s41591-020-0869-5>.

Meher, K.P., “Quantitative COVID-19 infectiousness estimate correlating with viral shedding and culturability suggests 68% pre-symptomatic transmissions,” medRxiv, May 12, 2020, <https://www.medrxiv.org/content/10.1101/2020.05.07.20094789v1>.

Wu, Liu, et al., “Assessing asymptomatic, pre-symptomatic and symptomatic transmission risk of SARS-CoV-2,” *Clinical Infectious Diseases*, March 27, 2021, <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab271/6193430>.

¹⁰¹ Stubblefield, W.B., H.K. Talbot, et al., “Seroprevalence of SARS-CoV-2 Among Frontline Healthcare Personnel During the First Month of Caring for Patients With COVID-19—Nashville, Tennessee,” *Clin Infect Dis*, May 2021, 72(9): 1645-48, <https://academic.oup.com/cid/article/72/9/1645/5868028>.

¹⁰² Gupta, A., S. Jain, and V. Gupta, “Viral RNA Shedding and Transmission Potential of Asymptomatic and Pauci-symptomatic COVID-19 Patients,” *Open Forum Infectious Diseases*, Aug 14, 2021, <https://academic.oup.com/ofid/article/8/8/ofab112/6352397>.

¹⁰³ Pringle, J.C., J. Leikauskas, et al., “COVID-19 in a Correctional Facility Employee Following Multiple Brief Exposures to Persons with COVID-19 — Vermont, July–August 2020,” *MMWR Early Release*, Oct 30, 2020, <https://www.cdc.gov/mmwr/volumes/69/wr/mm6943e1.htm>.

¹⁰⁴ Goldberg, L., Y. Levinsky, et al., “SARS-CoV-2 Infection Among Health Care Workers Despite the Use of Surgical Masks and Physical Distancing—the Role of Airborne Transmission,” *Open Forum Infectious Diseases*, Jan 27, 2021, <https://academic.oup.com/ofid/advance-article/doi/10.1093/ofid/ofab036/6121257>.

¹⁰⁵ Letizia, A.G., I. Ramos, et al., “SARS-CoV-2 Transmission among Marine Recruits during Quarantine,” *NEJM*, Dec 17, 2020, <https://www.nejm.org/doi/full/10.1056/NEJMoa2029717>.

¹⁰⁶ Ng, O.T., K. Marimuthu, et al., “SARS-CoV-2 seroprevalence and transmission risk factors among high-risk close contacts: a retrospective cohort study,” *The Lancet Infectious Diseases*, March 1, 2021, 21(3): 333-43, [https://www.thelancet.com/article/S1473-3099\(20\)30833-1/fulltext](https://www.thelancet.com/article/S1473-3099(20)30833-1/fulltext).

¹⁰⁷ Saidel-Odes, L., T. Shafat, et al., “SARS-CoV-2 universal screening upon adult hospital admission in Southern Israel,” *The Journal of Hospital Infection*, Aug 1, 2021, 114: 167-170, [https://www.journalofhospitalinfection.com/article/S0195-6701\(21\)00179-1/fulltext?dgcid=raven_jbs_etoc_email](https://www.journalofhospitalinfection.com/article/S0195-6701(21)00179-1/fulltext?dgcid=raven_jbs_etoc_email).

patients with SARS-CoV-2 leads to more onward transmission^{108,109} and that frequent testing and rapid isolation of newly detected Covid-19 patients reduces onward transmission.¹¹⁰ Authors of a study published in *Clinical Infectious Diseases* reported that 8.3 percent of frontline first responders and health care providers reporting no history of Covid-19 symptoms were positive on serology and concluded, “These findings demonstrate the limitations of symptom-based surveillance and importance of testing.”¹¹¹

- A combination of pre-admission SARS-CoV-2 diagnostic testing and screening for Covid-like symptoms and recent exposure to Covid-19 cases is effective at identifying patients who may be SARS-CoV-2-positive and enabling prompt isolation to prevent onward transmission. Similarly, regular, at least weekly, surveillance testing of health care workers is essential to promptly identifying infections. NNU has summarized supporting evidence in our report, *Covid Testing and Screening in Health Care Settings: A Science-Driven Approach to Protecting Patient, Health Care Worker, and Public Health*.¹¹² Additionally, a pair of studies published in the journal *Infection Control & Hospital Epidemiology* reported on pre-admission and surveillance testing of health care workers and patients in the largest hospital in Singapore.^{113,114} They found that the combination of rapid testing of all patients

¹⁰⁸ Tranel, A.M., T. Kobayashi, et al., “COVID-19 Incidence After Exposures in Shared Patient Rooms, Tertiary Care Center, Iowa, July 2020–May 2021,” *Infection Control & Hospital Epidemiology*, July 12, 2021, <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/abs/covid19-incidence-after-exposures-in-shared-patient-rooms-tertiary-care-center-iowa-july-2020may-2021/B78B18A3426A8A7BBEF255F69F65E750>.

¹⁰⁹ Jung, J., S.Y. Lim, et al., “Clustering and multiple-spreading events of nosocomial severe acute respiratory syndrome coronavirus 2 infection,” *The Journal of Hospital Infection*, Nov 1, 2021, 117: 28-36, [https://www.journalofhospitalinfection.com/article/S0195-6701\(21\)00306-6/fulltext?dgcid=raven_jbs_aip_email](https://www.journalofhospitalinfection.com/article/S0195-6701(21)00306-6/fulltext?dgcid=raven_jbs_aip_email)

¹¹⁰ Walsh, J., M. Skally, et al., “The early test catches the case. Why wait? Frequent testing of close contacts aids COVID-19 control,” *The Journal of Hospital Infection*, Oct 1, 2021, 116: 101-2, [https://www.journalofhospitalinfection.com/article/S0195-6701\(21\)00287-5/fulltext?dgcid=raven_jbs_aip_email](https://www.journalofhospitalinfection.com/article/S0195-6701(21)00287-5/fulltext?dgcid=raven_jbs_aip_email).

¹¹¹ Akinbami, L.J., L.R. Petersen, et al., “Coronavirus Disease 2019 Symptoms and Severe Acute Respiratory Syndrome Coronavirus 2 Antibody Positivity in a Large Survey of First Responders and Healthcare Personnel, May–July 2020,” *Clin Infect Dis*, Aug 1, 2021, 73(3): e822-25, <https://academic.oup.com/cid/article/73/3/e822/6124470>.

¹¹² National Nurses United, “Covid Testing and Screening in Health Care Settings: A Science-Driven Approach to Protecting Patient, Health Care Worker, and Public Health,” June 11, 2021, https://www.nationalnursesunited.org/sites/default/files/nnu/documents/0621_Covid19_IssueBrief_TestingScreening.pdf.

¹¹³ Wee, L.E.I., E.P. Conceicao, et al., “Utilization of rapid antigen assays for detection of severe acute respiratory coronavirus virus 2 (SARS-CoV-2) in a low-incidence setting in emergency department triage: Does risk-stratification still matter?,” *Infection Control & Hospital Epidemiology*, Sept 15, 2021, <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/utilization-of-rapid-antigen-assays-for-detection-of-severe-acute-respiratory-coronavirus-virus-2-sarscov2-in-a-lowincidence-setting-in-emergency-department-triage-does-riskstratification-still-matter/81B596E760D70E2A9822B59C181812E1>.

¹¹⁴ Wee, L.E.I., E.P. Conceicao, et al., “Rostered routine testing for healthcare workers and universal inpatient screening: The role of expanded hospital surveillance during an outbreak of coronavirus disease 2019 (COVID-19) in the surrounding community,” *Infection Control & Hospital Epidemiology*, Aug 6, 2021, <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/rostered-routine-testing-for-healthcare-workers-and-universal-inpatient-screening-the-role-of-expanded-hospital-surveillance-during-an-outbreak-of-covid19-in-the-surrounding-community/AB731668835F9027114941F9BA442A30>.

upon admission, in addition to screening for epidemiological and clinical characteristics, led to prompt isolation of patients (average of 16.5 hours prior to implementation of universal testing to average of 0.2 hours after implementation of universal testing) and a significant decrease in close contacts (2.1 per Covid-positive patient to 0.3 on average after implementation of universal testing). Regular surveillance testing of health care workers identified asymptomatic infections that would not have been otherwise identified or isolated and could have led to onward transmission. The authors made two important observations in these two reports:

- “Although a triage strategy based on epidemiological risk and clinical syndrome was resource-intensive, the potential for false-negative RAD [rapid antigen detection] tests and the possibility that patients with epidemiological risk could still be incubating at point of admission meant that RAD testing could not be used alone for isolation triage.”¹¹⁵
- “In conclusion, institution of [rostered routine testing] RRT for all [health care workers] HCWs as well as universal screening for COVID-19 in all inpatients during a 6-week period of increased transmission in the surrounding community detected additional asymptomatic cases amongst HCWs and inpatients. While the yield of testing was not high, earlier detection of asymptomatic inpatient cases allowed for faster isolation, limiting potential exposure. No clusters of COVID-19 infections were seeded amongst staff or patients during a period of heightened risk.”¹¹⁶
- Given the infectiousness of asymptomatic and pre-symptomatic cases, symptom-based screening of health care workers is insufficient by itself to detect cases. At least weekly surveillance testing of all health care workers is necessary to prevent exposures and transmission of SARS-CoV-2. For example, one study published in the journal *Clinical Infectious Diseases* reported on an outbreak investigation in six long-term care facilities and found that a single introduction of the virus led to rapid and sustained transmission.¹¹⁷ This study illuminates the capacity of SARS-CoV-2 to spread exponentially with just one introduction of the virus and underlines the importance of proactive surveillance testing of health care workers to ensure the safety of patients and staff. Additionally, the above-referenced data about the Delta variant, including outbreaks in health care facilities with high vaccination rates, underline the importance of surveillance testing for all health care workers, regardless of vaccination status.

¹¹⁵ Wee, L.E.I., E.P. Conceicao, et al., Sept 15, 2021.

¹¹⁶ Wee, L.E.I., E.P. Conceicao, et al., Aug 6, 2021.

¹¹⁷ Maccannell, T., J. Batson, et al., “Genomic epidemiology and transmission dynamics of SARS-CoV-2 in congregate healthcare facilities in Santa Clara County, California,” *Clinical Infect Dis*, July 30, 2021, <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciab553/6330915>.

- Testing for SARS-CoV-2 should be made available to all health care workers, regardless of vaccination status. Careful monitoring of SARS-CoV-2 infections among fully vaccinated health care workers, regardless of symptoms, is critical, both to determining vaccine effectiveness and duration of vaccine protection and to ensuring that infected health care workers are promptly isolated. Studies regarding transmission from infected fully vaccinated individuals, including outbreaks, is summarized and referenced above. Chronic impacts of Covid-19 can also occur among individuals who had mild and asymptomatic infections, including those who have been vaccinated (see above). Testing for SARS-CoV-2 should be offered to all health care workers, which would enable health care employers to track all employee SARS-CoV-2 infections, including asymptomatic infections and breakthrough infections.
- The symptoms of Covid-19 can be broad-ranging. The CDC reports the following can be symptoms of Covid-19: fever or chills, cough, shortness of breath or difficulty breathing, fatigue, muscle or body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting, and diarrhea, and further says, “This list does not include all possible symptoms.”¹¹⁸ A *Cochrane Systematic Review* reported on the sensitivity and specificity of different symptoms including cough (67.4 percent and 35.0 percent), fever (53.8 percent and 67.4 percent), loss of taste or smell (41 percent and 90.5 percent), and combining fever and cough with other symptoms (>80 percent, <30 percent).¹¹⁹ Symptoms alone have poor diagnostic quality. Combined with the high rates of asymptomatic and pre-symptomatic transmission, this indicates that the extremely limited symptoms that trigger medical removal and testing among health care workers in the Covid-19 Health Care ETS must be updated to be more protective.

Recommended Update #5: NNU advocates for precautionary screening and testing of all patients and visitors entering health care facilities and urges OSHA to update the Covid-19 Health Care ETS based upon the summarized evidence in this subsection and ensure a permanent standard also includes these requirements. Precautionary screening and testing include screening all patients and visitors for symptoms of Covid-19, screening for recent exposure history to Covid-19, and testing for SARS-CoV-2 using a reliable diagnostic test prior to entering a health care facility.¹²⁰

¹¹⁸ U.S. Centers for Disease Control and Prevention, “Symptoms of COVID-19,” Updated Feb 22, 2021 <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>.

¹¹⁹ Struyf, T., J.J. Deeks, et al., “Signs and symptoms to determine if a patient presenting in primary care or hospital outpatient settings has COVID-19,” *Cochrane Library*, Feb 23, 2021, <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD013665.pub2/full>.

¹²⁰ National Nurses United, “Covid Testing and Screening in Health Care Settings: A Science-Driven Approach to Protecting Patient, Health Care Worker, and Public Health,” June 11, 2021. Available at https://www.nationalnursesunited.org/sites/default/files/nnu/documents/0621_Covid19_IssueBrief_TestingScreening.pdf (Accessed Aug 5, 2021).

Recommended Update #6: Additionally, NNU urges OSHA to update the ETS to require that health care workers should also be tested and screened for Covid-19, including for asymptomatic infections. Testing and screening for health care workers should include at least weekly surveillance testing for SARS-CoV-2, proactive monitoring of all staff exposures to Covid-19, in addition to screening health care workers for symptoms of Covid-19 prior to each shift.¹²¹ Testing should be provided to health care workers regardless of vaccination status, and health care employers should track all asymptomatic infections including breakthrough infections on the Covid-19 Log. OSHA should also expand the list of symptoms that trigger medical removal and testing to the full list of symptoms congruent with Covid-19, not the limited symptoms currently specified in the Covid-19 Health Care ETS.¹²²

Recommended Updates #7, #8, and #9: Based on Additional Evidence Regarding Aerosol/Airborne Transmission of SARS-CoV-2, OSHA Should Strengthen PPE, Exposure Surveillance, Ventilation, and Patient Isolation Requirements in the Covid-19 Health Care ETS. NNU commends OSHA for recognizing the science on aerosol/airborne transmission of SARS-CoV-2 in issuing Covid-19 Health Care ETS and requiring health care employers to provide airborne precautions, including respiratory protection at least as protective as a fit-tested N95 filtering facepiece respirator, eye protection, protective clothing, and gloves, to health care workers exposed to Covid-19.¹²³ However, when updating the ETS and issuing a permanent standard, OSHA's Covid-19 Health Care ETS requirements on PPE, exposure surveillance, ventilation, and patient isolation should be strengthened based upon scientific evidence regarding aerosol/airborne transmission of SARS-CoV-2 and other updates:

- SARS-CoV-2 is transmitted through aerosol or airborne transmission.^{124,125,126} Multiple studies have captured SARS-CoV-2 virus in air samples from Covid-19 patient rooms, hallways, and other areas of health care

¹²¹ National Nurses United, "Covid Testing and Screening in Health Care Settings: A Science-Driven Approach to Protecting Patient, Health Care Worker, and Public Health," June 11, 2021. Available at https://www.nationalnursesunited.org/sites/default/files/nnu/documents/0621_Covid19_IssueBrief_TestingScreening.pdf (Accessed Aug 5, 2021).

¹²² 29 C.F.R. §1910.502(l)(2) and (l)(4).

¹²³ 29 C.F.R. §1910.502(f)(2).

¹²⁴ Wang, C.C., K.A. Prather, et al., "Airborne transmission of respiratory viruses," *Science*, Aug 27, 2021, 373(981), <https://www.science.org/doi/epdf/10.1126/science.abd9149>.

¹²⁵ Greenhalgh, T., J.L. Jimenez, et al., "Ten scientific reasons in support of airborne transmission of SARS-CoV-2," *The Lancet*, April 15, 2021, [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(21\)00869-2/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)00869-2/fulltext).

¹²⁶ See additional studies at NNU's Covid-19 Bibliography page, <https://www.nationalnursesunited.org/covid-19-bibliography>.

facilities.^{127,128,129,130,131,132,133,134,135,136} A study published in the journal *Environmental Research* reported that, “there was significant transfer of viruses from Covid-19 patients’ rooms to the corridors,” in a health care facility.¹³⁷

- SARS-CoV-2 transmission can occur with fleeting exposures, less than 15 minutes.^{138,139,140,141}

¹²⁷ Chia, P.Y., K.K. Coleman, et al. “Detection of Air and Surface Contamination by (SARS-CoV-2 in Hospital Rooms of Infected Patients” *Nature Communications*, May 29, 2020, <https://www.nature.com/articles/s41467-020-16670-2>.

¹²⁸ Dumont-Leblond, N., M. Veillette, et al., “Positive no-touch surfaces and undetectable SARS-CoV-2 aerosols in long-term care facilities: An attempt to understand the contributing factors and the importance of timing in air sampling campaigns,” *American Journal of Infection Control*, Feb 11, 2021, [https://www.ajicjournal.org/article/S0196-6553\(21\)00059-6/fulltext](https://www.ajicjournal.org/article/S0196-6553(21)00059-6/fulltext).

¹²⁹ Guo, Z.D., Z.Y. Wang, et al., “Aerosol and Surface Distribution of Severe Acute Respiratory Syndrome Coronavirus 2 in Hospital Wards, Wuhan, China, 2020,” *Emerging Infectious Diseases*, July 2020, https://wwwnc.cdc.gov/eid/article/26/7/20-0885_article#suggestedcitation.

¹³⁰ Munoz-Price, L.S., F. Rivera, and N. Ledebor, “Air contamination of households versus hospital inpatient rooms occupied by severe acute respiratory coronavirus virus 2 (SARS-CoV-2)-positive patients,” *Infection Control & Hospital Epidemiology*, Feb 4, 2021, <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/air-contamination-of-households-versus-hospital-inpatient-rooms-occupied-by-severe-acute-respiratory-coronavirus-virus-2-sarscov2positive-patients/C115FE32E38C948122266D300B3CEFC4>.

¹³¹ Stern, R.A., A. Al-Hemoud, et al., “Levels and Particle Size Distribution of Airborne SARS-CoV-2 at a Healthcare Facility in Kuwait,” *Science of The Total Environment*, March 27, 2021, <https://www.sciencedirect.com/science/article/pii/S0048969721018672>.

¹³² Ang, A.X.Y., I. Luhung, et al., “Airborne SARS-CoV-2 surveillance in hospital environment using high-flowrate air samplers and its comparison to surface sampling,” *Indoor Air*, September 14, 2021, <https://onlinelibrary.wiley.com/doi/full/10.1111/ina.12930?campaign=wolearlyview>.

¹³³ Birgand, G., N. Peiffer-Smadja, et al., “Assessment of Air Contamination by SARS-CoV-2 in Hospital Settings,” *JAMA Network Open*, December 2020, <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2774463>.

¹³⁴ Dietz, L., D.A. Constant, et al., “Exploring Integrated Environmental Viral Surveillance of Indoor Environments: A comparison of surface and bioaerosol environmental sampling in hospital rooms with COVID-19 patients,” *medRxiv*, March 26, 2021, <https://www.medrxiv.org/content/10.1101/2021.03.26.21254416v1>.

¹³⁵ Nissen, K., J. Krambrich, et al., “Long-distance airborne dispersal of SARS-CoV-2 in COVID-19 wards,” *Scientific Reports*, Nov 11, 2020, <https://www.nature.com/articles/s41598-020-76442-2>.

¹³⁶ Santarpia, J.L., D.N. Rivera, et al., “Aerosol and surface contamination of SARS-CoV-2 observed in quarantine and isolation care,” *Scientific Reports*, July 2020, <https://www.nature.com/articles/s41598-020-69286-3>.

¹³⁷ Grimalt, J.O., H. Vilchez, et al., “Spread of SARS-CoV-2 in hospital areas,” *Environ Res*, Sept 20, 2021, <https://www.sciencedirect.com/science/article/pii/S0013935121013694?via%3Dihub>.

¹³⁸ Mack, C.D., E.B. Wasserman, et al., “Implementation and Evolution of Mitigation Measures, Testing, and Contact Tracing in the National Football League, August 9–November 21, 2020,” *MMWR*, January 2021, https://www.cdc.gov/mmwr/volumes/70/wr/mm7004e2.htm?s_cid=mm7004e2_w.

¹³⁹ Kwon, K.S., J.I. Park, et al., “Evidence of Long-Distance Droplet Transmission of SARS-CoV-2 by Direct Air Flow in a Restaurant in Korea,” *Journal of Korean Medical Science*, November 2020, <https://jkms.org/DOIx.php?id=10.3346/jkms.2020.35.e415>.

¹⁴⁰ Pringle, J.C., J. Leikauskas, et al., “Covid-19 in a Correctional Facility Employee Following Multiple Brief Exposures to Persons with Covid-19 – Vermont, July–August 2020,” *MMWR Early Release*, October 30, 2020, <https://www.cdc.gov/mmwr/volumes/69/wr/mm6943e1.htm>.

¹⁴¹ Goldberg, L., Y. Levinsky, et al., “SARS-CoV-2 Infection Among Health Care Workers Despite the Use of Surgical Masks and Physical Distancing—the Role of Airborne Transmission,” *Open Forum Infectious Diseases*, Jan 27, 2021, <https://academic.oup.com/ofid/advance-article/doi/10.1093/ofid/ofab036/6121257>.

- Extensive contamination of personal protective equipment worn by health care workers caring for Covid-positive patients has been documented.^{142,143,144} SARS-CoV-2 can survive on surfaces for extended periods of time, depending on environmental factors.^{145,146,147} This evidence underlines the importance of no mixed assignments and, combined with the evidence regarding aerosol/airborne transmission of this virus, the need for optimal personal protective equipment for health care workers, including a PAPR, virus impervious coveralls that incorporate head and shoe coverings, and medical-grade gloves.
- Studies have documented the use of dedicated Covid-19 units and effective Covid patient isolation, including the use of negative pressure ventilation/airborne infection isolation rooms, as important aspects of infection

¹⁴² Aumeran, C., C. Henquell, et al., "Isolation gown contamination during health care of confirmed SARS-CoV-2 infected patients," *J Hospital Infection*, Jan 1 2021, 107: 111-13, [https://www.journalofhospitalinfection.com/article/S0195-6701\(20\)30517-X/fulltext](https://www.journalofhospitalinfection.com/article/S0195-6701(20)30517-X/fulltext).

¹⁴³ Feldman, O., M. Meir, et al., "Exposure to a Surrogate Measure of Contamination from Simulated Patients by Emergency Department Personnel Wearing Personal Protective Equipment," *JAMA*, April 27, 2020, <https://jamanetwork.com/journals/jama/fullarticle/2765377>.

¹⁴⁴ Jung, J., J.Y. Kim, et al., "Contamination of personal protective equipment by SARS-CoV-2 during routine care of patients with mild Covid-19," *Journal of Infection*, June 12, 2020, [https://www.journalofinfection.com/article/S0163-4453\(20\)30402-3/fulltext](https://www.journalofinfection.com/article/S0163-4453(20)30402-3/fulltext).

¹⁴⁵ Chin, A.W.H., J.T.S. Chu, et al. "Stability of SARS-CoV-2 in different environmental conditions," *The Lancet Microbe*, May 2020, 1(1): e10, <https://www.sciencedirect.com/science/article/pii/S2666524720300033?via%3Dihub>.

¹⁴⁶ Dabisch, P., M. Schuit, et al., "The influence of temperature, humidity, and simulated sunlight on the infectivity of SARS-CoV-2 in aerosols," *Aerosol Sci and Tech* 2021 Vol 55 No 2: p142-53, <https://www.tandfonline.com/doi/full/10.1080/02786826.2020.1829536>.

¹⁴⁷ Liu, Y., T. Li, et al., "Stability of SARS-CoV-2 on environmental surfaces and in human excreta," *J hospital infection*, Jan 2021, 107: 105-7, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7603996/>.

control.^{148,149,150,151,152,153,154,155,156} An outbreak investigation in a hospital in Hong Kong determined that the lack of air exhaust in a patient care area led to multiple patient and staff infections.¹⁵⁷ A study published in *The Journal of Hospital Infection* found that portable air cleaners could improve ventilation rates and reduce aerosol transmission in combination with building HVAC ventilation in small and enclosed areas in health care settings.¹⁵⁸

- Ongoing research continues to underline the dangers of reusing single-use PPE, including N95 filtering facepiece respirators. PPE becomes contaminated during use

¹⁴⁸ Ambrosch, A., F. Rockmann, et al., “Effect of a strict hygiene bundle for the prevention of nosocomial transmission of SARS-CoV-2 in the hospital: a practical approach from the field,” *Journal of Infection and Public Health*, December 2020, 13(12): 1862-7, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7574781/>.

¹⁴⁹ Burns, K., M. Foley, et al., “Casting the net wide: Universal testing of emergency admissions for SARS-CoV-2 to prevent onward transmission,” *J Hospital Infection*, January 1, 2021, 107: 64-66, [https://www.journalofhospitalinfection.com/article/S0195-6701\(20\)30512-0/fulltext](https://www.journalofhospitalinfection.com/article/S0195-6701(20)30512-0/fulltext).

¹⁵⁰ Cheng, V.C.C., S.C. Wong, et al. “Escalating infection control response to the rapidly evolving epidemiology of the Coronavirus disease 2019 (COVID-19) due to SARS-CoV-2 in Hong Kong,” *Infection Control and Hospital Epidemiology*, March 2020, p 1-24, <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/escalating-infection-control-response-to-the-rapidly-evolving-epidemiology-of-the-coronavirus-disease-2019-covid19-due-to-sarscov2-in-hong-kong/52513ACC56587859F9C601DC747EB6EC>.

¹⁵¹ Glasbey, J.C., D. Nepogodiev, et al., “Elective Cancer Surgery in COVID-19-Free Surgical Pathways During the SARS-CoV-2 Pandemic: An International, Multicenter, Comparative Cohort Study,” *Journal of Clinical Oncology*, October 2020, <https://ascopubs.org/doi/full/10.1200/JCO.20.01933>.

¹⁵² Liu, Y., S. Yang, et al., “Protecting Healthcare Workers Amid the Covid-19 Crisis: A Safety Protocol in Wuhan,” *Frontiers in Public Health*, October 2020, <https://www.frontiersin.org/articles/10.3389/fpubh.2020.577499/full>.

¹⁵³ Mo, Y., D.W. Eyre, et al., “Transmission dynamics of SARS-CoV-2 in the hospital setting,” *medRxiv*, May 1, 2021, <https://www.medrxiv.org/content/10.1101/2021.04.28.21256245v1.full>.

¹⁵⁴ Stern, R.A., P. Koutrakis, et al., “Characterization of hospital airborne SARS-CoV-2,” *Respiratory Research*, February 26, 2021, <https://respiratory-research.biomedcentral.com/articles/10.1186/s12931-021-01637-8>.

¹⁵⁵ Trannel, A.M., T. Kobayashi, et al., “COVID-19 Incidence After Exposures in Shared Patient Rooms, Tertiary Care Center, Iowa, July 2020–May 2021,” *Infection Control & Hospital Epidemiology*, July 12, 2021, <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/abs/covid19-incidence-after-exposures-in-shared-patient-rooms-tertiary-care-center-iowa-july-2020may-2021/B78B18A3426A8A7BBEF255F69F65E750>.

¹⁵⁶ Pease, L.F., N. Wang, et al., “Investigation of potential aerosol transmission and infectivity of SARS-CoV-2 through central ventilation systems,” *Building and Environment*, Jan 29, 2021, <https://pubmed.ncbi.nlm.nih.gov/33531734/>.

¹⁵⁷ Cheng, V.C.C., K.S.C. Fung, et al., “Nosocomial outbreak of COVID-19 by possible airborne transmission leading to a superspreading event,” *Clinical Infect Dis*, Sept 2021, 73(6): e1356-64, <https://pubmed.ncbi.nlm.nih.gov/33851214/>.

¹⁵⁸ Lee, J.H., M. Rounds, et al., “Effectiveness of portable air filtration on reducing indoor aerosol transmission: preclinical observational trials,” *J Hosp Infection*, Sept 22, 2021, [https://www.journalofhospitalinfection.com/article/S0195-6701\(21\)00336-4/fulltext?dgcid=raven_jbs_aip_email](https://www.journalofhospitalinfection.com/article/S0195-6701(21)00336-4/fulltext?dgcid=raven_jbs_aip_email).

and single-use PPE can be degraded and damaged with multiple uses.^{159,160,161} NNU encourages OSHA to fully ban reuse of single use PPE and to ban the use of decontamination methods to reuse PPE.

Recommended Update #7: OSHA should require optimal PPE for nurses and other health care workers caring for patients with suspected or confirmed Covid-19. Optimal PPE includes a powered air-purifying respirator (PAPR), virus impervious coveralls that incorporate head and shoe coverings, and medical-grade gloves. NNU encourages OSHA to fully ban reuse of single use PPE and to ban the use of decontamination methods to reuse PPE.

Recommended Update #8: OSHA should strengthen the definition of exposure in the updated Covid-19 Health Care ETS and in issuing a permanent standard to reflect the available scientific evidence regarding aerosol transmission. The CDC’s definition of close contact exposure (with six feet for cumulative total 15 minutes or more over a 24-hour period) is based on arbitrary assumptions, not scientific data regarding aerosol/airborne transmission of SARS-CoV-2 or the precautionary principle.

- It is very good that OSHA, in the Covid-19 Health Care ETS, does not consider a facemask to be equivalent protection to a respirator. This protection, which is an improvement on CDC guidance, should be maintained in the permanent Covid-19 standard.
- OSHA should remove the exemption for exposure notification to staff due to the presence of a Covid-positive patient in areas where suspected and confirmed Covid-19 patients are normally cared for. All staff have the right to be informed of a hazardous exposure that occurs at the worksite, and OSHA should ensure the permanent Covid-19 standards provide that right to all employees.

Recommended Update #9: OSHA should strengthen ventilation and patient isolation requirements when updating the Covid-19 Health Care ETS and issue a permanent standard, including:

¹⁵⁹ National Nurses United, “Nurse Health and Safety Alert: Reusing N95 Respirators is Dangerous,” Nov 2020, https://www.nationalnursesunited.org/sites/default/files/nnu/graphics/documents/1120_Covid19_H%26S_PPE-reuse-flyer_Updated.pdf.

¹⁶⁰ Li, D.F., H. Alhmidi, et al., “A simulation study to evaluate contamination during reuse of N95 respirators and effectiveness of interventions to reduce contamination,” May 10, 2021, <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/abs/simulation-study-to-evaluate-contamination-during-reuse-of-n95-respirators-and-effectiveness-of-interventions-to-reduce-contamination/BB181D7D8A8C71111C1877AF08D37153>.

¹⁶¹ Jung, J., J. Kim, et al., “Fit-failure rate associated with simulated reuse and extended use of N95 respirators assessed by a quantitative fit test,” *Infection Control & Hospital Epidemiology*, Jan 25, 2021, <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/fitfailure-rate-associated-with-simulated-reuse-and-extended-use-of-n95-respirators-assessed-by-a-quantitative-fit-test/223BBC46A26D4F15806FA85EAB3C10B2>.

- Requiring employers to establish dedicated Covid-19 units in the permanent Covid-19 standard and should prohibit mixing Covid-positive patients, patients who may have Covid-19, and patients who do not have Covid-19 in the same units or on the same assignment.
- Requiring employers to make improvements to ventilation systems to reduce the risk of aerosol transmission in both patient care and non-patient care areas, such as by increasing outdoor air proportion and filtration levels for recirculated air or by placing and maintaining portable high efficiency particulate air (HEPA) filter units.
- Requiring employers to convert patient rooms to negative pressure/airborne infection isolation ventilation if there is a need for more rooms than exist.

Section 4: OSHA Must Issue a Permanent Infectious Diseases Standard to Protect Workers from All Aerosol Transmissible Diseases, Not Just Covid-19.

In addition to issuing a permanent standard based on an updated Covid-19 Health Care ETS, NNU encourages OSHA to work expediently to issue a permanent aerosol transmission diseases standard that applies to other infectious diseases, including measles, tuberculosis, pertussis, and influenza, that pose an occupational hazard to nurses and other frontline workers through aerosol/airborne transmission. The Cal/OSHA Aerosol Transmissible Diseases Standard (8 Cal. Code Regs. tit. 8, § 5199) and the precautionary principle should both serve as the basis for the permanent aerosol transmissible diseases standard. Additionally, in such a permanent standard, OSHA must recognize that novel pathogens will continue to emerge, and existing ones may mutate over time. A permanent aerosol transmissible diseases standard would proactively protect nurses and other frontline workers from occupational exposure to known and novel infectious pathogens. The Covid-19 pandemic should be a constant reminder and lesson that unpreparedness and failure to heed the precautionary principle led to neglect of worker safety, resulting in an untold number of preventable infections and deaths.

Section 5: Conclusion.

The pandemic is not over. Transmission remains substantial in the United States and in many areas around the world. The potential for increasingly dangerous variants poses a grave threat to the safety of nurses, other health care workers, and public health. Nurses and health care workers stand ready to care for the sickest patients and to continue to be a crucial part of the pandemic response. But NNU's members—indeed, all nurses and other health care workers—need safe workplaces both to protect themselves and to ensure the safety of their patients and communities.

Therefore, NNU urges OSHA to work expeditiously to issue a permanent standard to protect nurses and other health care workers from Covid-19 and to update and reissue the Covid-19 Health Care ETS to ensure optimal, ongoing, uninterrupted protections for nurses and other health care workers. NNU also encourages OSHA to issue a permanent aerosol transmissible diseases standard to protect all frontline workers from occupational

exposure. Fully protecting nurses and other frontline workers is key to combatting the Covid-19 pandemic and future pandemics.

Sincerely,



Deborah Burger, RN
President, National Nurses United

cc: The Honorable Alma Adams, Chairwoman, Subcommittee on Workforce Protections,
Committee on Education and Labor, U.S. House of Representatives

The Honorable John Hickenlooper, Chairman, Subcommittee on Employment and
Workplace Safety, Committee on Health, Education, Labor and Pensions, U.S. Senate

The Honorable Patty Murray, Chairwoman of the Committee on Health, Education,
Labor and Pensions, U.S. Senate

The Honorable Bobby Scott, Chairman, Committee on Education and Labor, U.S.
House of Representatives

Ms. Liz Shuler, President, AFL-CIO