COVID-19

COVID-19 Menu

Workers' Rights

Control and Prevention

Measures for protecting workers from exposure to, and infection with, the novel coronavirus, COVID-19 depend on the type of work being performed and exposure risk, including potential for interaction with infectious people and contamination of the work environment. Employers should adapt infection control strategies based on a thorough hazard assessment, using appropriate combinations of engineering and administrative controls, safe work practices, and personal protective equipment (PPE) to prevent worker exposures. Some OSHA standards that apply to preventing occupational exposure to COVID-19 also require employers to train workers on elements of infection prevention, including PPE.

OSHA has developed this interim guidance to help prevent worker exposure to COVID-19.

General guidance for all U.S. workers and employers

For all workers, regardless of specific exposure risks, it is always a good practice to:

- Frequently wash your hands with soap and water for at least 20 seconds. When soap and running water are unavailable, use an alcohol-based hand rub with at least 60% alcohol. Always wash hands that are visibly soiled.
- Avoid touching your eyes, nose, or mouth with unwashed hands.
- Avoid close contact with people who are sick.

U.S. Department of Defense

Regardless of specific exposure risks, following good hand hygiene practices can help workers stay healthy year round.

The U.S. Centers for Disease Control and Prevention has developed interim guidance for businesses and employers to plan for and respond to COVID-19. The interim guidance is intended to help prevent workplace exposures to acute respiratory illnesses, including COVID-19. The guidance also addresses considerations that may help employers prepare for more widespread, community outbreaks of COVID-19, in the event that this kind of transmission begins to occur. The guidance is intended for non-healthcare settings; healthcare workers and employers should consult guidance specific to them, below.

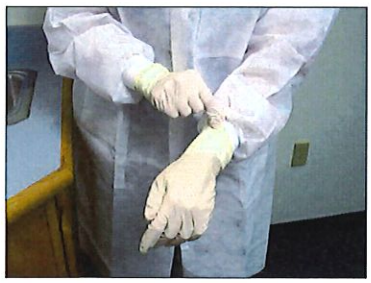
Interim guidance for most U.S. workers and employers of workers unlikely to have occupational exposures to COVID-19

For most types of workers, the risk of infection with COVID-19 is similar to that of the general American public.

Employers and workers in operations where there is no specific exposure hazard should remain aware of the evolving outbreak situation. Changes in outbreak conditions may warrant additional precautions in some workplaces not currently highlighted in this guidance.

Interim guidance for U.S. workers and employers of workers with potential occupational exposures to COVID-19

Workers and employers involved in healthcare, deathcare, laboratory, airline, border protection, and solid waste and wastewater management operations and travel to areas with ongoing, person-to-person transmission of COVID-19 should remain aware of the evolving outbreak situation.



CDC/Kimberly Smith, Christine Ford

As discussed on the Hazard Recognition page, employers should assess the hazards to which their workers may be exposed; evaluate the risk of exposure; and select, implement, and ensure workers use controls to prevent exposure. Control measures may include a combination of engineering and administrative controls, safe work practices, and PPE.

Identify and Isolate Suspected Cases

OSHA's infection prevention recommendations follow the hierarchy of controls, including using engineering and administrative controls and safe work practices to protect workers from exposure to COVID-19. Depending on work tasks and potential exposures, appropriate PPE for protecting workers from the virus may include gloves, gowns, masks, goggles or face shields, and/or respirators.

In all workplaces where exposure to the COVID-19 may occur, prompt identification and isolation of potentially infectious individuals is a critical first step in protecting workers, visitors, and others at the worksite.

- Immediately isolate people suspected of having COVID-19. For example, move potentially infectious people to isolation rooms and close the doors. On an aircraft, move potentially infectious people to seats away from passengers and crew, if possible and without compromising aviation safety. In other worksites, move potentially infectious people to a location away from workers, customers, and other visitors.
- Take steps to limit spread of the person's infectious respiratory secretions, including by providing them a facemask and asking them to wear it, if they can tolerate doing so. Note: A surgical mask on a patient or other sick person should not be confused with PPE for a worker; the mask acts to contain potentially infectious respiratory secretions at the source (i.e., the person's nose and mouth).
- If possible, isolate people suspected of having COVID-19 separately from those with confirmed cases of the virus to prevent further transmission, including in screening, triage, or healthcare facilities.
- Restrict the number of personnel entering isolation areas, including the room of a patient with suspected/confirmed COVID-19.
- Protect workers in close contact* with the sick person by using additional engineering and administrative control, safe work practices and PPE.
  **CDC defines "close contact" as being about six (6) feet (approximately two (2) meters) from an infected person or within the room or care area of an infected patient for a prolonged period while not wearing recommended PPE. Close contact also includes instances where there is direct contact with infectious secretions while not wearing recommended PPE. Close contact generally does not include brief interactions, such as walking past a person.*

Environmental Decontamination

When someone touches a surface or object contaminated with the virus that causes COVID-19, and then touches their own eyes, nose, or mouth, they may expose themselves to the virus.

Because the transmissibility of COVID-19 from contaminated environmental surfaces and objects is not fully understood, employers should carefully evaluate whether or not work areas occupied by people suspected to have virus may have been contaminated and whether or not they need to be decontaminated in response.

Outside of healthcare and deathcare facilities, there is typically no need to perform special cleaning or decontamination of work environments when a person suspected of having the virus has been present, unless those environments are visibly contaminated with blood or other body fluids. In limited cases where further cleaning and decontamination may be necessary, consult U.S. Centers for Disease Control and Prevention (CDC) guidance for cleaning and disinfecting environments, including those contaminated with other coronavirus.

Workers who conduct cleaning tasks must be protected from exposure to blood, certain body fluids, and other potentially infectious materials covered by OSHA's Bloodborne Pathogens standard (29 CFR 1910.1030) and from hazardous chemicals used in these tasks. In these cases, the PPE (29 CFR 1910 Subpart I) and Hazard Communication (29 CFR 1910.1200) standards may also apply. Do not use compressed air or water sprays to clean potentially contaminated surfaces, as these techniques may aerosolize infectious material.

See the interim guidance for specific worker groups and their employers, below, for further information.

Worker Training

Train all workers with reasonably anticipated occupational exposure to COVID-19 (as described in this document) about the sources of exposure to the virus, the hazards associated with that exposure, and appropriate workplace protocols in place to prevent or reduce the likelihood of exposure. Training should include information about how to isolate individuals with suspected or confirmed COVID-19 or other infectious diseases, and how to report possible cases. Training must be offered during scheduled work times and at no cost to the employee.

Workers required to use PPE must be trained. This training includes when to use PPE; what PPE is necessary; how to properly don (put on), use, and doff (take off) PPE; how to properly dispose of or disinfect, inspect for damage, and maintain PPE; and the limitations of PPE. Applicable standards include the PPE (29 CFR 1910.132), Eye and Face Protection (29 CFR 1910.133), Hand Protection (29 CFR 1910.138), and Respiratory Protection (29 CFR 1910.134) standards. The OSHA website offers a variety of training videos on respiratory protection.

When the potential exists for exposure to human blood, certain body fluids, or other potentially infectious materials, workers must receive training required by the Bloodborne Pathogens (BBP) standard (29 CFR 1910.1030), including information about how to recognize tasks that may involve exposure and the methods, such as engineering controls, work practices, and PPE, to reduce exposure. Further information on OSHA's BBP training regulations and policies is available for employers and workers on the OSHA Bloodborne Pathogens and Needlestick Prevention Safety and Health Topics page.

OSHA's Training and Reference Materials Library contains training and reference materials developed by the OSHA Directorate of Training and Education as well as links to other related sites. The materials listed for Bloodborne Pathogens, PPE, Respiratory Protection, and SARS may provide additional material for employers to use in preparing training for their workers.

OSHA's Personal Protective Equipment Safety and Health Topics page also provides information on training in the use of PPE.

Interim guidance for specific worker groups and their employers

This section provides information for specific worker groups and their employers who may have potential exposures to COVID-19. Guidance for each worker group generally follows the hierarchy of controls, including engineering controls, administrative controls, safe work practices, and PPE. However, not all types of controls are provided in each section; in those cases, employers and workers should consult the interim general guidance for U.S. workers and employers of workers with potential occupational exposures to COVID-19, above.

Healthcare Workers and Employers

This section provides guidance for healthcare workers and employers. This guidance supplements the interim guidance for U.S. workers and employers of workers with potential occupational exposures to COVID-19, above.

Until more is known about how the COVID-19 spreads, CDC and OSHA recommend using a combination of standard precautions, contact precautions, airborne precautions, and eye protection (e.g., goggles or face shields) to protect healthcare workers with exposure to the virus.

CDC provides the most updated infection prevention and control recommendations for healthcare workers managing suspected or confirmed cases of COVID-19.

Employers of healthcare workers are responsible for following applicable OSHA requirements, including OSHA's Bloodborne Pathogens (29 CFR 1910.1030), Personal Protective Equipment (29 CFR 1910.132), and Respiratory Protection (29 CFR 1910.134) standards. See the Standards page for additional information on OSHA requirements.

Engineering Controls

Engineering controls are the first line of defense in healthcare facilities to shield healthcare workers, patients, and visitors from individuals with suspected/confirmed COVID-19. This includes physical barriers or partitions in triage areas to guide patients, curtains separating patients in semi-private areas, and airborne infection isolation rooms (AIIRs) with proper ventilation.

Place patients with suspected or confirmed COVID-19 in an AIIR if available at the healthcare facility. AIIRs are single-patient rooms with negative pressure that provide a minimum of 6 air exchanges (existing structures) or 12 air exchanges (new construction or renovation) per hour. Ensure that the room air exhausts directly to the outside, or passes through a HEPA filter, if recirculated.

If an AIIR is not available, isolate the patient in a private room. Keep the door closed.

Isolation tents or other portable containment structures may serve as alternative patient-placement facilities when AIIRs are not available and/or examination room space is limited. Ensure that the room air exhausts directly to the outside, or passes through a HEPA filter, if recirculated.

The CDC/Healthcare Infection Control Practices Advisory Committee (HICPAC) Guidelines for Environmental Infection Control in Healthcare Facilities contains additional information on negative-pressure room control for airborne infection isolation.

Administrative Controls

Consistent with the general interim guidance described above, isolate patients with suspected or confirmed COVID-19 to prevent transmission of the disease to other individuals. If possible, isolating suspected cases separately from confirmed cases may also help prevent transmission.

Restrict the number of personnel entering the room of a patient with suspected/confirmed COVID-19. This may involve training healthcare workers in appropriate use of PPE so they can perform tasks such as housekeeping and meal service to reduce the need for environmental and food service workers to enter areas where suspected or confirmed COVID-19 patients are isolated.

Follow CDC guidelines for signs for and labeling of patient room doors when transmission-based precautions (i.e., contact and airborne precautions) are in place.

Minimize aerosol-generating procedures (AGPs), performing only those that are necessary for clinical diagnosis and care of a patient. Minimize the number of staff present when performing AGPs.

Safe Work Practices

Perform as many tasks as possible in areas away from a patient with suspected/confirmed COVID-19 (e.g., do not remain in an isolation area to perform charting; use closed-circuit television systems to communicate with patients in an isolation area when a worker does not need to be physically present).

Work from clean to dirty (i.e., touching clean body sites or surfaces before touching dirty or heavily contaminated areas) and limit opportunities for touch contamination (e.g., adjusting glasses, rubbing nose, or touching face with gloves that have been in contact with suspected/confirmed COVID-19 patients or contaminated/potentially contaminated surfaces). Also, prevent touch contamination by avoiding unnecessary touching of environmental surfaces (such as light switches and door handles) with contaminated gloves.

Ensure that there are systems in place to: differentiate clean areas (e.g., where PPE is put on) from potentially contaminated areas (e.g., where PPE is removed); handle waste and other potentially infectious materials; and clean, disinfect, and maintain reusable equipment and PPE.

Use caution when handling needles or other sharps, and dispose of contaminated sharps in puncture-proof, labeled, closable sharps containers.

Train and retrain workers on how to follow the established protocols.

Personal Protective Equipment

Healthcare workers must use proper PPE when exposed to a patient with confirmed/suspected COVID-19 or other sources of COVID-19 (See OSHA's PPE standards at 29 CFR 1910 Subpart I).

CDC and OSHA recommend that healthcare workers wear:

- Gowns
- Gloves
- National Institute for Occupational Safety and Health (NIOSH)-certified, disposable N95 or better respirators
- Eye/face protection (e.g., goggles, face shield)

Use respiratory protection as part of a comprehensive respiratory protection program that meets the requirements of OSHA's Respiratory Protection standard (29 CFR 1910.134) and includes medical exams, fit testing, and training.

When doffing potentially contaminated PPE such as a N95 respirator, do not touch the outside of the respirator without wearing gloves.

After removing PPE, always wash hands with soap and water, if available. Ensure that hand hygiene facilities (e.g., sink or alcohol-based hand rub) are readily available at the point of use (e.g., at or adjacent to the PPE doffing area).

Further Information

Emergency medical services (EMS) and medical transport:

- Workers and employers involved in EMS or other medical transport operations will likely need to adapt guidelines for the mobile work environment. That may mean relying on PPE (e.g., respirators) to protect workers when use of AIIRs or other isolation mechanisms are not practical and when staff have potentially prolonged, close contact with suspected or confirmed COVID-19 patients in transit.

Home care:

- CDC has developed interim guidance for healthcare providers who are coordinating the home care and isolation or quarantine of people confirmed or suspected to have COVID-19.

Cleaning and disinfection:

- Follow standard practices for high-level disinfection and sterilization of semi-critical and critical medical devices contaminated with COVID-19, as described in the CDC Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008.
- At this time, there is no EPA-approved list of disinfectants effective against COVID-19. EPA does not categorize disinfectants as hospital- or commercial-grade or keep a list of EPA-registered antimicrobial products registered for use in healthcare facilities. As a result, products effective at inactivating the virus must be determined based on data associated with inactivating similar or hardier (i.e., more difficult to inactivate) viruses. COVID-19 is a coronavirus and highly susceptible to inactivation by many commonly used disinfectants. Currently, OSHA recommends following SARS disinfection practices (see section D-10 in the linked document) for environmental areas contaminated with COVID-19.

The CDC advises the use of EPA-registered chemical germicides that provide low or intermediate level disinfection for SARS during general use (surface and noncritical patient-care equipment) because these products inactivate related viruses with similar physical and biochemical properties. CDC's Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008 provides information on the effectiveness of germicides on coronaviruses.

Deathcare Workers and Employers

This section provides guidance for deathcare workers, such as coroners, medical examiners, autopsy technicians, funeral directors, and other mortuary workers. This guidance supplements the general, interim guidance for U.S. workers and employers of workers with potential occupational exposures to COVID-19, above.

Until more is known about how the COVID-19 spreads, CDC and OSHA recommend using a combination of standard precautions, contact precautions, airborne precautions, and eye protection (e.g., goggles or face shields) to protect mortuary and other deathcare workers with exposure to the virus.

Mortuary and other deathcare workers who have contact with the remains of people who have died from COVID-19 infection must be protected from exposure to infected blood and body fluids, contaminated objects, or other contaminated environmental surfaces.

Employers of mortuary and other deathcare workers are responsible for following applicable OSHA requirements, including OSHA's Bloodborne Pathogens (29 CFR 1910.1030), Personal Protective Equipment (29 CFR 1910.132), and Respiratory Protection (29 CFR 1910.134) standards. See the Standards page for additional information on OSHA requirements.

Prompt cremation or burial of the remains of individuals who have died of COVID-19 can help prevent worker exposure to the virus. (State and local requirements may dictate whether or not the remains of individuals who have died of certain infectious diseases can be buried or if they must be cremated.)

Follow recognized good biosafety practices to prevent or minimize transmission of infectious agents (i.e., COVID-19). To protect workers from COVID-19 exposure, OSHA recommends suspension of *post mortem* or autopsy procedures on patients with suspected/confirmed COVID-19 infection. Although the infection process is not fully understood, this recommendation considers the potential for very high viral load (i.e., the number of viral particles in the body) at death and sources of exposure to workers performing autopsy procedures. If deemed necessary and appropriate, OSHA recommends strict adherence to basic safety procedures used for any autopsy on human remains, the general guidanceapplicable to all workers provided at the beginning of this page, and the controls described below.

Engineering Controls

Perform autopsies on remains of people who have died from COVID-19 infection in autopsy suites that have adequate air-handling systems. This includes systems that maintain negative pressure relative to adjacent areas and that provide a minimum of 6 air exchanges (existing structures) or 12 air exchanges (new construction or renovation) per hour. Ensure that room air exhausts directly to the outside, or passes through a HEPA filter, if recirculated. Direct air (from exhaust systems around the autopsy table) downward and away from workers performing autopsy procedures. CDC's Guidelines for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings provides guidelines for AIIR use and recommendations for air exchange rates, which are similar to what should be followed in autopsy suites. Section VIII - Infection Control for Laboratory and Pathology Procedures of CDC's Infection Control in Healthcare, Home, and Community Settings for SARS also provides guidance applicable to pathology work, including autopsies, for coronaviruses.

Use a biosafety cabinet for the handling and examination of smaller specimens and other containment equipment whenever possible.

Equipment, such as saws, should be equipped with vacuum shrouds to capture aerosols.

Administrative Controls

Restrict the number of personnel entering the autopsy suite. This may involve training mortuary workers, such as medical examiners or autopsy technicians, to perform environmental services tasks (e.g., cleaning and decontamination) in lieu of additional workers entering such areas.

Minimize aerosol-generating procedures (AGPs), performing only those that are necessary to perform the autopsy or prepare remains for cremation or burial.

Minimize the number of staff present when performing AGPs. Exclude those who may be necessary for other procedures but not specifically the AGP.

Safe Work Practices

Follow standard safety procedures for preventing injuries to/through the skin during autopsy. Use caution when handling needles or other sharps, and dispose of contaminated sharps in puncture-proof, labeled, closable sharps containers.

Personal Protective Equipment

All mortuary workers and other deathcare workers who have contact with human remains known or suspected to be contaminated with COVID-19 must wear appropriate PPE (see OSHA's PPE standards, 29 CFR 1910 Subpart I). For workers performing autopsies, this includes typical autopsy PPE, such as:

- Double surgical gloves interposed with a layer of cut-proof synthetic mesh gloves
- Scrub suit worn under an impermeable gown or apron
- Goggles or face shield
- Shoe covers
- Surgical cap

Additionally, because of the sustained likelihood of aerosol generation during various steps of autopsy procedures, use respiratory protection as part of a comprehensive respiratory protection program that meets the requirements of OSHA's Respiratory Protection standard (29 CFR 1910.134) and includes NIOSH-certified disposable N95 or better respirators, medical exams, fit testing, and training. Powered, air-purifying respirators (PAPRs) with HEPA filters may provide increased worker comfort during extended autopsy procedures.

Remove PPE before leaving the autopsy suite and follow appropriate disposal requirements. After removing PPE, always wash hands with soap and water, if available. Ensure that hand hygiene facilities (e.g., sink or alcohol-based hand rub) are readily available at the point of use (e.g., at or adjacent to the PPE doffing area).

For other workers handling human remains:

- Wear nonsterile, nitrile gloves when handling potentially infectious materials.
- If there is a risk of cuts, puncture wounds or other injuries that break the skin, wear heavy-duty gloves over the nitrile gloves.
- Wear a clean, long-sleeved fluid-resistant or impermeable gown to protect the clothing.
- Use a plastic face shield or a surgical mask and goggles to protect the face, eyes, nose and mouth from potentially infectious body fluids.
- If there is a risk of aerosol generation while handling human remains, use respiratory protection as part of a comprehensive respiratory protection program that meets the requirements of OSHA's Respiratory Protection standard (29 CFR 1910.134) and includes NIOSH-certified N95 or better respirators, medical exams, fit testing, and training. PAPRs with HEPA filters may provide increased worker comfort during extended autopsy procedures.

See the OSHA Fact Sheet, Health and Safety Recommendations for Workers Who Handle Human Remains, for more guidelines to ensure worker safety when handling human remains.

Laboratory Workers and Employers

This section provides guidance for clinical and research laboratory workers and employers. This guidance supplements the general, interim guidance for U.S. workers and employers of workers with potential occupational exposures to COVID-19, above.

Until more is known about how the COVID-19 spreads, CDC and OSHA recommend using a combination of standard precautions, contact precautions, airborne precautions, and eye protection (e.g., goggles or face shields) to protect laboratory workers with exposure to the virus.

Clinical laboratory employers and workers who handle specimens associated with COVID-19 infections should follow both CDC's interim laboratory biosafety guidelines and OSHA's recommendations in this section.

Laboratory workers who handle clinical specimens from patients with suspected/confirmed COVID-19 or samples of COVID-19 as part of research and development work must be protected from exposure.

Follow recognized good biosafety practices to prevent or minimize transmission of infectious agents (i.e., COVID-19). Laboratories should already be using standard precautions as specified in the general guidance above, and should be following standard laboratory practices. These practices should continue when working with COVID-19 samples/specimens. This includes clinical and microbiological laboratories performing routine diagnostic, analytical, or other research-related tests on serum, blood, sputum (respiratory), and other specimens.

Employers of laboratory workers are responsible for following applicable OSHA requirements, including OSHA's Bloodborne Pathogens (29 CFR 1910.1030), Personal Protective Equipment (29 CFR 1910.132), Respiratory Protection (29 CFR 1910.134), and Occupational Exposure to Hazardous Chemicals in Laboratories (29 CFR 1910.1450) standards.

Laboratory employers should routinely review standard laboratory practices and safety and health procedures with lab workers; train and test the competency of workers in appropriate implementation of these procedures and practices; and ensure consistent adherence to them.

Laboratory personnel working with samples suspected/confirmed to contain COVID-19 should immediately report to their supervisor any incidents or accidents involving potential or actual exposure to COVID-19, as well as development of symptoms consistent with COVID-19.

Employers should implement appropriate protocols for handling, storing, and shipping specimens and ensure adherence by all laboratory workers. Packaging, shipping, and transport of specimens suspected or known to be contaminated with COVID-19 may be regulated by:

- OSHA's Bloodborne Pathogens standard (29 CFR 1910.1030), if the specimen either is blood or contains another body fluid that is visibly contaminated with blood
- The U.S. Department of Transportation's Hazardous Materials Regulations
- CDC and USDA permitting requirements for biological select agents and toxins
- State and local requirements

Laboratories should ensure that their facilities and precautions meet the appropriate Biosafety Level (BSL) for the type of work conducted (including the specific biological agents – in this case, COVID-19) in the lab. The CDC's Biosafety in Microbiological and Biomedical Laboratories (BMBL), 5th Edition provides detailed guidance on BSLs in Section IV - Laboratory Biosafety Level Criteria. Increasing BSL levels involves more worker training, higher levels of containment of samples and other sources of pathogens, specially-designed air handling systems, additional worker PPE, and other stricter controls. For example, at BSL-2, access to laboratories and other controlled work areas is limited when work is occurring and certain procedures are conducted in biosafety cabinets or other containment equipment. At BSL-3, in addition to controlling access to laboratories and work areas, all work involving infectious materials is conducted in biosafety cabinets or other containment equipment.

Virus isolation in cell culture and initial characterization of viral agents recovered in cultures of COVID-19 specimens are not recommended at this time, except at a BSL-3 facility.

Consistent with the BMBL guidance, the following procedures may be conducted at BSL-2:

- Pathologic examination and processing of formalin-fixed or otherwise inactivated tissues
- Molecular analysis of extracted nucleic acid preparations
- Electron microscopic studies with glutaraldehyde-fixed grids
- Routine examination of bacterial and fungal cultures
- Routine staining and microscopic analysis of fixed smears
- Final packaging of specimens for transport to diagnostic laboratories for additional testing (specimens should already be in a sealed, decontaminated primary container)

Perform activities involving manipulation of untreated specimens in BSL-2 facilities using a Class II BSC. A site-specific risk assessment should be performed to determine if enhanced biosafety precautions, such as those consistent with BSL-3, are warranted based on situational needs (e.g. high testing volumes), including when:

- Aliquoting and/or diluting specimens
- Inoculating bacterial or mycological culture media
- Performing diagnostic tests that do not involve propagation of viral agents in vitro or in vivo
- Nucleic acid extraction procedures involving potentially infected specimens
- Preparation and chemical- or heat-fixing of smears for microscopic analysis

In addition to the general guidance, applicable to all workers provided at the beginning of this tab, OSHA recommends the following controls for laboratory workers:

Engineering Controls

To maximize worker protection, perform as much work as possible in a properly maintained and certified biosafety cabinet (BSC). Class I BSCs use negative pressure and high-efficiency particulate arrest (HEPA) filters to contain agents and protect workers and the environment. Class II and III BSCs provide higher levels of containment and filtration that also protect samples or other products in the BSC from contamination.

Ensure that all procedures involving manipulation of untreated specimens or that have the potential to generate aerosols (e.g., vortexing or sonication of specimens in an open tube, etc.) are conducted in a BSC while following BSL-3 practices. [4] Use appropriate physical containment devices (such as sealed centrifuge rotors or safety carriers with gaskets) for centrifugation.

The OSHA Fact Sheet, Laboratory Safety Biosafety Cabinets (BSC), provides guidance on training and effective use of BSCs.

Administrative Controls

Train all laboratory personnel on any additional procedures developed by the employer for safely handling specimens from patients with suspected/confirmed COVID-19. This includes training on the communication procedures in effect between the clinical and laboratory staff to ensure timely notification and proper labeling of suspected/confirmed COVID-19 contaminated specimens. Training must be offered during scheduled work times and at no cost to the employee.

Use administrative controls that maximize the protectiveness of engineering controls, including BSCs. For example, maintain chemical reagents involved in research or diagnostic work below their lower explosive limits, especially in BSCs.

Safe Work Practices

Use work practices that maximize the protectiveness of engineering controls, including BSCs. For example, if a BSC does not operate continuously, turn it on and allow it to operate for several minutes before use to allow airflow to stabilize. Similarly, wait a few moments before beginning work after inserting arms into a BSC to allow the protective air curtain around the arms to stabilize.

Use technical procedures that minimize the formation of aerosols and droplets. As a corollary, avoid procedures that generate aerosols and droplets (e.g., pipetting, vortexing tubes) and perform any necessary aerosol-generating procedures in containment (e.g., inside a BSC) and/or while using appropriate precautions, including worker PPE.

Use caution when handling needles or other sharps, and dispose of contaminated sharps in puncture-proof, labeled, closable sharps containers.

See general guidance for recommendations on disinfection of environmental surfaces and noncritical patient-care equipment potentially contaminated with COVID-19.

Use an autoclave to inactivate infectious material in all waste prior to disposal. Adhere to applicable federal, state and local regulations when disposing of laboratory waste.

Personal Protective Equipment

All laboratory workers working with COVID-19 must wear appropriate PPE (29 CFR 1910.132). The BSL provides guidance for selecting appropriate PPE for the tasks that are conducted. This may include disposable nonsterile gloves, laboratory coat/gown, and eye protection when handling specimens at BSL-2 or above. The lab coat or solid-front gown should have a knit or grip cuff. Use double gloves that extend over the sleeve of the lab coat or gown.

At BSL-3, including when conducting procedures that may generate aerosols, use a NIOSH-certified N95 (or higher) respirator as part of a comprehensive respiratory protection program that meets the requirements of OSHA's Respiratory Protection standard (29 CFR 1910.134) and includes medical exams, fit testing, and training.

When using a BSC, remove the outer pair of gloves before exiting the BSC, and don a new pair when reentering the BSC.

Further Information

Biosafety in Microbiological and Biomedical Laboratories (BMBL), 5th Edition provides guidance on protecting workers in laboratory environments. The following sections may be particularly relevant:

- Section VII - Occupational Health and Immunoprophylaxis
- Section VIII - E – Viral Agents Agent Summary

The WHO resource, Laboratory Biosafety Manual - Third Edition, contains additional practical guidance on biosafety techniques for use in laboratories at all levels.

Airline Workers and Employers

Airline workers and employers can consult the general, interim guidance for U.S. workers and employers of workers with potential occupational exposures to COVID-19, above.

These workers and employers, in addition to airline crewmembers, can also find information in CDC's interim recommendations for airlines and airline crew.

Note: The occupational safety and health of flight crewmembers (i.e., pilot, flight engineer, flight navigator) are under the jurisdiction of the Federal Aviation Administration (FAA) and not covered by OSHA standards while they are on aircraft in operation. However, under a policy statement issued by FAA and a Memorandum of Understanding (MOU) between the FAA and OSHA, Occupational Safety and Health Standards for Aircraft Cabin Crewmembers, the other aircraft cabin crewmembers are covered by OSHA's Bloodborne Pathogens (29 CFR 1910.1030), Noise, (29 CFR 1910.95) and Hazard Communication (29 CFR 1910.1200) standards while they are on aircraft in operation (which occurs from the time the aircraft is first boarded by a crewmember, preparatory to a flight, to the time the last crewmember leaves the aircraft after completion of that flight, including stops on the ground during which at least one crewmember remains on the aircraft, even if the engines are shut down). These include flight attendants, workers assigned to clean and restock the cabin, and other workers assigned to perform duty in an aircraft cabin when the aircraft is in operation.

Border Protection Workers and Employers

This section provides guidance for workers and employers involved in border protection and screening operations. This guidance supplements the general, interim guidance for U.S. workers and employers of workers with potential occupational exposures to COVID-19, above.

Generally, border protection officers and other workers at most ports of entry do not need special precautions beyond those already used to protect workers from the hazards they encounter during their routine job tasks.

However, various combination of engineering and administrative controls, safe work practices, and PPE may be appropriate for border protection workers, depending on the results of their employers' hazard and risk assessments.

Engineering controls

Use physical barriers to separate border protection officers and other workers from incoming travelers, at least at the point of initial screening and, in particular, when such travelers are arriving from areas where the COVID-19 is spreading.

Use designated areas, such as dedicated, private rooms with closeable doors, to isolate travelers suspected of having COVID-19, including those with obvious or self-reported signs and/or symptoms of infection.

If workers are screening passengers for fever, use contactless (i.e., thermal sensor) thermometers to prevent workers from needing to touch sick travelers and to maximize the distance that can be kept between workers and such travelers.

Personal Protective Equipment

Most border protection officers and other workers are unlikely to need PPE beyond what they use to protect themselves during routine job tasks. However, employers should consider whether their hazard and risk assessments warrant use of items such as gloves or eye and face protection.

Border protection officers entering rooms where travelers with suspected COVID-19 have been isolated, such as during augmented (i.e., secondary, tertiary) screening steps, may need to be protected with higher level PPE, including gowns and NIOSH-certified disposable N95 or better respirators. In those cases, respirators must be used as part of a comprehensive respiratory protection program that meets the requirements of OSHA's Respiratory Protection standard (29 CFR 1910.134) and includes medical exams, fit testing, and training.

After removing PPE, always wash hands with soap and water, if available. Ensure that hand hygiene facilities (e.g., sink or alcohol-based hand rub) are readily available at the point of use (e.g., at or adjacent to the PPE doffing area).

Solid Waste and Wastewater Management Workers and Employers

This section provides guidance for solid waste and wastewater management workers and employers. This guidance supplements the general, interim guidance for U.S. workers and employers of workers with potential occupational exposures to COVID-19, above.

Generally, management of waste that is suspected or known to contain or be contaminated with COVID-19 does not require special precautions beyond those already used to protect workers from the hazards they encounter during their routine job tasks in solid waste and wastewater management.

Some state, local, tribal and/or territorial health or environmental department(s) may have different or additional requirements for managing solid waste and wastewater.

Municipal Waste

Workers and employers should manage municipal (e.g., household, business) solid waste with potential or known COVID-19 contamination like any other non-contaminated municipal waste.

Use typical engineering and administrative controls, safe work practices, and PPE, such as puncture-resistant gloves and face and eye protection, to prevent worker exposure to the waste streams (or types of wastes), including any contaminants in the materials, they manage. Such measures can help protect workers from sharps and other items that can cause injuries or exposures to infectious materials.

Medical Waste

For medical waste with potential or known COVID-19 contamination, manage like any other regulated medical waste. COVID-19 is not a Category A infectious substance.

Use typical engineering and administrative controls, safe work practices, and PPE, such as puncture-resistant gloves and face and eye protection, to prevent worker exposure to the waste streams (or types of wastes), including any contaminants in the materials, they manage. Such measures can help protect workers from sharps and other items that can cause injuries or exposures to infectious materials.

For regulated medical waste information, consult the regulated medical waste information in CDC's Guidelines for Environmental Infection Control in Health-Care Facilities (2003). This document provides additional information related to management of waste streams from hospitals and other healthcare facilities.

CDC also provides information on medical waste management as a Question and Answer page on its coronavirus website.

Recycling

As with municipal waste, employers and workers in the recycling industry should continue to use typical engineering and administrative controls, safe work practices, and PPE, such as puncture-resistant gloves and face and eye protection, to prevent worker exposure to recyclable materials they manage, including any contaminants in the materials.

Wastewater

Coronaviruses are susceptible to the same disinfection conditions in the healthcare setting as other viruses, so current disinfection conditions in wastewater treatment facilities is expected to be sufficient. This includes conditions for practices such as oxidation with hypochlorite (i.e., chlorine bleach) and peracetic acid, as well as inactivation through the use of ultraviolet irradiation.

There is no evidence to suggest that additional, COVID-19-specific protections are needed for employees involved in wastewater management operations, including those at wastewater treatment facilities. Wastewater treatment plant operations should ensure workers follow routine practices to prevent exposure to wastewater, including using the engineering and administrative controls, safe work practices, and PPE normally required for work tasks when handling untreated wastewater.

Business Travelers

Employers and workers considering or planning travel to areas affected by the COVID-19 outbreak should consult CDC's coronavirus information for travelers.

The U.S. Department of State has also issued a travel advisory for China in response to the ongoing outbreak.