COVID-19 Preparedness and Response Plan for On-campus Employees during the COVID-19 Pandemic

Updated May 5, 2020
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Introduction

Coronavirus Disease 2019 (COVID-19) is a respiratory disease caused by the SARS-CoV-2 virus. It has spread from China to many other countries around the world, including the United States. This document will summarize the University of Michigan preparedness and response actions for COVID-19 based on traditional infection prevention and industrial hygiene practices. It focuses on the implementation of engineering, administrative, and work practice controls and personal protective equipment (PPE), in the effort to control employee exposures to the extent feasible.

This plan is intended to provide information on the risk levels in workplace settings and the appropriate control measures that should be implemented based on the risk present. This document will be adjusted as needed as COVID-19 outbreak conditions change, including new information about the virus, its transmission, and impacts, becomes available.


**Note:** *These practices are intended to apply to on-campus employees only*. The practices outlined in this document do not apply to employees who are working remotely although it would be prudent to follow the general guidance on protecting employees with lower risk exposures.
About COVID-19

Symptoms of COVID-19

Infection with SARS-CoV-2, the virus that causes COVID-19, can cause illness ranging from mild to severe and, in some cases, can be fatal. Symptoms typically include cough, shortness of breath or difficulty breathing, chills, repeated shaking with chills, muscle pain, headache, sore throat and new loss of taste or smell. Some people infected with the virus have reported experiencing other non-respiratory symptoms. Other people, referred to as asymptomatic cases, have experienced no symptoms at all.

According to the CDC, symptoms of COVID-19 may appear in as few as 2 days or as long as 14 days after exposure.

How COVID-19 Spreads

Although the first human cases of COVID-19 likely resulted from exposure to infected animals, infected people can spread SARS-CoV-2 to other people.

The virus is thought to spread mainly from person-to-person, including:

- Between people who are in close contact with one another (within about 6 feet).
- Through respiratory droplets produced when an infected person coughs or sneezes.
- These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.
- Some recent studies have suggested that COVID-19 may be spread by people who are not showing symptoms.

It may be possible that a person can get COVID-19 by touching a surface or object that has SARS-CoV-2 on it and then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the primary way the virus spreads.

The virus that causes COVID-19 is spreading very easily and sustainably between people. Information from the ongoing COVID-19 pandemic suggest that this virus is spreading more efficiently than influenza, but not as efficiently as measles, which is highly contagious.


How a COVID-19 Outbreak Could Affect Workplaces

Similar to influenza viruses, SARS-CoV-2, the virus that causes COVID-19, has the potential to cause extensive outbreaks.

Under conditions associated with widespread person-to-person spread, multiple areas of the United States and other countries may see impacts at the same time. In the absence of a vaccine, an outbreak may also be an extended event. As a result, workplaces may experience:

- **Absenteeism.** Workers could be absent because they are sick; are caregivers for sick family members; are caregivers for children if schools or day care centers are closed; have at-risk people at home, such as immunocompromised family members; or are afraid to come to work because of fear of possible exposure.
- **Change in patterns of commerce.** Consumer demand for items related to infection prevention (e.g., respirators) is likely to increase significantly, while consumer interest in other goods may decline.
- **Interrupted supply/delivery.** Shipments of items from geographic areas severely affected by COVID-19 may be delayed or cancelled with or without notification.
Steps to Reduce Workers’ Risk of Exposure to SARS-CoV-2

Remote Work

To reduce the density of individuals within the workplace, those individuals that can perform their work duties remotely should be moved to a work from home status. The State of Michigan issued an executive order titled “Temporary requirement to suspend activities that are not necessary to sustain or protect life” that took effect on March 24, 2020. This order has been rescinded and reinstated multiple times to resume work activities in certain sectors as a pathway to economic recovery in the State. To view the executive order that is currently in order, refer to the State of Michigan Executive Order webpage.

Employees that can work remotely must continue to do so until otherwise directed to return to campus by their department, per the executive order requirements.

Important considerations for moving to remote work include determining employees’ needs for computers and other items, ensuring access to departmental shared drives and programs, and ensuring that workers new workspace will not contribute to ergonomic discomfort.

ITS created a Remote resource guide to aid students, staff and faculty to work or learn remotely.

Additionally, EHS created a document regarding considerations for Ergonomics of working from home.

Essential Staff

Some operations are essential in maintaining and supporting the ongoing mission of the University, and cannot be performed remotely. Careful consideration must be employed when making determinations of which functions are essentials and how many staff are required to perform those functions. The need for employees to be on-site must be carefully balanced with the overall goal to reduce the population density of individuals within a workspace.

Implement Basic Infection Prevention Measures

Protecting workers will depend on emphasizing basic infection prevention measures. As appropriate, all are required to implement proper hygiene and infection control practices, including:

- Frequent and thorough hand washing, accomplished by providing workers, customers, and worksite visitors with a place to wash their hands. If soap and running water are not immediately available, provide alcohol-based hand rubs containing at least 60% alcohol.
- Workers must stay home if they are sick.
- Following proper respiratory etiquette, including covering coughs and sneezes.
- Providing tissues and trash receptacles.
- Employ measures to reduce the density of workers at any given location. The general guidance is to estimate a minimum of 144 square feet per person. This density will ensure that workers are able to reasonably socially distance. Staggered shifts, alternate job locations, etc. can all help increase the physical distance among employees and between employees and others.
- Workers should not use other workers’ phones, desks, offices, or other work tools and equipment, unless unavoidable for necessary work. When necessary these items should be disinfected prior to and after use.
- Conduct regular housekeeping, including routine cleaning and disinfecting of surfaces, equipment, and other elements of the work environment. If equipment or tools are shared be certain that frequent cleaning and disinfection is performed. Refer to the EHS protocol on Cleaning and Disinfection for prevention of COVID-19 for more detail.
- Restrict travel in a work vehicle to no more than one person, if feasible. If work vehicles must be shared, ensure disinfection occurs after each use.
- Take steps to limit spread of the respiratory secretions of a person who may have COVID-19. Per the State of Michigan Executive Order 2020-59 (the “Executive Order”), when is any enclosed public space, any
individual able to medically tolerate a face covering must wear a covering over his or her nose and mouth—such as a homemade mask, scarf, bandana, or handkerchief. To view the executive order currently in effect, refer to the State of Michigan Executive Order webpage. Refer to EHS Document on Face Covering Usage for COVID-19 for further details.

Additional measures in healthcare areas:
- People suspected of having COVID-19 should be isolated separately from those with confirmed cases of the virus to prevent further transmission using either permanent (e.g., wall/different room) or temporary barriers (e.g., plastic sheeting).
- Restrict the number of personnel entering isolation areas.
- Protect workers in close contact (e.g., within 6 feet) of a sick person or who have prolonged/repeated contact with such persons by using additional engineering and administrative controls, safe work practices, and PPE. Workers whose activities involve close or prolonged/repeated contact with sick people are addressed further in later sections covering workplaces classified at medium and very high or high exposure risk.

Policies and Procedures for Prompt Identification and Isolation of Sick People
- Prompt identification and isolation of potentially infectious individuals is a critical step in protecting workers, customers, visitors, and others.
- Supervisors should inform and encourage employees to self-monitor daily for signs and symptoms of COVID-19.
- Supervisors should inform employees to stay home or go home if they are experiencing the symptoms. If they need to remain at work for a period, an area with closable doors should be dedicated to isolate the ill individual from other co-workers.
- Employees should call Occupational Health Services (OHS) 24/7 hotline at 734-764-8021, select option 1 to report their symptoms and be triaged for testing for COVID-19.
- Employees that test positive for COVID-19 will be notified by OHS and provided guidance for self-isolation. They will also be provided with information to give their supervisor on their status and a notification process for other employees. Contact tracing will be coordinated between OHS, University Health Service (UHS) and EHS.

Measures in Place and Communication about Workplace Flexibilities and Protections
- Employees are actively encouraged to stay home if they are sick.
- Sick leaves policies have been updated to ensure they are flexible and consistent with public health guidelines and posted on the University Human Resources COVID-19 website. Information is also available regarding relaxed documentation standards and additional guidance for the care of ill family members.
- Frequent communication occurs regarding proper hygiene practices, PPE requirements, and training with the goal that workers can feel safe and protected at work.

History of Steps taken for the university community of students, faculty and staff.

- February 20, 2020 – Statement to Board of Regents.
- February 27, 2020- Travel restrictions expanded to include South Korea. Community asked to register all university-related international travel.
- March 5, 2020- COVID-19 precautions and recommendations: Included more information on quarantine, enhanced
cleaning on campus, preparation at Michigan Medicine, travel information.

**March 11, 2020** - COVID-19 Update:
- Classes canceled for March 12-13th; Move to online on March 16th; Effective through April 21, 2020
- UM Events and other events on campus- cancelled for gatherings greater than 100 people effective March 12, 2020-April 21, 2020
- All university international travel suspended through March 21, 2020 and all domestic strongly discouraged.
- Study Abroad programs altered or suspended.
- Additional reminders about infection prevention precautions and steps taken.

**March 13, 2020** – COVID-19 Updates and Announcements:
- Confirmed positive COVID-19 case at U-M
- Managers encouraged to provide remote work opportunities while keeping units open for business.
- Students encouraged to move home.
- Commencement ceremony canceled; Exams moved to remote format.
- Created a one-time paid time off bank for employees who are eligible for up to 80 hours of paid time off to be used in the case of quarantine, isolation or family care needs related to COVID-19 exposure, illness or other related scenario or a temporary lack of work.
- Activated the Emergency Operations Center on campus.

**March 15, 2020** – Message for faculty, staff and students in research workplaces that emphasized reducing density in research spaces, maintaining social distancing and following recommended practices.

**March 18, 2020** - Updates and Guidance:
- Maintain critical operations, continue remote work to extent feasible to reduce campus density.
- Request for community to stay home when sick, perform frequent handwashing, and limit in person groups to no more than 10.
- Ramp down of non-critical research activities effective 5 pm Friday March 20, 2020.
- Most campus buildings moved to a controlled access status via card reader system.
- Public access to buildings such as libraries, museums and fitness facilities per Governor’s Executive Order 2020-09.
- Added guidance for supervisors with employees that test positive for COVID-19 on the University Human Resources COVID-19 FAQ.
- Modified parking enforcement in lots and structures.

**March 23, 2020** – U-M Guidelines on Governor’s “Stay at Home, Stay Safe” Executive Order 2020-21 through April 13, 2020. (Note: This order has been rescinded and new orders were issues to extend the date - 2020-42, and 2020-59, and 2020-70

**March 26, 2020**- U-M Response to COVID-19 Pandemic at March 2020 Board of Regents Meetings

**March 27, 2020**- Michigan commitment through Crisis


**April 20, 2020** – Update on COVID-19 – Focus on actions needed to preserve financial resources including options to aid employees in the face of lack of work in non-critical operations.

**April 28, 2020** - Extension of ‘Stay Home, Stay Safe’ order and an update on U-M’s future plans

### Implement Workplace Controls

Occupational safety and health professionals use a framework called the “hierarchy of controls” to select ways of controlling workplace hazards. In other words, the best way to control a hazard is to systematically remove it from the workplace, rather than relying on workers to reduce their exposure.

During a COVID-19 outbreak, when it may not be possible to eliminate the hazard, the most effective protection measures are (listed from most effective to least effective): engineering controls, administrative controls, safe work practices (a type of administrative control), and PPE. There are advantages and disadvantages to each type of control measure when considering the ease of implementation,
effectiveness, and cost. In most cases, a combination of control measures will be necessary to protect workers from exposure to SARS-CoV-2. Refer to Appendix B for more information about the various types of workplace controls and examples.

**Follow Existing OSHA Standards**

Existing OSHA standards may apply to protecting workers from exposure to and infection with SARS-CoV-2.

While there is no specific OSHA standard covering SARS-CoV-2 exposure, some OSHA requirements may apply to preventing occupational exposure to SARS-CoV-2. In addition to the PPE standard and Respirator Protection Standard both referenced in the section above, the following may also be relevant:

- The General Duty Clause, Section 5(a)(1) of the Occupational Safety and Health (OSH) Act of 1970, 29 USC 654(a)(1), which requires employers to furnish to each worker “employment and a place of employment, which are free from recognized hazards that are causing or are likely to cause death or serious physical harm.”
- MIOSHA’s Bloodborne Pathogens standard applies to occupational exposure to human blood and other potentially infectious materials that typically do not include respiratory secretions that may transmit SARS-CoV-2. However, the provisions of the standard offer a framework that may help control some sources of the virus, including exposures to body fluids (e.g., respiratory secretions) not covered by the standard. Refer to the UM Exposure Control Plan for more information.

EHS stays up to date on all guidance from MIOSHA and OSHA on COVID-19 and will incorporate new information into this plan as it is available.

**Unit-specific Workplace Measures**

All employees should follow the “Steps to Reduce Workers’ Risk of Exposure to SARS-CoV-2” beginning on Page 5 of this document. In addition to those measures, some units may have additional measures that are implemented based on exposure risk. The additional requirements are listed below by Unit or Sector.

**Construction Industry - Projects managed by construction contractors on U-M Property**

State of Michigan Executive Order 2020-70 resumes work in the construction industry, including workers in the building trades (plumbers, electricians, HVAC technicians, and similar workers) to resume work activities effective at 12:01 am on May 7, 2020. Under this order, construction employers are required to develop a COVID-19 preparedness and response plan and follow all provisions of the order. All university personnel that are required to visit a construction site under the control of a construction contractor must adhere to the site-specific requirements for each project.

**Facilities & Operations-**

**For all F&O Staff:**

Many Facilities & Operations staff will be provided surgical masks and cloth face covering when available. When F&O staff are performing tasks that do not allow for social distancing, the use of the surgical mask is required in lieu of the cloth face covering. Refer to COVID-19 Mask Usage Guidance for Critical Infrastructure Workers and First Responders for information on use, care and storage. EHS will supply all of these masks for F&O.

EHS also has supplies available for use within F&O as needed, including hand sanitizer and disinfection materials.
A supply request form is available on the F&O intranet site.

Many F&O personnel will enter contractor construction projects. Refer to the Construction Industry section above for details on expectations for F&O staff when on a contractor job site.

**All F&O Units:** While a number of employees are continuing to work from home, some essential staff are working on campus as needed, following **Steps to Reduce Workers’ Risk of Exposure to SARS-CoV-2**. F&O staff on-site will be required to take a workplace training on the required steps that need to be followed and will undergo daily screening for symptoms of COVID-19. Select groups have task-based hazard assessments in place. For example, bus drivers. Select groups have additional plans in place:

**Architecture, Engineering & Construction - Construction Services:** This group performs construction work and their work can resume per the State of Michigan [Executive Order 2020-70](#) effective at 12:01 am on May 7, 2020. Per the order, this is document is the COVID-19 plan. In addition to following the “**Steps to Reduce Workers’ Risk of Exposure to SARS-CoV-2**” starting on Page 5. The following will also be implemented for each construction project:

1. A site-specific supervisor will be assigned to each project to monitor and oversee the implementation of COVID-19 control strategies developed in this plan. The site will be defined as the University of Michigan campus and the supervisor will remain on-site during activities. All supervisors and project personnel will be trained on requirements for the jobsite.
2. A daily screening protocol that covers symptoms and exposure to people with possible COVID-19 will be established for workers at the start of their work shift. All F&O staff will also undergo screening at the start of their work shift as verified by their respective supervisor. Visitors (outside of other F&O staff) will generally not be allowed. If an outside vendor is required at a work area the vendor must complete a screening protocol that matches the screening of F&O staff prior to entering the work area.
3. In addition to face coverings already being required, face shields may also be worn in situations where close contact may be required per the work task.
4. PPE will be provided by the supervisor and soiled disposable masks should be disposed of in regular construction waste receptacle.
5. Work gloves may be deemed necessary in situations where there is unavoidable skin contact with contaminated surfaces, but in general should not be needed and should not be used as a substitute for frequent hand washing. Gloves will typically be limited to those needed to protect hands from abrasions and cuts.
6. Areas that may present challenges for social distancing will be managed through signage or barriers to enforce social distancing requirements. (ie. Break areas, tool cribs)
7. Employees should avoid necessary movement between project sites.
8. Deliveries will be managed following social distancing protocols.
Worker Travel

Currently University International and Domestic Travel is prohibited until June 30th. Additionally, due to financial considerations only essential travel should be considered past this date.

- U.S. Department of State (DOS) travel advisories: [travel.state.gov](http://travel.state.gov)

For More Information

Federal, state, and local government agencies are the best source of information in the event of an infectious disease outbreak, such as COVID-19. Staying informed about the latest developments and recommendations is critical, since specific guidance may change based upon evolving outbreak situations.

Below are several recommended websites to access the most current and accurate information:

- Occupational Safety and Health Administration website: [www.osha.gov](http://www.osha.gov)
- Centers for Disease Control and Prevention website: [www.cdc.gov](http://www.cdc.gov)
- National Institute for Occupational Safety and Health website: [www.cdc.gov/niosh](http://www.cdc.gov/niosh)

Environment, Health & Safety is available for consultation at 734-763-9132.
Appendix A: Classifying Worker Exposure to SARS-CoV-2

Worker risk of occupational exposure to SARS-CoV-2, the virus that causes COVID-19, during an outbreak may vary from very high to high, medium, or lower (caution) risk. The level of risk depends in part on the type of work conducted, need for contact within 6 feet of people known to be, or suspected of being, infected with SARS-CoV-2, or requirement for repeated or extended contact with persons known to be, or suspected of being, infected with SARS-CoV-2.

OSHA has divided job tasks into four risk exposure levels: very high, high, medium, and lower risk. Most American workers will likely fall in the lower exposure risk (caution) or medium exposure risk levels.

**Occupational Risk Pyramid for COVID-19**

![Occupational Risk Pyramid for COVID-19](image)

**Very High Exposure Risk**

*Very high exposure risk* jobs are those with high potential for exposure to known or suspected sources of COVID-19 during specific medical, postmortem, or laboratory procedures. Workers in this category include:

- Healthcare workers (e.g., doctors, nurses, dentists, paramedics, emergency medical technicians) performing aerosol-generating procedures (e.g., intubation, cough induction procedures, bronchoscopies, some dental procedures and exams, or invasive specimen collection) on known or suspected COVID-19 patients.
- Healthcare or laboratory personnel collecting or handling specimens from known or suspected COVID-19 patients (e.g., manipulating cultures from known or suspected COVID-19 patients).
- Morgue workers performing autopsies, which generally involve aerosol-generating procedures, on the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death.

**High Exposure Risk**

*High exposure risk* jobs are those with high potential for exposure to known or suspected sources of COVID-19. Workers in this category include:

- Healthcare delivery and support staff (e.g., doctors, nurses, and other hospital staff who must enter patients’ rooms) exposed to known or suspected COVID-19 patients. (Note: when such workers perform aerosol-generating procedures, their exposure risk level becomes *very high*).
- Medical transport workers (e.g., ambulance vehicle operators) moving known or suspected COVID-19 patients in enclosed vehicles.
- Mortuary workers involved in preparing (e.g., for burial or cremation) the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death.

**Medium Exposure Risk**

*Medium exposure risk* jobs include those that require frequent and/or close contact with (i.e., within 6 feet of) people who may be infected with SARS-CoV-2, but who are not known or suspected COVID-19 patients. In areas where there is ongoing community transmission, workers in this category may have frequent close contact with the general public.
Lower Exposure Risk (Caution)

Lower exposure risk (caution) jobs are those that do not require contact with people known to be, or suspected of being, infected with SARS-CoV-2 nor frequent close contact with (i.e., within 6 feet of) the general public. Workers in this category have minimal occupational contact with the public and other coworkers.

Jobs Classified at Lower Exposure Risk (Caution): What to Do to Protect Workers

For workers who do not have frequent contact with the general public, employers should follow the guidance for “Steps All Employers Can Take to Reduce Workers’ Risk of Exposure to SARS-CoV-2,” on page 6 of this plan and implement the following control measures:

Engineering Controls

Additional engineering controls are not recommended for workers in the lower exposure risk group. Employers should ensure that engineering controls, if any, used to protect workers from other job hazards continue to function as intended.

Administrative Controls

- Monitor public health communications about COVID-19 recommendations and ensure that workers have access to that information. Frequently check the CDC COVID-19 website: www.cdc.gov/coronavirus/2019-ncov.
- Collaborate with workers to designate effective means of communicating important COVID-19 information.

Personal Protective Equipment

Additional PPE is not recommended for workers in the lower exposure risk group. Workers should continue to use the PPE, if any, that they would ordinarily use for other job tasks. Per the State of Michigan Executive Order 2020-59 and subsequent orders, employees will be provided a cloth face covering for mandatory use when in enclosed public areas.

Jobs Classified at Medium Exposure Risk: What to Do to Protect Workers

In workplaces where workers have medium exposure risk, employers should follow the guidance for “Steps All Employers Can Take to Reduce Workers’ Risk of Exposure to SARS-CoV-2,” on page 5 of this plan and implement the following control measures:

Engineering Controls

- Install physical barriers, such as clear plastic sneeze guards, where feasible.

Administrative Controls

- Consider offering face masks to ill employees and patients to contain respiratory secretions until they are able to leave the workplace (i.e., for medical evaluation/care or to return home). In the event of a shortage of masks, a reusable face shield that can be decontaminated may be an acceptable method of protecting against droplet transmission.
- Where appropriate, limit public access to the worksite, or restrict access to only certain workplace areas.
- Consider strategies to minimize face-to-face contact (e.g., phone-based communication, telework).
- Communicate the availability of medical screening or other worker health resources (e.g., on-site nurse; telemedicine services).

Personal Protective Equipment (PPE)
Workers with medium exposure risk may need to wear some combination of gloves, a gown, a face mask, and/or a face shield or goggles. PPE ensembles for workers in the medium exposure risk category will vary by work task, the results of the employer’s hazard assessment, and the types of exposures workers have on the job.

In rare situations that would require workers in this risk category to use respirators, see the PPE section which provides more details about respirators.

**Jobs Classified at High or Very High Exposure Risk: What to Do to Protect Workers**

In workplaces where workers have high or very high exposure risk, employers should follow the guidance for “Steps All Employers Can Take to Reduce Workers’ Risk of Exposure to SARS-CoV-2,” on page 6 of this plan and implement the following control measures:

**Engineering Controls**

- Ensure appropriate air-handling systems are installed and maintained in healthcare facilities. See “Guidelines for Environmental Infection Control in Healthcare Facilities” for more recommendations on air handling systems.
- CDC recommends that patients with known or suspected COVID-19 (i.e., person under investigation) should be placed in an airborne infection isolation room (AIIR), if available.
- Use isolation rooms when available for performing aerosol-generating procedures on patients with known or suspected COVID-19. For postmortem activities, use autopsy suites or other similar isolation facilities when performing aerosol-generating procedures on the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death. See the CDC postmortem guidance at: www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-postmortem-specimens.html. OSHA also provides guidance for postmortem activities on its COVID-19 webpage: www.osha.gov/covid-19.
- Use special precautions associated with Biosafety Level 3 when handling specimens from known or suspected COVID-19 patients.

**Administrative Controls**

If working in a healthcare facility, follow existing guidelines and facility standards of practice for identifying and isolating infected individuals and for protecting workers.

- Develop and implement policies that reduce exposure, such as cohorting (i.e., grouping) COVID-19 patients when single rooms are not available.
- Post signs requesting patients and family members to immediately report symptoms of respiratory illness on arrival at the healthcare facility and use disposable face masks.
- Consider offering enhanced medical monitoring of workers during COVID-19 outbreaks.
- Provide all workers with job-specific education and training on preventing transmission of COVID-19, including initial and routine/refresher training.
- Ensure that psychological and behavioral support is available to address employee stress.

**Safe Work Practices**

- Provide emergency responders and other essential personnel who may be exposed while working away from fixed facilities with alcohol-based hand rubs containing at least 60% alcohol for decontamination in the field.

**Personal Protective Equipment (PPE)**

Most workers at high or very high exposure risk likely need to wear gloves, a gown, a face shield or goggles, and either a face mask or a respirator, depending on their job tasks and exposure risks.
Those who work closely with (either in contact with or within 6 feet of) patients known to be, or suspected of being, infected with SARS-CoV-2, the virus that causes COVID-19, should wear respirators. In these instances, see the PPE section of this plan, which provides more details about respirators.

PPE ensembles may vary, especially for workers in laboratories or morgue/mortuary facilities who may need additional protection against blood, body fluids, chemicals, and other materials to which they may be exposed. Additional PPE may include medical/surgical gowns, fluid-resistant coveralls, aprons, or other disposable or reusable protective clothing. Gowns should be large enough to cover the areas requiring protection.

**NOTE:** Workers who dispose of PPE and other infectious waste must also be trained and provided with appropriate PPE.

The CDC webpage “Healthcare-associated Infections” (www.cdc.gov/hai) provides additional information on infection control in healthcare facilities.

**Job Duties Affect Workers’ Exposure Risk Levels**

As workers’ job duties change or they perform different tasks in the course of their duties, they may move from one exposure risk level to another. Additional examples of workers who may have increased risk of exposure to SARS-CoV-2 include those in:

- Other types of healthcare positions (including pre-hospital and medical transport workers, allied medical care professionals, and support staff)
- Emergency response (e.g., emergency medical services workers, firefighters, and law enforcement officers)
- Research or production laboratory workers
- Solid waste and wastewater management
- Environmental (i.e., janitorial) services
- Residential repair services
- Social, or public health workers in jobs requiring contact with community members who may spread the virus
- Transit and delivery drivers, depending on their degree of close contacts with the public

EHS is available to assist in reviewing of job tasks and recommending additional measures that can be put into place to mitigate exposure to SARS-CoV-2.
Appendix B: Workplace control examples

Occupational safety and health professionals use a framework called the “hierarchy of controls” to select ways of controlling workplace hazards. In other words, the best way to control a hazard is to systematically remove it from the workplace, rather than relying on workers to reduce their exposure.

During a COVID-19 outbreak, when it may not be possible to eliminate the hazard, the most effective protection measures are (listed from most effective to least effective): engineering controls, administrative controls, safe work practices (a type of administrative control), and PPE. There are advantages and disadvantages to each type of control measure when considering the ease of implementation, effectiveness, and cost. In most cases, a combination of control measures will be necessary to protect workers from exposure to SARS-CoV-2.

**Engineering Controls**

Engineering controls involve isolating employees from work-related hazards. In workplaces where they are appropriate, these types of controls reduce exposure to hazards without relying on worker behavior and can be the most cost-effective solution to implement. Engineering controls for SARS-CoV-2 include:

- Increasing ventilation rates in the work environment.
- Installing physical barriers, such as clear plastic sneeze guards.
- Specialized negative pressure ventilation in some settings, such as for aerosol generating procedures (e.g., airborne infection isolation rooms in healthcare settings).

Examples of engineering controls implemented on campus include the following:

- Bus Partitions to create a physical barrier of separation of 6 feet between the bus driver and passengers
- Isolation rooms that provide one-pass air to reduce the need for higher level PPE in the general room area.
- Experimental helmet apparatus for COVID patient use to provide HEPA exhausted enclosure around the patient to eliminate need for upgraded PPE during certain procedures.

**Administrative Controls**

Administrative controls require action by the worker or employer. Typically, administrative controls are changes in work policy or procedures to reduce or minimize exposure to a hazard. Administrative controls for SARS-CoV-2 include:

- Minimizing contact among workers by replacing face-to-face meetings with virtual communications and implementing telework, if feasible.
- Establishing alternating days or extra shifts that reduce the total number of employees in a facility at a given time, allowing them to maintain distance from one another while maintaining a full onsite work week.
- Developing emergency communications plans, including a forum for answering workers’ concerns and internet-based communications, if feasible.
- Providing workers with up-to-date education and training on COVID-19 risk factors and protective behaviors (e.g., cough etiquette and care of PPE).
- Training workers who need to use protecting clothing and equipment how to put it on, use/wear it, and take it off correctly, including in the context of their current and potential duties. Training material should be easy to understand and available in the appropriate language and literacy level for all workers.

**Safe Work Practices**
Safe work practices are types of administrative controls that include procedures for safe and proper work used to reduce the duration, frequency, or intensity of exposure to a hazard. Safe work practices for SARS-CoV-2 include:

■ Providing resources and a work environment that promotes personal hygiene. For example, provide tissues, no-touch trash cans, hand soap, alcohol-based hand rubs containing at least 60 percent alcohol, disinfectants, and disposable towels for workers to clean their work surfaces.

■ Requiring regular hand washing or using of alcohol-based hand rubs. Workers should always wash hands when they are visibly soiled and after removing any PPE.

■ Post handwashing signs in restrooms.

■ Practicing social distancing.

**Personal Protective Equipment (PPE)**

While engineering and administrative controls are considered more effective in minimizing exposure to SARS-CoV-2, PPE may also be needed to prevent certain exposures. While correctly using PPE can help prevent some exposures, it should not take the place of other prevention strategies.

Examples of PPE include: gloves, goggles, face shields, face masks, and respiratory protection, when appropriate. During an outbreak of an infectious disease, such as COVID-19, recommendations for PPE specific to occupations or job tasks may change depending on geographic location, updated risk assessments for workers, and information on PPE effectiveness in preventing the spread of COVID-19.

The [University of Michigan Personal Protection Equipment Program](https://www.med.umich.edu/testingand surveillancetools/protectiveEquipment/) provides additional detail regarding hazard assessment, selection, maintenance and use of required PPE.

Employers are obligated to provide their workers with PPE needed to keep them safe while performing their jobs. The types of PPE required during a COVID-19 outbreak will be based on the risk of being infected with SARS-CoV-2 while working and job tasks that may lead to exposure.

Current required respirator usage for COVID-19 protection on Campus:

■ Workers, including those who work within 6 feet of patients known to be, or suspected of being, infected with SARS-CoV-2 and those performing aerosol-generating procedures, need to use respirators that are National Institute for Occupational Safety and Health (NIOSH)-approved, N95 filtering facepiece respirators or better and follow the [University of Michigan Respiratory Protection Plan](https://www.med.umich.edu/testingand surveillancetools/protectiveEquipment/). Respirators must be used in the context of a comprehensive, written respiratory protection program that includes fit-testing, training, and medical exams. Surgical N95 respirator will be used when both respiratory protection and resistance to blood and body fluids is needed.

■ N95 filtering facepiece respirators are required for DPSS transport of suspected COVID-19 individuals.

■ PAPRs may be required to be worn by Hospital maintenance personnel if entering a room with a known or suspected to be COVID-19 patient during or within one hour of an aerosolization procedure.

■ N95 respirators are worn during COVID-19 research if work may generate aerosols or other risk of exposure.

■ Face shields may also be worn on top of a respirator to prevent bulk contamination of the respirator.