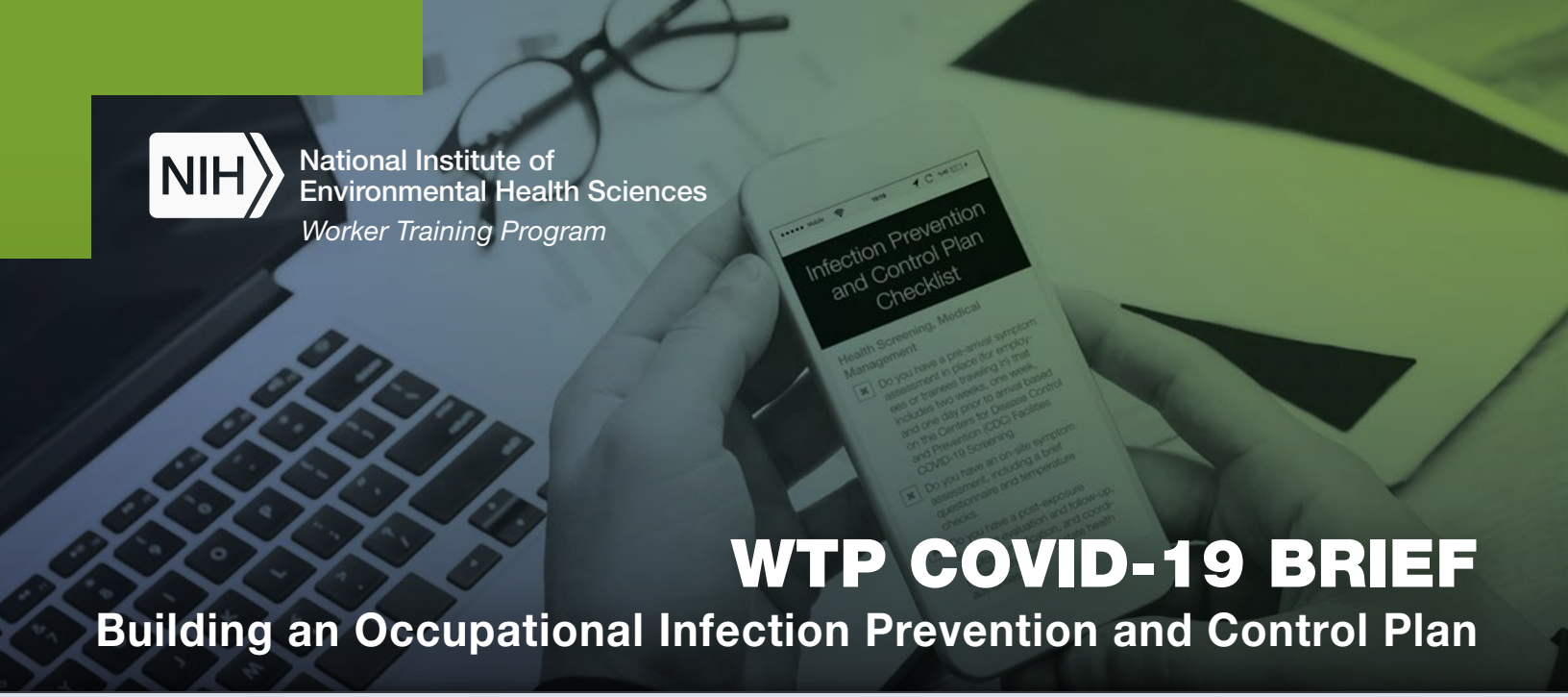

National Institute of Environmental Health Sciences
Worker Training Program

WTP COVID-19 BRIEF

Building an Occupational Infection Prevention and Control Plan

This document provides key elements for employers and training providers to include in their infection prevention and control plans. These plans should be tailored to meet both industry and site-specific needs. To review models of infection prevention and control plans, see the links at the end of the document. Although the models are specific to SARS-CoV-2 virus and COVID-19, most are applicable to other infectious disease hazards.

Overview

Prior to the COVID-19 pandemic, healthcare and long-term care facilities were the most common settings with established infection prevention and control plans. These plans primarily focused on protecting the health and well-being of patients, residents, or clients, rather than workers. Implementation of these plans was disrupted during the pandemic due to lack of resources, training, and overall preparedness.

To facilitate readiness and preparedness in occupational settings, a written infection prevention and control plan should be in place that is comprehensive, yet adaptable; additionally, the plan should include resources, training, and key elements to protect workers from exposure to infectious diseases. This is true for any workplace setting, including training provider facilities.

A written site-specific plan for your facility will help prevent exposures to SARS-CoV-2 (coronavirus) as well as other infectious disease threats, such as norovirus, influenza, tuberculosis, and other respiratory viruses.

The National Institute of Environmental Health Sciences (NIEHS) Worker Training Program (WTP) has developed guidance related to infectious diseases in its **Pathogen Safety Data Guide** and related training module.

It is important to build an infection prevention and control plan that is:

- Based on a comprehensive workplace or training facility risk assessment.
- Specific to the worksite or training program location, especially where work is performed (inside and/or outside).
- Specific to the infectious disease threats, potential hazards, and conditions in the geographic area.
- Inclusive of workers and management participation and input and, if applicable, labor union representatives.
- Inclusive of local organizations, expertise, resources, and/or community-based advocates.
- Accountable with oversight and enforcement of policies and procedures.
- Managed by one or more safety and health coordinator(s) from occupational or employee health, risk management, human resources, or a person with authority to enforce internal policies.
- Coordinated with other employers and entities at your worksite, including facility-based or local security and law enforcement.
- Reviewed to ensure that federal, state, local, tribal, and territorial mandates, regulations, and standards are considered as well as the extent that community spread is impacting the workplace or training facility.
- Monitored to ensure the ongoing effectiveness of the plan and that it is updated as needed.

Hazard and risk assessments are key to developing an effective infection prevention and control plan and selecting the appropriate measures to protect workers and visitors (people), the built environment and physical location (places), and contact points including surfaces (things). Figure 1 (below) illustrates that an infected person is a potential source, the pathway is the way infectious particles spread in air, and the receiver is an uninfected person. Risk needs to be assessed at each point in the potential pathway and effective controls need to be in place that protect workers from exposure.

The hierarchy of controls should be considered for infection prevention and control plans. While engineering controls, like ventilation and airflow at the facility level are important, it is likely they are not effective on their own. Therefore, plans should also consider factors that affect airflow at the worker level, including where they are physically, what tasks are being performed, and what barriers in the vicinity might impede proper airflow and increase risk of exposure.

The Source → Pathway → Receiver approach (Figure 1) is similar to the American Conference of Governmental Industrial Hygienists (ACGIH) Control Banding approach. Control banding is a way to reduce exposure to SARS-CoV-2 virus and other infectious agents by selecting a combination of controls to reduce reliance on personal protective equipment (PPE).[1]

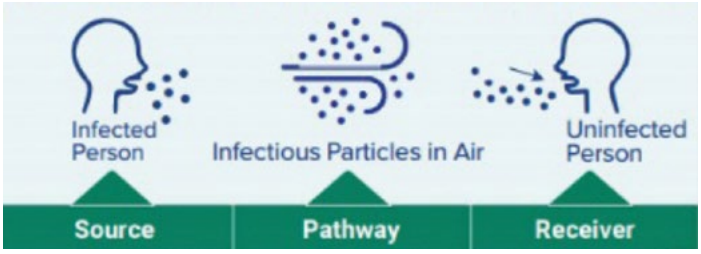

Figure 1: Prioritize source and pathway controls to minimize exposure. (Adapted from American Conference of Governmental Industrial Hygienists (ACGIH) COVID-19 Control Banding Fact Sheet)

Infection prevention and control plans must comply with applicable standards and consider guidance from the Occupational Safety and Health Administration (OSHA), including the Guidance on Mitigating and Preventing the Spread of COVID-19 in the Workplace, the Coronavirus Disease 2019 National Emphasis Program, and the Occupational Exposure to COVID-19 Emergency Temporary Standard. Other OSHA standards may also apply including PPE, Respiratory Protection, Hazard Communication, Recordkeeping, and Bloodborne Pathogens.

1 See "Protecting the U.S. Workforce from Aerosol Transmissible Infectious Disease Outbreaks with High Public Health Consequences: A Control Banding Approach," from a NIEHS WTP webinar held on April 10, 2020

Another helpful tool to identify infection prevention and control measures is the NIEHS WTP Checklist for Prevention of Exposure to SARS-CoV-2 Virus in Non-Healthcare Industries. While this tool is specific to addressing controls for COVID-19, it may also be useful in preventing occupational exposures to other infectious diseases.

Essential Elements of an Infection Prevention and Control Plan

People (Source, Receiver)

- **Health Screening, Medical Management**
  - Have a pre-arrival symptom assessment in place (for employees or trainees traveling in) that includes two weeks, one week, and one day prior to arrival based on the Centers for Disease Control and Prevention (CDC) Facilities COVID-19 Screening.
    - Note: For other infectious disease threats, tools similar to the Mayo Clinic Symptom Checker.
  - Have an on-site symptom assessment, including a brief questionnaire and temperature checks.
  - If performing routine infectious disease testing of workers, be sure to adhere to OSHA's Access to Employee Exposure and Medical Records Standard to maintain worker privacy and confidentiality. Be sure testing is done during the workers' normal working hours at no cost to them.
  - Have a post-exposure symptom evaluation and follow-up, employee notification, and coordination with local and state health authorities.
  - Have information about where vaccines are being offered on-site or nearby.

Resources

- NIEHS WTP COVID-19 Vaccine Information for Workers
- CDC Interim Public Health Recommendations for Fully Vaccinated People
- CDC V-safe Health Checker
- NIH Agencies, Researchers Plan for Safe In-Person School
- VaccineFinder
- Vaccine Adverse Event Reporting System

- **PPE**
  - Note that PPE protects workers from inhaling infectious particles (respirators) or provides a physical barrier (gloves, gowns) to prevent microorganisms from getting on clothes, uniforms, or the skin.
  - PPE should supplement other protective measures like engineering controls and be selected based on the nature of the infectious agent. Is it an inhalation hazard or a contact hazard, or both?
  - Face coverings and respirators have varying degrees of inward and outward leakage. Consider the following for selection of face coverings and respirators:

- Best: Filtering face piece (FFR) like an N95 (1-10% leakage) with fit testing.
- Next Best: Surgical mask (50% leakage).
- Additional Consideration: Face shield (can serve as a physical barrier for splashes, splatters of saliva and mucus).

- Note: Cloth face coverings are not considered PPE because they are used as source (wearer) control and do not have the protective factors that respiratory protection does.

Resources

- ACGIH COVID-19: Workers Need Respirators
- American Industrial Hygiene Association (AIHA) Personal Protective Equipment for SARS-CoV-2
- AIHA Proper Use of Respirators for Healthcare Workers and First Responders
- National Institute for Occupational Safety and Health (NIOSH) COVID-19 Information for the Workplace PPE

- **Face Coverings**
  - Have masks, cloth face coverings for all trainees, visitors (75% leakage)
  - Note: According to OSHA, face coverings, either cloth or surgical masks, are barriers that help prevent respiratory droplets from the nose and mouth from reaching others.

Resources

- ASTM International ASTM F3502-21 Standard for Face Coverings and Standard Specification

- **Administrative Controls**
  - Limit number of workers assigned to specific areas and shifts, if possible.
  - Stagger shifts and breaks, if possible.
  - Allow workers to telework from home or a remote location, if possible.
  - Post signage to remind people about maintaining a distance of at least 6 feet.
  - Ensure access to handwashing stations.
  - Identify and control choke points such as elevators, conference rooms, entrances, and exits.
  - Establish non-punitive paid sick leave policies to allow workers to stay home when experiencing symptoms, especially fever, chills, nausea, and vomiting.
  - Have a system in place that allows workers to share ideas about what can be done to reduce exposure risks.

Resources

- Canadian Centre for Occupational Health and Safety Control Banding
- OSHA Protecting Workers: Guidance on Mitigating and Preventing the Spread of COVID-19 in the Workplace

- **Worker Training**
  - Educate and train workers on site-specific infectious disease policies and procedures in a language they understand.
  - Training should include:
    - Basic facts on infectious diseases like COVID-19, flu, or other potential risks that are in the geographic area for workers and trainees that are traveling to a location. These should include how diseases are spread and the importance of physical distancing, use of face coverings, respirators, hand hygiene, and other preventive measures.
    - The employer's infection prevention and control plan, including policies and procedures implemented to protect workers from infectious disease hazards.
    - A system that maintains and manages training records.

Resources

- ACGIH The Virus is in the Air
- NIEHS General Awareness COVID-19 Training Tools
- OSHA What Workers Need to Know About COVID-19

- **COVID-19 Vaccinated Individuals**
  - Ensure that policies that address actions for people who are not fully vaccinated are in place and clearly communicated prior to anyone entering a facility or work setting. This may include policies for:
    - Face covering (excluding when respiratory protection is required)
    - Physical distancing
    - Symptom screening, temperature monitoring
  - Have clear signage and policies in place for face covering use on shared transportation to an offsite setting. Many settings may not require face coverings to be used in a building or outside, but may require them to be used during any type of transport where people are in vehicles (e.g., buses, trolleys, heavy machinery, shared rides).
  - Be diligent about communicating the importance of staying away from a work or training setting if someone feels ill.
  - Check state and local guidelines as they may vary on testing and quarantining requirements, even for those who are fully vaccinated.
  - Determine if there are policies for other vaccine-preventable diseases like flu.
  - See the NIEHS WTP COVID-19 Brief: Key Information for Workplace and Training Providers: Policies for Fully Vaccinated People

Places (Pathway)

- **Physical Distancing and Spacing**
  - Implement cues, physical markers on floors, and walls.
  - Implement physical barriers where possible.
  - Remove shared items and communal objects where possible.

- Implement engineering controls, including ventilation, air flow, and filtration.
  - Improve ventilation and air filtration, as these factors are critical control measures for reducing worker exposure to infectious disease. Proper ventilation and filtration reduce the concentration of an infectious agent that can be inhaled by people in a space. If proper ventilation cannot be achieved through current heating, ventilation, and air conditioning (HVAC) systems, portable air cleaners should be considered.
  - See the NIEHS WTP Selection and Use of Portable Air Cleaners guide for employers and building operators.

Resources

- ACGIH Airflow Patterns Matter
- CDC Ventilation in Buildings
- U.S. Environmental Protection Agency (EPA) Ventilation and Coronavirus (COVID-19)
- OSHA COVID-19 Guidance on Ventilation in the Workplace
- World Health Organization (WHO) Coronavirus disease (COVID-19): Ventilation and air conditioning
- AIHA Reducing the Risk of COVID-19 Using Engineering Controls
- American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Building Readiness and Core Recommendations for Reducing Airborne Infectious Aerosol Exposure

Things (Pathway)

- **Cleaning, Disinfection, and Contact Times**
  - Reduce touch points and implement surface sanitation.
    - Remove unnecessary items that people will be tempted to touch.
    - Perform surface inspection.
    - Are surfaces damaged and cracked and more likely to have contamination that cannot be cleaned?
  - Implement wipe cleaning (high touch, environmental).
    - Can pop-up, dispenser wipes be used on frequently touched surfaces? If not, why, and what alternative is available?
    - Can spray bottles be eliminated or used as infrequently as possible to reduce potential hazards associated with spraying chemicals into the air?
  - Perform disinfection if required (items touched and used by personnel).
    - For items that need to be touched by multiple people (shared equipment), is disinfection between use necessary? If so, what is selected and is it compatible for the item type and time in use?
  - Implement wait times to populate rooms.
    - Is there a way to maximize wait time before moving new or additional people in the room or area?
  - Do not overuse surface cleaners and disinfectants and carefully follow the instructions for use, including if any PPE is required during application or use, to prevent occupational exposures to these potentially hazardous chemicals.

Resources

- AIHA Effective and Safe Practices, Guidance for Custodians, Cleaning, and Maintenance Staff and Employers Guide to COVID-19 Cleaning and Disinfection in Non-Healthcare Workplaces and Workplace Cleaning for COVID-19
- CDC Cleaning and Disinfecting Your Facility
- EPA 6 Steps for Safe & Effective Disinfectant Use
- EPA List N: Disinfectants for Coronavirus (COVID-19)
- EPA Safer Choice

Model Infection Prevention and Control Plans

Several organizations have templates for building infection prevention and control plans (see below). If you have others, please let us know by emailing us at wetpclear@niehs.nih.gov. For additional information, tools, resources, templates, training modules, webinars, and fact sheets visit the NIEHS WTP COVID-19 website.

- CPWR COVID-19 Exposure Control Planning Tool
- California COVID-19 Model Prevention Program
- Oregon COVID-19 Infection Control Plan
- NIEHS WTP Workplace Checklist for Prevention of Exposure to SARS-CoV-2 Virus in Non-Healthcare Industries
- OSHA COVID-19 Healthcare Worksite Checklist & Employee Job Hazard Analysis
- OSHA COVID-19 Plan Template
- OSHA COVID-19 Log
- OSHA Bloodborne Pathogens Model Exposure Control Plan
- Virginia Infectious Disease Plan Template