



National Institute of
Environmental Health Sciences
Worker Training Program

COVID-19 Response: National Clearinghouse for Worker Safety and Health Training

MARCH 2023



Overview

The intent of this report is to share the coronavirus 2019 (COVID-19) response and activities of the National Institute of Environmental Health Sciences (NIEHS) [Worker Training Program](#) (WTP) from March 2020 to September 2022.

This report includes:

- Timeline of WTP activation and response to COVID-19.
- Program-specific COVID-19 activities, including supplemental funding, workshops, webinars, and evaluation of grantees efforts.
- National Clearinghouse efforts, including a needs assessment, COVID-19 website, and the development of training tools and resources.
- Summaries of grantee activities performed using supplemental funds.

Although the COVID-19 pandemic has evolved over time, NIEHS WTP maintains its commitment to protect workers and communities from exposure to harmful infectious agents, like SARS-CoV-2.

On the cover: Fire fighters receive HazMat training in Mahwah, New Jersey. Photo courtesy of the International Association of Fire Fighters.

Introduction

NIEHS WTP funds nonprofit organizations, or grantees, to deliver health and safety training that covers a broad range of physical, chemical, biological, and mental hazards. Since the program's inception, grantees have delivered training to millions of workers in various occupations and industries within the U.S. and its territories.

NIEHS WTP takes an all-hazards approach within its six [training program areas](#) to train workers who may be exposed to hazardous waste, environmental, and disaster risks. NIEHS WTP has historically responded to multiple infectious disease events. Similar to prior outbreaks like Ebola virus disease, NIEHS WTP quickly responded to the COVID-19 pandemic to provide workers the training needed to protect themselves and their communities. This document describes NIEHS WTP's wide-reaching response to the COVID-19 pandemic.

In December 2019, a cluster of patients in the Hubei Province in central China began displaying symptoms, including pneumonia, from an unknown cause.¹ In early 2020, China identified a new coronavirus, later named SARS-CoV-2, as the cause of the coronavirus 2019 (COVID-19) outbreak. The first recorded cases of COVID-19 in the U.S. were in Washington State in January 2020.



COVID-19 essential workers receive training. Photo courtesy of OAI, Inc.

1 U.S. CDC. CDC Museum COVID-19 timeline. <https://www.cdc.gov/museum/timeline/covid19.html>

WTP's six training program areas are:

- [Hazardous Waste Worker Training Program](#)
- [HAZMAT Disaster Preparedness Training Program](#)
- [Environmental Career Worker Training Program](#)
- [NIEHS/U.S. Department of Energy \(DOE\) Nuclear Worker Training Program](#)
- [Infectious Disease and Biological Hazards Training](#)
- [SBIR E-Learning for HAZMAT Program](#)

COVID-19 Timeline and WTP Activation

To combat the COVID-19 outbreak as it spread worldwide, the Trump Administration signed an \$8.3 billion emergency spending package on March 6, 2020, which included \$10 million for WTP (Figure 1). NIEHS WTP, in collaboration with the National Clearinghouse for Worker Safety and Health Training, quickly prepared training tools, courses, and other resources to respond to the pandemic.

With additional funding and Congressional appropriations provided under the Biden Administration, NIEHS WTP continues to add to the collection of COVID-19 training resources. These training resources are responsive to President Biden's COVID-19 related Executive Orders, including [Executive Order 13995: Ensuring an Equitable Pandemic Response and Recovery](#).

Between February 2020 and May 2022, NIEHS WTP grantees delivered 4,812 courses attended by 105,129 workers with 304,139 contact hours. Out of these, there were 2,893 courses for 56,461 workers across 163,596 total contact hours funded by the COVID-19 emergency appropriations supplemental grants. Grantees developed new or adapted existing curricula to train workers on all aspects of COVID-19 health and safety, such as infectious disease awareness for workers and communities, infection control risk assessment, emergency response, personal protective equipment awareness (PPE), respiratory protection, airborne transmission standard, hazard communication, resiliency, and infectious disease awareness train-the-trainer. Trainers taught courses virtually or used appropriate PPE and other safety precautions for in-person training. Grantees continue to provide necessary training to protect workers from COVID-19 and other hazards.

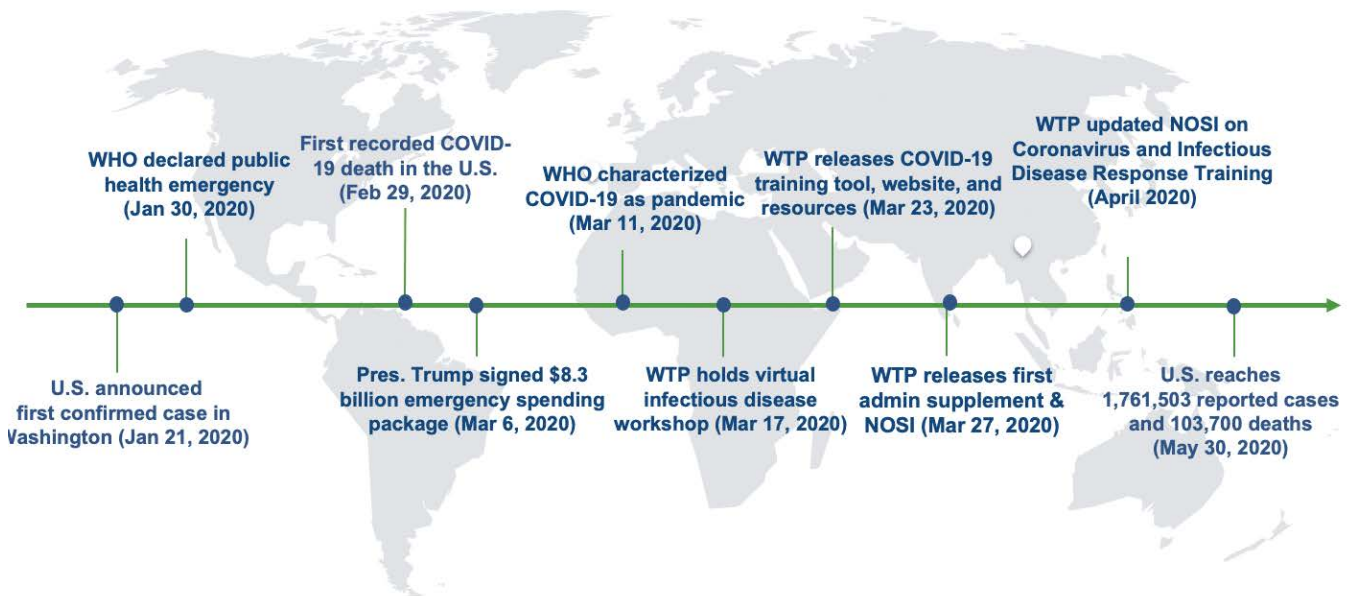


Figure 1: Abbreviated timeline shows how quickly WTP activated to respond to COVID-19.

Worker Sectors and Populations Trained

Since the beginning of the pandemic, WTP aims to provide training to workers in a variety of sectors (Figure 2) and ensure that vulnerable and underserved populations are reached including (but not limited to) immigrants, American Indians, and Alaska Natives.

Capacity to Deliver Infectious Disease Training

In 2022, WTP and the National Clearinghouse for Worker Safety and Health published an editorial discussing how WTP has built its programs' capacities to respond to infectious disease and biosafety events over nearly three decades.² From the anthrax attacks (2001), to Ebola virus disease (2014), to COVID-19 (2020), WTP has developed tools and technical assistance to support training delivery that prepares at-risk worker populations, especially during time-sensitive events.

2 Persaud E, Weinstock D, Wright DS. Biosafety and infectious disease occupational health training from the NIEHS Worker Training Program: A historical look at capacity building that supported a COVID-19 response. *J Emerg Manag.* 2022;20(7 (Spec Issue on COVID-19)):9-18. doi: 10.5055/jem.0663. PMID: 35412640; PMCID: PMC9012162.

Occupations Trained



Figure 2: Occupations trained

Program-Specific COVID-19 Activities

The following section provides a summary of WTP COVID-19 supplemental funding, workshops, webinars, and other activities.

Virtual COVID-19 Workshop: WTP and Emory Woodruff Health Sciences Center

WTP's COVID-19 response was kicked off with a virtual workshop hosted in partnership with the Emory Woodruff Health Sciences Center. On March 17, 2020, the [virtual COVID-19 workshop](#) brought together federal agency representatives, infectious disease experts, and health and safety professionals. Though originally scheduled to take place in-person in Atlanta, workshop organizers quickly pivoted to a virtual format given the risks of COVID-19. **Approximately 260 participants attended the workshop.**

“We must be flexible and willing to adapt our training, because what you trained for last time might not work this time.”

Richard Hunt, M.D., U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness, during the March 17 workshop

The workshop agenda included moderated discussions on adapting and emerging pathogens, challenges in preparedness, communication strategies, and presentations from the National Ebola Training and Education Center.

NIEHS program staff used key messages from the workshop to guide a path forward for a COVID-19 response. Program staff used these messages to plan funding mechanisms needed to support grantees' health and safety training for workers across critical industries.

Key Messages from the Workshop

- There are many uncertainties with novel pathogens
- Expect knowledge to change and be willing to adapt
- Consider aerosol/airborne transmission in response (e.g., Cal-OSHA Aerosol Transmissible Diseases (ATD) standard³)
- Workers at high risk need highest levels of protection so analyze risks and control methods across all levels
- Challenges to manage include:
 - Dwindling supply of personal protective equipment, especially respirators
 - Biohazard disposal and waste management
 - Stigma
 - Mental health and coping with stress

COVID-19 Funding for Grantees

NIEHS WTP funded grantees conducted COVID-19 training and educational [outreach in several ways during the 2020 program year](#) (August 1, 2020 – May 31, 2021).⁴

Funding for grantees came from regular WTP funding and supplemental funding from Congressional spending packages. The supplemental grants total \$9 million as of November 2022. These funds were distributed through three grant mechanisms: U45, UH4, and R43/44. Each mechanism covers specific training program areas. An overview of activities performed through these funds can be found in [COVID-19 Appropriations: Health and Safety Training During a Pandemic](#).

3 California Department of Industrial Relations. 2020. The California workplace guide to aerosol transmissible diseases. https://www.dir.ca.gov/dosh/dosh_publications/ATD-Guide.pdf

4 National Institute of Environmental Health Sciences. 2021. WTP coronavirus activities: U45 2021 Program Year Funding. https://www.niehs.nih.gov/careers/assets/docs/wtp_accomplishments_supplementalfunding_covidu45_508.pdf

National Institute of Environmental Health Sciences. 2021. WTP Coronavirus Activities: Results from 2020 Supplemental Appropriations and Other Funding. https://www.niehs.nih.gov/careers/assets/docs/wtp_report_coronavirus_results_2020_508.pdf

Funding Type	Request for Applications (RFA) Released	RFA Title	Number of Grants Awarded	Amount
Supplemental Funding (Admin Supplement)	April 10, 2020	NOT-ES-20-017: NIEHS WTP Coronavirus and Infectious Disease Response (March-July 2020)	14	\$1,847,742
Regular Program Funding (U45 mechanism)	August 15, 2019	NIH RFA-ES-19-003 Hazardous Materials Worker Health and Safety Training (U45 Clinical Trials Not Allowed)	17	\$3.7 million
Supplemental Funding (1st NOSI)	November 17, 2020	NOT-ES-21-002: WTP Promoting Health, Safety, and Recovery Training for COVID-19 Essential Workers and their Communities	8	\$2,284,619
Supplemental (2nd NOSI)	March 30, 2022	NOT-ES-21-005: WTP Promoting Health, Safety, and Recovery Training for COVID-19 Essential Workers and their Communities	1	\$1,175,127

Notice of Special Interest (NOSI): NIEHS WTP Coronavirus and Infectious Disease Response Training (NOT-ES-20-017)

Under this NOSI, WTP awarded \$1.8 million for 14 supplemental applications under the U45, UH4, and R43/R44 mechanisms. This included funding for seven grantees under the Hazardous Waste Worker Training Program (U45 mechanism), six grantees under the SBIR E-Learning for HAZMAT Program (R43/44 mechanism), and one grantee under the NIEHS/U.S. DOE Nuclear Worker Training Program (UH4 mechanism). See the appendix for a comprehensive list of grantees. This NOSI provided funding for:

- Development of curricula tailored to worker population, some adapting NIEHS WTP training tools
- Delivering online/blended/technology-enhanced training for COVID-19 or their ongoing hazardous materials training

- Innovative use of technologies to include skills development on virtual platforms (e.g., virtual reality)
- Creating methods for safe in-person training using physical distancing and infection control procedures as people return to work

Hazardous Materials Worker Health and Safety Training 2021 Program Year Funding

In 2021, NIEHS WTP awarded a total of \$3.7 million in coronavirus funding across the 17 awardees under the Hazardous Materials Worker Health and Safety Training Program (U45 mechanism). Under this regular program funding grantees conducted:

- Extensive training to diverse essential and returning worker populations across the U.S. and territories on COVID-19 health and safety, personal protective equipment, resiliency, mental health, and trainer development
- Development of curricula tailored to the worker population, some adapting NIEHS training tools

- Beginning or increasing organizational capacity to deliver online/blended/technology-enhanced training for COVID-19 and their ongoing hazardous materials training
- Creating procedures for safe in-person training using physical distancing and infection control as people return to work

NOSI: WTP Promoting Health, Safety, and Recovery Training for COVID-19 Essential Workers and their Communities (NOT-ES-21-002) (NOT-ES-22-005)

These NOSIs funded nine active WTP awardees that have partnerships with local worker centers and community organizations in underserved and disadvantaged communities with higher than national average COVID-19 transmission rates. As of November 2022, NIEHS WTP has funded a total of \$3,459,746 in supplemental grants for [COVID-19 recovery center activities](#) under their parent Hazardous Waste Worker Health and Safety Training cooperative agreement grant. Activities supported by these NOSIs include:

- Increasing the education and awareness of COVID-19 health risks and promoting the integration and connectedness to testing, contact tracing, and the adoption of effective infection control measures
- Creating and building trust between local community organizations that serve essential and returning workers and the components of the public health and medical care infrastructure
- Delivering health and safety education (classroom and online) using effective infection control plans and adult learning methods
- Virtual and physical locations to receive safety training and PPE
- Infectious disease guidance and referral to testing and medical care
- Mental health resilience training and referral
- Job referral and career development
- Disaster preparedness, response, and recovery training for complex, multi-layered climate events

- Data collection and dissemination source for science-based, peer-reviewed public health information

COVID-19 Evaluation Report

NIEHS WTP conducted an evaluation to determine the effectiveness, outcomes, and impacts of the program's COVID-19 health and safety training.

In December 2021, NIEHS WTP released the [Biosafety Training and Infectious Disease Response Evaluation Report](#). This report summarizes training data provided in grantee annual progress reports and includes results from a survey and focus group of grantee leadership and staff.

Based on data from grantee progress reports, funded trainings generally used materials from the NIEHS WTP "Protecting Yourself from COVID-19 in the Workplace" and "Protecting Workers from COVID-19 in the Workplace: Essential and Returning Workers Training Tool." Grantees' recommendations include:

- COVID-19 and infectious disease training program and materials should continue to be used, updated, and incorporated into a sustained training program to protect workers from occupational exposure to infectious diseases
- Continue to focus on developing and reinforcing partnerships among grantees and other stakeholders
- Continue to incorporate mental health and disaster resilience materials into future curricula and discussion on disaster responses
- WTP should continue to produce vaccination information and resources

The evaluation determined that the former WTP Ebola Biosafety and Infectious Disease Response Training Program (2016-2019) prepared grantees to respond to COVID-19.

“It was invaluable having the Ebola grants, I think we learned a lot when our comfort zone was chemicals...It was hard to get hold of good information and resources that were oriented towards protecting the workers from infectious diseases. That funding set the standard for us doing this work, and secondly its interesting how one grant or supplemental can end up helping another one.” - A grantee in one of six focus groups held from May to June 2021

National Clearinghouse COVID-19 Activities

By October 2020, the Clearinghouse supported at least 40 webinars that reached nearly 5,000 people.

In collaboration with NIEHS WTP, the National Clearinghouse for Worker Safety and Health Training (Clearinghouse) acted quickly to develop a [COVID-19 webpage](#) dedicated to housing training tools, webinars, and other resources.

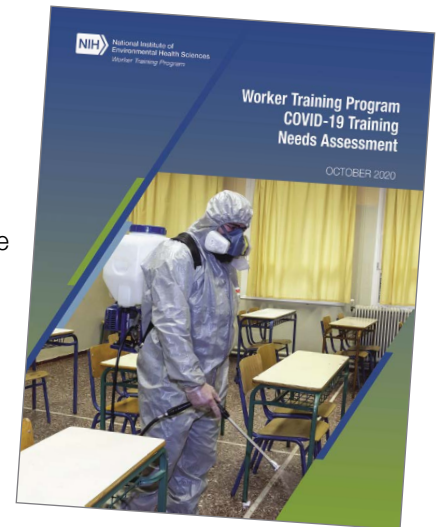
The Clearinghouse also organized a weekly webinar series for WTP grantees to discuss issues related to protecting workers from COVID-19. The Clearinghouse also manages WTP’s Material Upload and Search Tool for Infectious Disease (MUSTID).

The training tools and webinars have been important resources for WTP grantees that are delivering health and safety information to protect themselves, their families, and their communities.

COVID-19 Needs Assessment

COVID-19 Training Needs Assessment (October 2020)

NIEHS program staff commissioned the National Clearinghouse to conduct a needs assessment to determine: 1) how grantees safely transitioned health and safety training when



COVID-19 restrictions went into effect and 2) training gaps and needs among grantees. For the assessment, phone interviews were conducted with grantee leadership from May to June 2020. A [report](#) provides extensive details on findings from the assessment; grantees voiced similar challenges and concerns regarding training during the pandemic, including:

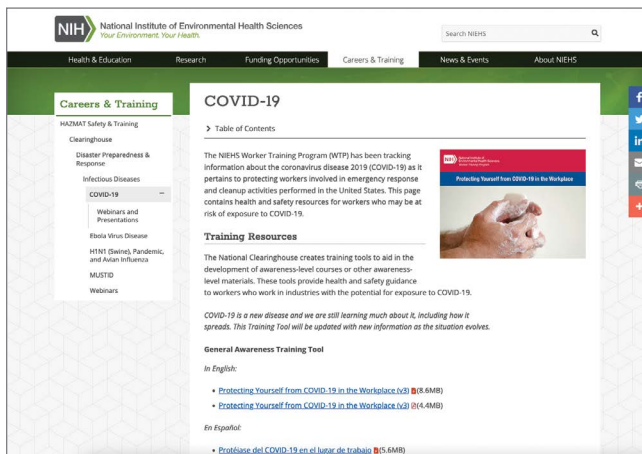
- Misinformation about COVID-19 for workers and the public
- Scarcity of PPE
- Convincing workers about effectiveness of engineering and administrative controls
- Technology issues
- Helping instructors learn to use online training
- Data collection
- Reach/access to target populations
- Limited time to deliver training to essential and returning workers
- Limited interaction with trainees

This assessment led to three Training Best Practices webinars on September 3, 10, and 18, 2020 (see Table 1, COVID-19 Webinars). A key finding from the assessment is that grantees of the former Ebola Biosafety and Infectious Disease Response (IDR) Training Program reported that the IDR Program prepared them to respond to the COVID-19 pandemic.

COVID-19 Webpage

The [COVID-19 webpage](#), launched on March 23, 2020, continues to be updated with information about COVID-19. The site includes training tools developed by the Clearinghouse in collaboration with NIEHS WTP and subject matter experts. Several tools are available in multiple languages, including Spanish, Chinese, and Vietnamese. These tools are available for grantees and partners to download and adapt as needed to train workers and communities.

The site also includes other resources, like checklists for preventing workplace exposure, training courses, toolkits, fact sheets, and webinars. Finally, the COVID-19 webpage links to other federal webpages with resources about COVID-19 and its prevention including, but not limited to, the Centers for Disease Control and Prevention, the Federal Aviation Administration, and the U.S. Department of Labor.



Training Tools

Protecting Yourself from COVID-19 in the Workplace Training Tool

This tool is available in English and Spanish. It is available in downloadable formats in PDF and PowerPoint. Grantees and the public can also order the tool as a pocket-sized booklet.

Overall, this tool provides:

- Basic facts about COVID-19 transmission, exposure, and symptoms
- Guidance for assessing the potential for exposure to COVID-19 in the workplace
- Methods to prevent COVID-19 in the workplace

The image shows the cover of the 'Protecting Yourself from COVID-19 in the Workplace' training tool booklet. The top section is red with the NIEHS logo and the text 'National Institute of Environmental Health Sciences Worker Training Program' and 'NIEHS COVID-19 Response Training Tool'. Below this is a blue banner with the title 'Protecting Yourself from COVID-19 in the Workplace' and the subtitle 'Safety and Health Awareness for Workers'. The central part of the cover features three images: a woman coughing into her elbow, hands being washed with soap, and a person wearing a face mask. At the bottom, there is a white box with the text '2019-nCoV' and checkboxes for 'Negative' and 'Positive'. The date 'January 2021' and 'Version 3' are also visible.

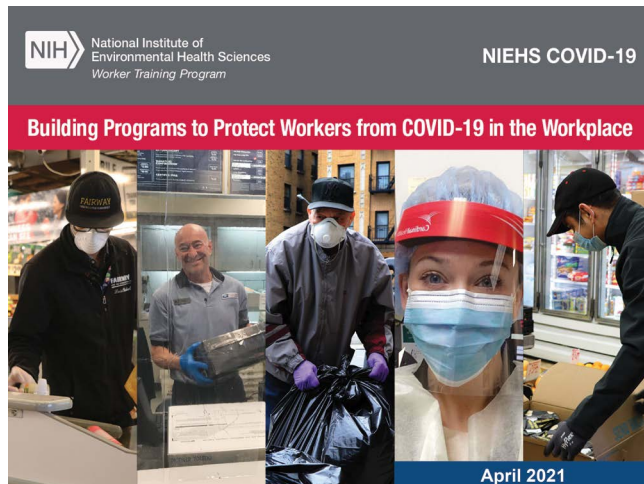
More than 9,000 booklets in English and more than 7,000 booklets in Spanish have been distributed. Since its original publication in March 2020, the tool has been updated several times.

Building Programs to Protect Workers Training Tool

This tool is available in English and Spanish. It is available in downloadable formats in PDF and PowerPoint. Grantees and the public can also order the pocket-sized booklet format for this tool.

The tool covers the following learning objectives:

- Assess risk factors for work-related exposure to COVID-19
- Define protective measures employers should implement applicable to their industry
- Understand workers' rights to a safe and healthy workplace
- Review strategies for protecting mental health during the crisis



Fact Sheets, Checklists, and Technical Briefs

In addition to the training tools, the Clearinghouse also developed fact sheets, checklists, and technical briefs.

The fact sheets provide information for workers on COVID-19 vaccines, the intersection of COVID-19 and the opioid crisis, and other emerging topics as the pandemic unfolds. The checklists support the

creation of infection control plans, screening protocols, and the use of the hierarchy of controls for workplaces. Technical briefs provide guidance from subject matter experts on issues such as use of portable air cleaners.

COVID-19 Webinars

The Clearinghouse began hosting weekly webinar series early during the spread of COVID-19 in the U.S. Each week, the Grantee Update, Technical Webinar, and Week-in-Review sessions covered a variety of COVID-19 worker safety topics from contract tracing in the workplace to vaccine misinformation. By October 2020, the Clearinghouse had supported at least 40 webinars that reached nearly 5,000 people.

Additional webinars covered emerging issues as the pandemic continued, including addressing COVID-19 and the opioid epidemic, vaccines, and portable air cleaners. Below is a full list of WTP COVID-19 webinars which are available for viewing at [this site](#).

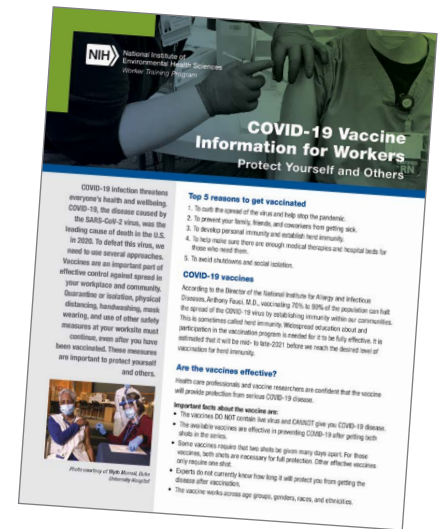
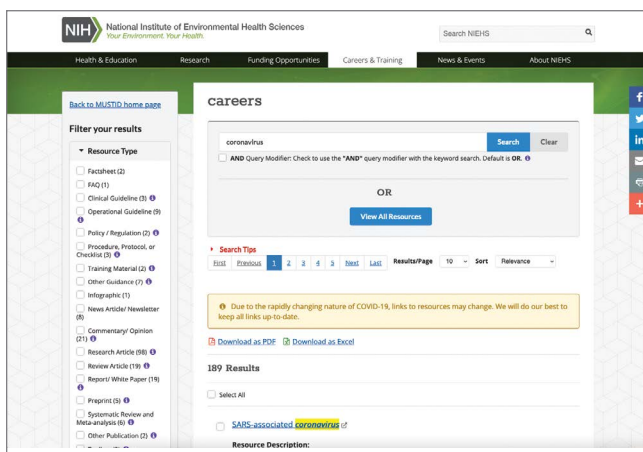


Table 1. COVID-19 Webinars (March 2020 – December 2021)

Date	Title
March 26, 2020	COVID-19 Train-the-Trainer
April 1, 2020	Exposure Prevention for COVID-19 Essential Workers
April 15, 2020	The University of Maryland Medical Center Experience
April 23, 2020	Essential Workers Train-the-Trainer
July 1, 2020	Minimizing Workplace Exposures through Design and Engineering Controls
July 8, 2020	Introduction to Ethical Issues around COVID-19 and Work
July 22, 2020	Ethical Considerations Regarding Meat Processing Plant Operations, Worker Safety, and Community Welfare
August 5, 2020	Workplace Outbreak Investigation, Contact Tracing, and Testing: Intersection between Occupational & Public Health
August 19, 2020	Ethical Issues around Contact Tracing/Testing in the Workplace
August 26, 2020	Ethics for Safety and Health Professionals
September 3, 2020	Training Best Practices in the Time of COVID-19 Webinar Series: Setting-up Online Training – Practices & Platforms
September 10, 2020	Training Best Practices in the Time of COVID-19 Webinar Series: Tools for Creative Engagement on Virtual Platforms
September 18, 2020	Training Best Practices in the Time of COVID-19 Webinar Series: In-Person Training Under COVID-19 – Protocols and Practices
December 7, 2020	Protecting Volunteers from COVID-19 During Natural Disaster Response and Recovery
January 14, 2021	Addressing the Role of the Vaccine in Workplace COVID-19 Prevention: How to Weed through Misinformation, Mistrust, and Improve Worker Protection
February 17, 2021	Preventing Occupational Exposure to COVID-19 in Non-Hospital Healthcare Settings
March 16, 2021	Managing Inequities and Environmental Injustices Encountered on the Job Among Workers Experiencing Disadvantage
April 8, 2021	The Painemic: The Intersection between the COVID-19 Pandemic and Deaths of Despair
August 16, 2021	Practical Considerations for Using Portable Air Cleaners to Prevent Transmission of Infectious Aerosols
December 2, 2021	Occupational COVID-19 Prevention and Control in Schools
August 31, 2022	WTP Reflects on COVID-19 Response, Plans Ahead for Future Infectious Disease Threats

Material Upload and Search Tool for Infectious Disease

The Material Upload and Search Tool for Infectious Disease (MUSTID) is an easy-to-use tool that has resources on infectious disease as they relate to worker health and safety. Many of the resources—which include peer-reviewed journal articles, fact sheets, guides, training tools, and more—are related to COVID-19, other coronaviruses (e.g., SARS, MERS), and influenza. The resources are gathered from the WTP, Clearinghouse, and Protecting Workers Listserv. The tool is available to WTP awardees and the public. The MUSTID database informs worker safety during the current COVID-19 outbreak and will be informative for future outbreaks.



709 resources are in MUSTID (as of July 2022).

Appendix

Summaries of Supplemental Coronavirus Funding

- An overview of WTP activities performed through COVID-19 Appropriations can be found here: https://www.niehs.nih.gov/careers/assets/docs/wtp_covid_2pager_10mil_508.pdf
- COVID-19 Recovery Centers are supported by funding under the Coronavirus Preparedness and Response Supplemental Appropriations Act, 2020. As of November 2022, NIEHS WTP has funded a total of \$3,459,746 in supplemental grants for COVID-19 recovery center activities. A summary of recovery center activities is available here: https://www.niehs.nih.gov/careers/assets/docs/covid19_recovery_centers_wtp_508.pdf
- Results from the 2020 supplemental appropriations and other funding for the program year between April 1, 2019 through July 31, 2020 are available here: https://www.niehs.nih.gov/careers/assets/docs/wtp_report_coronavirus_results_2020_508.pdf
- A summary of the 2021 program year awards (August 1, 2020 – May 31, 2021) from the Coronavirus Preparedness and Response Supplemental Appropriations Act, 2020 is available here: https://www.niehs.nih.gov/careers/assets/docs/wtp_accomplishments_supplementalfunding_covidu45_508.pdf



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