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WOODRUFF HEALTH SCIENCES CENTER

National Institute of Environmental Health Sciences
Worker Training Program

Protecting Infectious Disease Responders During the COVID-19 Outbreak

Report from the
Spring 2020 Workshop

Sponsored in conjunction with NIH National Institute of Environmental Health Sciences
Worker Training Program

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Executive Summary

On March 17, 2020 the NIEHS Worker Training Program (WTP) hosted a virtual workshop to discuss strategies to protect frontline workers during the outbreak of COVID-19, a disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

Joseph "Chip" Hughes

The workshop was originally scheduled to take place in downtown Atlanta. However, after consultation with Emory Woodruff Health Sciences Center and considering the health risks of an in-person meeting during pandemic response, WTP Director Joseph "Chip" Hughes and organizers shifted to host a virtual forum instead.

The virtual forum, hosted via the WebEx platform, featured timely discussions among federal agency representatives, infectious disease experts, and health and safety professionals. Speakers and participants shared information about COVID-19 symptoms, transmission, and worker protections; challenges for biopreparedness and response; concepts to manage perception and stress; and training strategies to respond to bioemergencies.

More information about the agenda and presentation slides can be found on the workshop website. A recording of the entire workshop is also available online. The following are key themes from the workshop that should be considered when developing education and training strategies to respond to COVID-19 and other infectious diseases:

- The emergence of novel pathogens like SARS-CoV-2 raises many uncertainties.
- We are rapidly acquiring more knowledge about SARS-CoV-2 each day. Expect knowledge to change and be flexible and willing to adapt training and response.
- The precautionary principle is key when considering modes of transmission for novel pathogens and necessary protections.
- Traditional transmission paradigms, like airborne or droplet transmission, may be limiting. Consider short- and long-range aerosols as a possible mode of transmission for novel airborne diseases.
- Analyze risks and control methods across levels – workers that face the highest level of risk require the highest level of protection.
- Address and manage challenges as quickly and as often as possible. This includes challenges related to inadequate supply of personal protective equipment (PPE); disposal of biohazardous waste; stigma and perception; and mental health resiliency.

Introduction: A Track Record of Timely Response

WTP has a long history of training and preparing workers that face potential exposure to hazardous pathogens and infectious diseases. For example, WTP has a more than successful track record of timely response to protect workers during national biological threats and public health emergencies, such as the anthrax attacks (2001), as well as the H5N1 avian flu (2007), H1N1 swine flu (2009), and Ebola virus disease (2014) outbreaks.

During these occurrences and outbreaks, WTP has enhanced the safety and health training of emergency responders, and workers in healthcare, correctional facilities, sanitation, transportation, mortuary care, schools, and other workers to ensure they are aware of site-specific hazards and mitigation techniques prior to and during response activities. These efforts will hold true in the midst of the COVID-19 pandemic, through coordination and collaboration with organizations, federal partners, and infectious disease experts across the nation. WTP continues to be engaged with organizations, federal partners, and infectious disease experts to ensure that workers understand the necessary and required protections.

Avian and Swine Flu

Avian flu is a highly pathogenic virus responsible for serious outbreaks in domestic poultry in parts of Asia and Middle Eastern countries, as well as the U.S. The most recent major outbreak of avian influenza in the U.S. took place in 2007. Swine flu is a respiratory infection caused by an influenza strain that regularly causes outbreaks in pigs. These viruses do not normally infect humans; however, sporadic infections of variant viruses have taken place in humans in recent years. These types of infections can occur in people who have been exposed to infected pigs.

In 2006, WTP awarded four avian and pandemic influenza preparedness training supplemental grants to augment WTP training programs with modules and outreach information to protect high-risk populations involved in pandemic and avian influenza preparedness and response. In September 2007, WTP partnered with the U.S. Environmental Protection Agency and the U.S. Department of Agriculture Animal and Plant Health Inspection Service to host a workshop focused on protecting avian flu responders.

The WTP and its awardees continue to monitor information on pandemic and avian influenza, and remain focused on delivering quality training to health care sector employees, emergency responders, and poultry workers who will be on the front lines if a pandemic flu develops in the United States.

Ebola Virus Disease

Ebola virus disease, also known as Ebola hemorrhagic fever, is an acute, serious illness that is often fatal if left untreated. The first outbreaks of Ebola occurred in Central Africa, but a larger outbreak took place in 2014 in urban and rural areas of West Africa. Further concern regarding Ebola arose when two medical volunteers serving

in Africa became infected and returned to the U.S. for treatment. Later, additional concerns about the health and safety of workers arose when two medical providers treating an Ebola patient in Texas became infected.

Using funds from a $10 million transfer from the Centers for Disease Control and Prevention (CDC) Ebola emergency supplemental appropriations, WTP created the Ebola Biosafety and Infectious Disease Response Training (IDR) Program. The program was created to support multi-state consortiums of biosafety professionals, capable of disseminating infection control and hazard recognition education and training in the workplace.

Over the years, WTP has used its National Clearinghouse for Worker Safety and Health Training to create and distribute resources to educate workers on how to protect themselves from infectious diseases. This includes development of the pathogen safety data (PSD) guide and module. The PSD training module aims to teach workers how to research characteristics of infectious pathogens and how to implement proper risk assessment and protections in their respective workplaces.

As part of this effort, WTP conducted a needs assessment to identify gaps in the nation's federal guidelines and response capacity for Ebola and other infectious diseases.

Nina Jaitly, M.D., now the medical director for neurosciences and vaccines at Novartis Pharmaceuticals, played a significant role in helping conduct the needs assessment as a contractor to the WTP in 2016. Jaitly said the assessment showed multiple factors can hinder a stakeholder or organization's readiness capacity. Through the assessment, WTP identified the lack of a mechanism to integrate public health, occupational health and worker safety activities into a comprehensive approach. Furthermore, they determined a lack of synergy among key stakeholders' perspectives on risk-based and protective guidance for workers.

In October 2016, WTP hosted a kick-off workshop for the newly funded IDR program. WTP awarded eight organizations with funds to support nationwide training to protect high-risk workers from exposure to Ebola and other infectious diseases. WTP and IDR awardees identified 23 high-risk worker categories.

Demia Wright, WTP health educator/program analyst, said the all-hazards approach utilized by IDR awardees has been extremely successful, reaching thousands of workers in multiple sectors and industries across the country. Training was delivered from 2017 through 2019 to 36 states and one territory. Within this time period, IDR awardees delivered 1,000 courses to 36,000 workers, resulting in more than 145,000 contact hours of training.

Lessons learned from WTP's response to Ebola and other infectious diseases will be critical in moving forward to respond to COVID-19. Although the funding period for the IDR awardees ended in 2019, most of them are currently under a no-cost extension and have turned their focus to COVID-19 preparedness and training efforts for frontline and essential workers.

COVID-19

In December 2019, officials in Wuhan in China's central Hubei province confirmed dozens of cases of pneumonia from an unknown cause. The outbreak was later confirmed to be associated with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Although this pathogen is genetically similar to the virus responsible for the 2003 SARS outbreak, it is a different and novel strain.

In late January, more cases were confirmed outside China in Thailand, Japan, and South Korea. On January 21, the U.S. announced its first confirmed coronavirus case in Washington state. Just a few days later, the World Health Organization (WHO) declared the outbreak a global public health emergency as more than 9,000 cases were reported globally, including in 18 countries beyond China.

In February, the WHO announced the official name of the disease, COVID-19, caused by the novel coronavirus. In early March, as the number of global cases skyrocketed to 100,000, President Donald Trump signed into law the Coronavirus Preparedness and Response Supplemental Appropriations Act, a $8.3 billion emergency spending package to combat the outbreak.

During the House Appropriations Committee, NIH Director Francis Collins, M.D., testified on WTP's capacity to step in and provide just-in-time training for workers during the COVID-19 outbreak. "NIEHS has played a critical role in training people that deal with outbreaks," he said. "They previously did work on Ebola and they are totally prepared to step in this space."

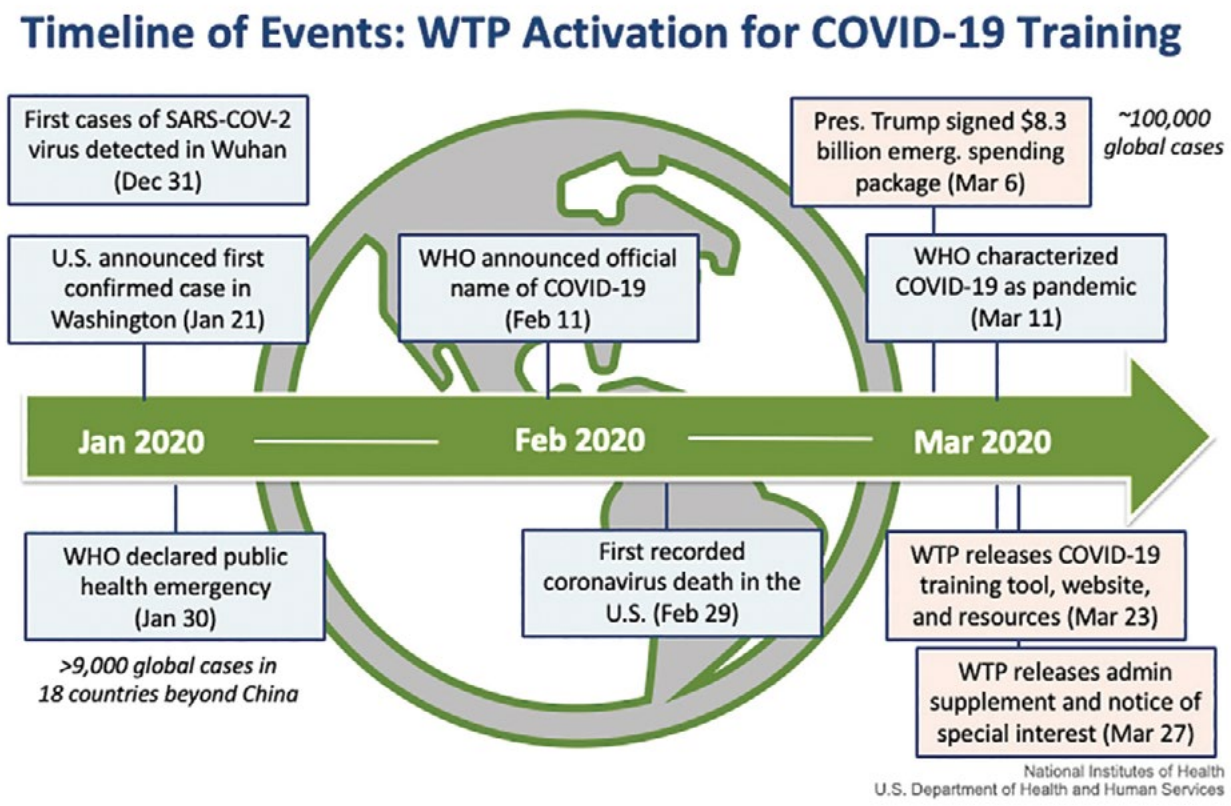
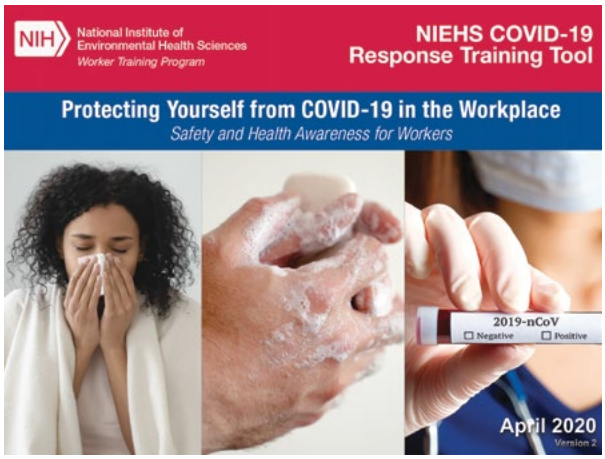


Figure 1: Abbreviated timeline of events, showing WTP's flexibility to activate and respond to public health emergencies and outbreaks. (Photo courtesy of NIEHS Environmental Factor, April 2020)

WTP received $10 million from the supplemental appropriations, which will support the program's COVID-19 Virtual Safety Training Initiative. The goal of this initiative is to increase health and safety awareness for responders and workers who face potential exposure to COVID-19 (Figure 2).

On March 23, an NIEHS press release announced WTP's new COVID-19 training tool and a website with related resources. The training tool, "Protecting Yourself from COVID-19 in the Workplace," was developed by WTP in collaboration with the National Clearinghouse for Worker Safety and Health Training and federal partners. The tool includes three modules to increase health and safety awareness for COVID-19 responders and frontline workers in high-risk settings.



Front cover of the Protecting Yourself from COVID-19 in the Workplace training tool.

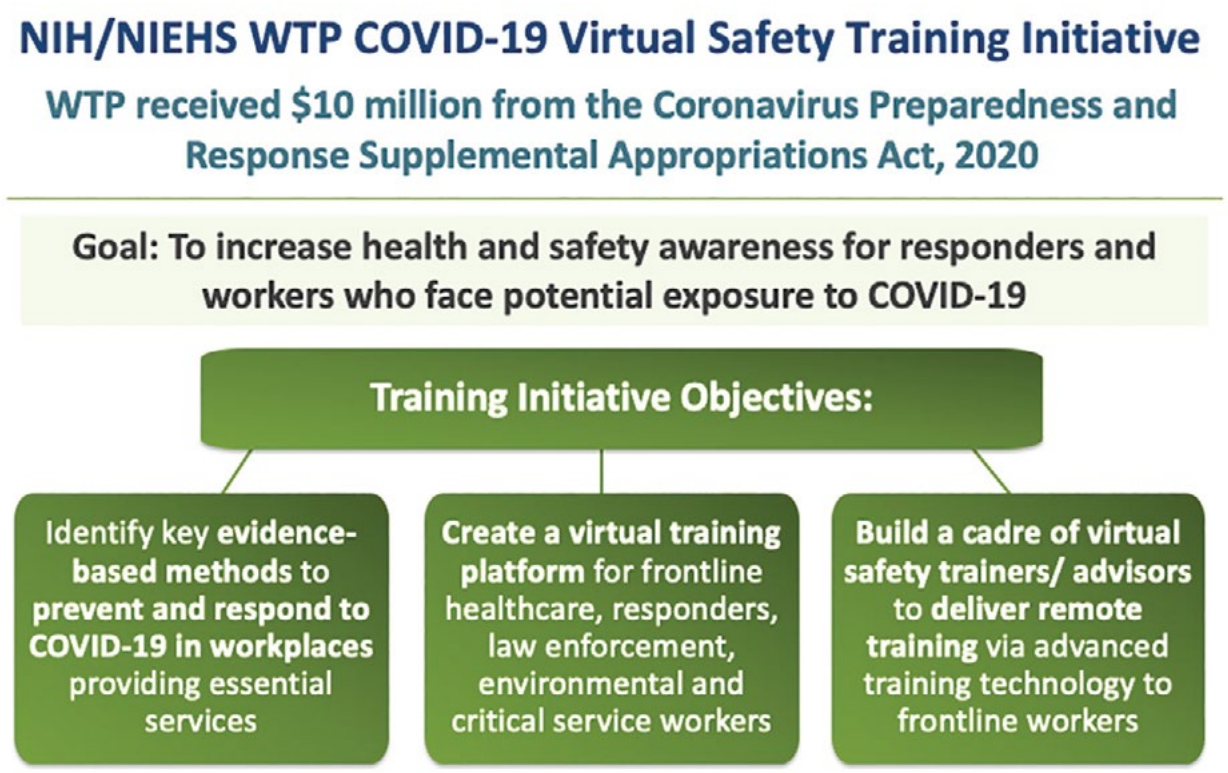


Figure 2: Objectives of the WTP COVID-19 Virtual Safety Training Initiative. (Photo courtesy of NIEHS Environmental Factor, April 2020)

COVID-19 Precautions and Preparedness

Transmission and Symptoms

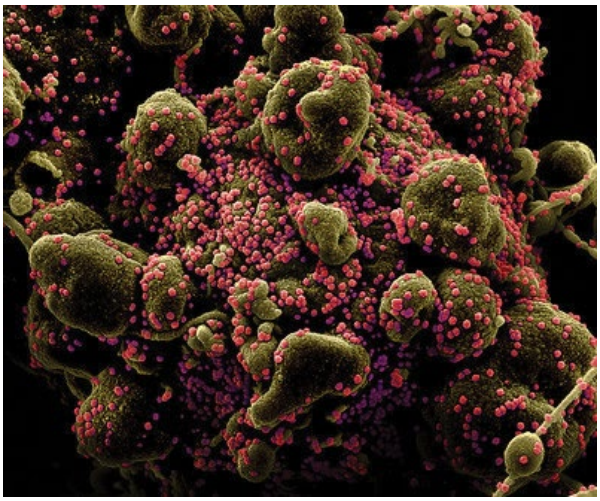
Margaret Rush, Ph.D., from Gryphon Scientific explained COVID-19 transmission, symptoms, and precautions needed to protect at-risk workers and communities.

SARS-CoV-2 enters the body through mucus membranes, such as eyes, nose, and mouth. People can be exposed by touching contaminated surfaces then rubbing their face, or by inhalation of droplets in the air. The most common symptoms of SARS-CoV-2 exposure and COVID-19 include fever, dry cough, fatigue, coughing up thick mucus, shortness of breath, and muscle and joint pain. The elderly (those over 60 years old) and those with pre-existing medical conditions face the greatest risk for severe disease.

Rush said hand washing should be a regular practice, along with social distancing and cleaning common areas both at work and home. Other considerations for the workplace include wearing recommended PPE and more frequent cleaning and disinfection practices, especially in high-traffic areas. Both the WHO and CDC have guidelines and resources for workers and the public.

Aerosols and the Precautionary Principle

Keynote speaker Lisa Brosseau, Sc.D., retired professor from the University of Illinois at Chicago, discussed the likelihood of exposure to



Colorized micrograph of a cell, green, heavily infected with SARS-CoV-2 virus particles, pink. (Photo courtesy of National Institute of Allergy and Infectious Diseases)

SARS-CoV-2 and other infectious diseases via aerosol transmission.

Brosseau explained that aerosols can be generated by many natural processes, such as coughing, sneezing, talking, as well as certain medical procedures. Inhalation can occur at the time and near the point of generation for aerosols. Inhalation is also possible further away from the point of generation as aerosol settling and diffusion takes place throughout space and over time.

A new infection control paradigm is needed – if an organism is airborne, it is also aerosol transmissible. The aerosol paradigm is slightly different from the classic droplet and airborne transmission paradigm, which proposes that only large droplets can be

inhaled from close range, and smaller droplets inhaled further away from the source.

Brosseau and her colleagues have been studying the aerosol transmission paradigm for some time. She said there is biological plausibility that SARS-COV-2 is transmitted via aerosols. This is based on the virus' viability in the environment and its nature of infection, which is very similar to tuberculosis and SARS. This raises many concerns regarding inherent risks for workers, calling for more stringent infection control and measures for protection.

"Analyze control methods across all levels," she said. "We can't change the toxicity of the organism, so we have to decrease exposure. Workers who face the highest risk need the highest levels of protection." Analysis of controls across all levels is described in a recent publication on control banding to protect the U.S. workforce from aerosol transmissible infectious disease outbreaks.

The precautionary principle, adopted by WTP years ago, is critical when dealing with novel infectious diseases. Therefore, we should consider that all disease transmission routes – contact, droplet, airborne, and aerosol – are possible for COVID-19.

Kevin Riley, Ph.D., from WTP grantee the Western Region Universities Consortium (WRUC) described the California Occupational Safety and Health Administration (Cal-OSHA) Aerosol Transmissible Diseases (ATD) standard. Riley explained how the ATD standard relates to novel pathogens like SARS-CoV-2 and how it can be used to protect workers in high-risk settings.

The ATD Standard was established in 2009 in the wake of the H1N1 swine flu epidemic. This pandemic, along with the 2003 SARS outbreak, increased awareness about the risk of aerosol transmissible infectious diseases.

Riley said the term aerosol in the ATD standard includes diseases for which either droplet precautions or airborne infection isolations are recommended. The basic requirements of the ATD standard involve exposure control plans, control measures, vaccinations, exposure investigations, and training and record keeping.

Work settings where the ATD standard applies include:

- Healthcare environment (e.g., hospitals, clinics, outpatient services, home healthcare, etc.)
- High-risk environments (e.g., correctional facilities, homeless shelters)
- Law enforcement
- Public health operations (e.g., contact tracing, influenza clinics)
- Laboratories

WRUC is providing training to workers in sectors covered by the standard, as well as those who are not, such as workers in airports, education, high-volume retail, and many others. Riley said the ATD standard is a great framework for assessing occupational exposure and implementing controls and precautionary removal.

National and Local Preparedness

Richard Hunt, M.D., from the U.S. Department of Health and Human Services Office of the Assistant Secretary for Preparedness explained how lessons learned from Ebola and other outbreaks can be used to create a path and vision forward in responding to COVID-19.

Hunt said the spread of Ebola was prevented due to our capacity to learn and advance knowledge quickly. A system of special pathogen care was created, specifically through the National Ebola Training and Education Centers (NETEC), and a network of training and education provided

throughout the nation. As a result, many lives were saved.

"Keep calm and go airborne," Hunt said. "Airborne diseases are exactly what our experiences are today. Which predictable surprises will come up, and which ones matter?"

Hunt and others highlighted how uncertainties surrounding COVID-19 call for agile preparedness and response. "We are constantly learning more about COVID-19," Hunt said. "We are dealing with uncertainty, along with the responsibility of packaging and disseminating knowledge quickly. We must be flexible and willing to adapt our training, because what you trained for last time might not work this time."

Jill Morgan with Emory University elaborated on a readiness review that NETEC and federal partners performed for state and regional Ebola treatment centers and assessment facilities recently. This review involved conducting peer review readiness consultations across 11 domains. The review revealed gaps in the following areas:

- **Preparedness for respiratory pathogens:** Surge capability and availability of airborne infection isolation rooms at points of entry.
- **Laboratory capabilities:** In-house, ongoing treatment, and ability to transport.
- **Lack of plans to identify and treat special populations:** Neonate, pediatric, obstetric, and geriatric.
- **PPE behavior:** Not intuitive and errors are made every day. How one behaves in and removes PPE is more important than the selected ensemble.
- **PPE training:** Training for healthcare workers consists of donning and doffing only. PPE education continues to be the most requested topic and participants cite the need for more training.

Preparedness for frontline healthcare facilities is often more challenging, especially in the context of special pathogens. NETEC has developed guidance for frontline facilities, clustering preparedness into five meta-domains: identify; isolate; inform; treatment and care; and testing and transport.

Morgan said NETEC continues to make considerable progress in preparedness processes. Due to experiences with Ebola, more drills are being implemented and PPE guidance and training improved.

Alexander Isakov, M.D., principal investigator for WTP grantee Emory University underscored the need for agile preparedness and response with novel pathogens. Isakov explained that we are operating in a biothreat environment, which calls for a hierarchy of controls – development and implementation of environmental controls, administrative policies, work practices, and safety equipment – to prevent transmission of biological agents to workers and others.

Isakov described the National Biodefense Strategy as a framework with goals corresponding to WTP's objectives to protect the workforce and support local communities. The National Biodefense Strategy aims to save lives, reduce suffering, protect property and the environment, control the spread of disease, and provide community support to overcome impacts. Isakov said the success of this strategy is dependent upon coordination with community response.

The five goals outlined in the National Biodefense Strategy are as follows:

- **Goal 1: Enable risk awareness to inform decision making:** Build awareness at the strategic level through analyses and research efforts to characterize risks, and at the operational level, through surveillance and detection activities.
- **Goal 2: Ensure biodefense enterprise capabilities to prevent bioincidents:** Prevent the outbreak and spread of naturally occurring disease, minimize the chances of laboratory accidents, and strengthen biosecurity.
- **Goal 3: Ensure biodefense enterprise preparedness to reduce the impacts of bioincidents:** Take measures to reduce the impacts of bioincidents.
- **Goal 4: Rapidly respond to limit the impacts of bioincidents:** Respond rapidly to limit the impacts of bioincidents through information-sharing and networking; coordinate response operations and investigations; and effective public messaging.
- **Goal 5: Facilitate recovery to restore the community, the economy, and the environment after a bioincident:** Take actions to restore critical infrastructure services and capability; coordinate recovery activities; provide recovery support and long-term mitigation; and minimize cascading effects elsewhere in the world.

Isakov concluded with an explanation on flattening the curve (Figure 3), a critically important action needed to decrease the acceleration of the COVID-19 outbreak to ensure that people can keep up with demand of services.

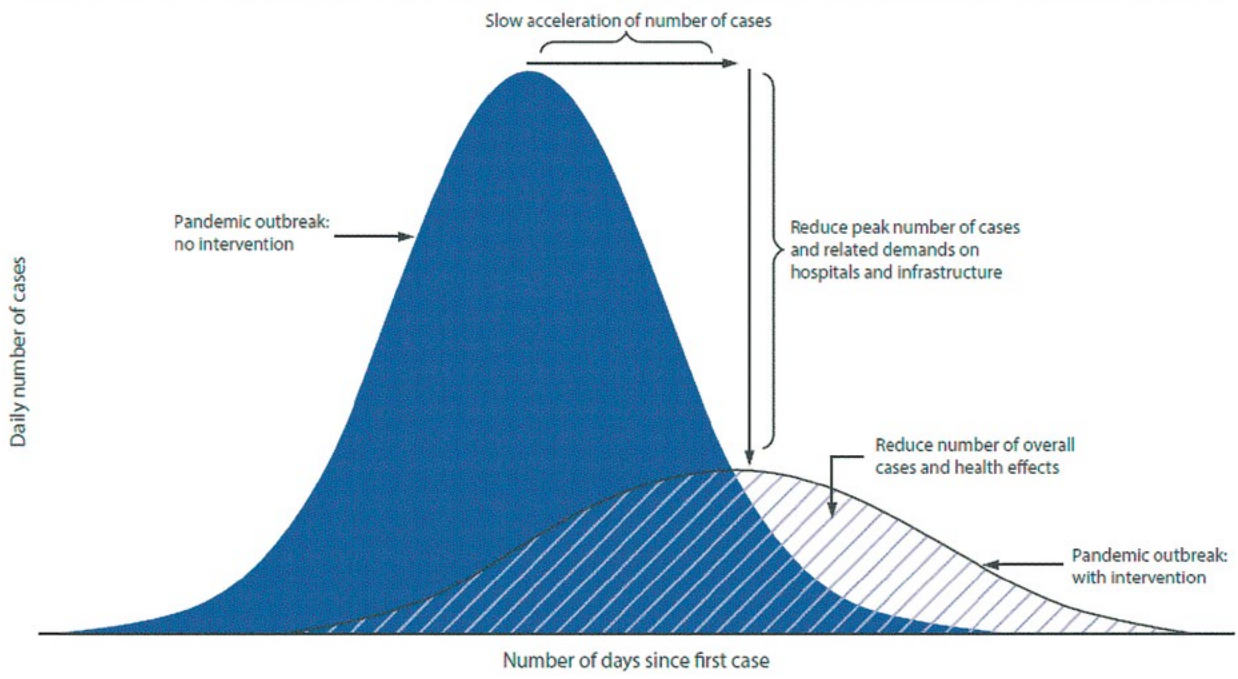


Figure 3: Isakov shared this figure to show the goals of community mitigation to decrease the acceleration of pandemic outbreaks, such as COVID-19.

Adapted from: Qualls N, Levitt A, Kanade N, et al. Community Mitigation Guidelines to Prevent Pandemic Influenza — United States, 2017. MMWR Recomm Rep 2017; 66 (No. RR-1):1–34. DOI: http://dx.doi.org/10.15585/mmwr.rr6601a1

Recognizing and Addressing Gaps in Preparedness

Federal Guidance and PPE

Rush emphasized the need for people to remain informed, and to refer to reputable, evidence-based data. “As information changes every day, one must be able to select the best data sources,” Rush said. “You need to critically evaluate sources by asking questions about who wrote the article, where is it posted, was it peer reviewed.”

Captain Lisa Delaney with the National Institute for Occupational Safety and Health (NIOSH) described scientific task forces that the CDC has set up through their Emergency Operations Center. These task forces are responsible for gathering data which are used to develop guidance and communication materials, both for workplaces and the general public. This includes materials for workers in healthcare, law enforcement, transportation, and funeral services.

General guidance for workplaces contains messages specific to frequent cleaning and social distancing. Delaney said NIOSH is working with the Department of Transportation (DOT) to enhance guidance for flight crews and develop a fact sheet for others in the transportation sector.

Infection control guidance for healthcare workers acknowledges that certain PPE, especially respirators, are in short supply. This a major challenge for workers in high-risk environments, such as hospitals and other primary care facilities. To address issues with the PPE supply chain, NIOSH is engaging with other agencies, manufacturers, and frontline health care workers. Additionally, NIOSH is issuing guidance on how to optimize use of an N95 respirator – how to work from conventional, to contingency, to crisis care. NIOSH has been collecting data on use of respirators from different expired stockpiles. They recognized that most of them performed as expected, even those with half of their shelf life will provide some level of protection.

Waste Management

Selin Hoboy, from Stericycle, and Chris Brown, from OSHA, shared challenges related to management of biohazardous waste.

During the COVID-19 pandemic, waste generators may include the travel industry, healthcare facilities, laboratories, schools, and businesses. It is important that medical and biohazardous waste be packaged in accordance with CDC, OSHA, DOT, and other regulatory and international standards.

Hoboy and Brown said open communication, accessible resources, and implementation of company protocols are key tools to support proper waste management. For example, continual communication with healthcare facilities about proper waste packaging, including tying off bags, closing sharps containers, and others are important. Waste generating facilities should remain informed about federal guidance and be aware of what is considered regulated or non-regulated medical waste. Additionally, waste management is

Trainers from UMET in Puerto Rico trained first responders on PPE use. UMET is part of the New Jersey/New York Hazardous Materials Worker Training Center, Rutgers University (Photo courtesy of UMET)

an essential service and should be added as part of emergency response for facilities and businesses.

Stigma and Stress

Managing stigma, perception, and stress present additional challenges during the COVID-19 pandemic. Speakers offered insights on communication to address these challenges.

The WTP Responder and Community Resilience training tool is a useful module that awardees often use and adapt for resiliency training. This training is commonly delivered to biosafety workers and disaster responders by WTP awardees and sub-awardees, such as the Universidad Metropolitana (UMET) in Puerto Rico and the World Cares Center (WCC). UMET and WCC are sub-awardees under the New Jersey/New York Hazardous Materials Training Center.

Lisa Orloff, founder of WCC, said biosafety workers have reported stress to be caused by many factors, such as uncertainty of exposure, resource constraints, and the political environment.

The WCC mental health resiliency course covers four stress domains: emotional, physical, cognitive, and social. Group discussion provides participants with an opportunity to share individual actions that can be used to alleviate stress, such as therapy, healthy eating, and exercise. However, the majority of them say that more action is needed beyond these, with a focus on institutional change within organizations

WCC has a virtual training platform and plans to deliver virtual exercises specific to COVID-19. The WCC newsletter provides a method to disseminate information to local organizations and build trusting relationships. They are experiencing challenges

reaching the elderly, who need the message but are often less able to utilize the virtual technology.

"In a high-risk outbreak, people will experience negative mental health outcomes, such as stress, avoidance, sleep disorders, and fatigue," said Darryl Alexander, consultant with the American Federation of Teachers (AFT). "We know many of these mental health outcomes linger far longer than the outbreak."

AFT is a union of professionals that fall into various disciplines, including educators, nurses and other healthcare workers, public employees, and retirees. AFT represents the Washington State Nurses Association, and Alexander shared their current experiences and needs. She explained that workers are confused and stressed by changes to federal PPE guidance and the shortage of proper respiratory protection.

"Everyone is reporting stress," Alexander said. "There is a lack of trust within facilities due to lack of communication and people are worried about exposing family members." She explained that there is also anticipation about increased numbers of COVID-19 cases among healthcare workers, which could result in worker shortages along with the increasing need and demand for patient care. Ultimately, this could result in excruciating decisions to be made at both the national and local level. Alexander reiterated the need for just-in-time training on PPE and resilience for frontline workers, which could help alleviate some of the stress that these workers experience.

Gordon Tuttle, Ph.D., of Emory University discussed emotional considerations for those working in public health and healthcare during the COVID-19 pandemic.

We are compulsively drawn to the latest information about COVID-19," said Tuttle. "But the idea is to be mindful and turn off the news. Much like it's helpful to eat less junk food, it is equally as helpful not to take in all information."

Common reactions to this pandemic include some negative emotions, like fear, resentment, worry, and grief. Some people may experience more positive reactions, such as an awareness of finding more meaning, reordering priorities, and embracing new spiritual perspectives.

Tuttle mentioned individual and organizational strategies to address these reactions. Organizations must be transparent and provide clear, consistent messages, along with support for teleconferencing. Individual strategies include basic self-care, maintaining social connections, and incorporating free time away from news and media.

Training to Respond and Manage Risks

Based on lessons learned from Ebola and other public health disasters, WTP awardees shared existing gaps and factors that should be considered for COVID-19 response in different worker populations. Awardees also shared current and planned training efforts to respond to and manage COVID-19 risks in the workplace.

Public Health Workers

Mitch Rosen, Ph.D., principal investigator for WTP awardee the New Jersey/New York Hazardous Materials Training Center, shared insights on training and preparing public health workers.

Rosen said risk assessment and situational awareness are key for both preparedness planning and training. "We need to recognize that planning is local," he said. "Health departments, emergency responders, and others – they are essential to community preparedness." Identifying key players involved in emergency operations and coordination, then communicating plans and risks to the community are critical. Part of this involves ensuring that accurate and up-to-date information is disseminated to communities in a timely manner.

Rosen explained that epidemiological investigations and public health surveillance are used to identify hot spots and address issues in the early stages of an emergency. This helps experts to assess mitigation actions that are needed as the situation unfolds.

He said that the WTP train-the-trainer (TTT) model is a successful approach that can be used to train large audiences quickly. The OSHA HAZWOPER standard (1910.120) is an important model for infectious disease training, which includes specific requirements that can be incorporated into existing or newly developed protocols for hazard identification and control. The standard places a major emphasis on training to ensure the health and safety of workers.

Emergency and Disaster Responders

Elizabeth Del Re, principal investigator for WTP awardee the International Association of Fire Fighters (IAFF), shared perspectives from the fire service. IAFF has more than 320,000 members across the U.S. and Canada. She said fire fighters are continuing to respond to everyday calls, but most times they have no idea if a COVID-19 case is involved.

Del Re explained the importance of preparation, protection and decontamination in the fire service. It is important that fire fighters review their department's exposure control plan and connect with local and state health departments to discuss COVID-19 procedures and precautions. Additionally, it may help for fire departments to implement additional protocols to obtain information about potential exposure from emergency dispatchers prior to a response. "With protection, sometimes we get complacent in the fire service," Del Re said. "But it is important that we remind ourselves that whomever we are responding to may have secondary issues that are important to know in the midst of COVID-19. We cannot be complacent, but we must remain vigilant."

Rafael Caballero with UMET shared perspectives on training disaster responders, specifically in Puerto Rico. Responders include workers at the federal and state level, municipal workers, community organizations, churches, and volunteers. Caballero said collaborations are key, and shared successes of partnering with WCC to deliver infectious disease, PPE, resiliency, and mold remediation training after Hurricanes Irma and Maria. During recovery stakeholder meetings, people emphasized the need for training across all sectors.

Homeless Outreach and Substance Abuse Prevention Workers

Aurora Le, project coordinator for WTP awardee the Biosafety and Infectious Disease Training Initiative (BIDTI) said their consortium has been effective in reaching and delivering training to substance abuse prevention workers, the homeless, and other vulnerable populations. Existing gaps they have noticed within these target populations are related to the management of needles and sharps, sanitation and containment, as well as education for clients and volunteers.

BIDTI emphasizes the need for primary prevention before an emergency happens. BIDTI trainings have covered topics such as principles of disease transmission, PPE donning and doffing, AIDS/HIV, Hepatitis A and C, and safe disposal of drug paraphernalia.

Environmental Service and Domestic Workers

Arturo Archila from WTP awardee the Steelworkers Charitable and Education Organization (SCEO) described barriers for environmental service and domestic workers as it relates to COVID-19. He said communities not only have a lack of PPE, but they also lack awareness of risks. Language continues to be a barrier, as many domestic workers are immigrants. To respond to these barriers, the SCEO and United Steelworkers Tony Mazzocchi Center deployed their Specialized Emergency Response Trainers (SERTs). The SERTs have been using surveys to identify gaps in infectious disease awareness and training for these workers.

Sub-awardee Make the Road New York (MRNY) and partners with the National Day Laborer Organizing Network (NDLON) have been consistent in providing chemical awareness and OSHA-specific trainings for domestic workers. These connections have created a path forward to offer COVID-19 and infectious disease training to workers and communities.

NDLON plans to use radio *Jornalera* to disseminate information to communities; they will also include infectious disease training in some of their home health aide initiatives and the promotoras model. MRNY's community action in response to COVID-19 encompasses several goals, including:

- Disseminating accurate, bilingual, and culturally competent materials on COVID-19 to communities.
- Holding know your rights trainings for community members online so they have the latest information on immigration enforcement, census participation, and other issues.
- Shifting ways of work to minimize contact.
- Staffing a COVID-19 hotline for vulnerable communities.

Other plans are centered around worker and migrant justice as part of the COVID-19 response and continued engagement with tribal partners. Archila concluded stating that awareness of all vulnerabilities within a community should dictate the type of response to any given crisis.

Conclusions and Next Steps

"WTP awardees have a lot of trust in the organizations that we represent and the people we serve," said Shawn Gibbs, Ph.D., principal investigator for BIDTI. "There is a need to be flexible and adaptable. COVID-19 is not emerging, but it has emerged. We need to be adaptable as our knowledge about the disease shifts."

Gibbs reiterated the need for clear, concise, and correct information, stating that words matter. It is important to be clear as it relates to the transfer of information, skills, and training. Gibbs also said educating people about theories behind donning and doffing of PPE is important.

"We unfortunately live in a country that has a highly balkanized public health care system," Alexander said. "Never more than ever, do we need this network of NIEHS trainers that can be expanded with all the basic skills. We need to build in real muscle memory for these trainers, so that they can jump into action, not only for this pandemic, but for the future."

Alexander also mentioned the importance of talking with at-risk workers about what needs to be done after the pandemic. She said there is a need to address the complacency and disengagement that is typically seen in various constituencies once a crisis is over. These are factors that should be considered and built into training now.

"We know this will be a long-term process," said Hughes. "Training for front-line workers will continue to be our priority and focus." To ensure activities funded by the 2020 Coronavirus Preparedness and Response Supplemental Appropriations Act are complementary, WTP will continue close coordination with partners from federal agencies, including CDC and OSHA.

Next steps include development of an online synchronous and asynchronous platform to deliver COVID-19 training for workers to allow just-in-time, web-based training across the country in high-risk industrial sectors.

Emory's Infectious Disease Worker Training Program trained emergency medical responders in high consequence infectious disease operations. Emory works closely with American Medical Response, Air Methods Corporation, and other partners. (Photo courtesy of Jonathan Rosen)

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