

# A HAZWOPER of a PANDEMIC

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## Introduction-

My how life can change quickly! What basically happened as far as I can surmise is that in a matter of four months, a highly-infectious pathogen was widely transmitted to humans and rapidly spread throughout the world. This novel corona virus targets lung tissue and appears to cause mortality (death) in ~2% of those symptomatic and in higher risk categories such as age, immune deficiency and pre-existing medical conditions (diabetes, etc.). As of this writing there have been over 2.35M cases and 122,000 deaths in just the US. Healthcare and other essential workers (first responders, public utilities, grocery retail) can be and are exposed to many different pathogens everyday right now including recently COVID-19. It is imperative that these workers receive the necessary training to limit and isolate the communicability of the disease as well as residual biological (hazardous) contamination potentially infecting others and/or carelessly released into the environment.

## HAZWOPER Overview-

The Occupational Safety and Health Administration (OSHA); Hazardous Waste Operations and Emergency Response regulation (HAZWOPER) protects workers engaged in various hazardous (chemical, physical and biological) substance activities including contaminated site characterization, clean-up and monitoring (e.g. Superfund), RCRA-regulated business

operations (e.g. underground storage tanks), HazMat emergency response teams. The training requirements reflect the worker roles, responsibilities and participation during on-going facility operations and/or real-time (emergency) response. Levels range from Awareness to Incident Commander and everything in between. Learning concepts include: hazard recognition, assessment, monitoring, site control, decontamination, medical surveillance, engineering control procedures, PPE, site health and safety plan, etc.

HAZWOPER is an example of a performance-based regulation where the employer determines which employees based on their job duties are affected and to what extent. Training content and materials can then be developed, tailored and presented in a relevant way in a manner that can be understood. Acquired skills, knowledge and understanding must be demonstrated by the employees and documented by the employer. An important part of HAZWOPER training is mastering familiarity and proficiency using standardized PPE ensembles and the associated terminology (Levels A, B, C, and D). Level A is total physical encapsulation including supplied air on the inside of the hazmat suit which protects the wearer from all chemical exposure pathways (inhalation, absorption, ingestion and injection (puncture)). Level B includes chemical splash protection and supplied air, double gloving, boot covers, etc. Level C also requires chemical protection and a (powered) air-purifying respirator with high efficiency particulate aerosol (HEPA) filtration et al. Level D may require filtering face pieces (N95) or their use may be voluntary.

#### Respiratory Protection-

The OSHA Respiratory Protection standard (29CFR 1910.134) is also performance-based. The employer must provide medical evaluation, fit testing, respirators, training, etc. at no cost to employees. Area and personal monitoring need to be performed to evaluate airborne concentrations of regulated contaminants and compare them to allowable worker levels (occupational exposure limits). This will determine the extent of protective controls (engineering, administrative, PPE). If the employer decides to make filtering facepieces (N95) available to employees for use on a voluntary basis, the employer at a minimum must also give a copy of the information contained in Appendix D which essentially describes best practices including use, limitations and restrictions.

#### Aerosol Transmissible Diseases (ATD)-

This is a Cal OSHA regulation and is another example of Federal OSHA lagging behind a State-authorized program (Injury Illness Prevention Program and Ergonomics are two more). Fed OSHA has put forth a variation of the ATD in the form of a 2015 'Worker Infection Control Plan' draft guidance document that has yet to be considered by Congress and adopted as part of a 'National Response Plan'. The ATD is an example of a prescriptive regulation that dictates how the employer shall implement the regulatory intent. The ATD was first promulgated to primarily protect those working in healthcare facilities, services and operations such as hospitals, skilled nursing facilities, clinics, medical offices, outpatient medical facilities, home

and long term healthcare, during high hazard medical procedures, medical transport, etc. It also applies to facilities, services or operations that are designated to receive persons arriving from the scene of an uncontrolled release of hazardous substances involving biological or etiological agents (HAZWOPER).

The Cal OSHA ATD regulation addresses a wide array of airborne infectious pathogens and diseases transmissible through dissemination of airborne droplet nuclei, small particle aerosols or dust particles. There are those pathogens that require infection isolation (Anthrax and TB); and those that require droplet exposure precautions (Influenza and Strep). Droplet precautions reduce the risk of transmission through contact of the conjunctivae (eyes) and mucous membranes of the nose or mouth of a susceptible person with large particle droplets (>5mm in size) containing microorganisms generated from a person who is symptomatic or a carrier of the disease. Novel or unknown pathogens (e.g. COVID-19) are also referenced in the 'definitions' and listed again in Appendix A. The Cal OSHA Injury and Illness Prevention Program (IIPP) regulation (performance-based) is referenced under 5199(a)(2)(B)(2.) as it relates to having screening procedures to identify potential ATD cases and the referral procedures for further evaluation by a physician or licensed healthcare professional (PLHCP).

#### Recommended Practices-

It is generally agreed by professionals that the best OHS risk management practices follow the hierarchy of controls (engineering, administrative, PPE) and preferably their antecedents: avoidance, prevention, elimination, and substitution. This hierarchal approach generally support the underlying intent of all OSHA regulations including ATD, HAZWOPER, Respiratory Protection, Ergonomics, and IIPP.

When one considers Pandemic root causes, eliminating this risk is virtually impossible. A vaccine would bring us close to eradication and herd immunity would help us stave it off. But as with all viruses, they mutate, adapt and eventually become resistant to new treatments. Managing new outbreaks of vaccine- resistant strains will remain a constant challenge going forward. Awareness and prevention are two key ways to begin to control the spread of disease outbreaks. Here are several more ways:

- Practice good personal hygiene by frequently washing hands with soap and water for at least 20 seconds (You can also use an alcohol-based hand rub that contains at least 60% alcohol).
- Avoid touching your eyes, nose or mouth with unwashed hands.
- Avoid close contact (< 6') with people who are or may be sick (presymptomatic).
- Use physical barriers including social distancing
- Have medical and emergency supplies such as N95 masks, disposable gloves; sanitizers, disinfectants readily available.

- Encourage people to self-isolate at home if they feel sick.
- Practice wellness (sleep, diet, exercise, mindfulness).

#### Training-

While there are a variety of training requirements for each OSHA regulation, there is also a great deal of overlap. For example, respiratory protection is required to be evaluated and addressed in HAZWOPER, ATD, and IIPP). In addition, there are similar requirements for hazard assessment, medical surveillance, monitoring, record keeping, site control (HAZWOPER), infection isolation areas (ATD), decontamination procedures, material/waste handling and disposal, site health and safety plans.

In broader terms, ATD is related to HAZWOPER. General and Occasional Site Worker training for characterized hazardous substance site remediation activities (midnight dumping, drug labs, brownfield redevelopment, SUPERFUND clean-up, RCRA corrective action). Resource Conservation Recovery Act (RCRA) corrective actions deal with process operations that use hazardous materials and/or generate hazardous waste. Emergency responders may receive up to five different training certification levels: First Responder Awareness-FRA, First Responder Operations-FRO (defensive posture); Hazardous Materials Technician-HMT (offensive posture general), Hazardous Materials Specialist-HMS (offensive posture specific), and Incident Commander (IC).

During disease outbreaks, healthcare professionals and first responders are subjected to many of the same HAZWOPER-type hazards requiring engineering and administrative controls, procedures and PPE. Typically, a Level C ensemble with a face shield would likely provide adequate worker/responder protection. This assumes that disease transmission would not occur via puncture, or skin, eye, nose, mouth contact/absorption. Greater levels of PPE may be required depending on the exposure pathways and lethality of the contagion. Decontamination and waste disposal procedures would need to be aggressive enough to completely render the pathogens inactive (incineration).

#### Summary-

The COVID-19 Pandemic hazards and exposures affecting the medical, healthcare, emergency and other essential workers have similarities that overlap with several existing and applicable OSHA regulations. These at-risk workers should also have HAZWOPER training at a minimum FRO level coupled with the Respiratory Protection questionnaire, medical clearance, and fit testing certification as well as facility-specific ATD policy and procedure training. Conversely, all HAZWOPER levels should have some Infection Awareness, Control and Management training as generally outlined in the Cal OSHA ATD regulation as applied to a biological or etiological HazMat incident including medical surveillance, monitoring, site/area control, decontamination, transportation, reporting, recordkeeping and especially PPE (respiratory protection).

Organizations should include and incorporate infectious disease response procedures and training which include unknown viruses as part of their IIPP and emergency preparedness plans.

Employers from all business sectors regulated by OSHA who are requiring workers to wear filtering facepieces must comply with the Respiratory Protection standard. If wearing face coverings in the workplace is voluntary (non-mandatory), employers still need to provide employees at a minimum the information contained in Appendix B of the regulation.

Finally, until a vaccine can be synthesized, tested and distributed, there will continue to be positive test cases of COVID-19. Employers should support and promote worker wellness programs (fitness club memberships, smoking cessation classes, stretch and flex programs, mindfulness, drug/alcohol management and other employee assistance) as part of a **Total Worker Health** business culture on and off the job. Healthy workers are more productive and don't get sick frequently. When they do, their recovery time is usually shorter. Employers should also make paid sick leave available and encourage workers to be proactive and stay home if they are sick.

#### References-

- Cal OSHA, California Code of Regulations, Subchapter 7. General Industry Safety Orders, Group 16. Control of Hazardous Substances, Article 109. Hazardous Substances and Processes; Title 8 Section 3203 (IIPP).
- Cal OSHA, California Code of Regulations, Subchapter 7. General Industry Safety Orders, Group 16. Control of hazardous Substances, Article 109. Hazardous Substances and Processes; Title 8 Section 5144 (Respiratory Protection).
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- Cal OSHA, California Code of Regulations, Subchapter 7. General Industry Safety Orders, Group 16. Control of hazardous Substances, Article 109. Hazardous Substances and Processes; Title 8 Section 5193 (Bloodborne Pathogens).
- Cal OSHA, California Code of Regulations, Subchapter 7. General Industry Safety Orders, Group 16. Control of hazardous Substances, Article 109. Hazardous Substances and Processes; Title 8 Section 5199 (Aerosol Transmissible Diseases).
- Center of Disease Control and Prevention (CDC); National Institute of Occupational Safety and Health (NIOSH), Total Worker Health (TWH); <https://www.cdc.gov/niosh/twh/default.html>.
- Fed OSHA, Occupational Safety and Health Standards, 1910 Subpart I, Personal Protective Equipment, Title 29 Section 1910.134 (Respiratory Protection).

- Fed OSHA, Occupational Safety and Health Standards, Code of Federal Regulations, 1910 Subpart H, Hazardous Materials, Title 29 Section 1910.120 (HAZWOPER).
- Fed OSHA, Occupational Safety and Health Standards, Code of Federal Regulations, 1910 Subpart Z, Toxic and Hazardous Substances; Title 29 Section 1910.1030 (Bloodborne Pathogens).
- US Department of Labor; Occupational Health and Safety Administration; “Guidance on Preparing Workplaces for COVID-19”. OSHA 3990-03-2020.

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