Emergency Preparedness and Response: What Nurses Need to Know
AFSCME UNA Nurses Congress 2015

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Overview

This session will cover:

– Emergencies that may affect nurses
– Emergency planning basics
– Considerations for nurses involved in emergency response activities
– Hazards, protective actions, and applicable OSHA standards for biological, chemical, and radiological/nuclear events
– A closer look at the ongoing Ebola outbreak
– Kaiser nurses’ experience
– OSHA’s Ebola response activities
– Where to find more in-depth resources
# Types of emergencies that affect nurses

<table>
<thead>
<tr>
<th>Natural disasters</th>
<th>Man-Made Emergencies</th>
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<tbody>
<tr>
<td>• Severe storms</td>
<td>• Chemical releases</td>
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<tr>
<td>• Tornadoes</td>
<td>• Oil spills</td>
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<tr>
<td>• Hurricanes</td>
<td>• Biological agent releases</td>
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<td>• Floods</td>
<td>• Radiation releases</td>
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<tr>
<td>• Tsunamis</td>
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<tr>
<td>• Wildfires</td>
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<tr>
<td>• Earthquakes</td>
<td>• Terrorist attacks</td>
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<tr>
<td>• Mudslides</td>
<td>• Other criminal events</td>
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<td>• Volcanoes</td>
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</table>

**Other events**
- Disease outbreaks
- Others?
How do these emergencies affect nurses?

- Severe storms
- Tornadoes
- Hurricanes
- Floods
- Tsunamis
- Wildfires
- Earthquakes
- Mudslides
- Volcanoes
- Chemical releases
- Oil spills
- Biological agent releases
- Radiation releases
- Nuclear detonations
- Explosions
- Terrorist attacks
- Disease outbreaks, including localized and pandemics

- You or your family becomes a victim or otherwise directly involved
- Your workplace is impacted by the event; you may or may not be a victim
- Your workplace is a first-receiver facility of victims
- You provide other types of care for victims (e.g., field, receive transferred patients)
- Secondary effects
Likelihood of Emergencies

• Emergencies, particularly natural disasters, are unpredictable
  – Certain regions face particular hazards (e.g., tornadoes in the Midwest, wildfires in California, hurricanes along the Gulf and Atlantic coasts)

• Likelihood of man-made events may be impacted by
  – Geographic proximity to hazard
    • Freight railroad tracks
    • Nuclear power plant
  – Target vulnerability and appeal
    • Urban versus rural
  – Other factors

Always be prepared

OSHA®
Start planning for emergencies

• Determine what to start planning for, and how to start, by **assessing likely hazards**
  – What types of emergencies are **likely or probable**?
  – What types of emergencies are **possible**?
    • What external hazards are you near?
  – What is your workplace’s role in various types of emergencies?
    • Impacted business (e.g., doctor’s office)
    • First-receiver facility (e.g., emergency department, trauma center)
    • Other facility that may encounter emergency victims (e.g., urgent care center)
    • Emergency responder entity (e.g., ambulance service, air medical transport)
Nurses in impacted businesses
(without emergency response functions)

Your employer should:
- Plan to protect workers, visitors, and others at the worksite during the event of an emergency
- Assess likely hazards in and around the business
- Determine necessary safety measures and other needs during an emergency situation
- Develop emergency action plans and comply with other OSHA requirements
Nurses with emergency response functions

• Complex considerations for nurses and other workers with emergency response functions

• Workplace hazards, exposure risks, and outcomes may vary widely depending on job duties:
  – in hospitals, EDs
  – field triage/care
  – public health functions

Following existing OSHA requirements can protect workers’ safety and health during a variety of emergencies.
Nurses with emergency response functions

Basic preparedness the same as for non-emergency response workers:

• Plan to protect workers, visitors, and others at the worksite during the event of an emergency
• Assess likely hazards in and around the workplace
• Determine necessary safety measures and other needs during an emergency situation
Nurses with emergency response functions

However, nurses with emergency response functions may face different or more dangerous levels of hazards.

Employers should start by:
• Assessing likely hazards during anticipated emergency events; then
• Determining necessary protective measures
Nurses with emergency response functions

What hazards might nurses face on the job during emergencies?

• Exposure to infectious diseases (pathogens)
• Exposure to airborne contaminants, such as chemicals or radionuclides
• Exposure to contaminated patients or equipment
• Physical hazards in the field or at an impacted worksite, such as downed power lines, contaminated or deep flood water, falling tree limbs or structural components
Nurses with emergency response functions

Remember, these are in addition to everyday hazards:

• Exposure to infectious diseases (pathogens)
• Needlestick injuries
• Ergonomic injuries
• Chemical exposures
• Worker fatigue (may be made worse during emergencies)
Nurses with emergency response functions

Employers should follow existing OSHA standards applicable to the worksite, job functions, etc.

General requirements of many standards:
- Exposure/hazard assessment
- Engineering, administrative controls
- Personal protective equipment
- Training
- Medical exams, record keeping
OSHA protections in the event of

- Biological agents and infectious diseases
- Chemical spills and releases
- Radiological releases
- Nuclear detonations
Biological agents and infectious diseases

Sources of biological agent and infectious disease emergencies:

- Natural disease outbreaks
- Outbreaks facilitated by travel
- Intentional releases of disease into drinking water supplies
- Aerosolization or other release of agents into the air or HVAC system
Biological agents and infectious diseases

Nurses may be exposed to:

- Infectious patients and waste
- Contaminated environmental surfaces and equipment
- Aerosols containing infectious particles (e.g., during certain procedures)
- Airborne biological agents

Community exposures (i.e., non-occupational) may also be possible
Biological agents and infectious diseases

Protective actions:

• Actions may depend on the specific biological agent, its virulence, routes of transmission, and many other factors

• Identify and isolate sources of infectious agents

• Use appropriate engineering controls, administrative controls, safer work practices, and PPE to reduce worker exposures to sources as much as possible

• Training
Bloodborne Pathogens

The OSHA BBP standard (29 CFR 1910.1030) applies to all reasonably anticipated occupational exposure to blood or other potentially infectious materials.

- Common BBPs: Hepatitis B & C and HIV, Syphilis, Malaria
- BBPs that may be associated with a public health emergency: Brucellosis; viral hemorrhagic fevers including Ebola, Lassa, Marburg and Crimean-Congo fevers
**BBP: What is OPIM?**

Other potentially infectious materials (OPIM) includes:

- other body fluids such as semen, vaginal secretions, pleural fluids
- body fluids contaminated with blood and
- body fluids where it is difficult or impossible to differentiate between body fluids
BBP: Exposure Control Plan

A written Exposure Control Plan is designed to eliminate or minimize employee exposure.

- Must be completed before an employee has occupational exposure.
- Develop a plan before workers have exposure.
- Include the minimum requirements, such as information about exposure determination, vaccinations, and recordkeeping.
- Focus on the specific operation.
BBP: Exposure Determination

- Without regard to the use of personal protective equipment;
- Identify job classifications where all employees have occupational exposure;
- Identify job classifications in which some employees have occupational exposure; and,
- Identify all tasks and procedures in which occupational exposure occurs.
BBP: Methods of Compliance

• Universal precautions.
• Engineering controls (isolate/remove hazard)
• Work practice controls (reduce likelihood of exposure by altering the manner in which the task is performed.)
  – Often lacking: Hand washing
BBP: Methods of Compliance

• Personal protective equipment (PPE)
  – Provide at no cost to employees;
  – Appropriate for the task – not for the employee to determine;
  – Appropriate sizes, readily available; and,
  – Training (1910.1030 & 1910.132)
**BBP: Methods of Compliance**

**Housekeeping:**

- All equipment, environmental and working surfaces cleaned and decontaminated after contact with blood or potential infectious material; and,

- Work surfaces must be cleaned after process, spill and at the end of the work shift.
BBP: Employee Training

• At time of initial assignment;
• Annually;
• Changes in tasks, or procedures; and
• Institution of new tasks or procedures.
Other Applicable Standards

Other OSHA standards may also apply to exposure to **biological agents**, including:

- PPE, general requirements (29 CFR 1910.132)
  - Other PPE standards (hand, eye/face protection)
- Respiratory protection (29 CFR 1910.134)
  - cleaning and disinfection chemicals
- General environmental controls (1910 Subpart J)
- Others
Case Study: 2014-present Ebola Outbreak
Current Ebola Outbreak

• The 2014 Ebola epidemic is the largest in history, affecting multiple countries in West Africa.
  – Currently Guinea, Liberia, Sierra Leone
• First reports of an outbreak in West Africa surfaced in March 2014.
• Two imported cases of Ebola virus disease (EVD), including one death, and two locally acquired cases in healthcare workers, have been reported in the United States.
• No confirmed U.S. EVD cases now.
Current Ebola Outbreak

- CDC world-wide case counts as of April 30, 2015
  - Total Cases: 26,312
  - Laboratory-Confirmed Cases: 14,928
  - Total Deaths: 10,899
- U.S. (now considered “previously affected”)
  - Total Cases: 4
  - Laboratory-Confirmed Cases: 4
  - Total Deaths: 1

**Note:** Total case counts updated in conjunction with the World Health Organization updates and are based on information reported by the Ministries of Health.
U.S. Cases

• September 30, 2014 – CDC confirmed first laboratory-confirmed case of Ebola to be diagnosed in the United States in a man who had traveled to Dallas, Texas from Liberia.
  – The man did not have symptoms when leaving Liberia, but developed symptoms approximately four days after arriving in the United States.
  – The man sought medical care at Texas Presbyterian Hospital in Dallas
  – The patient died on Oct. 8.
U.S. Cases

- **October 10, 2014** – A healthcare worker (a nurse) at Texas Presbyterian Hospital who provided care for the index patient tested positive for Ebola.
  - The healthcare worker was isolated after the initial report of a fever and subsequently moved to the National Institutes for Health (NIH) Clinical Center.
  - Recovered; discharged Oct. 24.
U.S. Cases

- **October 15, 2014** – A second healthcare (another nurse) worker who provided care for the index patient at Texas Presbyterian Hospital tested positive for Ebola.
  - This second healthcare worker was transferred to Emory Hospital in Atlanta, Georgia.
  - The healthcare worker had traveled by air from Dallas to Cleveland on Oct. 10 and from Cleveland to Dallas on Oct. 13.
  - Recovered; discharged Oct. 28.
  - By Nov. 3, all passengers on both flights completed the 21-day monitoring period.
U.S. Cases

• **Oct. 23, 2014** - The New York City Department of Health and Mental Hygiene reported a case of Ebola in a medical aid worker who had returned to New York City from Guinea, where the medical aid worker had served with Doctors Without Borders (MSF).
  – Patient treated at Bellevue Hospital Center.
  – Diagnosis confirmed by CDC on Oct. 24.
  – Recovered; discharged Nov. 11.
Federal Response

- OSHA stood up outbreak preparedness and response efforts beginning in July 2014, well ahead of U.S. cases.
- Technical assistance and support for other federal agencies
- Assistance in protecting workers who may have occupational exposure
  - Coordinating closely with CDC/National Institute for Occupational Safety and Health (NIOSH) to issue worker protection guidance
Federal Response

• CDC leading the USG response
  – Emergency Operations Center has been staffed for nearly 300 days
  – 300+ USPHS & CDC staff conducting support missions
Federal Response

• Other federal agencies involved
  – DHS: Screening of incoming travelers at points of entry
  – Check for symptoms, risk factors
  – 5 major U.S. airports: ATL, JFK, EWR, IAD, ORD
Federal Response

• Other federal agencies involved
  – DOD: military personnel were deployed to help build Ebola treatment centers in Africa
  – DOT: FAA working to ensure safety of flight crews who may encounter passengers traveling from Ebola-affected countries
  – EPA: responsibilities for waste processing and disposal
  – NIH: providing guidance through NIEHS, treatment of patients at NIH
  – Others beyond those mentioned
Workers at Risk of Exposure to Ebola

Workers in healthcare settings

- Direct patient care (doctors, nurses, technicians)
- Laboratory workers (research, diagnostics / analysis)
- Environmental services (housekeeping, laundry)
- Facility management / Building engineering
- Waste handlers / Decontamination personnel
- Emergency responders (e.g., EMS)

Workers in non-healthcare settings

- Persons handling the deceased
- Airline workers (airline cabin service workers, including cleaning crews, for flights originating from the countries named by CDC as having Ebola outbreaks) and other transportation industry workers
- Waste workers involved in other cleaning/decontamination operations
- Customs officers / Border patrol employees
- Other law enforcement personnel
Workers at Risk of Exposure to Ebola

Workers in healthcare settings may be exposed during:

• Evaluation of patients in ED
• Treating confirmed or suspected EVD patients
• Performing medical procedures that generate aerosols
• Cleaning and decontamination
• Handling waste
Workers at Risk of Exposure to Ebola

Workers conducting laboratories tasks be exposed during:

- Handling, testing, storing, and disposing of samples from patients with EVD
- Opening sample tubes
- Vortexing sample tubes
- Other procedures that result in splashes, sprays or aerosols containing Ebola virus particles
- Working near other workers conducting hazardous procedures
Workers at Risk of Exposure to Ebola

Workers handling waste may be exposed during:

- Collection of waste
- Packaging of waste
- Transport of waste
- Processing/treatment of waste
  - Autoclaving
  - Rotoclaving

Not typically a hazard:
- Disposal of treated waste, incinerator ash, etc.
OSHA Ebola Activities

- Coordination with federal and state partners
- Outreach to other stakeholders
- Development of technical support resources and guidance materials
- Technical assistance in the field
Federal interagency coordination

- **CDC/NIOSH**
  - Development of worker safety and health guidance
  - Regularly schedule incident management updates

- **White House**
  - Office of Science and Technology Policy PPE research
  - Waste handling, treatment, and disposal

- **HHS/NIEHS, CDC/NIOSH, and ASPR**
  - Development and delivery of training for health care workers (HCWs) and workers in other sectors
Federal interagency coordination

- **HHS/CDC/NIOSH, EPA, and DOT** (and labor and industry reps)
  - OSHA-led Ebola waste management workgroup to develop interagency guidance document related to worker health and safety in medical waste handling, collection, transport, treatment and disposal.

- **HHS/ASPR, FDA, CDC/NIOSH**
  - Interagency group to discuss status of the PPE supply chain for the Ebola response

- **DHS**
  - Development of health and safety aspects of screening protocols for border and transportation screening workers
Federal interagency coordination

• DOT/FAA & HHS/CDC/NIOSH
  – Safety and health issues for flight crews
  – Technical assistance regarding PPE, infection control, and isolation methods aboard aircraft

• Veterans Affairs (VA)
  – Development of health and safety aspects of PPE protocols for HCWS

• Institute of Medicine (IOM)
  – Presentation of information about PPE and other worker safety and health topics related to Ebola
State coordination

- Technical assistance to State Plans and other state agencies, as requested
- Guidance document reviews
- Development of internal wiki-style “OSHAPedia” page accessible to federal, State Plan, and consultation staff
Other stakeholder outreach

• Public
  – Development and publication of guidance materials
  – Responding to calls, emails, letters, and E-Correspondence from workers, employers, the general public, and other stakeholders

• Labor unions and industry representatives
  – Union engagement and worker/employer preparedness activities (TODAY’s SESSION!)
  – Compliance assistance meetings and symposia
  – Discussions with employers across multiple sectors
  – Development and publication of guidance materials
OSHA’s Ebola Webpage

http://www.osha.gov/ebola/
Ebola Fact Sheets

• “Cleaning and Decontamination of Ebola on Surfaces”

• Provides guidance for workers and employers in non-healthcare and non-laboratory settings
Ebola Fact Sheets

- “Safe Handling, Treatment, Transport, and Disposal of Ebola-Contaminated Waste”

- Jointly developed with NIOSH and EPA to address challenges in U.S. waste stream
OSHA/NIOSH Fatigue Guidance

- “Preventing worker fatigue among Ebola healthcare workers and responders”
- Covers assessment of work load, training, rest, etc.
# OSHA PPE Selection Matrix

## OSHA PPE Selection Matrix for Occupational Exposure to Ebola Virus

### Guidance for common exposure scenarios

Employees are responsible for ensuring that workers are protected from exposure to Ebola sites and that patients are not exposed to harmful levels of chemicals used for cleaning and disinfection. While samples of Ebola are not available in the U.S., all employers must ensure that employees are protected from exposure to Ebola virus in a manner that minimizes risk to employees.

- Based on current recommendations from the Centers for Disease Control and Prevention (CDC) and the U.S. Department of Health and Human Services (HHS), the PPE selection matrix, published by the Office of the Assistant Secretary of Labor for Occupational Safety and Health (OSHA), reflects the appropriate PPE for workers with direct contact with blood or other potentially infectious materials. The matrix includes guidelines for PPE based on the nature and severity of the exposure, as well as the type of activity involved.

- The matrix recommends the use of personal protective equipment (PPE) for every worker who has direct contact with blood or other potentially infectious materials. This includes the use of eye protection, gloves, gowns, and face masks. The matrix also provides guidance for the proper use and disposal of PPE.

- Visit the OSHA website for additional information about occupational safety and health. For more information about the PPE matrix, visit the CDC website for guidance on proper PPE use and disposal. PPE should be selected and implemented in a manner that is consistent with the guidance provided in the matrix.

### Table: OSHA PPE Selection Matrix for Occupational Exposure to Ebola Virus

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<tr>
<th>Exposure Category</th>
<th>PPE Requirements</th>
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<td>Direct Contact</td>
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<tr>
<td>Indirect Contact</td>
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<tr>
<td>Splashing</td>
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<tr>
<td>Splashing &amp; Splatter</td>
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<tr>
<td>Aerosol Risk</td>
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<tr>
<td>HVAC</td>
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<tr>
<td>Autopsy</td>
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<tr>
<td>Handling Cadavers</td>
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<tr>
<td>Cleaning</td>
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<tr>
<td>Disinfection</td>
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### Appendix

- PPE Selection Matrix for Occupational Exposure to Ebola Virus
- OSHA PPE Selection Matrix for Occupational Exposure to Ebola Virus
- OSHA FactSheet
- OSHA FactSheet for PPE Selection Matrix for Occupational Exposure to Ebola Virus
Hospital Preparedness

• Coordination and information sharing between CDC/NIOSH, fed OSHA and State Plans

• OSHA Regional staff visits to U.S. hospitals to assess and improve preparedness
  – Treatment hospitals (55) – highest priority
  – Assessment hospitals – next highest priority

• OSHA focus during Ebola hospital visits
  – Technical assistance/support role
  – Listening to and observing workers
  – Sharing best practices and lessons learned
Responding to a potentially infectious patient

AFSCME nurses from Kaiser Permanente
Los Angeles Medical Center:
Joy Pumar, RN
Kat Bolden, RN
OSHA protections in the event of

- Biological agents and infectious diseases
- Chemical spills and releases
- Radiological releases
- Nuclear detonations
Chemical spills and releases

Sources of chemical emergencies:

- Industrial accidents, transportation accidents
-Leaks from pipelines
- Oil spills (including Bakken crude)
- Intentional releases of chemicals into the environment, including into the air and water supplies
- Others
Chemical spills and releases

Nurses may be exposed to:

- Contaminated patients
- Contaminated air
- Contaminated water supplies
- Contaminated environmental surfaces and equipment
Chemical spills and releases

Protective actions:

- Avoid contact with chemicals and oil if possible
- Establish methods for decontaminating patients, considering medical management of patient
- Use appropriate engineering controls, administrative controls, safer work practices, and PPE to reduce worker exposures to chemicals as much as possible
- Other actions may depend on the specific chemical substance
- Training
Applicable OSHA Standards

Responses to releases of hazardous substances, including chemical and oil spills, are covered by OSHA’s Hazardous Waste Operations and Emergency Response (HAZWOPER) standard, 29 CFR 1910.120.

29 CFR 1910 Subpart Z – **Toxic and Hazardous Substances** also includes chemical-specific standards.
HAZWOPER requires employers to develop a Health and Safety Plan that covers:

- Hazard analysis for each site task
- Employee training (varies by duties)
- Personal protective equipment (PPE) to be used by employees and based on hazard analysis
- Medical surveillance and exposure monitoring
- Site control measures
- Decontamination procedures
- An emergency response plan
- Confined space entry procedures
- Spill containment
Other Applicable Standards

Other OSHA standards may also apply to exposure to chemical agents, including:

- PPE, general requirements (29 CFR 1910.132)
  - Other PPE standards (hand, eye/face protection)
- Respiratory protection (29 CFR 1910.134)
- General environmental controls (1910 Subpart J)
- Others
OSHA protections in the event of:

- Biological agents and infectious diseases
- Chemical spills and releases
- Radiological releases
- Nuclear detonations
Radiation emergencies

Sources of radiation emergencies:
• Releases from nuclear power plants
• Improvised nuclear devices (IND)
• Radiation dispersal devices (RDD)
• Radiation exposure devices (RED)
• Orphaned/stolen radiation sources
• Nuclear research or production facility accidents
• Nuclear warfare or discharge of nuclear weapon
Radiation emergencies

Nurses may be exposed to:

- Radiation sources in close proximity
- Nuclear blast effects, including prompt radiation
- Radioactive fallout
- Air contaminated with radionuclides
- Patients with radioactive contamination
Radiation emergencies

Protective actions:

- Time, distance, shielding
- Use shelter-in-place practices until radiation levels subside (7x time, 10x less radiation)
- Establish methods for decontaminating patients, generally treat urgent needs before decon
- Use appropriate engineering controls, administrative controls, safer work practices, and PPE to reduce worker exposures to chemicals as much as possible
- Training
Applicable OSHA Standards

Responses to releases of hazardous substances, including radiation releases, are covered by OSHA’s Hazardous Waste Operations and Emergency Response (HAZWOPER) standard, 29 CFR 1910.120.

Other Applicable Standards

Other OSHA standards may also apply to exposure to radiation, including:

- PPE, general requirements (29 CFR 1910.132)
  - Other PPE standards (hand, eye/face protection)
- Respiratory protection (29 CFR 1910.134)
- Others
What about ______ not covered by a specific standard?

• General Duty Clause of the Occupational Safety and Health Act of 1970
  – “Each employer shall furnish to each of his employees … employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.”
What about ________ not covered by a specific standard?

• Some standards apply to many hazards:
  – PPE (General, 29 CFR 1910.132)
  – Other PPE standards (29 CFR 1910.133, .138)
  – EAPs (29 CFR 1910.38)
  – Access to Employee Medical Records (29 CFR 1020)
  – Recording and Reporting Occupational Injuries and Illnesses (29 CFR Part 1904)
More on PPE Requirements

Employers may be required to conduct a hazard assessment to:

• Identify workplace/worksite hazards;
• Determine what PPE, if any, is appropriate to control those hazards (in conjunction with other controls);
• Train workers how to properly put on, use, take off, clean, and maintain PPE.
PPE Training

Before an employee can perform work requiring PPE, have workers demonstrate:

– Understanding of training; and,
– Ability to use PPE properly.

Retrain if there is a lack or understanding or skill, workplace changes, different hazards, or PPE changes.
More on Respiratory Protection

29 CFR 1910.134:

- Written respiratory protection program;
- Medical evaluation;
- Fit-testing (tight-fitting face-piece); and
- Employee training including employee demonstration.
Emergency Preparedness and Response Resources

Visit OSHA’s web site for additional information. The OSHA page links to many emergency preparedness and response resources.


- Click on “A to Z Index”
- Scroll to emergency topics in the list.
Questions?

Feel free to contact the OSHA Office of Emergency Management and Preparedness with any additional questions:

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