



8-Hour Hospital-Based Decontamination Instructor Guide

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Midwest Consortium for Hazardous Waste Worker Training

Acknowledgments

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Course Overview – Instructor Guide

This course was developed to meet the requirements of the OSHA Hazardous Waste Operations and Emergency Response standard, 29CFR1910.120 for First Receivers at the Awareness and Operations Level who may be involved in receiving victims of a mass-casualty event. The program is designed to provide background, drill and resources for “first receivers” at a health care facility. The program covers vulnerability assessments, Emergency Management Plans, and provides opportunity for a drill using equipment that is available at the facility where you will provide training. The facilities for decon will vary, from a single room in a facility, to the availability of a heated and plumbed external tent.

This course is designed to allow the instructor to complete a 3-hour awareness course for managers or other employees and an 8-hour decon program for the first receivers. Combination of both elements will result in a 10-hour program (note that the total is not 11 due to common elements). Although the amount of time spent on each section is flexible, material covered in the earlier sections may be needed for successful completion of the class exercises and the drill. The exercises were designed to ensure that participants acquire the knowledge and skills necessary to perform their duties within the Incident Command structure. The drill at the end of the program allows practice in a full-scale simulation of decon for a mass-casualty incident. The actual drill will be designed by the instructors, utilizing the facility where the victims may be received.

After some reconnaissance at the training site or knowing more about the participants, develop an agenda for the program and submit it to the Training Center to include with the session materials documenting content/times.

Support personnel in addition to the instructor will be needed to assist in the assembly of complex decon stations, and for the monitoring decon lines. To maximize learning, the class size should be limited to 24 participants.

Instructor Preparation

The Hospital Decon course incorporates a variety of teaching methods to meet varied learning styles. Material presentation, discussion, and small group exercises are used. As an instructor, you should carefully review this Instructor's Guide and the content of the Student Manual. You should be familiar with the resources shown below.

Resource Materials

The resources listed below will be helpful in preparing to teach this course.

Protecting Emergency Responders volumes 1, 2, 3,
<http://www.cdc.gov/niosh/npptl/guidancedocs/rand.html> (accessed 2/7/2014):

Vol. 1: Lessons Learned from Terrorist Attacks

Vol. 2: Community Views of Safety and Health Risks and Personal Protection Needs

Vol. 3: Safety Management in Disaster and Terrorism Response

OSHA Best Practices for Hospital Based First Receivers of Victims from Mass Casualty Incidents Involving the Release of Hazardous Substances,
https://www.osha.gov/dts/osta/bestpractices/html/hospital_firstreceivers.html, (accessed 2/7/2014), January 2005.

Hazardous Waste Operations and Emergency Response, 29CFR1910.120, March 6, 1989, Occupational Safety and Health Administration,
http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=9765, (accessed 2/7/2014) See especially paragraph q.

Hospital Decon Pre-Training Checklist

Instructors: Take this checklist with you to the hospital(s) whose staff you will be training. It will help you better understand the trainee's workplace and provide detailed training geared towards their needs.

Have they completed a Hazard Vulnerability Analysis? Yes No

What sort of equipment do they have?

PPE _____

Decon _____

Monitoring _____

Waste _____

Tour the decontamination area and examine equipment:

What do they have in the way of SOPs/EMPs? _____

How many personnel do they have and what capabilities do they have?

What level of training have they reached? _____

What sort of schedule would work best for the hospital and their staff?

1 or 2 hour blocks? _____

How many would attend each class? _____

Tour the classroom and drill area.

Read over their Respiratory Protection Program.

Obtain a list of contacts.

Look at the facility from a logistical standpoint.

Water source _____

Power source _____

HVAC system _____

Have they completed a decon exercise/drill before? How did it go? _____

Do they have a decon or mass casualty incident plan? Yes No

What is their security like? _____

Do the ER doors lock? Yes No

How will the decontamination/patients flow? _____

Wind patterns can influence decon flow. What weather do they typically encounter?

Emergency responder dispatch should know to notify the hospital of a mass casualty incident so they can prepare for the patients. Do they have a relationship with dispatch?

Yes No

How will they track patients? _____

Do they have mutual aid agreements with neighboring hospitals/organizations?

Yes No

What do they use for communications?

Internal _____

External _____

Presentation of Material

The Summary pages in the Student Manual will provide an opportunity to reinforce main points and the module objectives. Reserve time at the end of each module to answer the trainees' questions and make sure that key issues have been understood.

Graphics and Audiovisuals

Graphics are available and should be used to assist with in-class instruction. Graphics appear in the Student Guide. Refer to these illustrations and photos when you cover the material. You may also need to use a map to illustrate the decon area.

Photos, charts, PowerPoint slides, posters, and short videos are also useful training tools and may be introduced in the lesson where appropriate. Slides should be limited to those that support lesson presentation. Avoid using one-word slides, slides with term definitions, and slides as lecture outlines. These formats are not effective for keeping trainee attention. Effective slides contain color graphics and short review lists.

If you are delivering this program to a specific facility, you should consider creating graphics that depict that location. This may include photos, or slides that depict equipment storage areas, emergency entrances and exits, designated assembly areas, or the decon area.

Exercises

Small-group exercises are incorporated throughout the course. The purpose of the exercises is to involve trainees in clarifying information, identifying options, and applying the skills they will need if they are providing decon as a first receiver. Be sure to allow sufficient time for trainees to complete the exercises and discuss them afterwards. These instructor pages will inform you how to run the exercises and will give you the exercise answers.

Because class activities and exercises enhance the learning process, it is important to make discussions comfortable so that everyone can participate. Assume that every class will have participants with a wide range of communication skills. Some trainees will have no problem in participating in group discussion, while others may have a hard time in front of the group.

Suggestions for handling group exercises and discussions include the following:

- Allow trainees to express their values, attitudes, and opinions freely.
- Do not judge trainees' responses.
- Facilitate discussion by paraphrasing and clarifying. It is seldom appropriate for the instructor to give opinions.
- Avoid putting people on the spot. Instead of asking individuals for answers, have a voluntary group spokesperson present answers to the class.
- Keep the groups focused on the task at hand. Because small-group exercises can draw heavily on the trainees' personal experience, sometimes one person can dominate the group and run away with the discussion. If you see this happening, steer the discussion back on track by asking another group for reactions.
- Keep the trainees alert and interested by encouraging participation. If the groups are not participating or are giving only cursory answers, ask them probing questions about their answers to make them be more specific.

Decon Drill

The program includes a drill to set up, conduct decon and perform termination activities. If the facility has already conducted a drill, the instructor should pay particular attention to information resulting from termination phases of these previous exercises, and utilize the "lessons learned" in developing the session. The instructor should carefully review all of the equipment available at the facility prior to the session, and assure that it is in good condition and adequate supplies are available for an exercise.

Lessons Learned: Finding Solutions at Health Care Facilities

Time Requirement: 1 hour

Number of Instructors: 1

Materials

- Blackboard, marker board or easel with paper
- Chalk or magic markers
- Sign-in sheets
- Registration Materials (if not collected prior to the course)
- Student Manuals
- Other course resource materials
- Handouts
- Pencils and notepaper for trainees

Chapter Objectives

Objectives for the Introduction include:

- Introducing the course agenda and objectives.
- Learning about the participants' backgrounds and their reasons for taking the course.
- Answering initial questions that trainees may have.

Presentation of the Session

This session can be presented as follows:

1. Welcome the class.
 - Trainees can be welcomed by an employer, union representative, or similar person in support of the program if it is held on-site.
 - Have participants sign in.
 - Explain why the program was created, and reference HAZWOPER.
2. Introduce the program presenters:
 - The training institution conducting the training.
 - The Midwest Consortium
 - The instructors who are present.
3. Go through the agenda.
 - Explain training policies (e.g., smoking, breaks, phone policies, etc.).
 - Explain why evaluation forms are part of training.
4. Introduce the trainees.
 - Ask the trainees to introduce themselves to the class. Have them briefly tell their name, where they are from, their experience with hazardous materials, and why they are taking the class.
5. Present the overall goals of the class:
 - Explain that chemical, biological, radiological, nuclear, and explosives (CBRNE) and other hazardous materials may arrive on contaminated patients attempting to gain access to the emergency department.
 - Chemical

- Biological
 - Radiological
 - Nuclear
 - Explosive
- Explain the term “first receiver” (see Section A.2 in the Introduction of the OSHA Best Practice Guide. This can be accessed on the internet. If you do not have internet access, ask your Program Director for a copy.)
 - Explain the Lessons Learned.
 - Go over stress.
 - Ask participants for the critical elements of recovering contaminated patients. Make a list where everyone can see it. See the Lessons Learned section of the student manual.
6. Ask participants if they have any questions.
- Encourage participants to feel free to ask questions throughout the training presentations.

Hospital Hazard Vulnerability Analysis / Disaster Preparedness

Time Requirement: 1 hour

Number of Instructors: 1

Materials

- Blackboard, marker board or easel with paper
- Chalk or magic markers
- Student Manuals
- Other course resource materials
- Handouts
- Course Agenda

Chapter Objectives

Objectives for this chapter are:

- Recognize existing mass casualty threats in the local area
- Identify resources available for dealing with a disaster
- Recognize the necessity of advance preparation and drills
- Become familiar with the facility HVA and EMP/EOP.

Teaching Methods

- Presentation

Suggested Instructor Preparation

- Review the student manual.
- Review your pre-training checklist.
- Review hazard vulnerability analyses (HVAs). It is best if you can review the facility's completed HVA as part of the preparation for the program.

Minimum Content Requirements

- Review of local hazards
- Review of emergency response resources
- Facility HVA
- Facility EMP/EOP

Presentation of the Session

The session can be presented as follows:

Review known threats in the local area. Helpful resources for identifying threats include:

- The Local Emergency Planning Committee (LEPC)
- Fire and EMS facilities
- US EPA Toxics Release Inventory (TRI) for information on releases of certain toxic chemicals by chemical, facility, city, county or zip code. See: <http://www.rtknet.org/db/tri/search> (accessed 2/7/2014).
- Google Earth, can be downloaded to display 3-D views of geographical areas. See: <http://www.google.com/earth/explore/products/> (accessed 2/7/2014).

Review existing plans at the facility where training is occurring, including coordination with other facilities.

Review existing regularly-planned drills carried out at the facility.

Review the HVA. Go through the list of questions in the student manual. The Kaiser Permanente HVA template (<http://www.calhospitalprepare.org/hazard-vulnerability-analysis>, accessed 2/7/2014) may be useful.

Review the EMP/EOP.

Refer back to the pre-training checklist as appropriate.

Duties and Limitations

Time Requirement: 1 hour
Number of Instructors: 1

Materials

- Chalkboard, marker board or easel with paper
- Markers or chalk

Chapter Objectives

When they have completed this chapter, participants will be better able to:

- Define a mass casualty incident
- Identify the types of hazardous contaminants that may result in an exposure to healthcare workers
- Identify the elements of an Emergency Management Plan
- Explain the need for Standard Operating Guides at health care facilities
- Identify training required for first receivers

- Identify their role within the Incident Command System for a scenario.

Teaching Methods

- Presentation
- Small-group activity

Suggested Instructor Preparation

- Review the student manual.

Minimum Content Requirements

The following are minimum content requirements for this chapter:

- Hazardous substances
- EMP/EOP
- SOGs/SOPs
- Levels of training
- Incident Command System (ICS)

Presentation of the Session

The session can be presented as follows:

Mass Casualty Incident

Ask: What type of mass casualty incident could occur in your community?

Attack with Sarin in Tokyo

Ask participants to consider how their facility is prepared to respond to such an emergency.

Hazardous Substance

- Explain the definition of a hazardous substance.
 - Anything that will harm people, property or the environment.
- Ask participants to list 5 possible hazardous substances in the community that could be involved in mass casualty events. List them where everyone can see.

Emergency Management Plan

- Explain the elements of an EMP that are required by OSHA under HAZWOPER.
- Discuss the use of an EMP during an emergency.
- Discuss how the EMP defines how the facility will respond to each type of emergency, not just hazardous materials.

Standard Operating Guides

- Explain that OSHA requires facilities to develop Standard Operating Guides (SOGs) for mass casualty incidents.
- Discuss what SOG's would be needed for their facility.
- Explain that first receivers require standardized SOGs for dress-out and decontamination.
- Refer to the SOG for Loose-fitting PAPR Pre-Operational Checkout in the Participant guide.

Levels of Training

- Explain that OSHA training requirements are based on the duties of the first receiver.
 - Awareness
 - Operations
 - Technician
 - Specialist
 - Incident Commander
- Explain the basic functions of the first receiver at the Awareness Level.
 - Gather information from personnel at a remote location.

- Notify appropriate personnel.
- Explain that the current program is an Operations Level class for a specific hazard. Most operations programs are 24 hours; however OSHA officials believe 8 hours is sufficient for narrowly defined duties and where the number of hazards is limited. Why do hospital personnel fit this description?
 - Decon only
 - HVA Completed
 - Can train to the hazard
- Explain the basic functions of a receiver at the Operations Level.
 - Receive Consultations
 - Decon
 - Transfer to treatment
- Explain the tasks that can be performed at the Operations Level.
 - Decontamination
 - Monitoring
 - Support Functions
 - Material supply/removal
 - Security
- Skilled Support Staff
 - Explain roles
- Refresher Training
 - Required by OSHA
- Refer back to Lessons Learned and pre-training checklist.
- Need to drill and be aware of any new HVA entries.

Incident Command System (ICS)

- Explain the Incident Command System (ICS).
- Explain the duties of the different functions in the ICS.
 - Incident Commander (IC)
 - Operations

- Planning
- Logistics
- Finance
- Explain the phases of emergency response.
- Explain the Hospital Incident Command System (HICS).
- Conduct the Activity: Duties on P. 29 in the Participant Guide.
 - Discuss participant responses.

Hazard Recognition

Time Requirement: 1 hour
Number of Instructors: 1

Materials

- Chalkboard, marker board or easel with paper
- Markers or chalk

Chapter Objectives

When they have completed this chapter, participants will be better able to:

- Recognize the presence of a hazardous substance and conduct a hazard assessment using a Hazard Assessment Worksheet.
- Assess chemical and physical hazards according to properties of toxic materials.
- Assess health effects according to the resources provided.
- Determine situations where medical surveillance is appropriate.

Teaching Methods

- Presentation
- Small-group activity

Suggested Instructor Preparation

- Review the student manual.
- Review sources of information, including:
 - US National Response Team web site: www.nrt.org
 - IAFF Health, Safety and Medicine: <http://www.iaff.org/hs/index.htm>
 - OSHA Occupational Chemical Database, <https://www.osha.gov/chemicaldata/>
 - WISER: <http://wiser.nlm.nih.gov/>
 - CAMEO Chemicals: <http://cameochemicals.noaa.gov/>
 - C.H.R.I.S. (Coast Guard Hazard Response Information System) assigns a three-letter code to hazardous chemicals. To use C.H.R.I.S., obtain the chemical code at CAMEO Chemicals, shown above.
 - NIOSH Pocket Guide online: <http://www.cdc.gov/niosh/npg/>
 - New Jersey Right-to-Know Hazardous Substance Fact Sheets: <http://www.nj.gov/health/eoh/rtkweb/>
 - Emergency Response Guidebook: <http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Hazmat/ERG2012.pdf>
 - SDS sheets (Possible websites include: <http://siri.org/msds/> and <http://www.sigmaaldrich.com/safety-center.html>, or using a search engine of your choice, look up the selected chemical with the term, "SDS".)

Minimum Content Requirements

➤ The following are minimum content requirements for this chapter:

- Sources of information on hazardous substances
- Basic properties of chemicals
- Exposure limits
- Medical surveillance

Presentation of the Session

The session can be presented as follows:

Activity: Hazard Assessment – Collecting Information

- Refer to Participant Guide, page 32.
- Explain the Hazard Assessment Worksheet
 - Goal is to organize information and understand hazards, not just fill in the blanks.
 - Direct participants to go to the National Response Team website, www.nrt.org, and then click on “Chemical Hazards: QRGs and other links (excludes oil)”. Under the heading of “Chemical Quick Reference Guides”, click on “GB (Sarin) QRG”, or other substance of interest to participants. (Some browsers, such as Internet Explorer, may work better than other browsers for this web site.)
 - Use the appropriate QRG to complete the worksheet.
 - Each time a blank is filled, relate the value to secondary decontamination of victims exposed to the agent in question.

Example: If the material is a solid, you’d probably begin by making sure clothes are removed and any visible contaminant is removed from the skin. If the material is not water soluble, instruct victims to use plenty of soap in the shower, as water alone will not cleanse the person sufficiently.

- Complete only the sections on chemical properties. The remainder of the worksheet will be completed at the end of the chapter.
- Emphasize that PPE has limitations and to check with the Incident Commander if there is a question about safety at the site.

Hazard Recognition

Chemical and Physical Properties of Chemicals:

- Explain states of matter:
 - Solid
 - Liquid
 - Gas
- Ask how state of matter will affect the behavior of a contaminant. Example: if contaminant is a gas, most of it will have evaporated off victim by the time he/she arrives at the hospital. Solids and liquids will stay on the victim longer.
- Explain how freezing, melting and boiling points can help determine the state of matter.
- Explain appearance.
- Explain odor.
- Explain pH.
- Explain corrosives.
 - Strong corrosives can eat through clothes, skin, and even steel.
- Explain flash point.
 - Ask students what substances give off enough vapor to ignite at room temperature (72° F.)
Answer: Anything with a flash point at or below 72° F.
- Explain flammable, combustible, ignitable.
- Explain autoignition temperature.
- Explain oxidizer.
- Explain:
 - Solubility in water
 - Specific gravity
 - Relative gas density
- Explain vapor pressure

- Water vapor pressure = 18 mmHg @ 68 degrees F
- Explain viscosity
- Explain volatility:
A material that is more volatile will evaporate more quickly from a victim, leaving less contaminant on him or her.
- Explain incompatible materials.
The NIOSH Pocket Guide lists incompatible materials. They also might be found in the SDS for a substance, under Section 10, Stability and reactivity.
Good tables of chemical incompatibility can also be found on the Lawrence Berkeley Laboratory website, at: <http://www.lbl.gov/ehs/chsp/html/storage.shtml>.
- Explain decomposition products.

Health Effects

- Explain importance of understanding health effects.
- Explain common exposure routes.
- Explain that understanding acute and chronic effects is important in responding to emergencies.
- Explain acute exposure and effect.
 - Single exposure
 - High concentration
 - Give an example of an acute exposure - sulfuric acid on chest.
- Explain possible health effects of acute exposure.
 - Ask if anyone has experienced an acute health effect.
 - Tell participants they are more likely to deal with these kinds of exposures, due to the temporary nature of the emergency and decontamination.
- Explain chronic exposure and effects.
 - Repeated exposure
 - Usually low concentrations
 - Discuss an example of a chronic exposure.

- Hospital decon workers are less likely to experience these effects, since the decontamination emergency will rarely last long enough. However, repeated emergencies of a similar nature over a period of time could lead to chronic health effects.
- Explain factors that influence the body's response to exposure.
 - Health status
 - Age
 - Race
 - Sex
 - Allergies
 - Previous exposure
- Explain dose-response relationship
 - Higher dose = bigger response
- Explain what makes a chemical toxic or nontoxic
- Discuss chemical interaction within the body
 - Asbestos exposure + cigarette smoking = Higher risk of lung cancer
- Discuss diagram of "How Does Your Body React?" that covers symptoms different body parts might show.
- Discuss diagram showing "What Affects Your Body?" that covers different materials which affect each body part.
- Discuss effects of chemicals on the body.
 - Respiratory System:
 - Purpose of respiratory system
 - Symptoms displayed
 - Diseases
 - Exposures that cause the diseases

- Protection
- Skin
 - Purpose of skin
 - Symptoms
 - Diseases
 - Exposures that cause the diseases
 - Protection
- Eyes
 - Symptoms
 - Eye disorders
 - Exposures that lead to eye disorders
 - Protection
- Stomach, Liver, and Intestinal System
 - Explain function of liver
 - Symptoms
 - Diseases
 - Exposures that cause the diseases
 - Protection
- Brain and Nerves
 - Explain particular danger of this exposure
 - Symptoms
 - Disorders

- Exposures that cause disorders
- Protection
- Reproductive System
 - Purpose of system
 - Women's symptoms
 - Men's symptoms
 - Disorders
 - Exposures that can lead to disorders
 - Protection
- Blood, Bone Marrow and Heart
 - Purpose of heart, blood and bone marrow
 - Symptoms
 - Diseases
 - Exposures that can lead to diseases
 - Protection
- Kidney and Bladder
 - Purpose of these organs
 - Symptoms
 - Diseases
 - Exposures that can lead to these diseases
 - Protection

Emphasize to participants the need to see a doctor immediately if they notice symptoms like these.

- Explain measures of concentration.
 - Parts per million
 - Parts per billion
 - Percent
 - Milligrams per cubic meter

Exposure Limits

- Explain definition of PEL
 - Limit set by 8-hour Time-Weighted Average 40-hour week
- Explain definition of TLV.
 - ACGIH
 - Provides recommendations
- Explain definition of REL
 - Set by NIOSH, not legally enforceable
- Explain definition of STEL.
 - Comes from OSHA, ACGIH, or NIOSH
 - Provides a maximum concentration
 - Employee can be exposed at this level for 15 minutes
- Explain definition of Ceiling Limit
 - Comes from OSHA, ACGIH, or NIOSH
 - This is a limit that must not be exceeded
- Explain Skin, Sensitizer, and Carcinogen Notations
 - ACGIH uses these
 - “Skin” = can be absorbed through skin

- “SEN” = exposure can result in sensitization
- “A” followed by 1-5 = the cancer-causing potential
- “A1” = confirmed human carcinogen
- “A5” = not suspected as human carcinogen
- Explain definition of IDLH
 - IDLH values are set by NIOSH.
- Explain definition of TWA
 - Show how to calculate
- Explain Explosive Limits
 - Lower, Upper, and Explosive Range
- PELs, RELs and TLVs are occupational exposure limits. Other airborne exposure limits have been set for exposure to the general public.

Medical Surveillance

- Explain that Medical Surveillance is to protect the health of workers.
- Explain when medical surveillance should be done.
- Explain legal requirements for medical surveillance.
 - HAZWOPER - required groups
 - Licensed physician
 - Employer must provide doctor with certain information
 - Typical content of exam
 - Employers must pay for exam and not cause employee to lose pay time
 - Requirements after medical surveillance exam
- Cover the “Things Employees Should Do” box
- Discuss medical emergencies during an emergency response.

Activity: Hazard Assessment Worksheet

Return to the worksheet (page 33 in the student manual) and complete the Health Effects and Exposure Limits Section.

Personal Protective Equipment

Time Requirement: 2 hours
Number of Instructors: 1

Materials

- Chalkboard, marker board or easel with paper
- Markers or chalk

Chapter Objectives

When they have completed this chapter, participants will be better able to:

- Review regulations requiring PPE
- Identify different types of respirators
- Identify the levels of protection established by the EPA.
- Identify the ways that hazardous materials degrade chemical protective clothing.
- Identify the need for using two layers of gloves and the requirements for footwear.

Teaching Methods

- Presentation
- Demonstration
- Small group activity

Suggested Instructor Preparation

- Review the student manual.
- Review the HAZWOPER standard.
- Review the Hazard Communication standard.
- Review OSHA standards requiring PPE, such as: 29 CFR 1910.95 Hearing Protection, 1910.132 General Requirements—Full-Body Protection, 1910.133 (a) Eye and Face Protection, 1910.134 Respiration Protection, 1910.135 Head Protection, 1910.136 Foot Protection, and 1910.138 Hand Protection.
- Review manufacturers' instructions for any PPE that will be demonstrated.

Minimum Content Requirements

- The following are minimum content requirements for this chapter:
- Regulations requiring PPE
 - Respirators and their use.
 - EPA levels of PPE.
 - Care and limitations of PPE.

Presentation of the Session

The session can be presented as follows:

Regulations Requiring Personal Protective Equipment

- Protects first receivers from:
 - Chemicals
 - Temperature
 - Respiratory Hazards
- Must be properly selected, maintained and worn
- HAZWOPER requires Emergency Management Plans to include section on PPE.
- HAZCOM requires workers receive training and information on hazards and how to protect themselves at work.
- Other OSHA standards
- Discuss usage of PPE during emergencies vs. ventilation/special work practices during routine activities.

Respiratory Protection

- Overview respiratory protection.
 - Remove contaminants from air, or supply fresh air.
- Types of Respirators:
 - SCBA / SAR
 - APR
- SCBA
 - Full facepiece

- Oxygen tank, with alarm when supply is low
- Gauge
- Safety valve
- Closed vs. open-circuit mode
- Mainline (yellow) and bypass (red) valves
- Go over steps to don SCBA
- Emphasize safety checks
- SAR
 - Air provided from remote source
 - Must have escape bottle
- APR
 - Filter air
 - Must know contaminant(s) and concentration before use at emergency
 - Quarter-mask, half-mask, and full face
 - Filters: particulate filter vs. chemical cartridge
 - Select based on expected exposure

Never wear APR in oxygen-deficient environment!

- PAPR
 - Powered filtering unit
 - Loose-fitting PAPRs don't require fit tests
 - Still must go through inspection
- Filters and Cartridges
 - Particulate filters protect from dusts, mists, and fumes

- Chemical cartridges protect from vapors and gases
- Changing the filters
- OSHA regulation 29 CFR 1910.134 covers which filter to use when
- How to tell when to change filter
- Respirator fit
 - Fit-testing
 - What changes the fit?
 - Dental work, facial hair, etc.
- Periodic Fit Testing
 - Qualitative testing uses irritant or smelly substances
 - Purpose, method, requirements
 - Cautions
 - Quantitative testing results in numerical estimate of fit
 - Purpose, method, requirements
 - Advantage: objective
 - Disadvantage: must have trained personnel to administer test and special equipment.

Routine Fit Checks

- Discuss Routine Fit Checks
 - Positive-pressure
 - Purpose, method, requirements
 - Negative-pressure
 - Purpose, method, requirements

- Advantages and disadvantages

Medical Fitness to Wear a Respirator

- Explain medical fitness to wear a respirator
 - Must have exam by physician or other licensed health care professional (PLHCP)
 - Conditions which might keep someone from wearing respirator
 - Must be done every 2 years

Taking Care of Respirators

- Discuss care of respirators
 - Inspection, cleaning, maintenance
- Cover care of SCBAs
 - How to clean and disinfect
 - How to store

NOTE: Do not submerge in water!

- Cover care of APRs and PAPRs
 - Inspection
 - Clean and disinfect
 - Storage

Facial Hair and Respiratory Protection

- Facial Hair and Respiratory Protection
 - OSHA standards
 - Discuss with students: Can employers force worker to shave facial hair?

- Unionized and non-union workplaces

Minimum Requirements for a Respirator Program

- Explain minimum requirements for a Respirator Program
 - OSHA requires employers who provide respirators to employees have a written respirator program
 - Go over requirements for program
 - Respirator program should be in EMP
 - Special considerations

Special Problems

- Review Special Problems
 - Vision
 - Communications
 - IDLH Atmosphere
 - Low-temperature environments
 - High-temperature environments

Chemical-Protective Clothing

- Introduce Chemical Protective Clothing (CPC)
 - Garments worn to protect against chemical exposure
- Discuss types of CPC suits
 - Totally encapsulating suit
 - Hooded (partially encapsulating) suit

Levels of PPE

- Overview levels of protection
 - A
 - B
 - C
 - D
- Explain Level A - highest.
 - When is it needed?
 - What is it?
- Explain Level B - 2nd highest.
 - When is it needed?
 - What is it?
- Explain Level C - 3rd highest.
 - When is it needed?
 - What is it?
- Explain Level D - lowest
 - When is it needed?
 - What is it?

General rule: The less you know, the higher you go.

- How to remember Levels
- Precautions when wearing CPC
- Explain
 - Penetration

- Degradation
- Permeation

Chemical-Resistant Materials

- Go over some of the chemical-resistant materials.
- Ask participants:
 - You need gloves that protect against dilute acids. What material will you select?
 - What are coveralls usually made of?
- Review things to remember when using CPC

Inspection, Maintenance, and Storage of CPC

- Discuss inspection, maintenance, and storage of CPC
 - When to inspect
 - Remember shelf-life
 - Inspection checklist
 - Maintenance prolongs life of CPC
 - Storage, done properly, helps prevent suit failures.

Activity: Levels of Protection

Refer to Participant Guide, page 88.

- Explain the purpose.
- Explain the directions.
- Show slides and discuss.

1. Ask students what level of protection this is:

Answer:

- a) Level B decontaminating
- b) Level A being decontaminated

2. Ask students what level of protection this is:



Answer: Hard to tell. Based on the fact that SCBA will be used, it is Level A or B.

3. Ask students what level of protection this man appears to be decontaminating.



Answer: Level C

4. Ask students what level of protection this is:



Answer: None, since it is being worn improperly. See picture on page 60 of Student Manual for proper use. If worn properly, level C.

5. Ask students what level of protection this is.



Answer: Level D.

6. Ask students what level of protection this is.



Answer: Level D

7. Ask students what level of protection this is.



Answer: Level D

8. Ask students what level of protection this is.



Answer: Level D.

9. Ask students what level of protection this is.



Answer: Level B.

10. Ask students what level of protection is:

a) pictured at left.

b) pictured at right.



Answer:

a.) Level B

b.) Level A

Gloves and Footwear

- Explain glove requirements.
- Explain boot requirements.

Medical Monitoring

- Explain medical monitoring of decon team staff
 - At the outset of the incident
 - During the incident
 - After the incident

Decontamination

Time Requirement: 1 hour

Number of Instructors: 1

Materials

The following materials will be needed:

- Chalkboard, marker board or easel with paper
- Markers or chalk
- Table
- Student Manuals
- PPE
- Decontamination shelter and associated equipment
- Manufacturers' instructions for PPE, shelter and equipment

Chapter Objectives

When they have completed this chapter, participants will be better able to:

- Identify work zones as applied to the decontamination area.
- Identify work practices to prevent the spread of contamination.
- Demonstrate deployment of a decontamination shelter and associated equipment.
- Identify need to monitor the environment.
- Identify elements of a decontamination briefing.
- Demonstrate methods of decontaminating ambulatory patients.
- Demonstrate methods of decontaminating non-ambulatory patients.

Teaching Methods

- Presentation
- Demonstration
- Small-group exercises

Suggested Instructor Preparation

- Review the Decontamination chapter in the Student Manual.
- Review this section.
- Review OSHA 1910.120(k).
- Review the demonstration and activities.

Minimum Content Requirements

The following are minimum content requirements for the Decontamination section:

- Reasons for decontamination
- Setup of work zones

- Methods of decontamination

Questions You May Be Asked

1. Students might remark, "We don't do it this way in our facility. So what are we supposed to do?" You should be prepared to facilitate a discussion about working through union or management representatives to facilitate changes in the facility HASP. Emphasize that HAZWOPER requires the development and implementation of written decon procedures.

2. Also, trainees may ask, "Am I dragging contaminants around the hospital and into my car and home if I don't follow decon properly?" The answer is yes. Use this opportunity to reinforce the need for proper decon to protect family members and the community.

Presentation of the Session

This session can be presented as follows:

Work Zones

- Used to reduce the spread of contamination
- Contaminated zone
- Waste side
- Decontaminated zone
- Supply side

Decontamination Work Practices

Explain work practices.

- Move patients from "dirty" to "cleaner" areas.
- Decon workers do not move from "dirty" to "cleaner" areas.
- Only decon workers and patients allowed in decon area.

- All material, equipment and waste stays.
- One person in charge per ICS plan.
- Minimize contact with contaminated surfaces.

Decontamination Shelter Deployment

- Explain the general layout of the secondary decon area.
- Say the SOG for deployment will be explained when the participants set up the decon equipment.
- Go over photos
 - Tent shelter setup

Alternatives to a Tent

- Discuss alternatives to a tent
- Ask participants what they have at their hospital or what would work best at their location.
- Go over photos
 - Portable shower
 - Collection pools and water supply
 - Stationary shower
 - Plumbed line in ER

Activity: Decon Deployment Skills

Refer to Participant Guide, page 105.

- Explain directions.
- Complete the skills checklist after the deployment exercise.

Donning PPE

- Discuss donning PPE
- Must follow SOG
- Why it's important to follow SOG
- Go over photo
- Donning CPC

Monitoring

- Explain that monitors can detect hazards that are not immediately noticeable by first receivers. Monitors increase safety.
- Explain need to conduct monitoring
 - Detect hazards
 - Identify hazardous materials
 - Measure concentrations
 - Verify effectiveness of decon
- Explain uses of monitoring
 - Identify hazards
 - Determine tactics
 - Determine isolation area
 - Identify exposure levels
 - Provide clearance monitoring

Hazardous Atmospheres

- Oxygen

- Combustible gases
- Toxic gases
- Radiation

Patient Decontamination

- Explain primary vs. secondary decon.
- Explain decon of:
 - Ambulatory patients
 - Non-ambulatory patients
- Very minimal or no treatment is administered in the decon area.
- No one is to enter the ED without decon.
- Explain how to remove clothing from a non-ambulatory patient.
- Explain decon methods:
 - Warm water rinse
 - Cold water rinse
 - Specialized solutions
 - Soap or detergent
 - Specialized decon solution such as bicarbonate in water or RSDL (reactive skin decontamination lotion).

Decon Briefing

- The decon method will be chosen by the decon chief, and explained during the briefing.
- Go over photos
- Deconning first receivers in high-level PPE

- Deconning first receiver

Activity - Ambulatory Patient Decon

Refer to Participant Guide, page 114.

- Explain purpose and directions
- Complete checklist when done

Activity – Non-Ambulatory Patient Decon

Refer to Participant Guide, page 115.

- Explain purpose and directions
- Complete checklist when done

Self-Decontamination and PPE Doffing

- Overview of self-decon and PPE doffing

Activity: Decon Briefing

Refer to Participant Guide, page 116.

- Explain decon briefing
 - Purpose - so first receivers know what to do
 - Content - Communications, hazards, slopes, drains, emergency evacuation routes and signs/symptoms of exposure

Activity: Donning and Doffing Skills

Refer to Participant Guide, page 116.

- Explain that the participants will be directed how to don, self-decon and doff during the dress-out exercise.

- Divide Participants into two groups.
- Explain purpose and directions
- Complete checklist when done

GROUP 1

Go to tent exercise area.

Deploy and strike equipment with SOG in groups of 4 participants.

Everyone gets a chance to participate set-ups).

GROUP 2

Go to dress-out exercise area.

Don, self-decon and doff in groups of 4 participants using SOGs.

Everyone gets a chance to participate (2 dress-outs).

Summary

- Summarize experiences during the exercise.
- What were the lessons learned?

Termination

Time Requirement: 1 hour

Number of Instructors: 1

Materials

The following materials will be needed:

- Chalkboard, marker board or easel with paper
- Markers
- Table
- Student Manuals

Chapter Objectives

When they have completed this chapter, participants will be better able to:

- Identify the elements of the Termination Phase.
- List site transfer options.

- Demonstrate an aspect of the Termination Phase.

Teaching Methods

- Presentation

Suggested Instructor Preparation

- Review the Termination chapter in the Student Manual.
- Review this section.

Minimum Content Requirements

The following are minimum content requirements for the Termination section:

- Elements of the termination phase
- Resupply of equipment
- Site transfer options

Presentation of the Session

This session can be presented as follows:

Personnel

Explain personnel aspects of terminations.

- PAR
- Rehab
- PIA
- CISD
- Documentation

Equipment and Property

Explain equipment and property aspects of termination

- Resupply
- Inventory of equipment

Site Transfer

Explain site transfer

- Clearance monitoring
- Waste site
- Clean up

Activity: Termination Skills

- Explain purpose
- Explain directions
- Explain checklist

Closing and Evaluation

Time Requirement: 20 minutes

Number of Instructors: 1

Materials

- Blackboard, marker board or easel with paper
- Chalk or magic markers
- Evaluation forms
- Collection box for completed evaluation forms

Objectives

Objectives for the session

- Identify unanswered questions
 - Answer
 - Identify a timeframe to provide the answer/resource
- Complete evaluation forms.

Presentation of the Session

This session can be presented as follows:

Review key points, specific for this group of participants

Ask: Are there more questions?

List them (for future use/reference) and answer during the session or provide a time frame in which you will respond with the answer or a resource. It is critical to complete any promised follow up after the program!

Distribute evaluation forms, explaining that these are important for future funding and program improvement. Provide a collection box for the completed forms to underscore that you will not know 'who reported what'.