

Handout 1

Routes of Disease Transmission

Instructions: Fill in the chart with information about routes of disease transmission.

| Route of Transmission | Definition | Examples |
|-------------------------------------|------------|----------|
| 1. Direct contact | | |
| 2. Indirect contact | | |
| 3. Airborne | | |
| 4. Vector-borne | | |
| 5. Non-contact vehicle transmission | | |
| 6. Bloodborne | | |

Handout 2

Recent and Historic Disease Outbreaks

Instructions: Fill in the chart with information about the diseases.

| Disease | History | Symptoms | Route(s) of Transmission |
|------------------|---------|----------|--------------------------|
| Bubonic plague | | | |
| 1918 Spanish flu | | | |
| HIV/AIDS | | | |
| Cholera | | | |

Handout 2

Recent and Historic Disease Outbreaks

| Disease | History | Symptoms | Route(s) of Transmission |
|---------|---------|----------|--------------------------|
| E. coli | | | |
| SARS | | | |
| Ebola | | | |
| Zika | | | |

Handout 3

Categories of Infectious Diseases

Instructions: Write the correct letter next to each piece of information. Write *A* for Category A, *B* for Category B, *C* for Category C, or *E* for Emerging Diseases.

1. _____ Could be engineered for mass dissemination in the future because of availability.
2. _____ Can be easily disseminated or transmitted from person to person.
3. _____ Include mosquito-borne viruses such as West Nile virus and Eastern equine encephalitis (EEE) virus.
4. _____ Result in high mortality rates and have the potential for major public health impact.
5. _____ Include tuberculosis (TB) and seasonal influenza virus.
6. _____ Require special action for public health preparedness.
7. _____ Result in moderate morbidity (illness) rates and low mortality rates.
8. _____ Have newly appeared in a population or have existed previously but which are rapidly increasing in incidence or geographic range.
9. _____ Cannot be transported without special permission unless the virus is inactivated.
10. _____ Are moderately easy to disseminate.
11. _____ Include Ebola and other viral hemorrhagic fevers.
12. _____ Include diseases such as rubella (German measles) and Zika virus.
13. _____ Are not generally capable of causing permanent disability or life-threatening or fatal disease.
14. _____ Require CDC's diagnostic capacity and enhanced disease surveillance.
15. _____ Might cause public panic and social disruption.
16. _____ Include bacteria such as *E. coli* and salmonella.
17. _____ Are easy to produce and disseminate.
18. _____ Include bloodborne pathogens such as HIV/AIDS, hepatitis B, and hepatitis C.
19. _____ Have the potential for high morbidity and mortality rates and major health impact if engineered for mass dissemination.

Handout 5

Controls for Biological Hazards

Instructions: Read through the list of controls. Write *E* for engineering, *A* for administrative, or *P* for PPE.

1. _____ Set up a negative-pressure ventilation system.
2. _____ Use a single-use, full-face shield that is disposable.
3. _____ Use disinfectants.
4. _____ Set up isolation rooms.
5. _____ Set up a training plan that ensures competency.
6. _____ Use special air handling systems, HEPA filtration, ultraviolet lights.
7. _____ Wear double gloves.
8. _____ Use needleless I.V. systems, retractable syringes, and other devices designed to prevent needlestick injuries.
9. _____ Practice proper hand washing.
10. _____ Use rigid containers to package waste, including puncture-proof containers for sharps.
11. _____ Staff the worksite adequately.
12. _____ Use boot covers that are waterproof and go up to mid-calf, or leg covers.
13. _____ Use equipment that ventilates outside the work area when treating contaminated waste.
14. _____ Use hazard communication, labeling, signage, and checklists.
15. _____ Use surgical hoods, with complete coverage of head and neck.
16. _____ Avoid areas where hazards are present.
17. _____ Use PPE observers and a buddy system for donning, doffing, and decontamination.
18. _____ Use plastic to contain contamination.

Handout 5

Controls for Biological Hazards

19. _____ Wear a single-use, fluid-resistant or impermeable gown, mid-calf, or coverall without integrated hood.
20. _____ Limit the number of people who are entering infected areas.
21. _____ Wear a waterproof apron if infected persons are vomiting or have diarrhea.
22. _____ Limit movement between outdoor environment and isolation room.
23. _____ Rotate job tasks to avoid prolonged exposures.
24. _____ Prepare suitable shelves, straps, or other equipment – especially in transport vehicles, where containers may move or shift – to secure stacked contaminated waste containers.

Handout 6

Standard and Expanded Precautions

Group 1

Instructions: Prepare and deliver a presentation about the following:

Standard Precautions

1. Hand hygiene
2. Personal protective pquipment
3. Respiratory hygiene and cough etiquette

Use this space to prepare your notes, or to take notes as you listen to another group's presentation.

Handout 6

Standard and Expanded Precautions

Group 2

Instructions: Prepare and deliver a presentation about the following:

Standard Precautions

4. Cleaning and Disinfection of Devices and Environmental Surfaces

Use this space to prepare your notes, or to take notes as you listen to another group's presentation.

Handout 6

Standard and Expanded Precautions

Group 3

Instructions: Prepare and deliver a presentation about the following:

Expanded Precautions

1. Contact Precautions
2. Droplet Precautions
3. Airborne Precautions

Use this space to prepare your notes, or to take notes as you listen to another group's presentation.

Handout 7

Chemical Hazards and Controls

Instructions: Complete the sentences with the words below. One word will not be used.

| | | | |
|---------------|-------------|--------|-------------|
| ammonia | bioaerosols | bleach | controls |
| inhalation | labels | mix | regulates |
| contamination | tools | train | ventilation |

1. The U.S. Environmental Protection Agency (EPA) _____ disinfectants used on environmental surfaces, and there are EPA-approved lists of disinfectants for different infectious diseases, such as MRSA and Ebola.
2. Certain chemical disinfectants may pose hazards for workers through _____, exposure to skin or open cuts, or through the eyes, nose, or mouth.
3. Pay close attention to hazard warnings and directions on product _____.
4. Cleaning products and disinfectants often call for the use of gloves or eye protection. For example, gloves should always be worn to protect your hands when working with _____ solutions.
5. Do not _____ cleaners and disinfectants unless the labels indicate it is safe to do so.
6. Combining certain products (such as chlorine bleach and _____ cleaners) can result in serious injury or death.
7. Ensure adequate _____ in areas where workers are using disinfectants, including by opening windows and doors.
8. The use of chemical disinfectants may require an employer to _____ workers on how to protect themselves against chemical hazards and comply with OSHA's Hazard Communication, 29 CFR 1910.1200, and other standards.
9. Use _____, such as tongs from a spill kit, as much as possible rather than doing cleanup work directly with gloved hands.
10. After cleaning and disinfection work is complete, remove PPE in a way that avoids self-_____.
11. Avoid cleaning techniques, such as using pressurized air or water sprays, which may result in the generation of _____ whenever possible.

Handout 8

Working Safely Around Infectious Diseases

Instructions: Complete the sentences.

1. When working around infectious diseases, *always* follow...

2. Reduce hand-to-mouth transfer of pathogens by...

3. Face and hands should be thoroughly washed...

4. Excessive facial hair...

5. Avoid contact with...

Handout 9

Health Supports

Instructions: Match each term with two sentences that describe it best. Note: there are *only two* correct answers for each term. Write the numbers of the correct sentences next to each term.

_____ Industrial hygienist

_____ Infectious disease specialist

_____ Safety professional

_____ Infection control practitioners

_____ Occupational and environmental physician

_____ Medical screening

_____ Occupational health nurse

_____ Medical surveillance

1. The main purpose of this is early diagnosis and treatment of the individual and thus has a clinical focus.
2. They create infection control plans and are also responsible for training both medical staff and patients in infection control protocols.
3. They evaluate hazards and risks on jobsites, as well as identify, recommend, and help implement controls.
4. They focus on promotion and restoration of health, prevention of illness and injury, and protection from work-related and environmental hazards.
5. They provide first-level medical care on site as well as medical surveillance when it is applicable or required by OSHA or other standards.
6. They are doctors who have received special training to diagnose and treat infectious diseases.
7. They are scientists and engineers committed to protecting the health and safety of people in the workplace and the community.
8. They are engaged in the prevention of events that harm people, property, or the environment by preventing injuries, illnesses, and property damage.
9. The main purpose of this is to detect and eliminate the underlying causes such as hazards or exposures of any discovered trends and thus has a prevention focus.
10. They must possess knowledge of worksite operations and hazards, determine workers' fitness for work, and diagnose and treat occupational and environmental diseases.
11. A worker might be referred to this person if an infection is difficult to diagnose, is accompanied by a high fever, or if the patient does not respond to treatment.
12. This includes the analysis of health information to look for problems that may be occurring in the workplace that require targeted prevention.
13. They play a vital part in ensuring that federal, state, and local laws and regulations are followed in the work environment.
14. They provide for and deliver health and safety programs and services to workers, worker populations and community groups.
15. This is a method for detecting disease or body dysfunction before an individual would normally seek medical care.
16. They work in healthcare settings to help prevent, investigate, monitor, and report the spread of infectious diseases in the workplace.

Handout 10

Sample Infectious Diseases

Instructions: Which of the following diseases fit the criteria below? Write the name. Most will have more than one answer.

pertussis/whooping cough

hepatitis A

seasonal influenza (flu)

E. coli

Ebola virus disease (EVD)

hepatitis B

MRSA

tuberculosis

1. Which present symptoms such as fever and loss of appetite?

2. Which have vaccines available?

3. Which have airborne transmission (droplets, aerosols)?

4. Which are transmitted through direct contact (body fluids)?

5. Which are transmitted through infected food?

6. Which can be treated with antibiotics?

7. Which produce visible symptoms on the body?

8. Which cause vomiting?

Handout 11

Occupational Health Plans

Instructions: Answer the questions.

1. What are the topics that should be included in an occupational health plan for an infectious disease worksite?
2. What kind of information should be collected and evaluated during a pre-placement medical exam?
3. What is pre-exposure prophylaxis and what is it used for?
4. What is post-exposure prophylaxis and what is it used for?
5. Why are periodic medical evaluations sometimes required?
6. What should be included in standard protocols for post-exposure responses?

Handout 12

Health Effects of Chemical Hazards

Instructions: Answer the questions.

1. What is a toxin?
2. What are three ways that workers can be exposed to chemicals?
3. What determines the dose of a chemical?
4. What is the dose-response relationship?
5. What is a chemical reaction and why can it be dangerous?
6. What is acute exposure?
7. What is chronic exposure?
8. What are the physical warning signs of acute exposure?
9. What should you do if you experience any signs of acute exposure?
10. Where can you get information on what to do if you suffer an acute exposure from chemicals?

Handout 13

Heat Stress

Instructions: Fill in the missing information.

| Type | Causes | Signs/Symptoms | Treatment |
|-----------------|--|--|-----------|
| Heat _____ | <ul style="list-style-type: none"> • Heavy sweating, sweat not removed by skin _____ | <ul style="list-style-type: none"> • _____ on skin • Blisters or a rash | |
| Heat cramps | <ul style="list-style-type: none"> • Heavy sweating with inadequate _____ replacement | <ul style="list-style-type: none"> • _____ • Pain in hands, feet, and abdomen. | |
| Heat exhaustion | <ul style="list-style-type: none"> • Increased stress on various _____ and the circulation system • Caused by the inability of the heart to work properly and/or _____ | <ul style="list-style-type: none"> • Dizziness and nausea • Normal to low temperature • _____ • Pale, cool, and moist skin • Rapid pulse and breathing • _____ | |
| Heat _____ | <ul style="list-style-type: none"> • The _____ form of heat stress • Temperature regulation fails • Body temperature rises to critical levels, as high as _____ • The body must be cooled before serious injury or death occurs • Competent medical help must be obtained | <ul style="list-style-type: none"> • Dizziness, confusion, nausea, and high fever • _____ • _____ • Red, hot, and usually dry skin • Strong rapid pulse • Convulsions • Coma • _____ | |

Handout 14

OSHA Standards for Infectious Diseases

Group 1

Instructions: Prepare and deliver a presentation about the following:

- Bloodborne Pathogens Standard (29 CFR 1910.1030)
- HAZWOPER Standard (29 CFR 1910.120)
- General Duty Clause (Sec. 5(a)(1))
- Hazard Communication Standard (29 CFR 1910.1200)

Use this space to prepare your notes, or to take notes as you listen to another group's presentation.

Handout 14

OSHA Standards for Infectious Diseases

Group 2

Instructions: Prepare and deliver a presentation about the following:

- Personal Protective Equipment (PPE) Standard (29 CFR 1910.132)

Use this space to prepare your notes, or to take notes as you listen to another group's presentation.

Handout 14

OSHA Standards for Infectious Diseases

Group 3

Instructions: Prepare and deliver a presentation about the following:

- Respiratory Protection Standard (29 CFR 1910.134)

Use this space to prepare your notes, or to take notes as you listen to another group's presentation.

Handout 15

OSHA and CDC Guidelines

Instructions: Complete the sentences. Use the words in the box. One word will not be used.

| | | | | |
|-----------|-------------|------------|------------|--------------|
| agencies | ambulances | biological | cleaning | discarding |
| generated | health | infection | management | occupational |
| packaging | regulations | residences | seasonal | sharps |

1. There may be _____ for safe treatment, handling, and transport of highly infectious waste, depending on the type of pathogen present.
2. OSHA's fact sheet for *Safe Handling, Treatment, Transport and Disposal of Ebola-Contaminated Waste* includes guidance for creating a waste _____ plan, obtaining necessary permits for transporting infected waste, and rules for _____ and labeling waste.
3. This guidance begins at the point the waste is _____ and continues through final disposal.
4. Infected waste may originate from using and discarding _____, dressings, and other supplies while caring for or testing samples from a patient with Ebola.
5. Infected waste may also come from cleaning hospital rooms; _____, airplanes, and other vehicles; airports and other transportation facilities; people's _____; or other areas with suspected or confirmed Ebola-virus contamination.
6. Removing and _____ disposable PPE after working in an environment with suspected or confirmed Ebola-virus contamination also generates infected waste.
7. In addition to various standards related to infectious disease work, OSHA has published guidance documents for specific diseases such as: _____ flu, pandemic flu, MRSA, norovirus, SARS, tuberculosis, and additional _____ agents, such as anthrax and Ebola.
8. State and local _____ departments and healthcare facilities use guidelines from the CDC, considered the authoritative source on infectious diseases in the U.S., as a basis for developing _____ control programs.
9. CDC guidance is usually not developed specifically for _____ health. NIOSH guidance is specifically focused on worker protection.
10. The CDC does provide guidelines for airline crews, airline _____ personnel, and cargo personnel in countries with widespread Ebola transmission.

Handout 16

Additional Agency Standards and Guidelines

Instructions: Read each sentence. Write the correct letter.

A = Interim Planning Guidance for Handling Category A Solid Waste

B = CAL-OSHA Aerosol Transmissible Diseases Standard

C = DOT-SP 16279

D = EPA RCRA Regulations

1. _____ Requires specific protections whether the disease or pathogen requires airborne infection isolation or droplet precautions.
2. _____ Authorizes the transportation in commerce of waste contaminated with or suspected of being contaminated with the Ebola virus for disposal.
3. _____ Requires any authorized hauler to ensure that their workers are properly trained on the permit prior to using it.
4. _____ Requires covered employers to develop a comprehensive exposure control plan for aerosol transmissible diseases.
5. _____ Protects communities and resource conservation through regulations, guidance, and policies that ensure the safe management and cleanup of solid and hazardous waste, and programs that encourage source reduction and beneficial reuse.
6. _____ Includes information from agencies such as DOT, OSHA, EPA, and CDC.
7. _____ Provides an overview of requirements for: healthcare facilities generating highly infectious waste, specialized transportation companies safely hauling the waste, treatment or inactivation recommendations, and final disposal in a landfill.
8. _____ Are contained in title 40 (Protection of the Environment) of the Code of Federal Regulations (CFR) parts 239-282.
9. _____ Provides references for worker safety, training, and emergency response so all communities know and understand where to go for the most current information depending on the highly infectious substances being managed.
10. _____ Establishes engineering and work practice controls to protect employees who operate, use, or maintain vehicles that transport persons who are aerosol transmissible disease cases or suspected cases.
11. _____ Should also be provided to all generators of highly infectious waste, ideally prior to the start of packaging and pre-transportation activities so that proper packaging techniques are used according to the permit.
12. _____ Do not govern the management and disposition of regulated medical or highly infectious Category A wastes, but of disinfectants that could be a hazardous waste once they are used.

Handout 17

OSHA and Legal Rights of Employees

Instructions: Fill in the chart with details about workers' rights related to each topic, according to OSHA.

| Topic | Detail |
|---------------------------------|--------|
| 1. Abatement period | |
| 2. Dangerous work | |
| 3. Discrimination complaint | |
| 4. Employee representative | |
| 5. Form 300 | |
| 6. Hazard information | |
| 7. Imminent danger | |
| 8. Medical and exposure records | |
| 9. Monitoring and results | |
| 10. NIOSH | |
| 11. OSHA compliance officer | |
| 12. OSHA inspection | |
| 13. OSHA rights | |
| 14. Safety or health hazards | |
| 15. Standard variances | |
| 16. Standards and regulations | |

Handout 18

Group Presentations: APF and MUC

Instructions: Work with your group, prepare a five-minute presentation on your assigned topic(s).

- Use your Participant Guide (Chapter 5) to find the necessary information.
- Use the flip chart to create a visual to assist with your presentation.
- Choose one or more group member(s) to present the information to the class.

Group 1: Introduction to Protection Factors

Your group will use the Participant Guide to research and present *Introduction to Protection Factors*.

Use the chart below (*continued on the next page*) to take notes on the topics in the left column as you conduct your research.

| Topic | Notes |
|--|-------|
| Discuss respirator leakage. | |
| Explain the connection between negative air pressure and face-piece leakage. | |

Handout 18

Group Presentations: APF and MUC

Group 1: Introduction to Protection Factors (continued)

| Topic | Notes |
|---|-------|
| <p>Explain the purpose of Respiratory Protection (as related to OSHA PEL)</p> | |
| <p>Explain the meaning of a lower versus a higher number for OSHA APF.</p> <p>Give examples to explain what the APF number means (for example, a respirator with APF 10) and how APF relates the PEL.</p> | |

Handout 18

Group Presentations: APF and MUC

Group 2: Protection Factors and OSHA

Your group will use the Participant Guide to research and present *Protection Factors and OSHA*.

Use the chart below (*continued on the next page*) to take notes on the topics in the left column as you conduct your research.

| Topic | Notes |
|---|-------|
| Explain the formula for calculating protection factor (PF) [give example of calculation]. | |
| Explain why filtered face-pieces are generally not used for environmental work. | |

Handout 18

Group Presentations: APF and MUC

Group 2: Protection Factors and OSHA (continued)

| Topic | Notes | | |
|--|-------------------|------------|------------|
| Give an overview of three types of respirators commonly used for infectious disease work and their APFs. | <i>Respirator</i> | <i>APF</i> | <i>MUC</i> |
| | | | |
| | | 50 | |
| | | | |
| Define/Explain MUC and why it is important to know | | | |

Handout 19

Respiratory Protection Information

Part A: Types of Respirators

Instructions: Listen and take notes as your instructor explains the information about respiratory protection.

| Two main types of respirators | Notes |
|-------------------------------|-------|
| | |

| Air-purifying Respirators: Types | APF | Characteristics |
|-------------------------------------|-----|-----------------|
| | | |
| | | |
| | | |

Handout 19

Respiratory Protection Information

Part B: Air-purifying Elements

Instructions: Use your Participant Guide to complete the missing information about air-purifying elements used with respirators. Take notes on any important information.

1. List two types of air-purifying elements (filters):
2. Particulate filter respirators are used for protection against _____
_____.
3. Write the correct filter-series letter next to the description:
_____ not resistant to oil
_____ resistant to oil, but not oilproof
_____ oilproof
4. Filters designated N95, R95, and P95 have a minimum efficiency of _____ %.
A. 95 B. 99 C. 99.97 D. 100
5. Filters designated N99, R99, and P99 have a minimum efficiency of _____ %.
A. 95 B. 99 C. 99.97 D. 100
6. Filters designated N100, R100, and P100 have a maximum efficiency of _____ %.
A. 95 B. 99 C. 99.97 D. 100
7. _____ filters have a service life of one shift.
A. N-series B. R-series C. P-series D. None of the above
8. If a contaminant passes through a saturated cartridge or canister, _____ has occurred.
9. What are four steps you should follow when breakthrough has occurred?

Handout 19

Respiratory Protection Information

Part C: Limitations of Air-purifying Respirators

Instructions: Listen. Complete the missing information and take notes as your instructor explains the limitations of air-purifying respirators.

| Limitations | Notes |
|---|-------|
| 1. _____-deficient atmospheres | |
| 2. Unknown _____ or concentrations | |
| 3. _____ _____ _____ Concentrations | |
| 4. _____ / Cartridge Life | |

Handout 19

Respiratory Protection Information

Part C: Limitations of Air-purifying Respirators (continued)

Instructions: Listen. Complete the missing information and take notes as your instructor explains the limitations of air-purifying respirators.

| Limitations | Notes |
|----------------------------------|-------|
| 5. Cartridge / Canister _____ | |
| 6. _____ / Temperature | |
| 7. Usage / _____ | |
| 8. _____ Protection | |

Handout 19

Respiratory Protection Information

Part D: Respiratory Protection Program

Instructions: Complete the missing information about requirements for a Respiratory Protection Program. Use the words below. Take notes on any important information.

| | | | | |
|----------|------------|---------------|-------------|-------------|
| cleaning | doffing | effectiveness | emergencies | fit-testing |
| hazards | inspecting | medical | quantity | selecting |

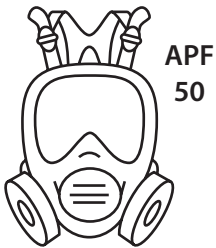
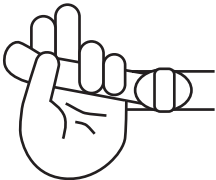
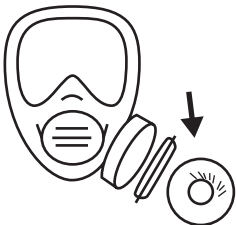

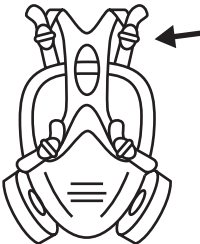
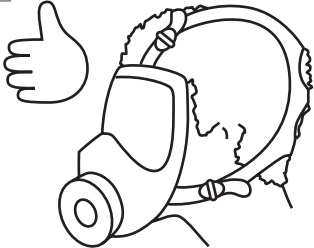
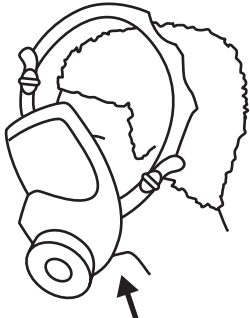


According to OSHA 29 CFR 1910.134, a written respiratory protection program must include the following requirements:

1. Procedures for _____ respirators for use in the workplace.
2. _____ evaluations of employees who are required to use respirators.
3. _____ procedures for tight-fitting respirators.
4. Procedures for proper use of respirators in routine situations and in reasonably foreseeable _____.
5. Procedures and schedules for _____, storing, _____, repairing, discarding, and otherwise maintaining respirators.
6. Procedures to ensure adequate air quality, _____, and flow of breathing air for atmosphere-supplying respirators.
7. Employee training in the respiratory _____ to which they are potentially exposed during routine and emergency situations.
8. Employee training in the proper use of respirators, including the following:
 - Donning and _____ (putting on and taking off)
 - Limitations
 - Maintenance
9. Procedures for regularly evaluating the _____ of the program.

Handout 20

Respirator Donning/Doffing Prep

Instructions: Number the pictures in order.

| | | |
|---|---|---|
|  <p>Match respirator to hazard / situation.</p> |  <p>Adjust straps to correct fit.</p> |  <p>Ensure correct cartridge or filter and expiration date. Check for cracks, dents, or evidence of prior use.</p> |
|  <p>Perform positive seal check. Cover exhalation valve and exhale for a count of 10. Notice any leaks.</p> |  <p>Check straps / harness for breaks, twists, broken attachments.</p> |  <p>Readjust straps if necessary, and repeat seal checks. Check for good breathing.</p> |
|  <p>Place chin in cup.</p> |  <p>Examine face-piece for dirt, cracks, worn or missing pieces.</p> |  <p>Perform negative seal check. Cover filter intakes and inhale for a count of 10. Notice any leaks.</p> |

Handout 21

Respirator Performance Checklist

Type of task: Individual Exercise

Group Exercise

Other: Can be done in small classes as an exercise that combines group and individual assessment

Date of assessment: ___/___/___

Name(s) of participant(s):

| Task | Performance | |
|---|--------------|----------------|
| | Satisfactory | Unsatisfactory |
| Identify hazard condition and match respirator to situation. | | |
| Examine the face-piece for <ul style="list-style-type: none"> • excessive dirt • cracks, tears, holes, or distortion from improper storage • inflexibility (stretch and massage to restore flexibility) • incorrectly mounted face-piece lens or broken or missing mounting clips • cracked or broken air-purifying element holder(s), badly worn threads, or missing gasket(s), if required | | |
| Examine head straps or head harness for <ul style="list-style-type: none"> • breaks • twists and loss of elasticity • broken or malfunctioning buckles or attachments | | |
| Remove exhalation valve cover and examine for foreign material such as <ul style="list-style-type: none"> • detergent residue, dust particles, or human hair under the valve seat • cracks, tears, or distortion in the valve material | | |

Handout 21

Respirator Performance Checklist

| Task | Performance | |
|---|--------------|----------------|
| | Satisfactory | Unsatisfactory |
| Examine air-purifying element for <ul style="list-style-type: none"> • correct cartridge canister/filter for the hazard • correct installation, loose connections, missing or worn gaskets, or cross-threading in holder • expired shelf-life date on cartridge or canister • cracks or dents in outside case of filter, cartridge, or canister • evidence of prior use of sorbent cartridge or canister, indicated by absence of sealing material, tape, foil, etc., over inlet | | |
| Place chin in cup. | | |
| Pull crown strap over head. | | |
| Adjust bottom, middle, and top strap to correct fit. | | |
| Perform positive seal check by placing palm of hand over exhalation valve cover and exhaling slightly for a count of 10. Notice any leaks. | | |
| Perform negative seal check by placing palm of hand over exhalation valve cover and inhaling slightly for a count of 10. Notice any leaks. | | |
| Readjust straps if necessary. | | |
| Repeat fit checks if readjustment occurs. | | |
| Check for good breathing. | | |
| Comments: | | |

Handout 22

Fit-testing

Instructions: Read each statement and decide whether it is true or false. Make a check (√) in the correct column. Correct the false statements by rewriting the statement in the “correction” column. Check your answers in your Participant Guide.

| Statement | True | False | Correction |
|--|------|-------|------------|
| 1. You must be fit-tested on the same make, model, size and style of respirator you will wear for the job. | | | |
| 2. A fit-test must be conducted monthly. | | | |
| 3. Fit-testing must be done with the respirator in positive-pressure mode. | | | |
| 4. A qualitative test uses a sensory agent, such as smoke or banana oil. | | | |
| 5. A quantitative test uses a machine to measure your fit factor. | | | |
| 6. Qualitative testing is less reliable and lowers the protection factor of a respirator. | | | |
| 7. An irritant smoke test must be conducted with a full-face respirator. | | | |
| 8. Isoamyl Acetate (IAA) is known as banana oil because it smells like banana. | | | |
| 9. Both the saccharin and Bitrix tests rely on your sense of smell. | | | |
| 10. Quantitative fit-tests use a machine to measure leakage into the face-piece and is more accurate than qualitative methods. | | | |

Handout 23

PPE in Different Risk Environments

Instructions: Write answers to the questions. Use your Participant Guide to find the correct information.

1. What is the main difference between defining high-risk and low-risk PPE environments?
2. Which agencies have provided recommendations for PPE used in infectious disease settings?
3. TRUE or FALSE: only protective suits with thumb hooks should be used.
4. TRUE or FALSE: SARs or SCBA are recommended for most infectious disease cleanup operations.
5. In which environment(s) can street clothes be worn under PPE?
6. What are the differences between Level A and Level C HAZWOPER PPE ensembles?
7. Write *H* for PPE used in high-risk environments, *L* for PPE used in low-risk environments, or *B* for both.
 - A. _____ Gloves inner: double nitrile.
 - B. _____ Gloves inner: triple nitrile.
 - C. _____ Gloves outer: extended cuff nitrile, neoprene.
 - D. _____ Gowns & Protective Suits: Full-body garment constructed of durable viral penetration-resistant material.
 - E. _____ Head covers.
 - F. _____ Foot protection: Rubber boots that extend to at least lower calf, or footwear or covers with viral-penetration barrier layer.
 - G. _____ Face shield.
 - H. _____ PAPR .
 - I. _____ Filtering face-piece with an N95 rating.
 - J. _____ APR with a P100 rating.
 - K. _____ Plastic aprons.

Handout 24

Key Considerations for Donning/Doffing PPE

Instructions: When are these considerations used? Write *N* for donning PPE, *F* for doffing PPE, or *B* for both.

1. _____ A trained observer's assistant must wear PPE.
2. _____ A place for sitting that can be easily cleaned and disinfected.
3. _____ A PPE-trained observer to oversee and minimize the risk of contamination.
4. _____ Avoid touching face or skin.
5. _____ Decontamination of equipment.
6. _____ Disinfecting gloves and soiled areas, and then putting on a clean pair of gloves.
7. _____ Inspect PPE.
8. _____ Leak-proof infectious waste containers for discarding used PPE.
9. _____ Perform hand hygiene.
10. _____ Practice the process.
11. _____ Remove all clothing and personal items.
12. _____ Showering.
13. _____ Step-by-step procedures, use of a posted checklist.
14. _____ Supplies for disinfection of PPE.
15. _____ Verify that a sufficient range of motion exists to perform work tasks.

Handout 25

PPE Donning/Doffing Procedures

Part A: Recommended Process for Donning PPE

Instructions: Check (✓) the appropriate box for each step below.

| Correct | Incorrect | Step |
|---------|-----------|---|
| | | Engage trained observer: The trained observer may enter the clean room to observe the worker donning process. |
| | | Inspect PPE Prior to Donning: Visually inspect the PPE ensemble to be worn to ensure that it is in serviceable condition, that all required PPE and supplies are available, and that the sizes selected are correct for the worker. |
| | | Remove Clothing and Personal Items: No personal items (for example, jewelry, watches, cell phones, pagers, pens) should be brought into the contaminated room. |
| | | Don Inner Suit: Put on disposable boxers or cotton underwear (optional). Don the inner suit. Prepare and put on disposable duct tape belt and attach the PAPR battery to the disposable belt (if a PAPR is used). |
| | | Perform Hand Hygiene: Perform hand hygiene with alcohol-based hand rubs (ABHRs). When using ABHRs, allow hands to dry before moving to next step. |
| | | Don Inner Gloves: Put on first pair of gloves. Be sure cuffs of inner gloves are tucked under the sleeve of the inner suit. |
| | | Don Outer Suit: Do not zip the suit up at this time. Ensure outer suit is large enough to allow for unrestricted freedom of movement. |
| | | Don Rubber Boots: The outer suit should be placed over the rubber boot and should be taped to the boot. No part of the suit should be exposed on the boot past the tape. If being used, put on boot covers at this time. |
| | | Don Respirator: Connect the PAPR battery and don the respirator face-piece. Perform the positive and negative user seal checks. Turn on the PAPR fan (if this type of respirator is being used). |
| | | Don Hoods: Don the double hoods over the respirator head harness (straps) and zip up the outer suit. Tape outer hood to the brim of the respirator face-piece to gain proper seal. Be sure the entire area around the respirator is taped so there are no gaps. You may also be required to put tape over the outer suit zipper as well. |

Handout 25

PPE Donning/Doffing Procedures

Part A: Recommended Process for Donning PPE (continued)

| Correct | Incorrect | Step |
|---------|-----------|--|
| | | Don Face Shield: By wearing a face shield over the PAPR, you will be able to reuse the PAPR. |
| | | Don Outer Gloves: Put on second pair of gloves (with extended cuffs). Put the sleeve of the outer suit over the outer glove and tape the outer suit to the outer glove. Be sure to leave a tab on the tape for easy removal. |
| | | Don Apron: If an apron is being used, don a full-body apron to provide additional protection to the front of the body. |
| | | Verify: After completing the donning process, the integrity of the ensemble is verified by the trained observer. The cleanup worker should be comfortable and able to extend the arms, bend at the waist, and go through a range of motions to ensure there is sufficient range of movement while all areas of the body remain covered. A mirror in the room can be useful for the healthcare worker while donning PPE. |
| | | Disinfect Outer Gloves: Disinfect outer-gloved hands with ABHR. Allow to dry. |

Handout 25

PPE Donning/Doffing Procedures

Part B: Recommended Process for Doffing PPE

Instructions: Check (✓) the appropriate box for each step below.

| Correct | Incorrect | Step |
|---------|-----------|---|
| | | Engage Trained Observer's Assistant: The trained observer's assistant is wearing appropriate PPE and enters Stage 1 of the decon unit to observe the worker doffing process. Prior to doffing PPE, the trained observer's assistant must remind the cleanup worker to avoid reflexive actions that may put them at risk, such as touching their face. The trained observer's assistant may assist with removal of specific components of PPE, as outlined below. The trained observer's assistant disinfects their own outer-gloved hands immediately after handling any cleanup worker's PPE. |
| | | Inspect PPE Prior to Doffing: Inspect the PPE to assess for visible contamination, cuts or tears before starting to remove. If any PPE is potentially contaminated, then disinfect using an EPA-registered disinfectant wipe. If the facility conditions permit and appropriate regulations are followed, an EPA-registered disinfectant spray can be used, particularly on contaminated areas. |
| | | Disinfect: Disinfect apron (if used), face shield, outer gloves, outer suit, boot covers (if used, and rubber boots if covers are not used) with either an EPA-registered disinfectant wipe or with ABHRs, and allow them to dry. |
| | | Doff Apron (if used): Remove and discard the apron, taking care to avoid contaminating gloves by rolling the apron from inside to outside. Remove and discard the outer boots (if outer boots are used). |
| | | Disinfect: Disinfect the outer suit again, especially the portions where the apron and apron straps were covering. Disinfect rubber boots (if outer boots were used). |
| | | Doff Face Shield: Dispose the face shield in the appropriate receptacle after doffing it. |
| | | Disinfect: Following the face shield removal, disinfect the exposed surfaces of the respirator, including tape. |
| | | Remove Tape: Remove all exposed tape, including the tape around the outer gloves, respirator, and rubber boots, and dispose in the appropriate receptacle. |

Handout 25

PPE Donning/Doffing Procedures

Part B: Recommended Process for Doffing PPE (continued)

| Correct | Incorrect | Step |
|---------|-----------|---|
| | | <p>Disinfect and Remove Outer Gloves: Disinfect outer-gloved hands with either an EPA-registered disinfectant wipe or with ABHRs. Remove outer gloves, taking care not to contaminate the inner glove during the removal process. Discard the outer gloves in the appropriate receptacle.</p> |
| | | <p>Inspect and Disinfect Inner Gloves: Inspect the inner gloves' outer surfaces for visible contamination, cuts, or tears. If an inner glove is visibly soiled, cut, or torn, then disinfect the glove with either an EPA-registered disinfectant wipe or with ABHRs. Then remove the inner gloves, perform hand hygiene with ABHRs on bare hands, and don a clean pair of gloves. If no visible contamination, cuts, or tears are identified on the inner gloves, then disinfect the inner-gloved hands with either an EPA-registered disinfectant wipe or with ABHRs.</p> |
| | | <p>Doff Rubber Boots and Outer Protective Suit: Remove and place in the appropriate receptacle. Depending on suit design and location of fasteners, the cleanup worker can either untie fasteners, receive assistance by the trained observer's assistant to unfasten the suit, or gently break fasteners.</p> <p>When removing the outer suit, slowly and carefully reach for the zipper or fasteners and unzip or unfasten the outer suit completely before rolling down and turning inside out if possible. Avoid contact of the outer surface of the outer suit with the outer surface of the inner suit during removal. Pull inner suit away from the body, rolling inside out and touching only the inside of the suit. Carefully dispose of the suit in the appropriate receptacle.</p> |
| | | <p>Disinfect Inner Gloves: Disinfect inner gloves with either an EPA-registered disinfectant wipe or with ABHRs.</p> |
| | | <p>Remove PAPR Battery: Remove the PAPR battery (if a PAPR is used), including the duct tape belt, and place the battery in a container or area designated for the collection of PAPR components. Place the tape in the appropriate receptacle.</p> |
| | | <p>Doff Inner Suit: Slowly and carefully reach for the zipper or fasteners and unzip or unfasten the inner suit completely before rolling down and turning inside out. Avoid contact of the outer surface of the disposable inner suit with skin, undergarments, or any other surface during removal. Pull inner suit away from the body, rolling inside out and touching only the inside of the suit. Carefully dispose of the suit in the appropriate receptacle.</p> |

Handout 25

PPE Donning/Doffing Procedures

Part B: Recommended Process for Doffing PPE (continued)

| Correct | Incorrect | Step |
|---------|-----------|--|
| | | Disinfect Inner Gloves: Disinfect inner gloves with either an EPA-registered disinfectant wipe or with ABHRs. |
| | | Doff Respirator: Cleanup workers can remove their respirator, being careful not to touch inside the respirator or their face. |
| | | Disinfect and Remove Inner Gloves: Disinfect inner-gloved hands with either an EPA-registered disinfectant wipe or with ABHRs. Remove and discard gloves, taking care not to contaminate bare hands during removal process. |
| | | Perform Hand Hygiene: Perform hand hygiene with ABHRs. |
| | | Shower: Showers are required using antibacterial soap. Disposable towels must be provided for drying off and placed in the appropriate receptacle after use. |
| | | Protocol Evaluation/Medical Assessment: Either the infection preventionist, infectious disease specialist, occupational safety and health coordinator, or their designee on call at the time, should meet with the cleanup worker to review the activities performed, to identify any concerns about protocols and to record worker's level of fatigue. |

Handout 26

Work Area Preparation

Group 1

Instructions: Prepare notes for a presentation about the following topics.

| Topic | Notes for Presentation |
|--------------------|------------------------|
| Risk Assessment | |
| Signage | |
| HVAC | |
| Securing Work Area | |

Handout 26

Work Area Preparation

Group 2

Instructions: Prepare notes for a presentation about the following topics.

| Topic | Notes for Presentation |
|---|------------------------|
| Setting Up a 6-Stage Decontamination Unit | |
| Flap Doors and Zipper Doors | |
| Sticky Mats | |

Handout 26

Work Area Preparation

Group 3

Instructions: Prepare notes for a presentation about the following topics.

| Topic | Notes for Presentation |
|---|------------------------|
| Preparing to Enter the Work Area (Review of Donning PPE) | |

Handout 27

Negative Air Machines

Part A: True/False

Instructions: Read each statement and decide whether it is true or false. Make a check (✓) in the correct column. Correct the false statements by rewriting the statement in the “correction” column.

| Statement | True | False | Correction |
|--|------|-------|------------|
| 1. The primary purpose of a negative air machine is to push clean air into the work area. | | | |
| 2. A negative air machine only has one opening. | | | |
| 3. Two of the nicknames for a negative air machines are hog and red baron. | | | |
| 4. Final air filter must be a HEPA filter. | | | |
| 5. The unit typically runs 24 hours/day, 7 days/week for the entire length of the project. | | | |
| 6. Pre-filters filter out the larger particles in the air after it goes through the HEPA filter. | | | |
| 7. The first-stage pre-filter should be a low-efficiency type (i.e., for particles 10 µm and larger). The second-stage (or intermediate) filter should have a medium efficiency (i.e., effective for particles 5 µm and larger). | | | |

Handout 27

Negative Air Machines

Part B: Calculate

Instructions: Use the formulas below and the guiding questions to calculate the amount of air volume in each room, and how many negative air machines would be needed.

Formula for figuring out how many CFM is required for given ACH:

$$\text{ACH} \times \text{Volume} \div 60 \text{ minutes per hour} = \text{CFM}$$

Formula for figuring out ACH produced by given CFM:

$$\text{CFM} \times 60 \text{ minutes per hour} \div \text{volume} = \text{ACH}$$

Scenario 1

Room A has the following dimensions: 80' x 40' x 20'

The capacity of the negative air machine we will be using is: 800 cfm

| Guiding Questions | Calculations |
|--|--------------|
| How many cubic feet are in the room? (volume) | |
| To achieve 12 air changes an hour, what is the total amount of air that must be exhausted? | |
| How much air will an 800 CFM negative air machine actually exhaust? (80%) | |
| How many negative air machines will be needed to obtain 12 air changes an hour? | |

Handout 27

Negative Air Machines

Part B: Calculate (continued)

Scenario 2

Room B has the following dimensions: 150' x 72' x 12'

The capacity of the negative air machine we will be using is: 2,000 cfm

| Guiding Questions | Calculations |
|---|--------------|
| How many cubic feet are in the room? (volume) | |
| To achieve 6 air changes an hour, what is the total amount of air that must be exhausted? | |
| How much air will a 2,000 CFM negative air machine actually exhaust? (80%) | |
| How many negative air machines will be needed to obtain 6 air changes an hour? | |

Scenario 3

Room C has the following dimensions: 60' x 120' x 20'

The capacity of the negative air machine we will be using is: 800 cfm

| Guiding Questions | Calculations |
|---|--------------|
| How many cubic feet are in the room? (volume) | |
| To achieve 4 air changes an hour, what is the total amount of air that must be exhausted? | |
| How much air will an 800 CFM negative air machine actually exhaust? (80%) | |
| How many negative air machines will be needed to obtain 4 air changes an hour? | |

Handout 28

Decontamination and Disinfection

Instructions: Answer the questions.

1. What are the five steps in the decontamination and disinfection process?
2. Why do you need to wait after a bleach solution is applied?
3. What are OSHA guidelines for cleaning and disinfecting infectious agents on hard surfaces?
4. What can be used for cleaning and disinfecting if an EPA-registered disinfectant isn't available?
5. Why are contaminated objects with porous surfaces generally disposed of?

Handout 28

Decontamination and Disinfection

6. What is involved in a post-decontamination and disinfection inspection?

7. What are OSHA guidelines for safe handling and disposal of infected waste?
OSHA provides guidelines for safe handling and disposal of infected waste:

8. What is a waste load-out area, and what is it used for?

9. When are waste materials transported off-site for disposal?

Handout 29

Six-Stage Decon Process

Instructions: Watch the video. Take notes about each of the topics below. This handout will serve as a guide to help you with the hands-on tasks that follow.

| Stage | Details |
|-------|---------|
| 1 | |
| 2 | |

Handout 29

Six-Stage Decon Process

| Stage | Details |
|-------|---------|
| 3 | |

Handout 29

Six-Stage Decon Process

| Stage | Details |
|-------|---------|
| 4 | |
| 5 | |
| 6 | |

Handout 30

Work Area Preparation Performance Checklist

Type of task: Individual Exercise

Group Exercise

Other: Can be done in small classes as an exercise that combines group and individual assessment

Date of assessment: ___/___/___

Name(s) of participant(s):

| Task | Performance | |
|--|--------------|----------------|
| | Satisfactory | Unsatisfactory |
| Understand the directions of the task. | | |
| Prepare the work area in the proper order. | | |
| Set up the decontamination unit in the proper order. | | |
| Show initiative and do his/her fair share of the work. | | |
| Work well with others in the group. | | |

Comments:

Handout 31

Donning PPE Performance Checklist

Type of task: Individual Exercise

Group Exercise

Other: Can be done in small classes as an exercise that combines group and individual assessment

Date of assessment: ___/___/___

Name(s) of participant(s):

| Task | Performance | |
|--|--------------|----------------|
| | Satisfactory | Unsatisfactory |
| Inspect all PPE that will be used. | | |
| Remove clothing and personal items. | | |
| Put on disposable boxers or cotton underwear (optional). | | |
| Don inner suit (Tyvek® for example). | | |
| Using duct tape, prepare and put on disposable belt and attach the PAPR battery to the disposable belt (if a PAPR is being used). | | |
| Put on inner gloves. | | |
| Put on outer suit (chemical suit), do not zip suit up at this time. | | |
| Put on rubber boots. The outer suit should be placed over the rubber boot and should be taped. If being used, put on boot covers at this time. | | |
| Connect PAPR battery and put on respirator face-piece and perform the user seal checks. | | |

Handout 31

Donning PPE Performance Checklist

| Task (continued) | Performance | |
|---|--------------|----------------|
| | Satisfactory | Unsatisfactory |
| Put on double hoods over respirator head harness (straps) and zip up (seal) outer coverall. Be sure to tape outer hood to the respirator face-piece brim to gain proper seal. | | |
| Put on the face shield. | | |
| Put on outer gloves (heavy duty nitrile) and apply tape. Be sure to put the sleeve of the outer suit over the outer glove. | | |
| Put on plastic apron (if used). | | |
| Proceed through the decontamination unit to the work area. | | |
| Comments: | | |

Handout 32

Decontamination and Disinfection Performance Checklist

Type of task: Individual Exercise

Group Exercise

Other: Can be done in small classes as an exercise that combines group and individual assessment

Date of assessment: ___/___/___

Name(s) of participant(s):

| Task | Performance | |
|---|--------------|----------------|
| | Satisfactory | Unsatisfactory |
| Mist all contaminated surfaces with a bleach solution to reduce the formation of dust aerosols. (Leave bleach solution on for 5 to 15 minutes.) | | |
| Properly dispose of items with porous surfaces containing high levels of contamination. | | |
| Disinfect contaminated surfaces that remain after the bleaching process. | | |
| Perform a final sanitation wash using a non-reactive detergent. | | |
| Rinse the surface with water, dry, and HEPA-vacuum for final cleaning. | | |
| Bag, sanitize, and dispose of any remaining contaminated debris. | | |
| Comments: | | |

Handout 33

Doffing PPE Performance Checklist

Type of task: Individual Exercise

Group Exercise

Other: Can be done in small classes as an exercise that combines group and individual assessment

Date of assessment: ___/___/___

Name(s) of participant(s):

| Task | Performance | |
|---|--------------|----------------|
| | Satisfactory | Unsatisfactory |
| <p>Stage 1 of the Decon:</p> <p>Disinfect the plastic apron, face shield, outer gloves, outer suit, boot covers (if used, and rubber boots if covers are not used) with an EPA-registered disinfectant spray.</p> | | |
| <p>Doff plastic apron, face shield, and boot covers (if used) and dispose in the appropriate receptacle.</p> | | |
| <p>Disinfect the exposed surfaces of the respirator, the outer part of the suit that the apron was covering (if apron was used), the rubber boots (if boot covers were used), and all exposed tape. Then remove exposed tape and outer gloves and place in the appropriate receptacle. (Be sure to take off outer gloves carefully so you do not contaminate the inner gloves.)</p> | | |
| <p>Inspect the inner gloves' outer surfaces for visible contamination, cuts, or tears. If inner glove is visibly soiled, cut, or torn, remove the inner gloves, perform hand hygiene on bare hands and don a clean pair of inner gloves. If no visible contamination, cuts, or tears are identified on the inner gloves, then disinfect the inner gloves.</p> | | |
| <p>Enter Stage 2 of the Decon:</p> <p>Carefully doff rubber boots and outer suit and place in the appropriate receptacle.</p> | | |
| <p>Disinfect the inner suit.</p> | | |

Handout 33

Doffing PPE Performance Checklist

| Task (continued) | Performance | |
|--|--------------|----------------|
| | Satisfactory | Unsatisfactory |
| Disinfect the inner gloves again. Remove and discard inner gloves making sure not to contaminate bare hands during removal process. Perform hand hygiene with disinfectant and don a new pair of inner gloves. | | |
| Enter Stage 3 of the Decon: Remove the PAPR battery (if a PAPR is used), including the duct tape belt, and place the battery in a container or area designated for the collection of PAPR components. Place the tape in the appropriate receptacle. | | |
| Carefully remove inner suit and place in the appropriate receptacle. | | |
| Inspect the inner gloves' outer surfaces for visible contamination, cuts, or tears. If inner glove is visibly soiled, cut, or torn, remove the inner gloves, perform hand hygiene on bare hands and don a clean pair of inner gloves. If no visible contamination, cuts, or tears are identified on the inner gloves, then disinfect the inner gloves. | | |
| Remove PAPR, being careful not to touch the inside of the respirator. Then remove inner gloves and non-contaminated undergarments (if any are used) and place in the appropriate receptacle. Place the disinfected PAPR and battery (if applicable) in the Stage 5 area. | | |
| Enter Stage 4 of the Decon: Shower. | | |
| Enter Stage 6 of the Decon: Redress. Retrieve any disinfected PPE (if applicable) and any decontaminated waste containers (if applicable) from Stage 5 place in Stage 6. Exit the Decon. | | |
| Comments: | | |

Handout 34

Introduction to Infected Waste Management

Instructions: Complete the sentences about managing infected waste by matching the first half of each sentence with the second half below.

1. _____ The overall handling of infectious or regulated medical waste begins with
 2. _____ Use of an autoclave cycle heats materials to a high enough temperature
 3. _____ Incineration is the best method for inactivating waste
 4. _____ If Category A wastes cannot be inactivated on-site, then
 5. _____ For any movement off-site, a detailed agreement or contract should be in place
 6. _____ Category B infectious substances that are discarded become regulated
 7. _____ Because of the hazards posed by Category A infectious substances, these materials
 8. _____ Materials with Category A infectious substances may only be transported in two scenarios:
 9. _____ In general, a Category A infectious substance must be triple packed in a primary
 10. _____ Transporting Category A waste from the point of generation to a secure holding area within the generating facility should be done
 11. _____ Holding areas for Category A waste storage should be separate from other waste,
 12. _____ Once an infectious waste has been properly inactivated, it is considered a solid waste and is handled, transported, and
- A. the wastes will need to be transported off-site.
 - B. with covered push carts or bins or other leak-proof containers to prevent any release or spillage of the waste.
 - C. have more stringent packaging requirements than other infectious substances.
 - D. watertight receptacle, with watertight secondary packaging, and rigid outer packaging.
 - E. with an entity that has party status to a DOT/PHMSA special permit.
 - F. the creation of the waste, includes waste transportation, and ends at final disposition.
 - G. disposed of according to the regular protocols for solid waste management in the state.
 - H. for a long enough period of time to inactivate the organism(s) of concern in infected waste.
 - I. in large or bulky items, such as mattresses.
 - J. medical waste under both the federal DOT HMR and applicable state regulations.
 - K. located on impermeable surfaces and provide protection and security against spillage, weather, putrescence, pest infestation, and trespassers.
 - L. in full compliance with classification and packaging requirements of the HMR, or under the terms of a special permit.

Handout 35

Protecting Worker Health and Safety

Group 1

Instructions: Prepare and deliver a presentation about the following:

Engineering controls to eliminate or reduce worker exposure to hazards while handling infected waste

Use this space to prepare your notes, or to take notes as you listen to another group's presentation.

Handout 35

Protecting Worker Health and Safety

Group 2

Instructions: Prepare and deliver a presentation about the following:

Safer work practices and administrative controls to eliminate or reduce worker exposure to hazards while handling infected waste

Use this space to prepare your notes, or to take notes as you listen to another group's presentation.

Handout 35

Protecting Worker Health and Safety

Group 3

Instructions: Prepare and deliver a presentation about the following:

How the OSHA HAZWOPER Standard relates to handling infected waste

Use this space to prepare your notes, or to take notes as you listen to another group's presentation.

Handout 36

Handling Infected Waste

Instructions: Write *T* for true or *F* for false. If the statement is false, correct it to make it true.

1. _____ Infected waste containers should not be reopened once they have been closed.
2. _____ If there are other potential hazards in a container (such as batteries or air filters, etc., that could contain hazardous waste), it should be noted on the outside of the innermost container.
3. _____ When handling waste containers, you should always work in teams of at least four people (buddy system).
4. _____ You should always perform a visual inspection before touching any waste container.
5. _____ You should never use mechanical devices for lifting, moving, and managing contaminated waste that is too heavy to manually handle.
6. _____ All mechanical lifting and moving devices must be inspected regularly and repaired when necessary.
7. _____ You should always check for faulty or defective parts before lifting a load that is near the load capacity of mechanical equipment.
8. _____ When manually handling heavy material, you should pull loads rather than push them whenever possible.
9. _____ Inspect the area where you have to carry the load; it should be free of obstructions that could cause you to trip, slip, or spill the load.
10. _____ Packaging of infected waste may differ depending on whether the waste has been inactivated, or if it is confirmed to contain Category A infectious substances.
11. _____ Labeling hazardous materials for storage and shipping should be done within the appropriate regulations or guidelines established by the CDC, OSHA, DOT, and specifically within the Special Permit.
12. _____ Once materials are properly labeled, they must be stored on site in a refrigerated area that is secured against entry by unauthorized personnel.
13. _____ If you are loading drums or containers onto trucks, they must be firmly secured to prevent them from shifting or breaking during transit.
14. _____ Containers should be loaded and secured by stacking them on top of one another.

Handout 37

Critical Incidents

Instructions: Complete the sentences. Use the words in the box.

| | | | | |
|---------|---------|----------|---------|-----------|
| anxiety | contain | cope | crisis | emotional |
| impact | mental | response | trained | traumatic |

1. A *critical incident* can be defined as an event that happens abruptly, and that has an _____ that can overwhelm a person's normally effective ability to deal with physical or emotional stress.
2. Many employers respond by following an emergency _____ plan, which generally consists of the organizing, coordinating, and the directing of available resources in order to respond to the event and bring the emergency under control.
3. The goal of this coordinated effort is to _____ the incident and minimize the physical and structural impact on people, structures, and the community.
4. Rarely does a workplace emergency response plan address the emotional and _____ impact of a critical incident on affected workers.
5. In recent years there has been more focus and attention on the effects of _____ events on individuals, the surviving victims, their co-workers, and the workers' families.
6. A _____ management plan includes a set of strategies designed to help an organization deal with a sudden and significant negative event, with an established protocol for critical incident response.
7. This kind of plan can help contractors and impacted workers deal with the _____ aspects of experiencing a workplace critical incident.
8. After a critical incident, some workers may experience flashbacks, _____ about work activities, physical reactions, and depression.
9. A _____ specialist may visit the worksite and conduct a critical incident debriefing in order to provide assistance and support to those affected by the incident.
10. A critical incident debriefing can help workers and others to be better able to recognize and _____ with the emotions such traumatic events can produce.

Handout 38

Understanding Trauma-Related Stress

Instructions: Answer the questions.

1. What are the four principles of trauma-related stress?
2. Why are some people reluctant to seek help for trauma-related stress?
3. What are some physical signs and symptoms of severe stress?
4. What are some cognitive signs and symptoms of severe stress?

Handout 38

Understanding Trauma-Related Stress

5. What are some emotional signs and symptoms of severe stress?

6. What are some behavioral signs and symptoms of severe stress?

7. Who is at greatest risk for severe stress symptoms?

Handout 39

Managing Stress and Communications

Group 1

Instructions: Prepare and deliver a presentation about the following:

- What are some ways to help manage stress *during* a disaster operation?
- What are some ways to help manage stress *after* a disaster operation?

Use this space to prepare your notes, or to take notes as you listen to another group's presentation.

Handout 39

Managing Stress and Communications

Group 2

Instructions: Prepare and deliver a presentation about the following:

What kinds of steps should employers take in consideration of the families and friends of workers impacted in a disaster?

Use this space to prepare your notes, or to take notes as you listen to another group's presentation.

Handout 39

Managing Stress and Communications

Group 3

Instructions: Prepare and deliver a presentation about the following:

What kinds of steps should employers take with regard to media and social media communications about a critical incident?

Use this space to prepare your notes, or to take notes as you listen to another group's presentation.