## Chemical Risk Assessment

<table>
<thead>
<tr>
<th>Product Name:</th>
<th>UN # (4 digits):</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DOT Hazard Class:</th>
<th>Physical State:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 EX 2 FG 3 FL 4 FS 5 OX 6 PO 7 RA 8 CO 9 OT</td>
<td>solid liquid gas</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ERG Guide #:</th>
<th>NFPA (0-4):</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Hazard Type</th>
<th>Physical Description</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Toxicity</strong></td>
<td>Identified As: Ppm or mg/m³</td>
<td>TWA STEL C IDLH 8 hrs Short Ceiling Danger</td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ Slightly Toxic □ Moderately Toxic □ Very Toxic</td>
</tr>
<tr>
<td><strong>Flammability</strong></td>
<td>Lower # = Higher Hazard</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower Explosive Limit (LEL) Upper Explosive Limit (UEL): 0% __________ 50% __________ 100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flashpoint: 0° __________ 100° __________ 200°</td>
<td></td>
</tr>
<tr>
<td><strong>Solubility</strong></td>
<td>(circle) Water Oil</td>
<td>Water: No Yes Oil: No Yes</td>
</tr>
<tr>
<td><strong>Specific Gravity</strong></td>
<td>Water = 1 Less than 1 floats More than 1 sinks</td>
<td>SG = __________</td>
</tr>
<tr>
<td><strong>Vapor Density</strong></td>
<td>Air = 1 Less than 1 rises More than 1 sinks</td>
<td>VD = __________</td>
</tr>
<tr>
<td><strong>Vapor Pressure</strong></td>
<td>Water 17.5 mmHg (0.33 psi) = Low _____ mmHg</td>
<td>□ Low Vapor Pressure □ Medium Vapor Pressure □ High Vapor Pressure</td>
</tr>
<tr>
<td><strong>Corrosivity</strong></td>
<td>Closer to 0 or 14 = increased corrosivity Acid 0-6 Base 8-14 0 __________ 7 __________ 14 pH = __________</td>
<td>□ Low pH □ Neutral pH □ High pH</td>
</tr>
<tr>
<td><strong>Secondary Contamination Risk</strong></td>
<td>Yes No</td>
<td>Possible Routes of Contamination □ Inhalation □ Absorption □ Ingestion □ Injection</td>
</tr>
<tr>
<td><strong>Other Information</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Personal Protective Equipment (PPE)

<table>
<thead>
<tr>
<th>Respiratory Protection</th>
<th>APR</th>
<th>PAPR</th>
<th>Other:</th>
<th>Filter Type:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clothing Tyvex Other:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of Protection Available</td>
<td>Level A B C D (Have)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of Protection Required</td>
<td>Level A B C D (Need)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victim Decon</td>
<td>Can you perform patient decontamination with the level of PPE?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spill Response</td>
<td>Can you manage an incidental spill with the level of PPE?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Reference: Haz Mat for Healthcare HARM Risk Assessment Worksheet v4.6.2
### Personal Protective Equipment Competency

<table>
<thead>
<tr>
<th>NAME OF EMPLOYEE (PRINT)</th>
<th>TITLE</th>
<th>UNIT</th>
<th>SHIFT</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMPLOYEE SIGNATURE</td>
<td>ANNUAL COMPETENCY</td>
<td>□</td>
<td>FRO CLASS COMPETENCY</td>
<td>PERFORMANCE IS: □ SIMULATED □ ACTUAL</td>
</tr>
</tbody>
</table>

#### SKILLS ASSESSMENT PERFORMANCE CRITERIA

**UNDE**

<table>
<thead>
<tr>
<th>UNDERSTANDS THE PURPOSE OF</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Utilizing Purified Air Powered Respirators (PAPRs) Turbo Packs, Level C Tyvek suits, filters/canisters, respiratory equipment and decontamination equipment used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Demonstrating familiarity with HICS Job Action Sheets utilized during a mass casualty event.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DONNING LEVEL C PERSONAL PROTECTIVE EQUIPMENT**

<table>
<thead>
<tr>
<th>DONNING LEVEL C PERSONAL PROTECTIVE EQUIPMENT</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Locate a safe place to don C suit and PAPR in cold zone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Lay out appropriately sized C suit, boots, inner and outer gloves.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Choose a decontamination partner.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Complete Medical Monitoring.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Perform safety checks on the Breathe Easy PAPR, check battery and filters (assure caps are off filters prior to donning).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Remove all sharp objects (verbalizes non are present).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Suit up in C suit, boots, and inner gloves in proper sequence.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Attach battery pack and turbo pack to waist with 3M logo upright in front and Breathe Easy logo upright in back (for proper placement).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Turn respirator battery pack to the on switch. Battery pack must be on to draw ambient air through filter media. Feel for cold air at white port.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Align face shield of PAPR then place hood on head.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Tuck inner sheath inside suit and outer sheet outside suit.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Assure that PAPR is working and that breathing is comfortable.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Put on outer gloves and duct tape/chemtape with tabs on tape.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TEAM WORK DURING DECONTAMINATION MISSION**

<table>
<thead>
<tr>
<th>TEAM WORK DURING DECONTAMINATION MISSION</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Look at decontamination partner to check for condensation in face mask, proper fit of hood and safety during decontamination mission.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Listen to hear if decontamination partner’s battery pack is on.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Feel decontamination partner’s battery pack for vibration in all three filters to assure PAPR is on.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DOFFING LEVEL C PERSONAL PROTECTIVE EQUIPMENT**

<table>
<thead>
<tr>
<th>DOFFING LEVEL C PERSONAL PROTECTIVE EQUIPMENT</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Decontaminate partner with soap and water.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Doff outer gloves, suit and boots in order into red plastic bag.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Remove hood with turbo pack, battery, and inner gloves last.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Seal bag with all contaminated equipment. Leave in warm zone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Step into cold zone/support zone and report for vital signs and rehab.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Assure decontamination partner has doffed in the same procedure.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Complete Medical Monitoring.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Rehydrate and rest.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### PERFORMANCE

<table>
<thead>
<tr>
<th>PERFORMANCE</th>
<th>SIGNATURE OF EVALUATOR - TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ COMPETENT</td>
<td>□ NOT COMPETENT □ OTHER</td>
</tr>
</tbody>
</table>

Notes:

CC: Employee File, Employee
Communications during decontamination procedures can be extremely difficult for Decon Team personnel. Utilize the following hand signals to communicate to the Decon Team Leader and other members of the Decon Team.

- **PAPR/Air Problem:**
  Hands to throat simulating choking

- **Attention/Need Assistance:**
  Wave hands above head

- **Evacuate Area:**
  Hand raised and brought down in the direction to evacuate

- **Situation Normal/OK:**
  Hand raised thumbs in upright position

- **Situation Abnormal/Problem:**
  Hand raised thumbs in downward position
## Hospital Victim Decontamination Stages – Quick Reference

### Stage One
1–10 victims

**If Known Contaminate**
- Industrial chemicals
- Biological hazards
- Possible health/life threat
- NON-WMDs
- NON-Terrorist Event

**Initial Guidelines**
- Isolate the victims
- Don’t contact victims
- Don proper PPE before any close contact with contaminated victims
- Have victims self-assist
- 1-2 minute victim wash
- Distribute privacy kits
- Remove/bag clothes + personal items
- Personal shower if needed (in hospital/tent)
- Keep documentation
- Proper termination
- See setup guide

**Additional Guidelines**
- Don proper PPE before any close contact with contaminated victims
- If above 35 degrees F. outside decon and staging in Cold Zone Treatment tent with heater okay
- 35 to 64 degrees F. move victims inside immediately after decon & keep warm. Give blanket/booties to every wet person
- If this event is a WMD or a POTENTIAL TERRORISM EVENT use Stage Three Guide

### Stage Two
11 - 24 victims

**For Known Contaminate**
- Industrial chemicals
- Biological hazards
- Possible health/life threat
- NON-WMDs
- NON-Terrorist Event

**Initial Guidelines**
- Activate on-duty members
- Appoint Field Task Force Leader
- Don proper PPE before any close contact with contaminated victims
- Deploy decon tent for outside shower (optional)
- Isolate runoff areas
- Conduct proper termination
- See Setup Guide

**Additional Guidelines**
- Don proper PPE before any close contact with contaminated victims
- If above 35 degrees F. outside decon and staging in Cold Zone Treatment tent with heater okay
- If between 35 to 64 degrees F. move victims inside immediately after decon & keep them warm. Give blanket/booties to every wet or disrobed person
- POTENTIAL TERRORISM EVENT or WMD use Stage Three Guide

### Stage Three
25 or more victims or Terrorism Event

**Known or Unknown Contaminate:**
- Industrial chemicals
- Biological hazards
- Health/life threat
- Terrorist Event
- Any CBRNE Agent

**Initial Guidelines**
- Call entire decon team
- Activate field ICS & HICS
- Access Control the hospital
- Implement the EOP Plan
- Isolate all victims
- Don proper PPE before any close contact with contaminated victims
- Use radiation monitor
- Appoint Field Task Force Leader
- Establish Decon Control & assign officers
- Deploy decon tent for outside shower
- All receivers in the Decon Zone must wear Level C w/PAPR
- Establish all zones
- Full shower w/soap
- Isolate the runoff area(s)
- Use proper termination
- See Setup Guide

**Additional Guidelines**
- If above 35 degrees F. outside decon and staging in Cold Zone Treatment tent with heater okay
- If between 35 to 64 degrees F., move victims inside immediately after deluge & keep them warm. Give blankets and booties to every wet or disrobed victim
## First Responder Awareness

1910.120(q)(6)(i)

First responders at the awareness level are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. They would take no further action beyond notifying the authorities of the release. First responders at the awareness level shall have sufficient training or have had sufficient experience to objectively demonstrate competency in the following areas:

1. An understanding of what hazardous substances are, and the risks associated with them in an incident.
2. An understanding of the potential outcomes associated with an emergency created when hazardous substances are present.
3. The ability to recognize the presence of hazardous substances in an emergency.
4. The ability to identify the hazardous substances, if possible.
5. An understanding of the role of the first responder awareness individual in the employer's emergency response plan including site security and control and the U.S. Department of Transportation's Emergency Response Guidebook.
6. The ability to realize the need for additional resources, and to make appropriate notifications to the communication center.

## First Responder Operations

1910.120(q)(6)(ii)

First responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent exposures. First responders at the...
Operational level shall have received at least eight hours of training or have had sufficient experience to objectively demonstrate competency in the following areas in addition to those listed for the awareness level and the employer shall so certify:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1910.120(q)(6)(ii)(A)</strong></td>
<td>Knowledge of the basic hazard and risk assessment techniques.</td>
</tr>
<tr>
<td><strong>1910.120(q)(6)(ii)(B)</strong></td>
<td>Know how to select and use proper personal protective equipment provided to the first responder operational level.</td>
</tr>
<tr>
<td><strong>1910.120(q)(6)(ii)(C)</strong></td>
<td>An understanding of basic hazardous materials terms.</td>
</tr>
<tr>
<td><strong>1910.120(q)(6)(ii)(D)</strong></td>
<td>Know how to perform basic control, containment and/or confinement operations within the capabilities of the resources and personal protective equipment available with their unit.</td>
</tr>
<tr>
<td><strong>1910.120(q)(6)(ii)(E)</strong></td>
<td>Know how to implement basic decontamination procedures.</td>
</tr>
<tr>
<td><strong>1910.120(q)(6)(ii)(F)</strong></td>
<td>An understanding of the relevant standard operating procedures and termination procedures.</td>
</tr>
</tbody>
</table>

**Trainers**

**1910.120(q)(7)** Trainers who teach any of the above training subjects shall have satisfactorily completed a training course for teaching the subjects they are expected to teach, such as the courses offered by the U.S. National Fire Academy, or they shall have the training and/or academic credentials and instructional experience necessary to demonstrate competent instructional skills and a good command of the subject matter of the courses they are to teach.

**NOTE:** At this time, OSHA does not have any specific requirements to certify an instructor. The subjects that trainers should be able to convey to employees at hazardous waste operations who need training are summarized in paragraphs (e), (p) and (q) of the HAZWOPER standard.

**Refresher Training**

**1910.120(q)(8)** Those employees who are trained in accordance with paragraph (q)(6) of this section shall receive annual refresher training of sufficient content and duration to maintain their competencies, or shall demonstrate competency in those areas at least yearly.

**1910.120(q)(8)(i)** A statement shall be made of the training or competency, and if a statement of competency is made, the employer shall keep a record of the methodology used to demonstrate competency.

**Joint Commission:**

As a part of the Emergency Operations
Plan, the organization prepares for how it will manage security and safety during an emergency.

The EOP describes the following: How the hospital will manage hazardous materials and waste.

The EOP describes the following: How the hospital will provide for radioactive, biological and chemical isolation and decontamination.

Are PPE included in the facilities Respiratory protection Plan?

In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective shall be to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used pursuant to this section.

Does the program include medical monitoring prior to donning PPE?

Does the program include medical monitoring after doffing PPE?

Are vital sign parameters clearly identified on the medical monitoring form(s) that would exempt an employee from participating in decontamination operations?

Is decontamination equipment inventoried annually?

Are suits, boots, gloves and respiratory PPE checked for degradation? Frequency?

What are the HAZWOPER training requirements for hospital staff?

OSHA's Hazardous Waste and Emergency Response standard (HAZWOPER) requires that workers be trained to perform their anticipated job duties without endangering themselves or others. To determine the level and type of training your workers need, you must consider the hazards in your community and what capabilities your personnel need to respond to those hazards. You should make your determination based on worst-case scenarios. If your personnel are expected to provide limited decontamination services in order to attend to medical problems, they must be trained to the first responder operations level with emphasis on the use of PPE and decontamination procedures. This level of emergency response training is described in 29 CFR 1910.120(q)(6)(ii); additional guidance about the content of this training is available in HAZWOPER's Appendix E. Hospitals may develop in-house training or they may send personnel to a standard first responder operations level course, then provide additional training in decontamination and PPE as needed. HAZWOPER requires the employer to certify that workers have the training and competencies listed in (q)(6)(ii). The standard also requires annual refresher training or demonstration of competency, as described in (q)(8).
Hospital Hazmat Operations Level Training for First Receivers

V11
The Operational Level Training course is an eight (8) hour course to include a 1-hour lunch and two (2) 15-minute breaks. The course schedule is as follows:

0800 – 0820  Welcome & Introductions
0820 – 0830  Day overview, physical requirements review, and safety information briefing
0830 – 1000  Lessons 1 & 2
1000 – 1015  Break
1015 – 1200  Lessons 3 & 4
1200 – 1300  Lunch
1300 – 1445  Lessons 5 & 6
1445 – 1500  Break
1500 – 1645  Lessons 7 & 8
1645 – 1700  Wrap up, Evaluations, Adjourn
Housekeeping

- Administrative announcements.
- Review emergency procedures and exits.
- Sign in to receive credit for class participation.
- Sign in for BRN CEU’s.
- Return from breaks and lunch on time.
- 100% class attendance required.
- Complete exam. Passing score 80% or better.
- Course completion certificate provided at the end of the course.
Course Materials

- Participant Guide
- Hospital Hazmat Operations Level Training Presentation
- Acronyms and Abbreviations List
- Chemical Risk Assessment Worksheet
- Suite Time Log
- Donning/Doffing Competency
- Decontamination Overview Handouts
- Emergency Hand Signal Handout
- ICS Forms & Planning P
- Job Action Sheet (JAS)
- Post Test
- Class Evaluation

Reference materials are provided for classroom use only.
Lesson 1 - Objectives

1. Discuss regulatory requirements supporting hospital decontamination programs.

2. Discuss regulatory requirements for hospital spill response.
First Responders at the operations level are individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. (OSHA, 29 CFR1910.120)

First Receivers are a subset of first responders (OSHA, 2005), but exposure is limited to the quantity of substance arriving at the hospital as a contaminant on victims and their clothing or personal effects. This is the focus of the Hospital Hazmat Operations Level Training.
Levels of Training

First Responder (Receiver) Awareness (FRA)
(Hazmat Awareness Level Training)

First Responder (Receiver) Operations (FRO)
(Hazmat Operations Level Training)
DEFENSIVE

Hazardous Materials Technician
Hazardous Material Specialist
Incident Commander
OFFENSIVE
HAZMAT AWARENESS LEVEL TRAINING

Those who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release.

S - Safety
I - Isolate
N - Notify

HAZMAT OPERATIONS LEVEL TRAINING

Individuals who respond to a release or potential release of hazardous substances as a part of the initial response to the site for the purpose of protecting nearby persons, property, of the environment for the effects of the release.
Hazmat Regulations

- The Occupational Safety and Health Administration (or it’s state equivalent) has a mandate to ensure that employers provide a safe and healthful workplace.

- The primary standard applicable to this program is called Hazardous Waste Operations and Emergency Response (HAZWOPER).
OSHA HAZWOPER Regulation

- Provides the foundation for this course.
- Provides general training requirements.
- Provides general response requirements.
- HAZWOPER requires employers to:
  - Plan for response and cleanup
  - Train employees
  - Follow basic response requirements
California Code of Regulations Title 8, Section 5192:

Hazardous substance: Any substance designated or listed under A. through D. below, exposure to which results or may result in adverse effects on the health or safety of employees:

A) Any substance defined under Section 103(14) of CERCLA or under Sections 25316 and 25317 of the California Health and Safety Code;

B) Any biological agent and other disease-causing agent which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any person, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations in such persons or their offspring;

C) Any substance listed by the U.S. Department of Transportation and regulated as hazardous materials under 49 CFR 172.101 and appendices; and

D) Hazardous waste as herein defined.
Definition of a Hazardous Material

- There are many definitions of a hazardous material.
- OSHA Definition of a Hazardous Chemical:
  Any substance to which exposure “results or may result in adverse affects on the health or safety of employees:” or “any chemical which is a physical hazard or a health hazard.” 29 CFR 1910.1200 (c)
- Think about the chemicals you come in contact with (work and home)...
Lesson 2 - Objectives

1. Provide an overview of the increasing need for healthcare operations based Hazmat programs.

2. Verbalize definitions of basic hazardous materials terms.

3. Describe the risks and problems that can occur with hazardous material incidents.

4. Provide an overview of hazardous materials material classification.

5. Describe methods for identifying characteristics of a substance.

6. Recognize hazardous material incidents and potential outcomes.

7. Provide an overview of Chemical, Biological, Radiological, Nuclear, Explosive (CBRNE) incidents.
Hazardous Materials: In Perspective for Healthcare

- Healthcare facilities store, use and manage a variety of hazardous materials.

- Nearby businesses and industries may house significant amounts of chemicals.

- Victims of a Hazmat exposure are likely to seek care from the nearest Emergency Department and then fan out to other hospitals in surrounding areas. Not all victims will arrive by ambulance.

- With potential threats of Weapons of Mass Destruction (WMD), healthcare facilities face unique challenges.
Examples of Hazardous Materials

- Chemicals that cause cancer
- Chemicals that burn on contact
- Biohazards
- Radioactive Materials
Examples of Hazardous Materials

- Chemicals that catch fire or explode
- Chemicals that can cause violent reactions
- Poisons
- Unknown Chemicals

WHAT ARE THE RISKS??
Incident Types

- Internal Incident – are limited to the facility. This is when a hazardous materials incident occurs within the hospital or on hospital property.

- External Incident – when a hazardous materials incident occurs offsite and the contaminants come to the hospital via patients or toxic plume.
Hazmat Risks

EXTERNAL
- Hospitals may receive exposed patients.
- Risks caused by fixed facilities and transportation incidents.
- Information relating the hazardous substance may not be immediately available.
- Victims will use other entrances in addition to the ED.
- Worried Well will arrive looking for friends and family members.
- Hospitals cannot rely on the fire department to perform patient decontamination.

INTERNAL
- Healthcare workers may be exposed to chemicals and chemical spills within the workplace.
- The spill is not reported as a chemical spill.
- Clean up has occurred by untrained employees.
- Exposures have occurred from internal spills.
- Staff have not taken internal spills seriously.
Contamination vs. Exposure

- **Contamination** – You have something on you. The hazardous material is physically present on a person’s skin, clothing or hair (external), or has been absorbed, inhaled, injected, or ingested (internal).

- **Secondary Contamination** – Contamination that has been transferred from one location to another (hands to face, from one person to another, from person to equipment).

- **Exposure** – Contacted by any means with a hazardous material. May or may not require decontamination.
Signs & Symptoms of exposure:

- Irritation of the skin, eyes, nose, throat
- Burns
- Difficulty breathing
- Respiratory arrest
- Nausea
- Dizziness
- Lack of coordination
- Seizures
- Death
How do you know when a Hazmat incident is occurring?

- Containers (location, shape)
- Container labels
- Placards
- Influx of patients with the same symptoms (toxidromes)
- Reports of a mass casualty incident (MCI)
- People down or running from an area
- Evidence of a leak
- Unusual vapors or odors
Hazmat Triage Clues

Look For:

- Unusual liquids or powders in the patient.
- Unusual symptoms which may be related to exposure.
- Unusual odors.
- Burns or skin blisters.
- Ask patient:
  - What happened?
  - What were you doing?
  - Were others exposed?
  - Where were you when this happened?
  - How long ago did the exposure occur?
A Contaminated Patient Enters the Building...

- Have the patient exit the same way they entered and send them to pre-designated decon location outside the facility.
- Mass notification; overhead “Code Orange” or facility specific announcement.
- Shut down HVAC system.
- Consider lockdown facility/area.
- Isolate contaminated area until assessment by qualified personnel.
- Observe others who may be exposed.

**QUESTION** - When would you call 911?
Hazmat Response

The goal of any Hazmat response is to protect:

- Life
- Environment
- Property

In that order...
Hazardous Materials Classification
Respect the physical state of the hazard

- Gases
- Vapors
- Liquids
- Solids

Hazardous materials can be found in these states, and they may change between physical states.
Ice Cube
Basic Chemical Terminology

- **Toxicity** - The ability of a substance to cause damage to living tissue, impairment of the Central Nervous System (CNS), or death.

- **Concentration** – The relative amount of a substance when combined with another substance.
Basic Chemical Terminology

- **Volutility** – The ability and tendency of a substance to vaporize. A substance with a higher vapor pressure vaporizes more readily.

- **Persistency** – The ability of a chemical to remain in the environment and not evaporate or vaporize. Based on the relative amount of a substance left after 24 hours.
DOT Hazard Classes

CLASS 1
Explosives

Health Hazards:
- Severe trauma & burns
- Radiation (dirty bomb)

Decontamination:
- Copious amounts of water
- Soap & water decontamination, wound care

CLASS 2
Compressed Gases

Health Hazards
- Poison, flammable, corrosive, oxidizers
- Many hazards in this class

Decontamination:
- Copious amounts of water
- Soap & water decontamination, wound care
DOT Hazard Classes

CLASS 3
Flammable Combustible Liquids

Health Hazards:
- Flammable, corrosive
- Respiratory irritant

Decontamination:
- Copious amounts of water
- Soap & water decontamination, wound care

CLASS 4
Flammable Solids

Health Hazards:
- Flammable, corrosive
- Respiratory irritant
- Burning metals may produce toxic gas

Decontamination:
- Copious amounts of water
- Soap & water decontamination, wound care
DOT Hazard Classes

CLASS 5
Oxidizers & Organic Peroxides

Health Hazards:
- Flammable, corrosive, unstable
- Respiratory irritant
- May enhance the combustion of other products
- Common use in Improvised Explosive Devices (IED’s)

Decontamination:
- Copious amounts of water
- Soap & water decontamination, wound care

CLASS 6
Poisonous & Infectious Materials

Health Hazards:
- Flammable, corrosive
- Respiratory irritant
- May be allowed to burn as fire may destroy toxic properties

Decontamination:
- Copious amounts of water
- Soap & water decontamination, wound care
**DOT Hazard Classes**

**CLASS 7**

Radioactive Materials

**Health Hazards:**
- Flammable, corrosive
- Respiratory irritant
- Time, distance & shielding

**Decontamination:**
- Copious amounts of water
- Soap & water
- Decontamination, wound care

**CLASS 8**

Corrosive Materials

**Health Hazards:**
- Flammable, corrosive
- Respiratory irritant
- Strong acids and bases are not compatible on may react violently together

**Decontamination:**
- Copious amounts of water
- Soap & water
- Decontamination, wound care
**DOT Hazard Classes**

**CLASS 9**

**Miscellaneous Materials**

**Health Hazards:**
- Multiple hazards
- Hazardous waste, commercial cleaners, residential chemicals
- If it does not fit into another category.

**Decontamination:**
- Copious amounts of water
- Soap & water decontamination, wound care

*What about unknown chemicals?*
Hazardous Materials & Weapons of Mass Destruction
Terrorism

The unlawful use of force against persons or property to intimidate or coerce a government, the civilian population, or any segment there of, in the furtherance of political or social objectives.
There are two primary types of terrorism:

- **International Terrorism** – originate in a country outside the United States and involves the unlawful use of force or violence by a group or individual who is connected to a foreign government or whose activities transcend national boundaries.

- **Domestic Terrorism** – originate within the United States and Puerto Rico and acts are directed at the United States government or population.
Critical Infrastructure Sectors:

1. Chemical
2. Commercial Facilities
3. Communications
4. Critical Manufacturing
5. Dams
6. Defense
7. Emergency Services
8. Energy
9. Financial Services
10. Food & Agriculture
11. Government Facilities
12. Healthcare & Public Health
13. Information Technology
14. Nuclear Reactors & Waste
15. Transportation Systems

WHAT ABOUT
Entertainment & High Occupancy
(stadiums & shopping malls)
??????
Hospitals are challenged with providing an “All Hazards“ approach to emergency management. This includes preparing for an influx of contaminated and injured patients.
## Hazmat & CBRNE Agents

<table>
<thead>
<tr>
<th>Class</th>
<th>CBRNE Agent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2, 3, 4, 5, 6, 8 &amp; 9</td>
<td>Chemical</td>
</tr>
<tr>
<td>6 &amp; 9</td>
<td>Biological</td>
</tr>
<tr>
<td>7 &amp; 9</td>
<td>Radiological</td>
</tr>
<tr>
<td>7 &amp; 9</td>
<td>Nuclear</td>
</tr>
<tr>
<td>1, 5, &amp; 9</td>
<td>Explosive</td>
</tr>
</tbody>
</table>

FEMA (2010). Operational response to hazmat/wmd. PER - 212
Per the Department of Homeland Security (DHS), a CBRNE incident is considered intentional which constitutes an act of terrorism. The lead investigative agency is the FBI.

An accidental Hazmat incident is not considered to be an intentional act and may involved local, state and federal agencies.
Chemical Agents

- **Nerve** - Sarin [GB], Taubin, VX
- **Blood** - Hydrogen Cyanide
- **Blister** - Mustard, Lewsite
- **Choking** - Chlorine
- **Irritating** - Teargas, Pepper Spray

Lethal dose of VX
Chemical Agents

Dispersal is influenced by:

- Concentration
- Wind Speed
- Direction
- Humidity

5 PPM

20 PPM

50 PPM
Symptoms of Nerve Agents

- Salivation
- Lacrimation
- Urination
- Defecation
- Gastrointestinal
- Emesis
- Miosis

3 days to 62 days
Recognizing Health Effects of Chemical Agents

<table>
<thead>
<tr>
<th>Agent Type</th>
<th>Agent Names</th>
<th>Unique Characteristics</th>
<th>Signs and Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nerve</td>
<td>- Cyclohexyl sarin (GF) - Sarin (GB) - Soman (GD) - Tabun (GA) - VX - Some insecticides (cholinesterase inhibitors) - Novichok agents/ Soviet V</td>
<td>- Miosis (pinpoint pupils) - Copious secretions/ sweating - Muscle twitching/ fasciculations</td>
<td>- Miosis (pinpoint pupils) - Blurred/dim vision - Headache - Nausea, vomiting, diarrhea - Copious secretions/ sweating - Muscle twitching/ fasciculations - Breathing difficulty - Seizures - Loss of consciousness</td>
</tr>
<tr>
<td>Asphyxiating Blood</td>
<td>- Arsine - Cyanogen chloride - Hydrogen cyanide</td>
<td>- Possible skin color changes: cherry-red (cyanide or cyanogen chloride); yellow or bronze (arsine) - Possible cyanosis - Possible frostbite*</td>
<td>- Confusion - Nausea - Gasping for air, similar to asphyxiation but more abrupt onset - Seizures</td>
</tr>
<tr>
<td>Choking/Pulmonary-damaging</td>
<td>- Chlorine</td>
<td>- Chlorine is a greenish-yellow gas with pungent odor</td>
<td>- Eye and skin irritation</td>
</tr>
<tr>
<td></td>
<td>- Hydrogen chloride</td>
<td>- Odor - Phosgene gas may smell like newly mown hay or grass - Possible frostbite*</td>
<td>- Airway irritation</td>
</tr>
<tr>
<td></td>
<td>- Nitrogen oxides - Phosgene</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blistering/Vesicant</td>
<td>- Mustard/Sulfur</td>
<td>- Mustard (HD) may have</td>
<td>- Redness and blisters of the skin - Tearing, conjunctivitis, corneal damage - Mild respiratory distress to marked airway damage</td>
</tr>
<tr>
<td></td>
<td>mustard (HD, H) - Nitrogen mustard (HN-1, HN-2, HN-3) - Lewisite (L) - Phosgene oxime (CX)</td>
<td>- An odor like mustard, garlic or horseradish - Lewisite (L) may have an odor like geranium - Phosgene oxime (CX) may have a pepper-like or pungent odor</td>
<td>- Drymouth and skin - Initial tachycardia - Altered consciousness, delusions, denial of illness, belligerence - Hyperthermia - Ataxia (lack of coordination) - Hallucinations - Mydriasis (dilated pupils)</td>
</tr>
</tbody>
</table>

*Frostbite may occur from skin contact with liquid arsenic, cyanogen chloride or phosgene.
Mark 1 Kit

**Atropine** autoinjector
2 mg in 0.7cc

**Pralidoxime** autoinjector (2-PAM)
600 mg in 2cc
DuoDote Auto-Injectors

2 Drugs, 1 Injection
BinaJect® technology utilized for DuoDote® Auto-Injector
(atropine and pralidoxime chloride injection)

Meridian Auto-Injectors Are Designed for:
- Delivery of the same dose every time
- Rapid intramuscular administration for oneself and others
- Administration through clothing and protective ensembles
Biological Agents

- Anthrax – *Bacteria* (A)
- Botulinum – *Bacteria, amongst the most deadly natural toxins in the world* (A)
- Hemorrhagic Fever (Ebola) - *Virus* (A)
- Mycotoxin - *Toxin*
- Plague – *Bacteria* (A)
- Ricin - *Toxin*
- Smallpox – *Virus* (A)
- Tularemia – *Bacteria* (A)

Most agents dispersed by aerosol.

Route of entry skin and inhalation, respiratory route of transmission.

Easy to disseminate.
Radiological & Nuclear Agents

- Radiologic Nucleotide (source):
  - **Alpha** – Large travel 3-4 inches from a source. Can be damaging when inhaled, transfer large particles of ionizing energy.
  - **Beta** – Smaller than Alpha, may travel several hundred feet, can cause contamination. May penetrate soft body tissue. Must wear appropriate PPE.
  - **Gama Radiation** – Not a particle, pure form of energy, requires massive shielding. PPE does not protect against gamma radiation.

- Radiological Dispersal Device (dirty bomb)
- Atomic/Nuclear Device (thermonuclear bomb)
Radiological & Nuclear Agents

TIME

DISTANCE

SHIELDING

Screening People for External Contamination
Explosive Agents

- Incendiary Devices (arsonist)
- Explosive Devices (bomber)
  - Improvised Explosive Devices (IED’s)
- Firearms (assassin, active shooter)
Lesson 3 - Objectives

1. Discuss priorities for hazardous spill response and clean up.
2. Review when to activate a “Code Orange” or facility specific announcement in response to a spill and discuss immediate priorities (safety, isolate & notify).
3. Verbalize notification priorities for a hazardous material incident and how these notification are made.
4. Review when additional resources are required.
5. Discuss the steps in responding to a hazardous material incident safely and effectively and the role of the Operationally trained individual.
6. Demonstrate finding key information within the Safety Data Sheets (SDS) and chemical information resources.
7. Discuss changes to the Hazard Communication Standard (HCS).
Healthcare Response to a Hazmat Spill
Areas within the hospital with a higher likelihood of chemical spills:

- Laboratory
- Pharmacy
- Radiology
- Engineering

Staff in these departments will provide the first level response for a spill

No employee is to engage in spill clean up activities unless the chemical is known and the employee is trained to do so.
Incidental Spill:
Spill that can be cleaned up in the first 10-15 minutes without risk of overexposure or risk to employees under normal working conditions. This is a small spill.

Emergency Response Spill:
Requires Hazmat Response if risk to employees and overexposure to employees. This is a large spill.
SMALL SPILL

- This is an Incidental Spill.
- A spill that is limited in quantity, exposure potential and toxicity.
- Clean up is limited to a spill of no more than 250 ml or 1 cup in size.
- 99% of spills fall into this category

Examples - Mercury spills, Acid or Base spills in lab, compounding chemicals in pharmacy, or spills in the receiving area.

LARGE SPILL

- This is an Emergency Response Spill.
- A spill that poses an obvious, immediate and significant threat to the health and safety of personnel.
- A spill of two or more chemicals.
- Trained responder is required for this type of spill.

Example - a spill or mixing of chemicals that cause severe illness due to vapors or a spill that exceeds the quantity amounts listed on the SDS.
Response to Chemical Spills

It is important for you to know the location of ALL spill kits in your work area and the appropriate equipment needed to clean any spills for the various chemicals you work with on a daily basis.
Hazmat Spill Response Decision Matrix

Identify hazardous materials in the hospital and develop hospital policies to meet requirements for any hazardous materials in 29 CFR 1910.120 subpart Z

Employees trained to the Hospital Hamat Foundation/Awareness Level

If using PPE to respond to a spill, employees need to be Operationally trained

YES Employees to clean spill using PPE

NO SIN Only Vendor clean up
Spill Clean-Up Responsibility

**Department personnel** (lab, radiology, pharmacy, engineering) who are properly trained are responsible for clean-up activities for *small chemical spills* within the department.

**Public Safety personnel** will respond and assist with isolation of *large spill* areas.

**EVS (housekeeping) personnel** assists with clean up of *biohazardous* spill areas.

All roles are outlined in the hospital Hazardous Material and Waste Management Policy.
A spill kit specific to the chemicals that are used in each department should be located in or near to that department.

- Lab- Acid, Solvent and Caustic spill kits
- Microbiology - Acid Spill kit
- Pathology – Caustic and Formalin spill kits
- Blood Bank- Capture product
- Morgue – Formalin spill kit

**Question:** Where are emergency eyewash and showers located?
Spill Response Procedures

First step in spill response is-

S.I.N (SAFETY, Isolate & Notify)

S – think SAFETY, first and last and always
I – Safely attempt to ISOLATE & Deny entry to spill area
N – Make prompt NOTIFICATION and request resources

This is a Code Orange or facility specific announcement
Key Factors in Response

- **Substance** – what spilled?
- **Time** – Vapor levels rise above safe levels due to the environmental factors before response occurs.
- **Volume of Spill** – Surface area of spill
- **Concentration** – Chemical concentration of the materials
- **Ventilation** – Type and location of ventilation
- **Spill Control Product** – Absorbents or neutralizers
- **Location** – Closer to the chemical the worse the potential for exposure
**Safety Data Sheets (SDS)**

Introduction to SDS’s:

- Required by OSHA for every chemical stored in the workplace.

- Contains detailed chemical information.

- Lists potential hazards of chemical substances and how to manage safely.

- Today’s MSDS will be changed to Safety Data Sheet (SDS) by 2015.
Where to Find SDS’s

SDS binders - OR - MSDS Online is available

Look for the MSDS icon on any workstation

Enter name of chemical

Select Location to view a list of all chemicals located in each area
Once item is located. Select the PDF to view SDS sheet. Follow Directions in **Section 4&6** for spill response or accidental release actions to take.
The NEW Hazard Communication Standard (HCS) implements the following changes:

- **Product Identifier** - how the hazardous chemical is identified. This can be (but is not limited to) the chemical name, code number or batch number. The manufacturer, importer or distributor can decide the appropriate product identifier.

- **Signal Word** - used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. There are only two signal words, “Danger” and “Warning.”
Hazard Communication Standard (HCS) NEW

- **Hazard classification:** The definitions of hazard have been changed to provide specific criteria for classification of health and physical hazards, as well as classification of mixtures. These specific criteria will help to ensure that evaluations of hazardous effects are consistent across manufacturers, and that labels and safety data sheets are more accurate as a result.

- **Labels:** Chemical manufacturers and importers will be required to provide a label that includes a harmonized signal word, pictogram, and hazard statement for each hazard class and category. Precautionary statements must also be provided. (Fatal if swallowed)

- **Safety Data Sheets:** Will now have a specified 16-section format.
Pictogram - OSHA’s required pictograms must be in the shape of a square set at a point and include a black hazard symbol on a white background with a red frame sufficiently wide enough to be clearly visible.

<table>
<thead>
<tr>
<th>Health Hazard</th>
<th>Flame</th>
<th>Exclamation Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Carcinogen</strong></td>
<td><strong>Flammable</strong></td>
<td><strong>Irritant (skin and eye)</strong></td>
</tr>
<tr>
<td><strong>Mutagenicity</strong></td>
<td><strong>Pyrophoric</strong></td>
<td><strong>Skin Sanitizer</strong></td>
</tr>
<tr>
<td><strong>Reproductive Toxicity</strong></td>
<td><strong>Self-Heating</strong></td>
<td><strong>Acute Toxicity (inhalation)</strong></td>
</tr>
<tr>
<td><strong>Respiratory Sensitizer</strong></td>
<td><strong>Emiss. Flammable Gas</strong></td>
<td><strong>Narcotic Effects</strong></td>
</tr>
<tr>
<td><strong>Target Organ Toxicity</strong></td>
<td><strong>Self-Reactives</strong></td>
<td><strong>Respiratory Tract Iritant</strong></td>
</tr>
<tr>
<td><strong>Aspiration Toxicity</strong></td>
<td><strong>Organic Peroxides</strong></td>
<td><strong>Hazardous to Ozone Layer (Non-Mandatory)</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gas Cylinder</th>
<th>Corrosion</th>
<th>Exploding Bomb</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gases Under Pressure</strong></td>
<td><strong>Skin Corrosion/ Burns</strong></td>
<td><strong>Explosives</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Eye Damage</strong></td>
<td><strong>Self-Reactives</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Corrosive to Metals</strong></td>
<td><strong>Organic Peroxides</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flame Over Circle</th>
<th>Environment</th>
<th>Skull and Crossbones</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oxidizers</strong></td>
<td><strong>Aquatic Toxicity</strong></td>
<td><strong>Acute Toxicity (fatal or toxic)</strong></td>
</tr>
</tbody>
</table>

**HCS Pictograms and Hazards**
Safety Data Sheets (SDS) NEW

- Section 1. Identification
- Section 2. Hazard(s) identification
- Section 3. Composition/information on ingredients
- Section 4. First-Aid measures
- Section 5. Fire-fighting measures
- Section 6. Accidental release measures
- Section 7. Handling and storage
- Section 8. Exposure controls/personal protection
- Section 9. Physical and chemical properties
- Section 10. Stability and reactivity
- Section 11. Toxicological information
- Section 12. Ecological information
- Section 13. Disposal considerations
- Section 14. Transport information
- Section 15. Regulatory information
- Section 16. Other information, including date of preparation or last revision

Remember, this will be implemented by 2015. Some manufactures may implement sooner.
Hazard Communication Standard (HCS) NEW

- **Hazard Statement(s)** - describe the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard. For example: “Causes damage to kidneys through prolonged or repeated exposure when absorbed through the skin.” All of the applicable hazard statements must appear on the label.

- **Precautionary Statements** - means a phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling.

- Name, address & phone number of the chemical manufacturer, distributor, or importer.
What If Scenario...
1. Discuss the challenges of zero notice and escalating incidents.

2. Review and discuss the Hospital Incident Command (HICS) model and the Hazmat Branch.

3. Demonstrate use of the DOT Emergency Response Guidebook (ERG), NIOSH Pocket Guide to Chemical Hazards, SDS, and other resources.

4. Review and apply hazard and risk assessment techniques.
Hospital Preparedness
Hazmat Incident

- Majority of incidents occur at fixes sites.
- 80% involve 1 or 2 victims.
- 90% are ambulatory.
- Liquid more common in small incidents, vapor/mist common in large scale incidents.
- Chemical release leading to exposure occur more frequently in spring and summer when more shipments of pesticides and agricultural activities occur.
- Most incidents occur Monday –Friday 6 a.m. – 6 p.m.

Reference: Saint Bernabas Healthcare System - Hospital Decon Operations
What do you do first?

- SAFETY
- ISOLATE
- NOTIFY

Tactical Operations/Priorities Acronym – First Set
Safety

- Can you handle this?
- What do you know?
- What don’t you know?
- Do you have the “Big Picture” of what is occurring?
- If you can’t handle the situation, call Hazmat!

Know Your Limits!!
Isolation

Isolate the scene and deny entry

Perimeters:

**HOT Zone** – Exclusion Zone. Area of contamination. Restricted access, must have appropriate PPE.

**Warm Zone** — Contamination Reduction Zone. Where decontamination takes place. Access to decon teams. Restricted access, must have appropriate PPE.

**Cold Zone** — Support Zone. Area where support personnel work. Post decon activities.
Perimeters or Control Zones

- HOT Exclusion Zone
- WARM Contamination Reduction Zone
- GREEN Support Zone
Perimeters or Control Zones

In an area that can be controlled by closing doors and restricting access.
Remember

Warm is where decontamination occurs

Cold is where treatment occurs
INTERNAL

- If an incident has the potential to cause harm, call the hospital operator and announce a Code Orange or facility-specific announcement.
- Notify your supervisor.
- Contact your Hazmat Coordinator, Emergency Management Coordinator, and/or Safety Officer.

EXTERNAL

- If the incident is bigger than an incidental spill, or if people need to be rescued, follow the facilities emergency communication procedures for 911 response.
- Contact Fire/Hazmat early.
- Fire department Hazmat responsible for additional county/state/federal notifications.
Hazmat Tactical Operations/Priorities Acronym

- COMMAND & MANAGEMENT
- IDENTIFY & HAZARD ASSESSMENT
- ACTION PLANNING
Hospital Incident Command System (HICS)

- Nationally accepted model providing incident command
- Provides a management by objectives approach to emergency and disaster related incidents
- Integrated with the Incident Command System (ICS) used by public safety agencies
- Expandable to meet the complexity of the incident
- Requires training and education for competence
Command & Management
HazMat Branch
Detention & Monitoring Unit Leader
Spill Response Unit Leader
Victim Decontamination Unit Leader
Facility/Equipment Decontamination Unit Leader
Job Action Sheets (JAS):

- Provides just in time training for assigned HICS position.
- Provides Immediate, Intermediate, Extended, and Demobilization objectives.
- Identifies documentation requirements and HICS forms to be used to support position responsibilities.
- Identifies communication priorities (note: when filling a HICS position, you will most likely report to someone else other than your supervisor/manger).
Key Hazmat Positions

- Incident Commander:
  - Is the only position that must be filled in any activation.
  - Organize and direct the Hospital Command Center (HCC).
  - Give overall strategic direction for hospital incident management and support activities, including emergency response and recovery.
  - Approve the Incident Action Plan (IAP) for each operational period.
  - Authorizes hospital evacuation if warranted
Key Hazmat Positions

- **Safety Officer:**
  - Ensures the health and safety of patients, hospital personnel, and visitors; identify, monitor and mitigate hazardous conditions.
  - Oversees the protection of the facility and Hazmat Group personnel from physical, environmental, and chemical hazardous exposures
  - Has authority to alter, suspend, or terminate any activity that is deemed unsafe
  - Responsible for completion of an incident safety plan.
Key Hazmat Positions

- **Hazardous Material Branch Director:**
  - Organize and direct hazardous material (Hazmat) incident response activities: detection and monitoring; spill response; victim, technical, and emergency decontamination; hospital and equipment decontamination.
  - Assists the Safety officer with developing the safety plan.
Command & Management

Key Hazmat Positions

- Detention & Monitoring Unit Leader
  - Coordinate detection and monitoring activities related to hazardous material (Hazmat) incident response.
Key Hazmat Positions

- **Spill Response Unit Leader**
  
  Coordinate on-site activities related to implementation of the hospital’s internal Hazardous Materials (Hazmat) Spill Response Plan.
Key Hazmat Positions

- Victim Decon Unit Leader:
  - Coordinates the on site patient decontamination activities related to hazardous material incident response priorities.
Command & Management

Key Hazmat Positions

- Facility/Equipment Decontamination Unit Leader
  - Coordinate the on-site hospital and equipment decontamination activities related to hazardous materials (Hazmat) incident response.
Know the Risks!!

- To safely and effectively respond to an incident, it is important to know the risks to yourself, the public, and to the facility from the Hazmat.
- Utilize more than one resource to identify risks.
- Use the resource to identify what level of PPE and decontamination is required.
- Use those resources to assist with the Incident Action Plan and Safety Plan.
- Approach Up Hill- Up Wind – Up Stream
Identification & Hazard Assessment

- Routes of Exposure:
  - Inhalation
  - Absorption
  - Injection
  - Ingestion

To prevent exposure, use the hazard assessment resources and guides to identify the proper PPE and response priorities.
Identification & Hazard Assessment

- **Resources:**
  - Product labels
  - MSDS or SDS
  - ERG
  - Poison Control
  - CHEMTREK
  - NIOSH
  - Computer applications
  - Internet programs & Apps
  - People (employer, employees, victim, witnesses)
NFPA 704 System

**RED - Flammable**
- 4 – Extremely Flammable; 3 – Ignites at normal temperatures;
- 2 – Ignites when moderately heated; 1 – Must be preheated to burn;
- 0 – Will not burn

**BLUE - Health**
- 4 – Too dangerous To enter vapor or liquid;
- 3 – Extremely dangerous Use full protective clothing
- 2 – Hazardous – Use breathing apparatus
- 1 – Slightly hazardous
- 0 – Like ordinary material

**YELLOW - Reactivity**
- 4 – May detonate – vacate area if materials are exposed to fire
- 3 – Strong shock or heat may detonate – use monitors from behind explosive Barriers
- 2 – Violent chemical change possible – use hose streams from a distance
- 1 – Unstable if heated – use normal precautions
- 0 – Normally stable
Labels & Placards

- Pictograms are used to identify a container or packaging.

- NFPA 704 is used to identify chemicals in an area (i.e. pool supply store, hardware store) can be found on bottles or packaging.

- DOT Hazard Classes – identify chemicals in transport.
Acronyms & Terms

- **LD/LC 50**
  - Lethal Dose 50%
  - Lethal Concentration 50%

- **PPM/MgM³**
  - Parts Per Million - measured as volume of contaminant to volume of liquid or air collected in sample
  - Milligrams Per Cubic Meter - measured as weight of contaminant to volume of air collected in sample
<table>
<thead>
<tr>
<th>IDLH</th>
<th>TLV = Ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TLV = STEL</td>
</tr>
<tr>
<td></td>
<td>TLV = 40 hour work week</td>
</tr>
</tbody>
</table>

Short Term Exposure Limit (STEL) – 15 minutes, not repeated more than $x\ 4$

Threshold Limit Value (TLV) – based on known toxicity to humans and animals
### Acronyms & Terms - FIRE

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP</td>
<td>Flash Point</td>
<td>The temperature at which the liquid phase gives off enough vapor to flash when exposed to an external ignition source.</td>
</tr>
<tr>
<td>IT</td>
<td>Ignition Temperature</td>
<td>The temperature at which a liquid is capable of sustained fire with an external ignition source.</td>
</tr>
<tr>
<td>AIT</td>
<td>Auto-Ignition Temperature</td>
<td>The temperature at which a mixture of flammable vapor and air would ignite without a spark or flame.</td>
</tr>
<tr>
<td>LEL</td>
<td>Lower Explosive Limit</td>
<td>The lowest concentration (percentage) of a gas or a vapor in air capable of producing a flash of fire in presence of an ignition source (arc, flame, heat).</td>
</tr>
<tr>
<td>UEL</td>
<td>Upper Explosive Limit</td>
<td>Highest concentration (percentage) of a gas or a vapor in air capable of producing a flash of fire in presence of an ignition source (arc, flame, heat). Concentrations higher than UFL or UEL are &quot;too rich&quot; to burn.</td>
</tr>
<tr>
<td>FR/FL</td>
<td>Flammable Range</td>
<td>The range of flammable vapor or gas-air mixture between the upper and lower flammable limits is known as the 'flammable range', also often referred to as the 'explosive range'.</td>
</tr>
<tr>
<td>Acronym</td>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>---------</td>
<td>-----------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>BP</td>
<td>Boiling Point</td>
<td>Temperature when it goes from a liquid to a vapor.</td>
</tr>
<tr>
<td>SG</td>
<td>Specific Gravity</td>
<td>Does it float or sink in water: &lt; 1 - it floats   &gt; 1 - it sinks</td>
</tr>
<tr>
<td>Sol</td>
<td>Solubility</td>
<td>The solubility of a substance  depends on the physical and chemical properties of the solute and solvent as well as on temperature, pressure and the pH of the solution.</td>
</tr>
<tr>
<td>VD</td>
<td>Vapor Density</td>
<td>Vapor Density - like specific gravity but for vapors: &lt; 1 - it floats to the top of the air   &gt; 1 - it sinks below the air</td>
</tr>
<tr>
<td>VP</td>
<td>Vapor Pressure</td>
<td>How much the substance wants to get out of it’s container. The higher the vapor pressure the greater the evaporation rate. Expressed in atmospheres or mm/Hg.</td>
</tr>
<tr>
<td>pH</td>
<td>Acidity Alkalinity</td>
<td>In chemistry pH is a measure of the acidity or basicity of an aqueous solution. Solutions with a pH less than 7 are said to be acidic and solutions with a pH greater than 7 are basic or alkaline. Pure water has a pH very close to 7.</td>
</tr>
</tbody>
</table>
Toxicity Relationships

- Methanol
- CO
- Ammonia
- H$_2$S
- Chlorine
- Acrolein
- VX

CalOES/CSTI (2013). First Receiver Awareness/Operations and Decontamination for Healthcare
Incident Action Plan (IAP):

- Establishes overarching, measurable, realistic and time oriented objectives and documents those objectives utilizing forms and tools (SMART).
- Develops and assigns plans, procedures, and protocols.
- Directs efforts to meet objectives.
- Documents results to measure performance.

**Refer to handouts**

Planning “P” Primary Phases

1. Analyze the Situation, including future developments.
2. Establish incident objectives and strategy.
3. Develop the plan.
4. Prepare and disseminate the plan.
5. Execute, evaluate, and revise the plan.
The Planning “P”
Incident Action Plan Cover Sheet

Click form to link to the EMSA HICS website.
Action Planning Documentation

Site Safety Plan Example

First Receiver Awareness/Operations and Decontamination for Healthcare
© State of California- CalOES/CSTI
10/12013
### 13. Communications

<table>
<thead>
<tr>
<th>Tactical Frequency</th>
<th>Decon</th>
<th>Spill Response</th>
<th>Command Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 14. Decontamination Objectives

### 15. Type of Decon

- Precautionary/Secondary/Primary
- Emergency
- Technical

### 16. Type of Spill Response

- Offensive (Tech/Spec)
- Containment (Spec)
- DN (Unknown)

### 17. Victim Decon Guidelines and Work Practices

- Maximum time in suit based on heat stress guidelines, chemical specific hazards and warning signs, decon solutions other than soap and tepid water.

### 18. Personal Protective Equipment (PPE)

- Respiratory Protection
  - None
  - APR
  - PAPR
  - SAR
  - SCBA

- Initial Contact/Decon/High/Soft Refuge
  - Shower/Decon/Suit (may be Standard)

- Decontamination
  - Showers
  - Decon Area
  - Wash Area

- Rapid Intervention
  - Entry Team

### 19. Emergency Procedures

<table>
<thead>
<tr>
<th>Procedure/Zone</th>
<th>Victim Decon</th>
<th>Spill Response</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 20. Site Map

#### 21. Victim Decon Site Map

#### 22. Spill Response Site Map

### 23. Safety Briefing Completed: Time

<table>
<thead>
<tr>
<th>Time</th>
<th>By Whom</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. Explain levels of Personal Protective Equipment (PPE) and selection priorities.

2. Discuss control, containment, and confinement utilizing hospital resources.

3. Discuss protective actions and rescue operations within capabilities and resources.
Hazmat Tactical Operations/Priorities Acronym

- PROTECTIVE EQUIPMENT
- CONTAIN & CONTROL
- PROTECTIVE ACTIONS
Personal Protective Equipment (PPE)
Personal Protective Equipment (PPE)

- When PPE is necessary?
- What PPE is necessary?
- How to appropriately put on, remove, adjust, and wear PPE.
- Proper care and maintenance, useful life, and disposal of PPE.
Respiratory Protection

- **SCBA** - Self Contained Breathing Apparatus
- **SAR** - Supplied Air Respirator
- **APR** - Air Purifying Respirator
- **PAPR** - Powered Air Purifying Respirator
PAPR Filters
# Protective Equipment: Level A

<table>
<thead>
<tr>
<th>SKIN</th>
<th>RESPIRATORY</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapor Protection</td>
<td>Self Contained Breathing Apparatus (SCBA)</td>
<td>Highest level of skin and respiratory protection.</td>
</tr>
<tr>
<td>Also known as gas tight or fully encapsulating</td>
<td>Supplied Air Respirator (SAR)</td>
<td>Bulky, heavy, and greater potential for heat stress and injuries</td>
</tr>
</tbody>
</table>
## Protective Equipment: Level B

<table>
<thead>
<tr>
<th>SKIN</th>
<th>RESPIRATORY</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good dermal, liquid and</td>
<td>SCBA</td>
<td>Lower level of skin protection than Level A, but highest</td>
</tr>
<tr>
<td>splash protection</td>
<td>SAR</td>
<td>respiratory protection.</td>
</tr>
</tbody>
</table>

---

116
## Protective Equipment: Level C

<table>
<thead>
<tr>
<th>SKIN</th>
<th>RESPIRATORY</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good dermal, liquid and splash protection</td>
<td>Air Purifying Respirator (APR)</td>
<td>Lower level of respiratory protection</td>
</tr>
<tr>
<td></td>
<td>Powered Air Purifying Respirator (PAPR)</td>
<td></td>
</tr>
</tbody>
</table>

This is the standard for healthcare
<table>
<thead>
<tr>
<th>SKIN</th>
<th>RESPIRATORY</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>No chemical protection</td>
<td>No respiratory protection</td>
<td>Examples: scrubs, uniforms, and street clothes. Use: universal precautions</td>
</tr>
</tbody>
</table>
Problems:

- Heat Stress
- Slips/Trips/Falls
- Overexertion
**Contain & Control**

- **Containment** *(defensive)* includes safe acts to:
  - Restrict
  - Slow
  - Redirect
  - Can be done by operationally trained responders in appropriate PPE

- **Control** *(offensive)* includes safe acts to:
  - Stop the Hazmat release
  - Done by Hazmat Specialists
Protective Actions

- Evacuate vs. Shelter in Place
  - **Shelter in Place** – preferred method especially in healthcare. The goal is to keep individuals inside a protective structure or area such as a smoke compartment. In some cases, this is the only option.
  - **Evacuation** – Move individuals from a threatened location to a safe location. Difficult and dangerous.
Exercise

- Break out into small groups.
- Each group will be provided an MSDS/SDS, ERG, NIOSH, and suit chemical guide.
- Each group will be provided a chemical to research and complete a hazard analysis.
- Group presentation.
Lesson 6 - Objectives

1. Conduct equipment safety inspection.

2. Demonstrate safe and competent PPE donning and doffing.

3. List the components and parameters for PPE monitoring before, during, and after an incident.

4. Discuss safety procedures, emergency hand signals, medical monitoring, and rescue objectives.
Safety Inspections

- PAPR’s
  - PAPR’s should be inspected in accordance with manufactures recommendations.
    PAPR Assembly & Testing : 3M Breathe Easy Video

- Suits
  - Suits are to be inspected frequently and prior to use.

- Boots & Gloves
  - Prior to use
PPE Donning & Doffing Competency
Students will demonstrate in classroom PPE donning and doffing techniques demonstrating competency while adhering to safety guidelines

Refer to Donning & Doffing Competency
Suit Monkey

PPE Donning & Doffing Competency
Medical Screening

- You must be medically cleared prior to donning PPE.
- You must be medically cleared after doffing PPE.
- Refer to Medical Screening handout.
Staging

Safety Briefing
Emergency Team (2 in – 2 out)

St. Mary’s Long Beach
### Decon Team Tracking:

- **Name or Identifier**
- **Time In**
- **Time Out**
Emergency Hand Signals

PAPR/ Air Problem
Emergency Hand Signals

Need Assistance
Evacuate Area

Hand raised and then brought downward in the direction to evacuate
Emergency Hand Signals

Situation Normal

Situation Abnormal
Lesson 7 - Objectives

1. Identify the necessity for decontamination and clean up procedures.
2. Review the functions of a decon team.
3. Review decontamination tent set up procedures.
4. Review types of decontamination.
5. Discuss decontamination corridors to include site security and control.
6. Discuss procedures for the appropriate triage, decontamination, and treatment considerations of the contaminated patient.
7. Discuss the decontamination of vulnerable patient populations.
8. Explain decontamination procedures for hospital personnel and equipment (technical decontamination).
9. Identify appropriate disposal considerations.
10. Review documentation requirements during and after a Hazmat incident.
Hazmat Tactical Operations/Priorities Acronym

DECONTAMINATION
DISPOSAL
DOCUMENTATION
Decontamination

- **Goals:**
  - Remove contaminants from personnel and equipment.
  - Prevent secondary contamination of personnel, patients, equipment, and the facility.

- **If contamination is suspected, consider:**
  - Life Risk
  - Level of Exposure

Use Common Sense and IDHA
Health Goals:

- Achieve an improvement in patients’ acute health outcomes by reducing short-term morbidity and mortality.
- Achieve an improvement in patients’ long-term health outcome by preventing delayed morbidity.
- Protect the health and functioning of responders and receivers by preventing secondary contamination.
- Assuring the best health outcome for the most patients. This might result in a departure from the current paradigm by allowing for decontamination to a less than complete level but which ensures everyone will get timely decontamination so that:
  - Those patients requiring supportive or definitive medical care receive it in a timely fashion;
  - The majority of minimally exposed patients may be able to bypass medical evaluation, preserving medical resources for those with the most urgent needs.

Decon Team

YOUR TEAM DECON:
- Physicians
- Nurses
- Administration
- Security Officers
- Engineers
- Environmental Services
- Radiology
- Lab
- Others??

TEAM ROLE & FUNCTIONS
- Patient Triage
- Patient Decontamination
- Clinical Testing
- Patient Care
- Team Care (medical monitoring and rehab)
- Equipment Decontamination
- Equipment Maintenance
- Documentation

Team members can be FRA and FRO trained
## Decontamination Flow Chart

<table>
<thead>
<tr>
<th>Clean</th>
<th>HOT ZONE</th>
<th>HOT ZONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dirty</td>
<td>Entrance to decon tent.</td>
<td>Contaminated Patients</td>
</tr>
<tr>
<td>Dirty</td>
<td>Pt. clothing removal.</td>
<td>Team Positions:</td>
</tr>
<tr>
<td>Dirty</td>
<td>Don trash bag for decon.</td>
<td>• Decon Initial Contact Unit Leader</td>
</tr>
<tr>
<td>Dirty</td>
<td>Walk through barrier to shower.</td>
<td>• Decon Triage Unit Leader</td>
</tr>
<tr>
<td>Dirty</td>
<td>• Pt. to wash with warm water</td>
<td>• Decon Stripper/Bagger</td>
</tr>
<tr>
<td>Dirty</td>
<td>Walk through barrier to dressing area.</td>
<td></td>
</tr>
<tr>
<td>Dirty</td>
<td>• Give Pt. towels and gown for drying/dressing.</td>
<td>WARM ZONE</td>
</tr>
<tr>
<td>Dirty</td>
<td>• Pt. to exit tent.</td>
<td>Contaminated Patients</td>
</tr>
<tr>
<td>Dirty</td>
<td></td>
<td>Team Positions:</td>
</tr>
<tr>
<td>Dirty</td>
<td></td>
<td>• Decon Washer/Rinser</td>
</tr>
<tr>
<td>Dirty</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dirty</td>
<td></td>
<td>COLD ZONE</td>
</tr>
<tr>
<td>Dirty</td>
<td></td>
<td>Decontaminated Patients</td>
</tr>
<tr>
<td>Dirty</td>
<td></td>
<td>Team Positions:</td>
</tr>
<tr>
<td>Dirty</td>
<td></td>
<td>• Decon Dryer/Dresser/Gatekeeper</td>
</tr>
</tbody>
</table>

Remember the key positions introduced previously:
- Incident Commander
- Safety Officer
- Hazmat Branch Director
- Victim Decon Unit Leader

Hazmat for Healthcare (n.d.)
Hazmat Decontamination Response Decision Matrix

Decon Team Members
- Education Level - Awareness or Operations
- Follow Hospital Policy for Hazmat decontamination

Hospital Hazmat Awareness Level Training

Cold Zone Staff
Can facilitate self directed decon

Hospital Hazmat Operations Level Training

Hot/Warm Zone Staff
Trained in accordance with 29 CFR 1910.120 (q)(6)(ii)(A)-(F)

This is you after completing this training program
Important Considerations

- Where do contaminated patients go to stage at your facility?
- Where is the decon equipment located? Is equipment mobile?
- Where are the decon showers located?
- Where is the decon tent located? Where does it get set up?
- How are team members notified?

*Involvement with community based response plans reduces the risks to first receivers.*
Planning Considerations:

- How many people does it support?
- How big is the containment tank?
- What are the patient flow requirements (ingress/egress)?
- How are team members notified of the need to set up for decon?
Decontamination Tent Set Up
Decontamination Tent Set Up

1. Setting up the ground sheet.
2. Placing the decontamination equipment.
3. Assembling the tent structure.
4. Final setup of the decontamination tent.
Decontamination Tent Set Up

5. Side Access
6. Hooks
7. Water/Vent Access
Decontamination Tent Set Up

8. Sump Pump  
9. Spray Nozzles  
10. Roller and Board  
11. Lighting
Decontamination Tent Examples
Types of Decontamination

- **Self Directed Decon** – Contaminated person is capable of washing self and assisting others as needed.

- **Responder Decon** – On scene prior to transport

- **Precautionary Decon** – Post incident, prior to transport, or upon arrival at the hospital

- **Emergency Decon** - Normally done by first responders or First Receivers anytime contamination is suspected

- **Technical Decon** – Done to personnel and equipment
Self Directed Decontamination
The type and incident will determine how you will complete this task.

Emergency and mass decon should be quickly deployable. Rapid availability of warm water is recommended with or without soap. **Do Not Delay** getting water on victims.

Make every attempt to provide privacy to victims.
Emergency Decontamination

AMBULATORY PATIENTS

- Walking Wounded
- Can follow directions
- Can perform self directed decon
- May require little to no assistance

NON-AMBULATORY PATIENTS

- Unconscious patients
- Unable to move
- C-Spine injury
- Unable to follow directions
- Will take at least 2-4 times more personnel to decontaminate.

IMPORTANT:

Patients requiring decontamination will use all hospital entrances.
Emergency Decontamination

- Ambulatory Patients – Self Directed Decon:
  - Place clothing in a clear plastic bag – seal. This removes up to 80% of the contaminant.
  - Shower and rinse entire body with soap and warm water minimum time 2-3 minutes.
  - Redress in post decon garments (hospital gown).
  - Escort to the Post Decon Zone for triage and treatment.
Emergency Decontamination

You should feel the air flow throughout the suit.
Non-Ambulatory Patients:

- Transfer to a backboard or roller system for decon
- Remove all clothing
- Place clothing in a clear plastic bag – seal
- Wash victims entire body with soap and warm water
- Give attention to underarms, hair, head, groin, etc.
- Protect C-Spine and roll to wash posterior
- Decon team members to evaluate ABC’s during decon and support as necessary
- Dry off, transfer to another board if available and stretcher and transport to the Post Decon Zone for treatment
Patient Belongings:

- Need to be accountable for patient belongings.
- All items removed may be considered evidence.
- Must show a chain of custody and secure items.
- Avoid pressing air out of bags and avoid contact with clothing.
Walking wounded with minor or no injury. This patient population has:

- Normal Respirations
- Normal Capillary Refill
- Normal Mentation
- Minimal Contamination Risk
Potential for serious injury. This patient population has:

- Normal Respirations
- Normal Capillary Refill
- Normal Mentation
- None to Minimal Symptoms of Contamination
Emergency Triage

LEVEL RED – IMMEDIATE PATIENTS

Potential for fatal injury or respiratory compromise. This patient population has:

- Breathing (Adult) >30 (Pediatric) > 45 <15
- No Radial Pulse or Capillary Refill > 2 seconds
- Altered Mentation and/or Posturing (Pediatrics)
- Serous Symptoms of Contamination
- High Dose Exposure to Hazmat
1. Use of bar codes

2. Cheat sheet reminder for organophosphate poisoning (SLUDGEM). Salivation, Lacrimation, Urination, Defecation, Gastro-Intestinal Distress, Emesis, Miosis

3. Evidence Collection Tag with corresponding bar code

4. Personal Property Receipt with Corresponding bar code

5. Destination Tag with corresponding bar code

6. Morgue Tag

7. Each tag contains the familiar Immediate, Delayed, Minor Tags with corresponding bar codes
Technical Decontamination

- Washes PPE
- Must account for Technical Decon when determining total suite time

Same level PPE or one level lower to conduct Technical Decontamination.
Technical Decontamination
Technical Decontamination

- Team members must be clean before they leave the decontamination zone:
  - Stripper/Bagger = the most dirty
  - Dryer/Dresser = the least dirty
  - Washer/Rinser = the most physically at-risk

- The team must clean each other in their full PPE in the washing-rinsing area.

- Start with all members gathering at the Stripper/Bagger area:
  - Decon Triage assumes command of process
  - Examine each team member for physical problems
  - Determine which member should be decon’d first
In planning for hospital decon operations vulnerable patient populations must be considered. Just a few patients requiring special care can considerably slow down the decontamination process and must be taken into consideration. Examples may include:

- Mobility Impaired Patients
- Hearing Impaired Patients
- Vision Impaired Patients
- Pregnant Patients
- Pediatrics
- Patients with Service Animals
- Non-English Speaking Patients
Non ambulatory patients will take at least 2-4 times more personnel to decontaminate.

Special considerations for Non-English speaking, vision/mobility impaired patients may include:

- Use walkers & shower chairs
- Make sure tent is brightly lit
- Use wheelchairs
- Use non-ambulatory bay (rollers) for w/c bound patients
- Provide instructions in primary language (written/verbal)
Vulnerable Populations

Children:

- Allow children to stay with parent/guardian during decon if possible
- Baskets or shower tubs for infants
- Post Decon clothing – sizes for infants & children
- The vapor density of some agents may place them lower to the ground, so infants and children may be exposed to higher concentrations because of their lower height
- Children loose heat faster. Decon may result in hypothermia faster than adults
Disposal

- Make every attempt to contain the run off by using the water collection tubs, sump pumps and water collection bladders.

  **DO NOT HOSE IT DOWN THE DRAIN!**

- Life comes before environment. When the incident stabilizes, make every effort to reduce/prevent further environmental impact.

- Hospitals contract with a Hazardous Materials Clean up companies to test/collect and dispose the hazardous water.
Reasons:
- Cost recovery
- Exposure records
- Training records
- Future lawsuits and or investigations.

What to use:
- Use HICS forms.
- Facility specific documentation.
- Complete an After Action Report (AAR).

Chemical Exposure:
- The employer must keep exposure documentation for 30 years following the employee leaving the company.
- Keep your own copy.
Documentation Requirements

- Site Safety and Control Plan
- SDS/Product Information
- HICS 201 – Incident Briefing (IC)
- HICS 202 – Incident Objectives (IC)
- HICS 204 – Branch Assignment List & Key Objectives
- HICS 214 – Operational Log
- HICS 261 – Safety Analysis Form
- Personnel Medical Tracking Forms
- Chemical Exposure Form
- Spill Report Form
- Facility Workers Compensation documentation
Lesson 8 - Objectives

1. Review the Hazmat Tactical Operations/Priorities Acronym.
2. Review annual training requirements, annual competency, and drill requirements.
3. Review documentation requirements.
4. Discuss hospital hazmat program priorities.
Hazmat Tactical Operations/Priorities Acronym

**C** - Command/Management
**H** - Identification & Hazard Assessment
**E** - Action Planning
**K** - Protective Equipment
**L** - Containment & Control
**I** - Protective Actions

**C** - Safety
**H** - Isolation & Deny Entry
**E** - Notifications

**K** - Decontamination & Cleanup
**L** - Disposal
**I** - Documentation
Refresher Training

**CFR 1910.120**

- Annual refresher training of sufficient content and duration to maintain competencies, or shall demonstrate competency in those areas at least yearly.

- A statement shall be made of the training or competency, and if a statement of competency is made, the employer shall keep a record of the methodology used to demonstrate competency.

- Operational training and competency is required annually. Awareness level training does not satisfy these requirements.
Realistic scenarios with outside agency involvement should be scheduled to include as many hospital team members as possible. This may involve scheduling multiple drills per year.

Drills should be conducted to reflect the actual conditions, resources, and personnel that would be available during a real incident.

Observations from external agencies (i.e. hospitals, fire departments, contracted vendors) may be helpful to prioritize the team’s activities and performance.
Key Points:

- Decontamination equipment should be maintained according to the manufactures recommendations.
- Decontamination tents should be set up and evaluated to make sure all equipment has been obtained. Pitfalls experienced include inadequate/missing hoses, missing fittings/connectors, inadequate sump pumps, and inadequate lighting.
- As a best practice, team members should pre assemble PPE for quick grab and go.
- Place supporting equipment on rolling carts for deployment.
- Monitor expiration dates and replace equipment as needed.
- Keep batteries charged and monitor the use of Lithium Ion batteries (usually these max out at 8 hours of use).
- Be aware of equipment degradation due to storage conditions.
The Tactical Operations/Priorities acronym.

Safety first, last & always.

Know your training limitations.

Remain calm and utilize the tools you have available.

Know the risks and how to respond safely.

Call “911” hazmat response early.

Make sure to document.
Next Steps: Putting it All Together

- Now you need to practice what you have learned and participate in a hospital patient decontamination drill. This is a requirement to complete your training. Practice, Practice, Practice...

- Annual training and competency is required to have a functioning response team. Annual competency is required by OSHA.

- Documentation of competency must be completed for each team member. A copy of the competency must be on file.

- All actual incidents and drills must be appropriately documented and evaluated.
THANK YOU!!!

If you have comments or suggestions relating to this course, please email:

Add Email Address
References

CalOES/CSTI (2013). First Receiver Awareness/Operations and Decontamination for Healthcare


Dominican Hospital (n.d.) Lab spill response curriculum.


Hazmat for Healthcare (n.d.) First responder operations curriculum.


OSHA (2005). Best practices for hospital based first receivers of victims from mass casualty incidents involving the release of hazardous substances.


References


Sutter Roseville Medical Center (2012). Hazmat operations & decontamination for healthcare personnel.


Ventura County Emergency Medical Services Authority (2012). Decontamination procedures video.
Hazmat Awareness & Operations Level Training Program
Leadership Talking Points

What are the training requirements for hospital staff?

OSHA's Hazardous Waste and Emergency Response standard (HAZWOPER) requires that workers be trained to perform their anticipated job duties without endangering themselves or others. To determine the level and type of training your workers need, you must consider the hazards in your community and what capabilities your personnel need to respond to those hazards. You should make your determination based on worst-case scenarios. If your personnel are expected to provide limited decontamination services in order to attend to medical problems, they must be trained to the first responder operations level with emphasis on the use of PPE and decontamination procedures. This level of emergency response training is described in 29 CFR 1910.120(q)(6)(ii); additional guidance about the content of this training is available in HAZWOPER's Appendix E.

Hospitals may develop in-house training or they may send personnel to a standard first responder operations level course, then provide additional training in decontamination and PPE as needed. HAZWOPER requires the employer to certify that workers have the training and competencies listed in (q)(6)(ii). The standard also requires annual refresher training or demonstration of competency, as described in (q)(8).

OSHA Compliance Letter

What is the difference between a First Receiver vs. First Responder?

Healthcare workers at a hospital receiving contaminated victims for treatment may be termed first receivers. This group is a subset of first responders (e.g., firefighters, law enforcement, HAZMAT teams, and ambulance service personnel). However, most first responders typically act at the site of an incident (i.e., the location at which the primary release occurred). In contrast, inherent to the definition of first receivers, is an assumption that the hospital is not itself the primary incident site, but rather is remote from the location where the hazardous substance release occurred (OSHA, 2005).

What are the differences between First Receiver Awareness (FRA) and First Receiver Operations (FRO) training?

OSHA letters of interpretation specify that hospitals must provide HAZWOPER First Responder Operations Level training to first receivers who are expected to decontaminate victims or handle victims before they are thoroughly decontaminated (OSHA, 2003, 2002b, 1999, 1992c, 1991a). This level of training is appropriate for anyone with a designated role in the Hospital Decontamination Zone. Training requirements for First Responder Operations Level appear under 29 CFR 1910.120 (q)(6)(ii), which indicates a minimum training duration of 8 hours and outlines topics to be covered (competencies the employee must acquire). (OSHA, 2005).

What departments should take the FRA training?

First Responder Awareness Level training is required for ED clerks and ED triage staff who might identify unannounced contaminated victims (then notify the proper authority) and security staff working outside the Hospital Decontamination Zone (OSHA, 2005). Additional departments include Hospital Leadership, Emergency Department, Plant Operations/Engineering, and Environmental Services/Housekeeping, Oncology, Pharmacy, Security, Laboratory, Radiology, Gastroenterology, Environmental Health & Safety, and other departments that use chemicals or might encounter hazardous materials emergencies.
Hazmat Awareness & Operations Level Training Program
Leadership Talking Points

What departments should take the FRO training?

The Hospital Hazmat Operations Level Training Program is an entry level course and no prerequisites as required for participation. Staff designated to provide treatment, triage, decontamination, or other services to contaminated individuals or who may be reasonably be expected to come in contact with those individuals arriving at the hospital should be trained to a FRO level. The target audience for this course include: Hospital Leadership, Emergency Department, Plant Operations/Engineering, and Environmental Services/Housekeeping, Oncology, Pharmacy, Security, Laboratory, Radiology, Gastroenterology, Environmental Health & Safety, and other departments as assessed.

What training is required prior to using PPE?

OSHA standards mandate specific training requirements (8 hours of initial training or sufficient experience to demonstrate competency) for personnel engaged in emergency response to hazardous substances incidents at the FRO Level. In addition, each employer must develop health and safety programs and provide for emergency response.

Reference:

First Receiver Awareness
29 CFR 1910.120(q)(6)(i), Title 8 CCR 5192(q)(6)(A)

General Training Requirements:

“(6) Training. Training shall be based on the duties and function to be performed by each receiver in an emergency response organization. The skill and knowledge levels required for all new receivers, those hired after the effective date of this standard, shall be conveyed to them through training before they are permitted to take part in actual emergency operations on an incident. Employees who participate, or are expected to participate, in emergency response shall be given training in accordance with the following paragraphs”:

First Receiver Awareness:

“(i) First Receiver Awareness level....individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the authorities of the release. First receivers at the awareness level shall have sufficient training or have had sufficient experience to objectively demonstrate competency in the following areas”:

Competencies:

“(A) An understanding of what hazardous substances are, and the risks associated with them in an incident.
(B) An understanding of the potential outcomes associated with an emergency created when hazardous substances are present.
(C) The ability to recognize the presence of hazardous substances...
(D) The ability to identify the hazardous substances, if possible.
(E) An understanding of the role of the first receiver awareness individual in the employer’s emergency response plan including site security and control and the [ERG].
(F) The ability to realize the need for additional resources, and to make appropriate notifications to the communication center.”

Minimum Hours:
None
Hospital Hazmat Operations Level Training for First Receivers
Course Schedule

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0700 – 0720</td>
<td>Welcome &amp; Introductions</td>
</tr>
<tr>
<td>0720 – 0730</td>
<td>Day overview, physical requirements review, and safety information briefing.</td>
</tr>
<tr>
<td>0730 – 0915</td>
<td>Lessons 1 &amp; 2</td>
</tr>
<tr>
<td>0915 – 0930</td>
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</tr>
<tr>
<td>0930 – 1100</td>
<td>Lessons 3 &amp; 4</td>
</tr>
<tr>
<td>1100 – 1200</td>
<td>Lunch</td>
</tr>
<tr>
<td>1200 – 1400</td>
<td>Lessons 5 &amp; 6</td>
</tr>
<tr>
<td>1400 – 1415</td>
<td>Break</td>
</tr>
<tr>
<td>1415 – 1545</td>
<td>Lessons 7 &amp; 8</td>
</tr>
<tr>
<td>1545 – 1600</td>
<td>Wrap up, Evaluations, Adjourn</td>
</tr>
</tbody>
</table>

Course completion certificates to be issues at the end of the class. Pre-hospital CE’s and BRN CEU’s will be issued by the sponsoring facility identified on the sign in sheet. These will be emailed or mailed to requesting attendees.
# Hospital Hazmat Operations Level Training

## Instructor Assignments

<table>
<thead>
<tr>
<th>Time</th>
<th>Lesson</th>
<th>Instructor</th>
</tr>
</thead>
</table>
| Pre Class | 1. Order coffee service and snacks. Make sure to have water available.  
2. Organize training PPE for class. Make sure to have enough sizes available of suits boots and gloves.  
3. Put together class resources, forms, and presentations.  
4. Complete course certificates.  
5. Have pre-hospital CE certificates available if applicable. If BRN CEU’s are to be mailed after the class, have students address a blank envelope. |            |
| 30 min.  | **Welcome /Introductions/Overview:**  
1. Welcome students and introduce instructors.  
2. Have students introduce themselves, where they work, and previous hazmat experience.  
3. Make administrative and safety announcements (i.e. location of restrooms, evacuation, etc.)  
4. Provide a course overview, physical requirements, and safety/information briefing. |            |
| 30 min.  | **Lesson 1:**  
1. Discuss regulatory requirements supporting hospital decontamination programs.  
2. Discuss regulatory requirements for hospital spill response. |            |
| 1 hour   | **Lesson 2:**  
1. Provide an overview of the increasing need for healthcare operations based hazmat programs.  
2. Verbalize definitions of basic hazardous materials terms.  
3. Describe the risks and problems that can occur with hazardous material incidents.  
4. Provide an overview of hazardous materials material classification.  
5. Describe methods for identifying hazardous materials and the characteristics of a substance.  
6. Recognize hazardous material incidents during an emergency and potential incident outcome.  
7. Provide an overview of CBRNE incidents. |            |
| 45 min   | **Lesson 3:**  
1. Discuss priorities for hazardous spill response and clean up.  
2. Review when to activate a “Code Orange,” or facility specific announcement, in response to a spill and discuss immediate priorities (safety, isolate & notify).  
3. Verbalize notification priorities for a hazardous material incident and how these notifications are made.  
4. Review when additional resources are required.  
5. Discuss the steps in responding to a hazardous material incident safely and effectively and the role of the operationally trained individual.  
6. Demonstrate finding key information within the Safety Data Sheets (SDS) and chemical information resources.  
7. Discuss changes to the Hazard Communication Standard (HCS). |            |
<table>
<thead>
<tr>
<th>Time</th>
<th>Lesson 4:</th>
<th>Lesson 5:</th>
<th>Lesson 6:</th>
<th>Lesson 7:</th>
<th>Lesson 8:</th>
<th>Wrap Up/Evaluations/Adjourn:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 hour</td>
<td>1. Discuss the challenges of zero notice and escalating incidents.</td>
<td>1. Explain levels of Personal Protective Equipment (PPE) and selection priorities.</td>
<td>1. Conduct equipment safety inspection.</td>
<td>1. Identify the necessity for decontamination and clean up procedures.</td>
<td>1. Review the Hazmat Tactical Operations/Priorities Acronym.</td>
<td>1. Administer Post Test.</td>
</tr>
<tr>
<td></td>
<td>2. Review and discuss the Hospital Incident Command (HICS) model and the</td>
<td>2. Discuss control, containment, and confinement utilizing hospital resources.</td>
<td>2. Demonstrate safe and competent PPE donning and doffing.</td>
<td>2. Review the functions of a decon team.</td>
<td>2. Review annual training requirements, annual competency, and drill</td>
<td>2. Collect books and class resources.</td>
</tr>
<tr>
<td></td>
<td>Hazmat Branch.</td>
<td>3. Discuss protective actions and rescue operations within capabilities and resources.</td>
<td>3. List the components and parameters for PPE monitoring before, during, and after an incident.</td>
<td>3. Review types of decontamination.</td>
<td>requirements.</td>
<td>3. Collect all course evaluations.</td>
</tr>
<tr>
<td></td>
<td>3. Review and discuss Job Action Sheets (JAS) and when these are to be used.</td>
<td>4. Discuss safety procedures, emergency hand signals, medical monitoring, and rescue objectives.</td>
<td>4. Review decontamination tent set up procedures.</td>
<td>4. Discuss procedures for the appropriate triage, decontamination, and treatment considerations of the contaminated patient.</td>
<td>4. Discuss hospital hazmat program priorities.</td>
<td>4. Hand out CE’s as needed.</td>
</tr>
<tr>
<td></td>
<td>4. Demonstrate use of the DOT Emergency Response Guidebook (ERG), NIOSH</td>
<td>5. Review decontamination corridors to include site security and control.</td>
<td>5. Discuss decontamination corridors to include site security and control.</td>
<td>5. Discuss the decontamination of vulnerable patient populations.</td>
<td>5. Review documentation requirement during and after a Hazmat incident.</td>
<td>5. Clean room and put away equipment.</td>
</tr>
<tr>
<td></td>
<td>Pocket Guide to Chemical Hazards, SDS, and other resources.</td>
<td>6. Discuss procedures for the appropriate triage, decontamination, and treatment considerations of the contaminated patient.</td>
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<tr>
<td></td>
<td>5. Review and apply hazard and risk assessment techniques.</td>
<td>7. Discuss the decontamination of vulnerable patient populations.</td>
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<td>7. Review documentation requirement during and after a Hazmat incident.</td>
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<td></td>
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<td>9. Identify appropriate disposal considerations.</td>
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<td>9. Review documentation requirement during and after a Hazmat incident.</td>
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<td>10. Review documentation requirement during and after a Hazmat incident.</td>
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</table>
Course Overview:

The purpose of the Hospital Hazmat Operations Training Program is to provide hospital First Receivers with the knowledge and skills to become aware and competent in situations requiring spill response and patient decontamination in the healthcare environment. The intended outcome for participants taking this course will be to:

- Identify and evaluate hazards and risks involved in an incident and take appropriate action, either through direct intervention or by making notifications.
- Assist in the preparation and development of components for event-specific and site specific plans that involve personnel safety; implement the elements of personnel monitoring to protect hazardous materials responders’ health and safety.
- Develop appropriate forms of written and verbal safety communication for incident planning and communicate these plans to on-scene personnel identifying the specific hazards and risks involved in hazardous materials incidents.
- Assess on-scene hospital decontamination procedures and plan safe hazardous materials response that is consistent with the hospital’s Emergency Operations Plan (EOP).

The content for this program details many of the tools and procedures a First Receiver must be familiar with to carry out the responsibilities of participating on a hospital decontamination team. The program also explains how laws, regulations, plans, policies, and standard operating procedures play an important role in promoting safety during responses to hazardous materials incidents, and provides a foundation for participants to expand upon as hospital specific programs are further developed.

The Hospital Hazmat Operations Training Program incorporates many opportunities for participants to ask questions and discuss various safety topics. Small group and independent exercises are structured to reinforce key points, and instructors are encouraged to substitute videos, case studies, photos, and graphics to enrich the participants learning experience without altering the core program content.

Target Audience:

Hospital Hazmat Operations Level Training Program:

The Hospital Hazmat Operations Level Training Program is an entry level course and no prerequisites are required for participation. The target audience for this course include: Hospital Leadership, Emergency Department, Plant Operations/Engineering, and Environmental Services/Housekeeping, Oncology, Pharmacy, Security, Laboratory, Radiology, Gastroenterology, Environmental Health & Safety, and other departments that use chemicals or might encounter hazardous materials emergencies.

Instructor Course:

Participants in the Hospital Hazmat Operations Training Program instructor course must have an interest in teaching and previous experience with hazmat educational programs, public safety experience, or previous hazmat instructor certification. All instructors are required to complete FEMA ICS 100, 200 & 700 courses for NIMS compliance, and attend the Hazmat Operations for First Receivers Train the Trainer course. The
Hazmat Operations Level Training Program
Course Information

hosting facility will be responsible for facilitating participant attendance with the required hazmat experience and ICS course completion.

Regulatory Compliance:

The Hospital Hazmat Operations Level Training Program complies with HAZWOPER 1910.120 (q)(6)(i) (A-F) First Responder Awareness, 1910.120 (q) (6) (ii) (A-F), First Responder Operations, and CCR, Title 8, Section 5192(q)(6)(B) 1-6 regulatory requirements and focuses on hazardous materials defensive operations, safety procedures, risk assessments, hazardous materials terms, Personal Protective Equipment (PPE), patient decontamination/spill response procedures, and program maintenance.

Training Requirements:

First Receiver Operations.
29 CFR 1910.120(q)(6)(ii), Title 8 CCR 5192(q)(6)(B)

“(ii) First Receiver Operations level....individuals who respond to releases or potential releases of hazardous substances as part of the initial response to the site for the purpose of protecting nearby persons, property, or the environment from the effects of the release. They are trained to respond in a defensive fashion without actually trying to stop the release. Their function is to contain the release from a safe distance, keep it from spreading, and prevent exposures. First receivers at the operational level shall have received at least eight hours of training or have had sufficient experience to objectively demonstrate competency in the following areas in addition to those listed for the awareness level and the employer shall so certify:”

Competencies:

“(A) Knowledge of the basic hazard and risk assessment techniques.
(B) Know how to select and use proper personal protective equipment provided to the first receiver operational level.
(C) An understanding of basic hazardous materials terms.
(D) Know how to perform basic control, containment and/or confinement operations within the capabilities of the resources and personal protective equipment available with their unit.
(E) Know how to implement basic decontamination procedures.
(F) An understanding of the relevant standard operating procedures and termination procedures.”

Minimum Hours:

FRA training plus 8 hours
Hazmat Operations Level Training Program
Course Information

**Recommended Timeframes:**

The Hazmat Operational First Receiver Training Program is an eight (8) hour course to include a 1-hour lunch and two (2) 15-minute breaks. The recommended course schedule is as follows:

- 0700 – 0720 Welcome & Introductions
- 0720 – 0730 Day overview, physical requirements review, and safety information briefing
- 0730 – 0915 Lessons 1 & 2
- 0915 – 0930 Break
- 0930 – 1100 Lessons 3 & 4
- 1100 – 1200 Lunch
- 1200 – 1400 Lessons 5 & 6
- 1400 – 1415 Break
- 1415 – 1545 Lessons 7 & 8
- 1545 – 1600 Wrap up, Evaluations, Adjourn

Once participants have completed the FRO course they must participate in a patient decontamination drill at their facility. The timeframe associated with the decontamination drill is typically four (4) hours.

**Continuing Education:**

- BRN CEU’s = 8 contact hours
- Pre-hospital CE’s = 8 CE’s (1 CE for every 50 minutes of instruction)
- Both BRN CEU’s and Pre-hospital CE’s are offered by the hosting location

**Course Completion:**

Course completion consists of class attendance, class participation, and successful completion of the course post-test (minimum passing score of 80%). Once participants have successfully completed the course a completion certificate will be issued.

Note: If a participant is unable to complete demonstrating PPE donning/doffing, a course completion certificate cannot be issued. In this situation, the participant’s facility is to be notified and arrangements made to complete the donning/doffing competency.

**Annual Training Requirements:**

Regulatory requirements for refresher training include demonstration of competency. Those employees who are trained at a FRO level shall receive annual refresher training of sufficient content and duration to maintain their competencies, or shall demonstrate competency in those areas at least yearly. This usually included a PPE competency and participation in an annual patient decontamination drill annually.
Course Overview:

The purpose of the Hospital Hazmat Operations Training Program is to provide hospital First Receivers with the knowledge and skills to become aware and competent in situations requiring spill response and patient decontamination in the healthcare environment. The intended outcome for participants taking this course will be to:

- Identify and evaluate hazards and risks involved in an incident and take appropriate action, either through direct intervention or by making notifications.
- Assist in the preparation and development of components for event-specific and site specific plans that involve personnel safety; implement the elements of personnel monitoring to protect hazardous materials responders’ health and safety.
- Develop appropriate forms of written and verbal safety communication for incident planning and communicate these plans to on-scene personnel identifying the specific hazards and risks involved in hazardous materials incidents.
- Assess on-scene hospital decontamination procedures and plan safe hazardous materials response that is consistent with the hospital’s Emergency Operations Plan (EOP).

The content for this program details many of the tools and procedures a First Receiver must be familiar with to carry out the responsibilities of participating on a hospital decontamination team. The program also explains how laws, regulations, plans, policies, and standard operating procedures play an important role in promoting safety during responses to hazardous materials incidents, and provides a foundation for participants to expand upon as hospital specific programs are further developed.

The Hospital Hazmat Operations Training Program incorporates many opportunities for participants to ask questions and discuss various safety topics. Small group and independent exercises are structured to reinforce key points, and instructors are encouraged to substitute videos, case studies, photos, and graphics to enrich the participants learning experience without altering the core program content.


Course Schedule:

The Operational First Receiver course is an eight (8) hour course to include a 1-hour lunch and two (2) 15-minute breaks. The course schedule is as follows:

0800 – 0820 Welcome & Introductions
0820 – 0830 Day overview, physical requirements review, and safety information briefing
0830 – 1000 Lessons 1 & 2
1000 – 1015 Break
1015 – 1200 Lessons 3 & 4
1200 – 1300 Lunch
1300 – 1500 Lessons 5 & 6
1500 – 1515 Break
1515 – 1645 Lessons 7, 8 & Post Test
1645 – 1700 Wrap up, Evaluations, Adjourn
Who Should Attend:

The Hospital Hazmat Operations Level Training Program is an entry level course and no prerequisites as required for participation. The target audience for this course include: Hospital Leadership, Emergency Department, Plant Operations/Engineering, and Environmental Services/Housekeeping, Oncology, Pharmacy, Security, Laboratory, Radiology, Gastroenterology, Environmental Health & Safety, and other departments that use chemicals or might encounter hazardous materials emergencies.

Continuing Education:

BRN CEU’s = 8 contact hours  
Pre-hospital CE’s = 8 CE’s (1 CE for every 50 minutes of instruction)  
Both BRN CEU’s and Pre-hospital CE’s are offered by the hosting location

Instructors & Recordkeeping:

As this program is an internal course offered to Dignity Health employees, instructors are identified and trained based on interest and previous experience with Haz Mat educational programs, public safety experience, or previous Haz Mat instructor certification. All instructors are required to complete FEMA ICS 100, 200 & 700 courses for NIMS compliance, and an internal Haz Mat Operations for First Receivers Train the Trainer course. The hospital Emergency Preparedness Coordinator (or designee) will manage records of instructor course completion.

Course Objectives:

Lesson 1

1. Discuss regulatory requirements supporting hospital decontamination programs.  
2. Discuss regulatory requirements for hospital spill response.

Lesson 2

1. Provide an overview of the increasing need for healthcare operations based hazmat programs.  
2. Verbalize definitions of basic hazardous materials terms.  
3. Describe the risks and problems that can occur with hazardous material incidents.  
4. Provide an overview of hazardous materials material classification.  
5. Describe methods for identifying hazardous materials and the characteristics of a substance.  
6. Recognize hazardous material incidents during an emergency and potential incident outcome.  
7. Provide an overview of CBRNE incidents.
Lesson 3

1. Discuss priorities for hazardous spill response and clean up.
2. Review when to activate a “Code Orange,” or facility specific announcement, in response to a spill and discuss immediate priorities (safety, isolate & notify).
3. Verbalize notification priorities for a hazardous material incident and how these notifications are made.
4. Review when additional resources are required.
5. Discuss the steps in responding to a hazardous material incident safely and effectively and the role of the Operationally trained individual.
6. Demonstrate finding key information within the Safety Data Sheets (SDS) and chemical information resources.
7. Discuss changes to the Hazard Communication Standard (HCS).

Lesson 4

1. Discuss the challenges of zero notice and escalating incidents.
2. Review and discuss the Hospital Incident Command (HICS) model and the Hazmat Branch.
3. Review and discuss Job Action Sheets (JAS) and when these are to be used.
4. Demonstrate use of the DOT Emergency Response Guidebook (ERG), NIOSH Pocket Guide to Chemical Hazards, SDS, and other resources.
5. Review and apply hazard and risk assessment techniques.
6. Review the Incident Action Planning Process (IAP) and the Planning “P”.

Lesson 5

1. Explain levels of Personal Protective Equipment (PPE) and selection priorities.
2. Discuss control, containment, and confinement utilizing hospital resources.
3. Discuss protective actions and rescue operations within capabilities and resources.

Lesson 6

1. Conduct equipment safety inspection.
2. Demonstrate safe and competent PPE donning and doffing.
3. List the components and parameters for PPE monitoring before, during, and after an incident.
4. Discuss safety procedures, emergency hand signals, medical monitoring, and rescue objectives.
Lesson 7

1. Identify the necessity for decontamination and clean up procedures.
2. Review the functions of a decon team.
3. Review types of decontamination.
4. Review decontamination tent set up procedures.
5. Discuss decontamination corridors to include site security and control.
6. Discuss procedures for the appropriate triage, decontamination, and treatment considerations of the contaminated patient.
7. Discuss the decontamination of vulnerable patient populations.
8. Explain decontamination procedures for hospital personnel and equipment (technical decontamination).
9. Identify appropriate disposal considerations.
10. Review documentation requirement during and after a Hazmat incident.

Lesson 8

1. Review the Hazmat Tactical Operations/Priorities Acronym.
2. Review annual training requirements, annual competency, and drill requirements.
3. Review documentation requirements.
4. Discuss hospital hazmat program priorities.
Course Overview:

The purpose of the Hospital Hazmat Operations Training Program is to provide hospital First Receivers with the knowledge and skills to become aware and competent in situations requiring spill response and patient decontamination in the healthcare environment. The intended outcome for participants taking this course will be to:

- Identify and evaluate hazards and risks involved in an incident and take appropriate action, either through direct intervention or by making notifications.
- Assist in the preparation and development of components for event-specific and site specific plans that involve personnel safety; implement the elements of personnel monitoring to protect hazardous materials responders’ health and safety.
- Develop appropriate forms of written and verbal safety communication for incident planning and communicate these plans to on-scene personnel identifying the specific hazards and risks involved in hazardous materials incidents.
- Assess on-scene hospital decontamination procedures and plan safe hazardous materials response that is consistent with the hospital’s Emergency Operations Plan (EOP).

The content for this program details many of the tools and procedures a First Receiver must be familiar with to carry out the responsibilities of participating on a hospital decontamination team. The program also explains how laws, regulations, plans, policies, and standard operating procedures play an important role in promoting safety during responses to hazardous materials incidents, and provides a foundation for participants to expand upon as hospital specific programs are further developed.

The Hospital Hazmat Operations Training Program incorporates many opportunities for participants to ask questions and discuss various safety topics. Small group and independent exercises are structured to reinforce key points, and instructors are encouraged to substitute videos, case studies, photos, and graphics to enrich the participants learning experience without altering the core program content.


Target Audience:

Hospital Hazmat Operations Level Training Program:

The Hospital Hazmat Operations Level Training Program is an entry level course and no prerequisites as required for participation. The target audience for this course include: Hospital Leadership, Emergency Department, Plant Operations/Engineering, and Environmental Services/Housekeeping, Oncology, Pharmacy, Security, Laboratory, Radiology, Gastroenterology, Environmental Health & Safety, and other departments that use chemicals or might encounter hazardous materials emergencies.

Instructor Course:

Participants in the Hospital Hazmat Operations Training Program instructor course must have an interest in teaching and previous experience with hazmat educational programs, public safety experience, or previous hazmat instructor certification. All instructors are required to complete FEMA ICS 100, 200 & 700 courses for NIMS compliance, and
attend the Hazmat Operations for First Receivers Train the Trainer course. The hosting facility will be responsible for facilitating participant attendance with the required hazmat experience and ICS course completion.

**Regulatory Compliance:**

The Hospital Hazmat Operations Level Training Program complies with HAZWOPER 1910.120 (q)(6)(i) (A-F) First Responder Awareness, 1910.120 (q) (6) (ii) (A-F), First Responder Operations, and CCR, Title 8, Section 5192(q)(6)(B) 1-6 regulatory requirements and focuses on hazardous materials defensive operations, safety procedures, risk assessments, hazardous materials terms, Personal Protective Equipment (PPE), patient decontamination/spill response procedures, and program maintenance.

**Recommended Timeframes:**

The Hazmat Operational First Receiver Training Program is an eight (8) hour course to include a 1-hour lunch and two (2) 15-minute breaks. The recommended course schedule is as follows:

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<th>Time</th>
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<tr>
<td>0720 – 0730</td>
<td>Day overview, physical requirements review, and safety information briefing</td>
</tr>
<tr>
<td>0730 – 0915</td>
<td>Instructor Module &amp; Review of Lessons 1 &amp; 2</td>
</tr>
<tr>
<td>0915 – 0930</td>
<td>Break</td>
</tr>
<tr>
<td>0930 – 1100</td>
<td>Review Lessons 3 &amp; 4</td>
</tr>
<tr>
<td>1100 – 1200</td>
<td>Lunch</td>
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<tr>
<td>1200 – 1400</td>
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<tr>
<td>1545 – 1600</td>
<td>Wrap up, Evaluations, Adjourn</td>
</tr>
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</table>

**Continuing Education:**

BRN CEU’s = 8 contact hours
Pre-hospital CE’s = 8 CE’s (1 CE for every 50 minutes of instruction)
Both BRN CEU’s and Pre-hospital CE’s are offered by the hosting location

**Recordkeeping:**

The hospital Emergency Preparedness Coordinator (or designee) will manage the following documentation requirements:

- Hospital Hazmat Operations Level Training - Instructor Course completion
- Hospital Hazmat Operations Level Training course completion
- Continuing Education
- Annual PPE competency
- Patient decontamination training documentation (drills/exercises)
- Updated lists of Hazmat Operations Response Team members
- PPE inventory and location of equipment
- PPE inspection documentation
- HICS documentation
Recordkeeping Continued:
- Post incident documentation to include After Action Reports (AAR’s)
- Medical monitoring documentation
- Completion of Employee Health exposure documentation post incident (refer to EH policy)

Course Facilities/Equipment:
- Seating and work space for 16-24 participants (small classes are recommended)
- Laptop computer, projector, screen
- Instructor manual and Power Point
- Access to online forms and course materials
- Flip charts and markers
- Cleaning wipes/disinfectant
- Personal Protective Equipment (PPE):
  - Suits (multiple sizes)
  - Boots (multiple sizes)
  - Gloves (multiple sizes)
  - Non latex gloves (multiple sizes)
  - Duct tape (for training only)
  - PAPR’s
  - PAPR Training Filters (three per PAPR, must be identified as a training filter)
  - PAPR Batteries (one battery per PAPR)
  - PAPR Safety Testing Equipment

Required Course References:
- ATSDR General Chemical Information handouts (same 5-10 chemicals)
- DOT Emergency Response Guidebooks (recommended 10-16 books)
- NIOSH Pocket Guide to Chemical Hazards (recommended 10-16 books)
- Personal Protection Permeation Guides/Filter Specs
- Safety Data Sheets (5-10 chemicals)

Optional Course References:
- HIS Jane’s CBRN Response Handbook
- Medical Management of Biological Causalities – US Army Medical Research Institute
- Medical Management of Chemical Causalities – US Army Research Institute Medical Management of Radiological Casualties – Armed Forces Research Institute
- Medical Management of Radiological Casualties – Armed Forces Research Institute
- Product Catalogues
- Quick Series Hazmat for Healthcare
- The First Responders Field Guide to Hazmat & Terrorism Emergency Response
Leadership Resources:

- FRA Training Requirements
- FRO Leadership Talking Points
- FRO Training Requirements – Course Information

Online Course Resources:

- Chemical Risk Assessment Worksheet
- Class Evaluation
- Course Completion Certificate (copy to employee and employee file)
- Course Outline
- Decontamination Procedures Decontamination Overview Handouts & Job Action Sheet (JAS)
- Decontamination Stages Guide
- Donning/Doffing Competency
- Education Sign in Sheet
- Emergency Decontamination Hand Signals
- FRO Hospital Hazmat Operations Level Training Power Point Presentation
- Glossary of Terms
- HICS Forms (201-Incident Briefing, 202- Incident Objectives, 206-Medical Plan, 208 – Safety and Control Plan, and 214 – Unit Log)
- IAP documents
- Instructor Assignments
- Patient Decontamination Procedure
- Planning P Overview
- Post Test
- PPE Calculator
- Resource Documents & References
- Self-Decontamination Instructions (English, Spanish, Russian)
- Suite Time Log
- Videos

Course Completion:

Course completion consists of class attendance, class participation, and successful completion of the course post-test (minimum passing score of 80%). Once participants have successfully completed the course a completion certificate will be issued.

Note: If a participant is unable to complete demonstrating PPE donning/doffing, a course completion certificate cannot be issued. In this situation, the participant’s facility is to be notified and arrangements made to complete the donning/doffing competency.
## Course Overview and Introductions

<table>
<thead>
<tr>
<th>Objectives</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1. Welcome students and introduce instructors.</td>
<td></td>
</tr>
<tr>
<td>2. Have students introduce themselves, where they work, and previous hazmat experience.</td>
<td></td>
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<tr>
<td>3. Make administrative and safety announcements (i.e. location of restrooms, evacuation, etc.)</td>
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<tr>
<td>4. Provide a course overview, physical requirements, and safety/information briefing.</td>
<td></td>
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</tbody>
</table>

| Module Structure                   | Four presentation slides. |
| Time Requirement                   | 30 minutes                |
| Handouts/Resources                 | FRO PowerPoint presentation slides 1-4. |

<table>
<thead>
<tr>
<th>Equipment</th>
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<tr>
<td>Projector</td>
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<tr>
<td>FRO Presentation</td>
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<tr>
<td>Handouts</td>
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<td>Pen/highlighter – provided by student</td>
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<table>
<thead>
<tr>
<th>Slide 1</th>
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<tbody>
<tr>
<td>Title Slide:</td>
<td>Leave on this slide until you are ready to start the course. Introduce yourself and background and introduce additional instructors. Ask students to introduce themselves, department they work for, and any experience they have with FRA/FRO programs.</td>
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<tr>
<th>Slide 2</th>
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<tbody>
<tr>
<td>Course Overview:</td>
<td>Provide an overview of the course schedule. Clarify if participants would like to change the break schedule and clarify timeframes for the lunch break.</td>
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<th>Slide 3</th>
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<tbody>
<tr>
<td>Housekeeping:</td>
<td>Review continuing education documentation requirements, emergency procedures/exits, location of bathrooms, administrative announcements, and level of participation that is required for successful course completion.</td>
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<tr>
<th>Slide 4</th>
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<tbody>
<tr>
<td>Course Materials:</td>
<td>Review course materials and handouts and where to access online.</td>
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</table>

## Lesson 1

<table>
<thead>
<tr>
<th>Objectives</th>
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<tbody>
<tr>
<td>1. Discuss regulatory requirements supporting hospital decontamination programs.</td>
<td></td>
</tr>
<tr>
<td>2. Discuss regulatory requirements for hospital spill response.</td>
<td></td>
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</tbody>
</table>

| Module Structure                   | This module has one unit. |
| Time Requirement                   | ½ hour.                  |
| Handouts/Resources                 | FRO PowerPoint presentation slides 5-12. |

<table>
<thead>
<tr>
<th>Equipment</th>
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<td>Projector</td>
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<td>FRO Presentation</td>
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<td>Handouts</td>
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<tr>
<td>Pen/highlighter – provided by student</td>
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</table>

| Slide 6                             | First Responder or First Receiver??: |
|-------------------------------------| First Receiver: First receivers include hospital based staff and that would receive and treat (and may include hospital based decontamination) victims from a hazardous substance or mass casualty incident. These people are removed from the site of the initial emergency and do not need to be trained—or equipped—for control, containment, or confinement operations as is required for an emergency or hazmat team response. They are still required to wear appropriate PPE to protect themselves in cases of receipt of contaminated victims. Emergency |
first responder protocols require the decontamination of personnel and equipment before departure from a hazmat incident. The term “First Receiver” does exist in Federal or State regulations, hence there is no minimum performance/training requirements.
CA Title 8, Subchapter 7, Group 16, Article 109, Sec. 5192

**Levels of Training:**
There are many different levels of training. FRA/FRO training = defensive actions. Hazmat Tech, Specialist, IC = offensive actions. In healthcare, we are not considered emergency responders.

**Awareness vs. Operations Level Training:**
All departments have some degree of risk. This training is geared toward all health care personal. All health care personal should receive training at the Awareness Level of how to recognize a hazardous incident and what steps to take to report it.
Operations level training should be completed by those who have a responsibility to take defensive actions such as performing patient decontamination. A goal is to have enough FRO trained staff to have 4-6 people on duty at all times to function as the Decon Resource Team.

**Hazmat Regulations:**
OSHA provides the primary regulations that prompt us to provide training and personal protective equipment for our employees. The HAZWOPER regulations state the levels of training, what must be included, minimum hours (exception- no minimum hours for Awareness training), and who should be trained. There are other OSHA standards that are applicable such as the Respiratory Protection Program. This is primarily a worker safety (staff) training program but also helps to protect patients, visitors, the community, and the environment.

**OSHA HAZWOPER Regulation:**
As stated previously, this course provides Awareness and Operations Level training and defensive actions. Higher levels of training such as Hazmat Technician are offensive in posture. A Hazmat Technician can go into a hazmat situation and plug holes or make repairs whereas Operations Level trained individual cannot.
HAZWOPER covers requirements for emergency and non–emergency hazmat response.

**Definition of a Hazardous Material:**
In California, Title 8 California Code of Regulations section 5192 applies.
Superfund is the name given to the environmental program established to address abandoned hazardous waste sites. It is also the name of the fund established by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA statute, CERCLA overview). This law was enacted in the wake of the discovery of toxic waste dumps such as Love Canal and Times Beach in the 1970s. It allows the EPA to clean up such sites and to compel responsible parties to perform cleanups or reimburse the government for EPA-lead cleanups.

**DISCUSSION** - Have participants think about and discuss their exposure risks (work/home).
### Lesson 2

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Slide 13</th>
</tr>
</thead>
</table>
| 1. Provide an overview of the increasing need for healthcare operations based hazmat programs.  
2. Verbalize definitions of basic hazardous materials terms.  
3. Describe the risks and problems that can occur with hazardous material incidents.  
4. Provide an overview of hazardous materials material classification.  
5. Describe methods for identifying hazardous materials and the characteristics of a substance.  
6. Recognize hazardous material incidents during an emergency and potential incident outcome.  
7. Provide an overview of CBRNE incidents. |

### Module Structure

- **This module has one unit.**

### Time Requirement

- **One hour.**

### Handouts/Resources

- FRO PowerPoint presentation slides 13 – 51.

### Equipment

- Projector
- FRO Presentation
- Handouts
- Pen/highlighter – provided by student

### Slide 14

**Hazardous Materials: In Perspective for Healthcare:**  
**Healthcare Hazardous Materials:** diesel, corrosives, cleaning agents, fixatives, radiological compounds, mixed chemicals.  
**Community Businesses:** Retail Lowes/Home Depot, industrial warehouses, railways, community pools and slide parks.  
**DISCUSSION** - Discuss self-presenting patients. What are the concerns with this scenario? (safety/security/team response/location of equipment/communication/secondary contamination risks)

### Slide 15

**Examples of Hazardous Materials:**  
Chemicals and hazardous materials are classified by their properties.

### Slide 16

**Examples of Hazardous Materials:**  
Discuss possible complications associated with exposure:  
**Life:** illness, injury, death, loss of work, income, quality of life, Loss of sight, smell, respiratory.  
**Property:** damage to physical property, loss of property, community reputation.  
**Environment:** harm to the environment, habitat destruction (i.e. oil spills), death to wildlife.

### Slide 17

**Incident Types:**  
**Internal Incident:** A hazmat spill that originates in the facility. Ask what are the immediate actions? (SIN)  
**External Incident:** Provide examples.

### Slide 18

**Hazmat Risks:**  
Review and discuss risks. Can participants think of others?

### Slide 19

**Contamination vs. Exposure:**  
Patients may seek treatment with one or more of the following: contamination, secondary contamination, exposure. Consider contamination and or exposure to a chemical if it appears to be causing the illness or injury.
<table>
<thead>
<tr>
<th>Slide 20</th>
<th>Exposure:</th>
</tr>
</thead>
</table>
| **Hazmat Scene Clues:**  
Toxidromes are recognizable syndromes related to drug toxicity or poisoning.  
Example: Cholinergic Toxidrome (Anticholinesterase) Insecticides  
Resp. Rate: Increased/no change  
Heart Rate: Decreased  
Temp: No Change  
B/P: No Change  
Mental Status: Depressed/confused  
Pupils: Constricted  
Mucous Membranes: Wet  
Skin: Diaphoretic  
Reflexes: Normal/decreased  
Urinary: Increased  |

| Slide 21 | Hazmat Triage Clues:  
Initially, identification will most likely be attempted through observation of signs and symptoms. Get as much information from the patient as possible. Did the patients arrive with friends, family, or co-workers? Can these individuals provide additional details? Consider language barriers. How would you approach the situation differently?  |

| Slide 22 | A Contaminated Patient Enters the Building... (scenario):  
Discuss approaches to the scenario and when 911 would be called which focuses on assessing the situation.  
**DISCUSSION:** If there is enough information available and staff are appropriately trained and understand what the chemical is can they manage decontamination without the assistance of 911? |

| Slide 23 | Hazmat Response: |

| Slide 24 | Hazardous Materials Classification:  
Changing focus to classifications of hazardous materials and Weapons of Mass Destruction (WMD). |

| Slide 25 | Chemical States:  
Hazardous substances can be released through either covert or overt means and can include any material (solid, liquid, or gas) that is manmade or naturally occurring. These materials can produce death, disease, or injury to humans, plants, or animals. |

| Slide 26 | Ice Cube:  
Example of a substance (water) that can change solid, liquid, vapor. |

| Slide 27 | Basic Chemical Terminology: |

| Slide 28 | Basic Chemical Terminology: |

| Slide 29 | DOT Hazard Classes (Class 1&2):  
Provides a general overview of the types of chemicals. Hazard Classes are reviewed again during the ERG video. DOT Hazard Class Placards identify cargo and are found on vehicles transporting chemicals. |
Class 1 – Explosives:
• Commercial Explosives
• Fireworks
• Ammunition
• Fertilizer Bombs (Ammonium nitrate & fuel oil)
• Hydrazine (A flammable liquid. Forms explosive mixtures [hypergolic] - a high energy rocket fuel, corrosive and poisonous)

Class 2 – Compressed Gases:
• Propane
• Oxygen
• Nitrous Oxide
• Carbon Dioxide
• Anesthetic Gasses

By nature of a compressed gas, this is an explosion hazard. BLEVE (blev-ee) can occur

BLEVE (Boiling Liquid Expanding Vapor Explosion). This occurs when the container holding the gas ruptures, releasing the liquefied gas. The liquefied gas quickly expands resulting in a fireball.

DOT Hazard Classes (Class 3&4):
Class 3 - Flammable Liquids:
The vapors of flammable liquids are generally heavier than air and will not dissipate rapidly.

Gasoline is one of the most common products involved in HazMat incidents.

Combustible Liquids:
Combustible liquids differ from flammable liquids in that they are not easily ignited at ambient temperatures. Combustible liquids will be much easier to ignite in hot environments.

Consider alcohol based waterless hand cleaners with alcohol concentrations over 60%. Wastes with an alcohol concentration over 25% are considered ignitable wastes.

DOT Hazard Classes (Class 5&6):
Class 5 - Oxidizers & Organic Peroxides:
Are explosive and unstable. This may be a more serious hazard than the characteristics as an oxidizer.

Class 6 - Poisonous & Infectious Materials:
• Pesticides
• WMD (Sarin, VX)
• Solvents
• Bioterrorism
• Tear Gas
• Vesicants (Mustard, Lewisite)

Poisons and Infectious materials:
Avoid contact with any poisonous or infectious substance. Sometimes it is best to allow fires involving these materials to burn. Fire can destroy the toxic properties of some poisons. Pesticide container labels must include additional signal words: DANGER (highly toxic), WARNING (moderately toxic), or CAUTION (relatively low toxicity).

Note that this broad category contains many of the weapons of mass destruction (addressed later in this module) and the infectious materials and blood borne pathogens of concern in a...
healthcare setting. The characteristics of pesticides and some of the nerve agents are similar (several nerve agents are very potent organophosphates). The treatment of these are also similar (atropine, diazepam, 2-PAM). This is part of the demystification of terrorism highlighted in this course. What are some of these WMD agents but “pesticides where you are the pest.” Also note that some of the products used in chemotherapy are vesicants as are mustard sulphur and Lewisite.


---

**DOT Hazard Classes (Class 7&8):**

**Class 7 – Radioactive Materials:**
- Terrorist Use
- Military Facilities
- Nuclear Reactors
- Commercial/ Research Facilities
- Industrial X-Ray Material

**Class 8 - Corrosive Materials:**
The pH ranges from 0 to 14, with 7 being neutral. Substances with a pH rating of 0-6 are acidic (acids) and substances with a pH rating 8-14 are alkaline (bases). Corrosives are also measured in terms of their concentration, which refers to the percentage of acid or base in water. Strong Acids and Bases are not compatible with each other and may react violently.

---

**DOT Hazard Classes (Class 9):**
In addition to the lawful uses of chemicals, introduce chemicals as a possible weapon. If the chemical doesn’t fit somewhere else, it goes into the miscellaneous category.

**Internal:**
- Hazardous waste
- Asbestos
- Anesthetics

**External:**
- Pepper spray/mace
- Molten Sulphur

---

**Hazardous Materials & Weapons of Mass Destruction:**
Transition slide. Change focus to discuss how chemicals relate to WMD and the issue of terrorism.

---

**Terrorism:**
Review the definition of terrorism. There are many definitions out there but this one is a commonly accepted definition.

---

**Types of Terrorism:**
International Terrorism – discuss current events (extremist organizations)
Domestic Terrorism – Groups such as the KKK, Earth Liberation Front (ELF), Animal Liberation Front (ALF), patriot groups (anti-government).

---

**Possible Terrorist Targets:**
Review the 16 critical infrastructure sectors and discuss vulnerabilities of stadiums and shopping malls.

---

**CBRNE Incidents & Terrorism:**
Focus on planning and being prepared for all hazards.
### Slide 40
Hazmat & CBRNE Agents:
Review slide and how chemical classifications are identified as CBRNE agents.

### Slide 41
Hazmat vs. CBRNE Incident:
International terrorism and domestic terrorism:
- Osama Bin Laden, the founder and head of the Islamist militant group al-Qaeda, was killed in Pakistan on May 2, 2011.
- Timothy McVeigh detonated a truck bomb in front of the Alfred P. Murrah Federal Building in Oklahoma City on April 19, 1995.
- Tamerlan Tsarnaev (left), 26, and Dzhokhar Tsarnaev, 19, the suspects in the Boston Marathon bombing.
- Unknowns...

### Slide 42
**Chemical Agents:**
- **Nerve Agents** - further developed by the Nazis in the 1930’s developing the G weapons series to include Saran, Taubin, and Soman. The British later developed VX in the 1950’s. Penetrate skin, eyes, and lungs. S/S: loss of consciousness, seizures, apnea, death.
- **Blood** – Hydrogen Cyanide (AC) can be released as a gas or liquid spray. AC can contaminate water/food can contaminate food and agriculture if sprayed over crops. Routes of exposure: ingestion, inhalation, skin contact, or eye contact. (CDC, 2013). S/S: Rapid onset, brief period of tachypnea, loss of consciousness, convulsions, apnea without cyanosis, asystole, death.
- **Blister Agents (vesicants)** - Sulfur or Nitrogen Gas (Mustard Gas) are cytotoxic (toxic to cells). Both are Schedule 1 substances but nitrogen mustard showed promising trials as a chemotherapy drug to certain types of lymphoma. Precursor to the drug Mustine. S/S: Agents damage eyes, skin, and respiratory system.
- **Lewsite** – the last global stockpile was destroyed in 2012. Smell (geraniums) and the development of British Anti-Lewsite made this chemical ineffective.

### Slide 43
**Chemical Agents:**
The initial effects of exposure to a nerve agent depend on the dose and on the route of exposure. The initial effects from a sublethal amount of agent by vapor exposure are different from the initial effects from a similar amount of liquid agent on the skin.

### Slide 44
**Symptoms of Nerve Agents:**
Miosis is the constriction of the pupil and can be caused by:
- Organophosphate pesticides
- Organophosphates as nerve agents
- Nerve Agents

**Effects:** Exposure to a small amount of nerve agent vapor causes effects in the eyes, nose, and airways. These effects are from local contact of the vapor with the organ and do not indicate systemic absorption of the agent.
A small amount of liquid agent on the skin causes systemic effects initially in the gastrointestinal (GI) tract. Lethal amounts of vapor or liquid cause a rapid cascade of events culminating within a minute or two with loss of consciousness and convulsive activity followed by apnea and muscular flaccidity within several more minutes.

**Eye:** Miosis is a characteristic sign of exposure to nerve agent vapor. It occurs as a result of direct contact of vapor with the eye. Liquid agent on the skin will not cause miosis if the
amount of liquid is small; a moderate amount of liquid may or may not cause miosis; and a lethal or near-lethal amount of agent usually causes miosis. A droplet of liquid in or near the eye will also cause miosis. Miosis will begin within seconds or minutes after the onset of exposure to agent vapor, but it may not be complete for many minutes if the vapor concentration is low. Miosis is bilateral in an unprotected individual.

Miosis is often accompanied by complaints of pain, dim vision, blurred vision, conjunctival injection, nausea, and occasionally vomiting. The pain may be sharp or dull in or around the eyeball, but more often is a dull ache in the frontal part of the head. Dim vision is due in part to the small pupil, and cholinergic mechanisms in the visual pathways also contribute. Miosis, pain, dim vision, and nausea can be relieved by topical atropine or atropine in the eye. http://www.fas.org/nuke/guide/usa/doctrine/army/mmcch/NervAgnt.htm#CLINICAL%20EFFECTS

Slide 45

Recognizing Health Effects of Chemical Agents:
A severe casualty from nerve agent vapor has miosis, copious secretions from the nose and mouth, severe difficulty breathing or apnea, possibly some degree of cyanosis, muscular fasciculations, and twitching or convulsive activity, and is unconscious.

Slide 46

Mark 1 Kit:

Slide 47

DuoDote Auto-Injectors:

Slide 48

Biological Agents:
CDC has identified three categories of biologic agents:

Category A Agents: Pose the greatest threat to national security. Easily disseminated or transmitted from person to person. High mortality and public health impact. May cause public panic and social unrest.

Category B Agents: Second highest priority to national security. Moderately easy to disseminate. Low mortality but would require increase surveillance and diagnostic capabilities of the CDC.

Category C Agents: Third highest priority agents include emerging pathogens that could be engineered for mass dissemination in the future.

Historical Examples:
• British soldiers used variola contaminated blankets to spread smallpox to American Indians during the French and Indian Wars (1754-1767).
• Followers of Bhagwan Shree Rajneesh intentionally contaminated restaurant salad bars in Oregon with Salmonella. The purpose was to keep people from voting in a local election in November, 1984. More than 750 people were affected.
• The Aum Shinrikyo group in Japan attempted to carry out attacks using aerosolized anthrax spores and botulinum toxin before releasing sarin in the Tokyo subway in 1995.

Outcome:
- 12 dead
- 1000 hospitalized
- 5500 medical care
- 10% first responders were injured
Intentional distribution of anthrax spores mainly through the US mail to various people occurred in the fall of 2001. In all, there were 22 known cases of anthrax; 11 were inhalational.

Radiological & Nuclear Agents:
- **Time** – Limit time in the area.
- **Distance** – Keep as much distance between you and the source. Stay at least 300 feet away on upwind side until agent is identified (WISER).
- **Shielding** – Keep as much protection between you and the source as possible.

Contamination results when a radioisotope (as gas, liquid, or solid) is released into the environment and then ingested, inhaled, or deposited on the body surface.

Exposure occurs when all or part of the body absorbs **penetrating** ionizing radiation from an external radiation source, as shown in the illustration above.

**BREAK 15 MINUTES**

**Lesson 3**

**Objectives**

1. Discuss priorities for hazardous spill response and clean up.
2. Review when to activate a “Code Orange,” or facility specific announcement, in response to a spill and discuss immediate priorities (safety, isolate & notify).
3. Verbalize notification priorities for a hazardous material incident and how these notifications are made.
4. Review when additional resources are required.
5. Discuss the steps in responding to a hazardous material incident safely and effectively and the role of the operationally trained individual.
6. Demonstrate finding key information within the Safety Data Sheets (SDS) and chemical information resources.
7. Discuss changes to the Hazard Communication Standard (HCS).

**Module Structure**

This module has one unit.

**Time Requirement**

One hour.

**Handouts/Resources**

FRO PowerPoint presentation slides 52-71.

**Equipment**

- Projector
- FRO Presentation
- Handouts
- Pen/highlighter – provided by student

**Slide 53**

**Healthcare Response to a Spill:**

Transition slide.

**Slide 54**

**Spills:**

**Slide 55**

**Spill Types:**
<table>
<thead>
<tr>
<th>Slide 56</th>
<th>Small Spill vs. Large Spill:</th>
</tr>
</thead>
</table>
| Slide 57 | Response to a Chemical Spill:  
Review hospital specific plan. |
| Slide 58 | Hazmat Spill Response Decision Matrix: |
| Slide 59 | Spill Clean Up Responsibility: |
| Slide 60 | Location of Spill Kits:  
Specify for your hospital. |
| Slide 61 | Spill Response Procedures:  
Review hospital specific plan. |
| Slide 62 | Key Factors in Response: |
| Slide 63 | Safety Data Sheets (SDS): |
| Slide 64 | Where to Find SDS’s:  
Not all facilities use MSDS online, but it is important to know where to access SDS information prior to a spill occurring. Also it is important to know the chemicals used within each department. |
| Slide 65 | Where to Find SDS’s:  
As above. |
| Slide 66 | Hazard Communication Standard:  
“Danger” is used for more severe hazards and “warning” used for less severe hazards. 
The revised HCS has specific criteria for each health and physical hazard, along with detailed instructions for hazard evaluation and determinations as to whether mixtures or substances are covered. It also establishes both hazard classes and hazard categories—for most of the effects; the classes are divided into categories that reflect the relative severity of the effect. 
The current HCS does not include categories for most of the health hazards covered, so this new approach provides additional information that can be related to the appropriate response to address the hazard. 
Signal words: a single word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used are “danger” and “warning.” “Danger” is used for the more severe hazards, while “warning” is used for less severe hazards. (OSHA, 2012) |
| Slide 67 | Hazard Communication Standard:  
How an employee might use the labels in the workplace. For example:  
• Explain how information on the label can be used to ensure proper storage of hazardous chemicals.  
• Explain how the information on the label might be used to quickly locate information on first aid when needed by employees or emergency personnel.  
General understanding of how the elements work together on a label. For example:  
• Explain that where a chemical has multiple hazards, different pictograms are used to identify the various hazards. The employee should expect to see the appropriate pictogram
for the corresponding hazard class.

- Explain that when there are similar precautionary statements, the one providing the most protective information will be included on the label.

### Slide 68

**Hazard Communication Standard:**
Under the current Hazard Communication Standard (HCS), the label preparer must provide the identity of the chemical, and the appropriate hazard warnings. This may be done in a variety of ways, and the method to convey the information is left to the preparer. Under the revised HCS, once the hazard classification is completed, the standard specifies what information is to be provided for each hazard class and category. Labels will require the following elements:

- **Pictogram:** a symbol plus other graphic elements, such as a border, background pattern, or color that is intended to convey specific information about the hazards of a chemical. Each pictogram consists of a different symbol on a white background within a red square frame set on a point (i.e. a red diamond). There are nine pictograms under the GHS. However, only eight pictograms are required under the HCS. (OSHA, 2012)

### Slide 69

**Hazard Communication Standard:**
The new format, Section 8 (Exposure Controls/Personal Protection) will always contain information about exposure limits, engineering controls and ways to protect yourself, including personal protective equipment (OSHA, 2012).

### Slide 70

**Hazard Communication Standard:**
Hazard Statement: a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.

Precautionary Statement: a phrase that describes recommended measures to be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical or improper storage or handling of a hazardous chemical. For example, explain that the precautionary statements would be the same on the label and on the SDS.

### Slide 71

**What if... (scenario):**
Hazmat units were called to the hospital at around 2:45 p.m., after staff in the shipping and receiving area noticed a three-liter container of formaldehyde leaking.

What would you do??

1. **SIN**
2. What are the health risks? How do obtain this information?
3. Does the area need to be evacuated?

The receiving area was evacuated and nearby air vents were blocked due to fumes from the formaldehyde leak. The hospital blocked all "non-essential foot and vehicle traffic" around the receiving area so the hazmat teams could clean up the spill.

### Lesson 4

#### Objectives

1. Discuss the challenges of zero notice and escalating incidents.
2. Review and discuss the Hospital Incident Command (HICS) model and the Hazmat Branch.
3. Review and discuss Job Action Sheets (JAS) and when these are to be used.
4. Demonstrate use of the DOT Emergency Response Guidebook (ERG), NIOSH Pocket Guide to Chemical Hazards, SDS, and other resources.
5. Review and apply hazard and risk assessment techniques.
6. Review the Incident Action Planning Process (IAP) and the Planning “P”.

#### Module Structure

This module has one unit.

#### Time Requirement

One hour.
### Handouts/Resources
- FRO PowerPoint presentation slides 72 – 107.

### Equipment
- Projector
- FRO Presentation
- Handouts
- Pen/highlighter – provided by student

### Slide 73
**Hospital Preparedness Video:**
Video - 1 minute 23 seconds. Sets the stage for additional discussion on why hospitals need to be prepared for hazmat incidents.

### Slide 74
**Hazmat Incident:**
Review when hazmat incidents occur.

### Slide 75
**Hazmat Tactical Operations/Priorities Acronym:**
SIN - Safety, Isolate, Notify. Have students write all tactical acronyms down throughout the class. This is on the test.

### Slide 76
**Safety:**
There is more you won’t know, than you will know...

### Slide 77
**Isolation:**
Isolation may also include:
- Shutting down HVAC
- Locking down or preventing access to the site
- Placing cones or barricades preventing access
- Establishing a perimeter around the site
- Posting security near site to prevent access

### Slide 78
**Perimeters or Control Zones:**
Review and identify the different names of these areas.

### Slide 79
**Perimeters or Control Zones:**
Internally, corridors and doors can be used to facilitate control zones.

### Slide 80
**Remember:**
Warm and cold zones are reviewed in more detail later in the presentation.

### Slide 81
**Notification:**
Review priority notifications for your facility.

### Slide 82
**Hazmat Tactical Operations/Priorities Acronym:**
CIA – Command & Management, Identify & Hazard Assessment, Action Planning

### Slide 83
**Command & Management:**
Participants should have a general understanding and experience with HICS. Review the need for Communication, Coordination, Control, and Common Sense for successful incident management.

### Slide 84
**Command & Management:**
Video - 1 minute 43 seconds. Reviews the general concepts of command and decontamination management.

### Slide 85
**Hospital Incident Command System (HICS):**
Response organization and command structure. Briefly review the HICS crosswalk and JAS. HICS Groups divide the incident management structure into functional areas of operation. A supervisor leads a group. HICS Units have a specific functional responsibility (Victim Decon Unit Leader).
| Slide 86 | **Job Action Sheets:**  
JAS are customizable, and multiple positions may be assumed by one person. Remember span of control = 1: 3-5 positions. |
| Slide 87 | **Command & Management:**  
Incident Commander |
| Slide 88 | **Command & Management:**  
Safety Officer |
| Slide 89 | **Command & Management:**  
Hazardous Material Branch Director |
| Slide 90 | **Command & Management:**  
Detention & Monitoring Unit Leader |
| Slide 91 | **Command & Management:**  
Spill Response Unit Leader |
| Slide 92 | **Command & Management:**  
Victim Decon Unit Leader |
| Slide 93 | **Command & Management:**  
Facility/Equipment Decontamination Unit Leader |
| Slide 94 | **Identification & Hazard Assessment:**  
Transition from command to hazard assessment. What are you dealing with and can you protect yourself?? Discussion. |
| Slide 95 | **Identification & Hazard Assessment:**  
Review the routes of exposure. |
| Slide 96 | **Identification & Hazard Assessment:**  
(Icons on the slide with back outline have a link attached. Click on these and discuss the resource).  
- Show how to use the WISER program (Wireless Information System for Emergency Responders). Click on the WISER icon.  
- Show the how to use the ERG video by clicking on the picture of the ERG.  
- Show the NIOSH resource and CDC website by clicking on the picture of the NIOSH guide.  
- Stress the importance of using a minimum of 3 sources of information. |
| Slide 97 | **NFPA 704 System:**  
Used to identify chemicals within a storage area. Example: pool supply store. |
| Slide 98 | **Labels & Placards:**  
And additional resources as discussed. |
| Slide 99 | **Acronyms & Terms:**  
As you are completing the chemical identification and hazard assessment these acronyms and terms will provide additional information. |
| Slide 100 | **Immediately Dangerous to Life & Health (IDLH):**  
Immediately Dangerous to Life & Health - conditions that pose immediate danger to life or health, or conditions that pose a threat of severe exposure. |
| Slide 101 | **Acronyms & Terms - FIRE:**  
Flash Point then Ignition Temperature/Ignition Point/Fire Point then Auto-ignition temperature  
These have to do with fire and explosion. Use reference material to compare UEL/UFL, LEL/LFL (flammable range) or benzene, ammonia, hydrogen sulfide, hydrazine. (Use a NIOSH Pocket Guide.) Have the students find the UEL/LEL and Flash Point for xylene. |
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<th>Slide 102</th>
<th>Acronyms &amp; Terms:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slide 103</td>
<td><strong>Toxicity Relationships:</strong> Different toxicities of different substances. Note how some products have a very low dose to become unsafe.</td>
</tr>
<tr>
<td>Slide 104</td>
<td><strong>Action Planning:</strong> Must be accomplished during drills and actual incidents. Hardwire Incident Action Planning!!</td>
</tr>
<tr>
<td>Slide 105</td>
<td><strong>The Planning “P”:</strong> Refer to handout.</td>
</tr>
<tr>
<td>Slide 106</td>
<td><strong>Action Planning Documentation:</strong> Incident Action Plan Cover Sheet and supporting HICS forms (click on form to link to the new HICS forms). The Incident Briefing (ICS 201) provides the IC (and the Command and General Staff) with basic information regarding the incident situation and the resources allocated to the incident. This form may be used by the initial IC. Once the incident/event begins, the information used for the steps within the Planning “P”, Notifications, Initial Response and Assessment, and the Incident Briefing, may be gathered using ICS-201. In addition, it may be used to facilitate the oral briefing in the transfer of command process.</td>
</tr>
<tr>
<td>Slide 107</td>
<td><strong>Action Planning Documentation:</strong> This is a simplified IAP along with a Site Safety Plan annex. Facilities should plan ahead of time for likely scenarios and develop Incident Action Plans before an incident occurs. For example, if a specific area for decon has been identified, a site map and directions can be developed and then incident specific information added at the time of the event.</td>
</tr>
<tr>
<td>Slide 108</td>
<td><strong>Action Planning Documentation:</strong> Continuation of the IAP review.</td>
</tr>
</tbody>
</table>

**LUNCH 1 HOUR**

**Lesson 5**

| Objectives Slide 109 | 1. Explain levels of Personal Protective Equipment (PPE) and selection priorities.  
2. Discuss control, containment, and confinement utilizing hospital resources.  
3. Discuss protective actions and rescue operations within capabilities and resources. |
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<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Module Structure</td>
<td>This module has one unit.</td>
</tr>
<tr>
<td>Time Requirement</td>
<td>One hour.</td>
</tr>
<tr>
<td>Handouts/Resources</td>
<td>FRO PowerPoint presentation slides 108 – 121.</td>
</tr>
</tbody>
</table>

**Equipment**

- Projector
- FRO Presentation
- Handouts
- Pen/highlighter – provided by student

**Slide 110** **Operations/Priorities Acronym:**  
PCP – Protective Equipment, Contain & Control, Protective Actions

**Slide 111** **Personal Protective Equipment (PPE):**  
Transition slide.

**Slide 112** **Personal Protective Equipment (PPE):**  
Know your equipment and practice with PPE. PPE is the last in the line of defense to protect personnel; typically PPE follows after engineering controls, workplace practices and
administrative controls (OSHA, 2006). PPE is the last in the line of defense to protect personnel; typically PPE follows after engineering controls, workplace practices and administrative controls (OSHA, 2005). In a chemical event, the use of these higher hierarchy forms of protection is not immediately available or practical, particularly within the first few hours of a dynamic incident. Personal protective equipment (PPE), therefore, remains the most viable and readily accessible form of protection against chemical agent exposures. In addition, PPE will limit cross contamination from patient to responder.

**Slide 113**
**Respiratory Protection:**
PAPR’s the standard for healthcare because once size fits all. All facilities must have a respiratory protection program. Evaluate if Hazmat PAPRS are included in this program.

**Slide 114**
**PAPR Filters:**
Know the types of chemical filters available. Have filter specs available for reference. Chemical filters expire.

**Slide 115**
**Protective Equipment: Level A:**
In addition to appropriate respiratory protection: Level A - Vapor protective suit for hazardous chemical emergencies.

**Slide 116**
**Protective Equipment: Level B:**
In addition to appropriate respiratory protection: Level B - Liquid splash protective suit for hazardous chemical emergencies.

**Slide 117**
**Protective Equipment: Level C:**
In addition to appropriate respiratory protection: Level C - Limited use protective suit for hazardous chemical emergencies. This is the hospital standard.

**Slide 118**
**Protective Equipment: Level D:**
Level D – Clothing/scrubs

**Slide 119**
**Protective Equipment:**
Limitations include life span of the filters and the time it takes to replace these filters; rotation of staff members to avoid fatigue and heat exhaustion; and the cumbersome nature of the PPE suits that cause decreased dexterity and interfere with communication between ED staff and patients. In addition, other limitations first responders and first receivers will encounter are limited vision and hearing, while wearing PPE.
- 7 min inside suite = 100% humidity
- 9 minutes inside suite may be up to 20% hotter inside the suit versus outside
- PPE = BAG
- You are in a bag - Can’t eat, drink, go to the bathroom
- You are working in a bag - You can’t hear or talk, slips, trips and falls, may be claustrophobic
- You are exercising in a bag – Issues of dehydration, heat exhaustion/stress/stroke

**Slide 120**
**Contain & Control:**
First Receivers trained at and operational level contain defensively. Cannot stop the hazmat release or act offensively.

**Slide 121**
**Protective Actions:**
Discuss evacuation strategies versus shelter in place concepts.

**Slide 122**
**Exercise:**
- Time: 20 - 30 minutes for this exercise.
- Break out into small groups.
- Have SDS, ERG, NIOSH and suite/filter chemical guides available for each group.
- Provide the name of one chemical for each group to research using the SDS, ERG, NIOSH references (minimum of three) provided.
- After the group has completed a risk assessment using the Chemical Risk Assessment form, have a spokesperson form each group report out the information documented on the Chemical Risk Assessment form.

### Lesson 6

#### Objectives

1. Conduct equipment safety inspection.
2. Demonstrate safe and competent PPE donning and doffing.
3. List the components and parameters for PPE monitoring before, during, and after an incident.
4. Discuss safety procedures, emergency hand signals, medical monitoring, and rescue objectives.

#### Module Structure

This module has one unit.

#### Time Requirement

One and a half hours (1.5)

#### Handouts/Resources

FRO PowerPoint presentation slides 122 - 133.

#### Equipment

- Projector
- FRO Presentation
- Handouts
- Pen/highlighter – provided by student
- PPE (suits, boots, gloves, PAPR’s)
- PAPR training batteries
- PAPR training filters
- PAPR testing kit
- Duct Tape
- Trash Bags
- Disinfectant Wipes
- Space to practice donning/doffing PPE

#### Slide 124

**Safety Inspections:**

5 minute PAPR video

**OSHA Respiratory Protection Requirements:**

- The nature of the respiratory hazards and why a respirator is needed.
- Respirator capabilities, limitations, and consequences if the respirator is not used appropriately.
- How to handle respirator malfunctions and other emergencies.
- How to inspect, put on, remove, use, and check seals on the respirator.
- Maintenance and storage procedures.
- When to change cartridges on APR’s.
- How to recognize medical signs and symptoms that may limit or prevent effective use of a respirator.
- General requirements of the respiratory protection program.

#### Slide 125

**Donning & Doffing Competency:**

Video – 2 minutes 30 seconds. Provides an introduction to donning and doffing PPE. You can
also have someone demonstrate donning and doffing techniques.

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<thead>
<tr>
<th>Slide 126</th>
<th>Donning &amp; Doffing Competency:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Handout: PPE Competency. Review and demonstrate appropriate donning/doffing techniques. Discuss control zones and moving from the warm zone to the cold zone after technical decon.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Slide 127</th>
<th>Suite Monkey:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Donning &amp; doffing practice stations. Instructors must observe each student donning and doffing prior to signing competency.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Slide 128</th>
<th>Medical Screening:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Refer to handout.</td>
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</table>

<table>
<thead>
<tr>
<th>Slide 129</th>
<th>Staging:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Discuss the importance of staging and receiving an incident safety briefing.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Slide 130</th>
<th>Tracking Board:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>There are many different ways to track team members. A white board is a visible low cost solution.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Slide 131</th>
<th>Emergency Hand Signals:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Refer to handout.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Slide 132</th>
<th>Emergency Hand Signals:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Refer to handout.</td>
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<thead>
<tr>
<th>Slide 133</th>
<th>Emergency Hand Signals:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Refer to handout.</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Slide 134</th>
<th>Emergency Hand Signals:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Refer to handout.</td>
</tr>
</tbody>
</table>

**BREAK 15 MINUTES**

**Lesson 7**

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Slide 135</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Identify the necessity for decontamination and clean up procedures.</td>
</tr>
<tr>
<td>2.</td>
<td>Review the functions of a decon team.</td>
</tr>
<tr>
<td>3.</td>
<td>Review types of decontamination.</td>
</tr>
<tr>
<td>4.</td>
<td>Review decontamination tent set up procedures.</td>
</tr>
<tr>
<td>5.</td>
<td>Discuss decontamination corridors to include site security and control.</td>
</tr>
<tr>
<td>6.</td>
<td>Discuss procedures for the appropriate triage, decontamination, and treatment considerations of the contaminated patient.</td>
</tr>
<tr>
<td>7.</td>
<td>Discuss the decontamination of vulnerable patient populations.</td>
</tr>
<tr>
<td>8.</td>
<td>Explain decontamination procedures for hospital personnel and equipment (technical decontamination).</td>
</tr>
<tr>
<td>9.</td>
<td>Identify appropriate disposal considerations.</td>
</tr>
<tr>
<td>10.</td>
<td>Review documentation requirement during and after a Hazmat incident.</td>
</tr>
</tbody>
</table>

**Module Structure**

This module has one unit.

**Time Requirement**

One hour.

**Handouts/Resources**

FRO PowerPoint presentation slides 134 - 167.

**Equipment**

- Projector
- FRO Presentation
- Handouts
- Pen/highlighter – provided by student
| Slide 136 | Hazmat Tactical Operation/Priorities Acronym:  
|           | DDD – Decontamination, Disposal, Documentation |
| Slide 137 | Decontamination: |
| Slide 138 | Decontamination:  
|           | Overarching Health Related Goals of Patient Decontamination |
| Slide 139 | Decontamination Team:  
|           | This must be a multidisciplinary approach. |
| Slide 140 | Decontamination Flow Chart:  
|           | Putting it all Together – JAS & Roles/Functions. Discuss:  
|           | • Ambulatory and non-ambulatory lanes  
|           | • Special patient populations  
|           | Draw decon corridor scenarios on whiteboard. |
| Slide 141 | Hazmat Decontamination Response Decision Matrix:  
|           | Visual review of concept. |
| Slide 142 | Important Considerations:  
|           | Discuss hospital specifics. |
| Slide 143 | Decontamination Shower: |
| Slide 144 | Decontamination Tent Set Up:  
|           | Video – 3minutes 27 seconds. This is an overview of basic set up procedures. Team members will follow hospital specific procedures. |
| Slide 145 | Decontamination Tent Set Up:  
|           | Pictures – customize this section if needed. |
| Slide 146 | Decontamination Tent Set Up:  
|           | Pictures – customize this section if needed. |
| Slide 147 | Decontamination Tent Examples:  
|           | Pictures – customize this section if needed. |
| Slide 148 | Decontamination Tent Examples:  
|           | Review the different types of tents. Customize this section if needed. |
| Slide 149 | Types of Decontamination:  
|           | Review and discuss when the different types of decontamination would be appropriate. |
| Slide 150 | Self-Directed Decontamination:  
|           | Video - Video – 2 minutes 26 seconds. |
| Slide 151 | Self-Directed Decontamination:  
|           | Video – 35 seconds. Click on the top right picture to start video. Do not wait to set up tents – get water on people – act fast. Review self-directed decontamination handouts available in English, Spanish, and Russian. Maintain patient privacy with the use of modesty screens. |
| Slide 152 | Self-Directed Decontamination:  
|           | Refer to handout “Decontamination Procedures Overview.” Discuss issues relating to ambulatory and non-ambulatory patients. More resources are required to decontaminate non ambulatory patients, patient with disabilities and non-English speaking patients. |
| Slide 153 | Emergency Decontamination:  
|           | Ambulatory Patients: Immediate self-care include actions that a patient can perform for him/herself, including distancing him/herself from the site of release, removing clothing, and |
| Slide 154 | Emergency Decontamination:  
Video – 2 minutes 43 seconds on patient showering |
| --- | --- |
| Slide 155 | Emergency Decontamination:  
Non Ambulatory Patients: The patient should be washed with soap and either a brush or wash cloth in a systematic fashion cleaning airway first followed by open wounds then in a head to toe fashion for five minutes when the agent is non-persistent and eight minutes when a persistent or unknown agent is involved. Avoid rubbing too vigorously. |
| Slide 156 | Emergency Decontamination:  
Discuss securing patient belongings and maintaining chain of custody. |
| Slide 157 | Emergency Triage:  
Green – Minor Patients  
Triage and evaluation is a continuous process. It is recommended to further/continue to Triage the patients utilizing triage methods designed for Mass Casualty Incidents utilizing a standardized, color coded system – Examples of this would be MASS, START, JumpSTART and SALT Triage. |
| Slide 158 | Emergency Triage:  
Yellow – Delayed Patients |
| Slide 159 | Emergency Triage:  
Red – Immediate Patients |
| Slide 160 | Emergency Triage Tag:  
Review the tag and the CONTAMINATED strip. Remove after the patient has been decontaminated. |
| Slide 161 | Technical Decontamination:  
Review decontamination of team members. |
| Slide 162 | Technical Decontamination: |
| Slide 163 | Technical Decontamination: |
| Slide 164 | Venerable Populations:  
Refer to handout. |
| Slide 165 | Venerable Populations:  
Refer to handout. |
| Slide 166 | Venerable Populations:  
Refer to handout. |
| Slide 167 | Disposal: |
| Slide 168 | Documentation Requirements: |
| Slide 169 | Documentation Requirements:  
HICS forms have been previously discussed, but this is a good time to review the importance of appropriate and through documentation. |
### Lesson 8

#### Objectives

1. Review the Hazmat Tactical Operations/Priorities Acronym.
2. Review annual training requirements, annual competency, and drill requirements.
3. Review documentation requirements.
4. Discuss hospital hazmat program priorities.

#### Module Structure

This module has one unit.

#### Time Requirement

One hour.

#### Handouts/Resources

- FRO PowerPoint presentation slides 169 - 176.

#### Equipment

- Projector
- FRO Presentation
- Handouts
- Pen/highlighter – provided by student

#### Slide 171

**Hazmat Tactical Operations/Priorities Acronym:**

SIN-CIA-PCP-DDD

#### Slide 172

**Refresher Training:**

Annual training and competency is required to have a functioning response team. Documentation of competency must be completed for each team member. A copy of the competency must be on file. All actual incidents and drills must be appropriately documented and evaluated.

The initial and annual refresher training to the HAZWOPER First Responder Operations Level must be provided to all hospital personnel who have been designated to provide treatment, triage, decontamination, or other services to contaminated individuals or who may reasonably be expected to come in contact with those individuals arriving at the hospital. Training core elements must include (OSHA, 2005, p. 27):

- Understanding the hospital emergency operations plan and their roles in the response.
- Site safety, including risks to receiving personnel.
- Appropriate selection and use of PPE.
- Decontamination procedures.

#### Slide 173

**Hazmat Drills:**

Are required. Develop a training schedule and promote leadership support.

#### Slide 174

**Equipment Maintenance:**

Schedule and if possible, assign team members to assist.

#### Slide 175

**In Review - Remember:**

#### Slide 176

**Next Steps: Putting it All Together:**

Discuss annual training requirements and what this will look like moving forward at your facility.

#### Slide 177

**Thank You:**

Please direct questions to email/contact information provided.

#### Slide 178

**References:**

#### Slide 179

**References:**
Hospital Decontamination Self-Assessment Tool
A resource to assist hospitals evaluate decontamination plans and capabilities

HSPH-EPREP
2013

HARVARD SCHOOL OF PUBLIC HEALTH
Emergency Preparedness and Response Exercise Program
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Foreword

The Hospital Decontamination Self-Assessment Tool was developed by the Harvard School of Public Health Emergency Preparedness and Response Exercise Program (HSPH-EPREP) through a contract with the Emergency Preparedness Bureau at the Massachusetts Department of Public Health, with funding from the Office of Assistant Secretary for Preparedness and Response (ASPR) Hospital Preparedness Program.

The views and opinions expressed as part of this toolkit do not necessarily represent the views and opinions of the Office of the ASPR Hospital Preparedness Program or the Massachusetts Department of Public Health.

A list of references used to support the development of this document can be found in Appendix C.
Introduction

In 2011, through a contract with the Massachusetts Department of Public Health, the Harvard School of Public Health Emergency Preparedness and Response Exercise Program (HSPH EPREP) engaged Massachusetts’ hospitals in a series of regional tabletop exercises focused on response to a hazardous materials incident. The exercise series highlighted a significant degree of heterogeneity among hospital decontamination programs and capabilities. Subsequent on-site assessments of hospital decontamination systems conducted at a representative sample of facilities throughout the Commonwealth confirmed this finding.

To begin to address this issue of heterogeneity, HSPH-EPREP developed structured tools and guides to assist hospitals develop, maintain, and augment their decontamination programs. The Hospital Decontamination Self-Assessment Tool was developed to provide hospitals with a means of evaluating decontamination plans and capabilities against current regulatory standards, recommendations from subject matter experts, and national and international healthcare decontamination best practices. This tool provides scalable considerations based upon presently available guidance to assist hospitals plan for, and respond to, small and large-scale incidents requiring the decontamination of patients contaminated by and/or exposed to chemical, biological, radiological, and/or nuclear agents.

How to use this tool:

The Hospital Decontamination Self-Assessment Tool is intended for use by hospital emergency preparedness planners, hospital decontamination team members, and other personnel with a responsibility for their facility’s decontamination plans and procedures.

The tool is designed to walk the user through the emergency management cycle of a hospital response to a hazardous materials incident requiring decontamination of patients. Each ‘cycle’, or section, contains a list of questions drawn from current subject-matter guidance and best practices, intended to assist the user evaluate the degree to which their facility has planned and prepared for hazardous materials incidents involving the decontamination of patients. The checklist format allows the user to keep track of the specific planning and response considerations their hospital has addressed. Links to additional resources and other useful information on hospital decontamination can be found on the “sticky notes” throughout the document.
Additional resources, including planning matrices to assist with the development of decontamination teams, are available in the appendices of this document.
Assumptions

The content presented in this tool revolves around the following assumptions, which should be taken into consideration in the development, evaluation, and revision of hospital decontamination plans:

- **Hospitals will be relied upon to provide medical care to victims of a mass-casualty event resulting from a chemical, biological, radiological, nuclear, or explosive incident.**

- **All hospitals with an emergency department should be prepared to decontaminate victims in small and large-scale hazardous materials incidents.**

- **An influx of patients requiring decontamination has the potential to overwhelm any hospital.**

- **The safety of hospital personnel during decontamination operations is paramount, and should be carefully considered as a critical component of decontamination planning, training, response and recovery.**

- **The hospital’s main priorities in a decontamination event are responder safety, limiting the spread of contamination, patient triage, decontamination, and medical care, as well as medical monitoring of patients and staff.**

- **Information regarding the contaminant, number of victims, and victim status may not be immediately available to hospital decontamination staff.**

- **Victims are likely to self-transport from the incident scene to the closest hospital, often arriving with little or no advance warning.**

- **Effective field decontamination resources may be limited, and hospitals should assume that all incoming victims may need to be decontaminated, unless otherwise notified by first responders.**

- **During a large-scale mass-casualty incident, hospitals should anticipate that non-symptomatic, “worried-well” victims will present to the hospital along with contaminated and/or injured victims.**

- **Victims of a hazardous materials incident may have certain access, functional, and social needs and should be accommodated to the greatest extent possible during a decontamination response. These needs should be considered in decontamination planning, training, exercise, and response.**

- **Hospitals will benefit from regular training and exercises designed to test and reinforce knowledge of hospital decontamination plans and procedures.**
Decontamination Planning and Preparedness

☐ Has your facility developed a written Decontamination/Hazardous Materials Incident Plan or Annex as a component of the hospital Emergency Operations Plan (EOP)?

☐ Is the decontamination plan reviewed and revised in conjunction with your hospital’s Hazard Vulnerability Analysis (HVA)?

☐ Is there at least one person at your facility who is responsible for the ongoing maintenance and revision of the decontamination plan?

☐ Is the decontamination plan reviewed internally with staff on an annual basis?

☐ Is the decontamination plan reviewed with local emergency response partners on an annual basis?

☐ Is the decontamination plan scalable to facilitate a response to both small and large-scale incidents?

☐ Does the decontamination plan include clearly defined activation levels or phases designed to facilitate a timely, measured response?

☐ Does your facility oversee a Decontamination or Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) planning committee that meets at least on a quarterly basis?

☐ Does at least one hospital representative participate on a standing Local or Regional Emergency Planning Committee (LEPC/REPC) to collaboratively address community hazards and/or decontamination response protocols?

☐ Does your plan include decontamination team-specific Job Action Sheets (JAS) to assist team personnel in completing essential duties?

---

The Center for Bioterrorism Preparedness and Planning (Continuum Health Partners) developed a hospital-based decontamination policy document which includes decontamination team-specific Job Action Sheets. This resource is available at:

Which of the following methods does your facility use to distribute the decontamination plan to internal personnel with an expected role in decontamination planning and response?

- Hard copy document/email distribution
- Review at team meetings
- In-house trainings
- Other:

Is the decontamination plan accessible to staff via your facility’s intranet system, Learning Management System, or other readily available database?

Are hospital personnel with a role in hospital decontamination planning familiar with how to access relevant guidance and regulatory standards?

**Staffing/Decontamination Team**

Is your facility’s decontamination team capable of receiving patients within 15 minutes of activation on a 24/7 basis?

Does the size and structure of your decontamination team allow your facility to address the following?

- 24/7 coverage to respond to an incident
- Periodic shift rotations for all personnel, as appropriate to the incident
- Specific needs/vulnerabilities of the surrounding community

Does your facility use a specific algorithm or trigger to determine how many decontamination team members to deploy for a given incident?

Has your hospital devoted at least one Full Time Employee (FTE) to oversee the planning aspects of facility-based decontamination and/or response to hazardous materials/CBRNE events?

*Larger, metropolitan hospitals should aim to have a 5-6 member decontamination team trained and available on a 24/7 basis. Smaller, more rural hospitals should aim to have a 2 person team available at all times. (Hick et al, n.d.)*
Has your facility designated one or more Points of Contact (POCs) to coordinate the delivery and/or set up of supplemental decontamination resources such as CHEMPACK, decontamination teams, mobile decontamination units, etc.?

Does your facility’s decontamination plan designate one or more non-clinical decontamination team members to oversee the bagging, sealing, and preserving of decontaminated patient belongings?

Does your facility’s decontamination plan designate specialists or supplemental personnel such as mental health professionals, interpreters, and respiratory therapists to assist with the decontamination response?

Training and Exercise

Have a sufficient number of hospital personnel with the potential to identify contaminated patients on a 24/7 basis received OSHA HAZWOPER Hazardous Materials Awareness-Level Training?

Are all personnel provided with the opportunity to either receive ongoing training or attend an annual refresher training in order to maintain proficiency?

Have a sufficient number of hospital decontamination zone (warm zone) personnel required for a 24/7 response received at least eight hours of OSHA HAZWOPER Hazardous Materials Operations-Level Training?

Are all personnel provided with the opportunity to either receive ongoing training or attend an annual refresher training in order to maintain proficiency?

Has your facility’s Decontamination Team Leader received at least 24 content hours of OSHA HAZWOPER Hazardous Materials Technician-Level Training?

Are all personnel provided with the opportunity to either receive ongoing training or attend an annual refresher training in order to maintain proficiency?

Additional information regarding Hazwoper Hazardous Materials Training is available at:

http://www.osha.gov/html/faq-hazwoper.html and

As a provision in OSHA 1910.120(q)(4): “Skilled support personnel” are those who are not originally designated to serve on the decontamination team but may be called upon during a decontamination response to provide ancillary or emergency services (e.g. specialized medical procedures, utility connections, etc.) within the hospital decontamination zone. (Hick et al, n.d.)

Reference guides to aid with the recognition of signs and symptoms associated with chemical agent exposure are available at:

http://www.nphl.org/chemTerror.cfm
http://www.unc.edu/depts/spice/chemical-NC.pdf

The U.S. Department of Health and Human Services’ Radiation Emergency Medical Management has developed a training video on use of dosimeters to screen for radiation. The video, “How to Use Hand-Held Radiation Survey Equipment”, along with other resources, is available at:

http://www.remm.nlm.gov/surveymetervideo.htm
Does your facility conduct at least one annual decontamination drill/exercise that tests the following?

- [ ] Ability and time needed to set up the decontamination/shower system
- [ ] Functionality of water system hookups, pressure, and temperature
- [ ] Functionality of lighting and other decontamination system equipment/resources
- [ ] Ability of staff to don, doff, and simulate decontamination procedures while suited in PPE
- [ ] Approximate patient throughput/capacity
- [ ] Incident-specific communication/coordination with local response partners

- [ ] Are front line personnel trained to use tools such as the R.A.I.N. Acronym to assist in recognizing and handling potentially contaminated patients?

R.A.I.N. Acronym:

- **R**ecognize that a patient may present a contamination danger;
- **A**void contact with the patient;
- **I**solate the patient; and
- **N**otify the appropriate personnel.

This resource can be accessed at:
REFERENCES

Decontamination Response

Alert and Notification

Upon receiving initial notification of an incident potentially requiring patient decontamination, what type of information does your plan instruct staff to collect?

☐ Type and nature of the incident
☐ Contact information of the notifying entity (name, phone number, email address)
☐ Approximate number and ages of victims
☐ Victim signs and symptoms
☐ Nature/degree of victim injury
☐ Type of chemical or other agent involved
☐ Extent of victim decontamination occurring in the field
☐ Approximate time of EMS arrival, if applicable
☐ Expected number of self-presenting patients
☐ Other:

☐ Does your facility have a method of obtaining immediate access to expertise regarding the potential hazard and response required?

☐ Does your plan specify a protocol for incident confirmation and corresponding reassessment procedures in the event that initial notification comes from victims, bystanders, or another informal source?

Which of the following means of communication does your facility use to internally notify staff of decontamination plan activation?

☐ Cellular phones
☐ Landline phones
☐ Pagers
☐ Mass alerting system
☐ Email and hospital intranet system
☐ Two-way radios
☐ Overhead broadcasting system
☐ Fax
☐ Runners/verbal instruction
☐ Other: ________________________________

☐ Does your plan specify a protocol for communicating incident updates to actively mobilized decontamination team members?

☐ Is a hospital Public Information Officer (PIO) available on a 24/7 basis to manage requests for information from the media?

☐ Does your facility have a process to initiate and sustain scene-to-hospital communication in order to obtain information regarding the contaminant and approximate number of casualties?

☐ Does your facility have a means of participating in timely, region-wide, interagency communication in the event of a mass-casualty incident involving patient decontamination?

☐ Does your facility operate on an interoperable radio frequency/channel dedicated for interagency communication during mass casualty incidents?

☐ Has your facility identified an information resource center (such as CHEMTREC\textsuperscript{5}) that could be contacted to provide on-demand, expert guidance regarding the properties of chemical, biological, and/or radiological agents?

☐ Has your facility identified an information resource center (such as Poison Control) that could potentially be contacted to provide guidance regarding definitive care procedures?

\textbf{CHEMTREC is a no-fee, 24/7/365 emergency on-call resource providing information and assistance regarding hazardous materials incidents. Additional information can be accessed at:}

\[ \text{http://www.chemtrec.com} \]
Security and Access Control

☐ Have all security personnel with the potential to encounter incoming, potentially contaminated patients been trained and equipped with PPE?

Which of the following security/access control measures are specifically addressed in your facility’s decontamination plan?

☐ Preliminary and ongoing priority actions for hospital security personnel
☐ Method of securing the Emergency Department and/or all other hospital access points that contaminated patients may use
☐ Crowd containment procedures
☐ Protocol for directing and controlling traffic into and around the hospital campus
☐ Whether patient discharge/egress routes will be separate from patient access routes
☐ Parking arrangements for a large number of vehicles
☐ Protocol for management of contaminated vehicles
☐ Method of identifying hospital personnel
☐ Method of providing hospital personnel with a separate entrance to the facility
☐ Process for maintaining chain of custody of patient belongings

☐ Does your facility have a mechanism for separating contaminated patients from uncontaminated patients and visitors arriving for care?

How does your facility prevent unauthorized patient/visitor access to the Emergency Department and other entrance points during a decontamination response?

☐ Staging of staffed security guards at doors/entrances
☐ Use of barriers/blockades
☐ Securing/locking hospital entryways
☐ Use of keycard systems
☐ Other:
Which of the following supplies does your facility stage in easily accessible locations in order to support security/access control procedures during a decontamination response?

- Traffic cones
- Barrier tape
- Rope
- Traffic control vests
- Bullhorns or whistles
- Megaphones
- Two-way radios
- Other:

Has your facility established Memorandums of Understanding (MOUs) or made other arrangements with local law enforcement agencies to provide support with traffic and/or crowd control procedures during decontamination response?

Personal Protective Equipment (PPE)

Which of the following OSHA-recommended Level C Personal Protective Equipment (PPE) does your facility maintain in appropriate quantities to protect all responding decontamination team personnel against unknown hazards?

- Hooded, NIOSH-approved Powered Air-Purifying Respirators (PAPRs) with a 1,000 fold protection factor
- NIOSH-approved 99.97% high efficiency particulate air (HEPA) filters
  - Organic vapor cartridges
  - CBRNE cartridges
- A chemically protective suit that is tested for:
  - Resistance to tears
  - Resistance to liquid and blood-borne pathogens
  - Performance in cold weather
  - Evaporative heat transfer
  - Bursting strength
  - Seam and closure strength

OSHA recommends use of nitrile gloves (minimum 4-5 mil. thickness) worn inside butyl rubber gloves (minimum 14 mil. thickness). (OSHA, 2005)
Hospital Decontamination
Self-Assessment Tool

☐ Double-layer of gloves made of two different materials
☐ Chemically-protective and water-repellant boots, a minimum of 200 m (8 inches) in height, made out of a similar material as the gloves selected

☐ Does your facility's plan call for the use 2-3 inch tape to cover all open/exposed areas of protective suiting?

☐ As specified in the OSHA Standard 29 CFR 1910.134 or comparable state plan standard, are all PAPRs and/or other types of respiratory protection designated for use by decontamination team personnel outlined in a formal written respiratory protection program?

☐ Does your facility maintain an inventory of fully charged, routinely tested PAPR batteries?

☐ Does your facility pre-assemble and label decontamination team PPE in easily accessible containers?

☐ Does your facility maintain a separate cache of PPE that is designated for staff training purposes only?
  ☐ Is the equipment in this cache clearly labeled as training material and stored separately from response PPE?

☐ Has your facility established MOUs or made other arrangements with PPE distributors/manufacturers to ensure quick access to additional resources?

**Staff Safety/Medical Monitoring**

☐ Has your facility appointed at least two clinical personnel to conduct medical monitoring of suited decontamination team personnel?

Which of the following do clinical personnel responsible for medical monitoring routinely assess and document for each suited decontamination team member:

The OSHA Respiratory Protection Standard 29 CFR 1910.134 can be referenced at:
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do these clinical personnel perform medical monitoring of suited decontamination response personnel before and immediately following each work shift?</td>
<td></td>
</tr>
<tr>
<td>Has your facility appointed at least one non-clinical decontamination team member to assist decontamination response personnel don an doff PPE?</td>
<td></td>
</tr>
<tr>
<td>Do decontamination team personnel follow an established PPE donning/doffing sequence?</td>
<td></td>
</tr>
<tr>
<td>Have maximum shift durations been pre-determined for all decontamination team personnel?</td>
<td></td>
</tr>
<tr>
<td>Does your facility specify maximum in-suit operation time?</td>
<td></td>
</tr>
<tr>
<td>Does this time change with evolving conditions such as heat stress, level of PPE required, etc.?</td>
<td></td>
</tr>
<tr>
<td>How does your facility track and document the shift duration of decontamination team members?</td>
<td></td>
</tr>
<tr>
<td>Time-in-PPE written on the back of team member’s suit</td>
<td></td>
</tr>
<tr>
<td>Log sheets/White boards</td>
<td></td>
</tr>
<tr>
<td>Timers</td>
<td></td>
</tr>
<tr>
<td>One or more staff members assigned to monitor</td>
<td></td>
</tr>
</tbody>
</table>
Has your facility made arrangements for a decontamination team rest/rehydration area that is within close proximity to, yet out of immediate sight of the decontamination zone?

How do decontamination personnel communicate with each other when suited in PPE?

- Temple-transducer headset radios, worn under PAPR hoods
- Hand held radios
- Pre-established safety hand signals
- Whiteboards
- Signs/flashcards
- Other:

Which of the following medical countermeasures does your facility maintain onsite to treat personnel against CBRNE agents:

**Chemical Agents:**
- Mark 1 kits (Atropine and Pralidoxime in dual-dose injections)
- DuoDote Auto-Injectors (Atropine and Pralidoxime in a single-dose injection)

**Biological Agents:**
- Ciprofloxacin
- Doxycycline

**Radiological Agents:**
- DPTA
- Prussian Blue
- Sodium thiosulfate
- Other:

Is at least one clinical Emergency Department staff member trained to don PPE and rapidly administer CBRNE medical countermeasures to staff present on a 24/7 basis?
### Decontamination Zone (Warm Zone) Setup

**Decontamination Zone:**

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has your facility established decontamination zone locations that will enable response to both small and large-scale hazardous materials incidents?</td>
<td></td>
</tr>
<tr>
<td>Are hot, warm, and cold zone boundaries clearly demarcated?</td>
<td></td>
</tr>
<tr>
<td>Is the hospital decontamination zone located in an area that is accessible to fire hydrants/hook-up to a water supply?</td>
<td></td>
</tr>
<tr>
<td>Does your decontamination plan specify procedures for waste water runoff and collection for disposal in both small and large scale decontamination incidents?</td>
<td></td>
</tr>
<tr>
<td>Is the hospital decontamination zone set-up in a manner that will accommodate incoming EMS and/or Fire Service equipment and personnel?</td>
<td></td>
</tr>
<tr>
<td>Does the hospital decontamination zone provide ample space for the movement of multiple casualties?</td>
<td></td>
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<tr>
<td>Has your facility designated a 24/7/365 holding area for patients in the event that decontamination must be conducted during periods of cold weather?</td>
<td></td>
</tr>
<tr>
<td>If your facility has indoor decontamination capacity, is the area separately ventilated from the rest of the hospital?</td>
<td></td>
</tr>
<tr>
<td>Does a Certified Industrial Hygienist or Ventilation Engineer conduct an annual inspection of the indoor decontamination facility?</td>
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</tr>
<tr>
<td>Is the hospital decontamination zone that is used in a large scale response located at least 50 yards from the Emergency Department and the rest of the hospital post-decontamination zone?</td>
<td></td>
</tr>
</tbody>
</table>

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The U.S. Army Edgewood Chemical Biological Center developed a “Temperature Decontamination Guide”, to assist with decontamination procedures during inclement weather. The guide can be accessed at: http://www.cbrne-terrorism-newsletter.com/resources/ECBC_SP_024_Lake.pdf
Has your facility identified an easily accessible staging area for the storage of decontamination equipment?

Has your facility identified a staging area for the arrival of CHEMPACK and other supplemental resources?

Have personnel responsible for the setup of the hospital decontamination zone been trained to establish electrical connections, hot/cold water hook-ups, and outdoor lighting required for use of decontamination systems in a large-scale incident?

Is the hospital decontamination zone clearly denoted on facility planning maps?

How will your facility physically demarcate the hospital decontamination zone:

- Ropes
- Engineer tape
- Caution tape
- Paint
- Traffic cones
- Barriers/blockades/posts
- Hazard signs
- Color-coding system
- Other:

Decontamination System:

Which type of decontamination system does your facility maintain on-site:

- Fixed (permanent)
- Portable (temporary)
- Rapid Access Mass Decontamination (RAM) capability via use of fire hydrants equipped with special adaptors hoses, etc.
If your facility maintains a portable decontamination shower system, can it be fully activated and operational within approximately 10-15 minutes of initial notification?

Is the decontamination system large enough to facilitate decontamination of more than one patient at a time?

Which of the following does your plan call for to support the decontamination system?

- High capacity, low pressure showerheads or hoses, connected to a high capacity, temperature-controlled water source
- Capability to heat ambient air
- Permanent and/or portable lighting fixtures
- Portable generators, capable of providing power to the area in the event of a loss of power
- PA speaker system for communication purposes
- Other:

Approximately 60-90 pounds per square inch (psi) water pressure is recommended for decontamination system showerheads. (SBCCOM, 2000)

Decontamination Triage

Has your facility identified a patient reception area located away from the Emergency Department, where incoming patients will be triaged for decontamination?

Does your facility use the Simple Triage and Rapid Treatment (START) principle or other process for prioritizing patient decontamination?

Has your facility trained and appointed at least two dedicated, skilled, clinical decontamination team members to perform decontamination triage while wearing PPE?

Are decontamination triage personnel capable of conducting an initial patient assessment at a rate of 30 seconds or less per patient while wearing Level C PPE?

Does your facility use waterproof patient tags (such as SMART Triage Tags) to document each patient’s triage status?
Which of the following does your facility implement in order to conduct decontamination triage?

- An expedited decontamination line for individuals presenting with serious or life-threatening symptoms
- A separate lane for individuals who arrive by EMS and have been decontaminated at the incident scene
- Separate triage lanes for ambulatory and non-ambulatory patients
- Separate triage lane for “worried well” or psychogenic patients
- Separate triage lane/area for infants and children
- Separate triage lane/area for those with cognitive impairments
- Separate area for decontamination of service animals and pets
- Other:

Does your facility prioritize non-ambulatory patient decontamination?

Patient Decontamination

Which of the following supplies does your facility utilize to perform patient decontamination?

- Tepid water, capable of being held at a constant temperature
- Mild liquid soap, with good surfactant properties
- Sterile saline for wound irrigation purposes
- Sterile sponges/sterile gauze
- Soft cloths
- Long handled brushes with soft bristles
- Dry decontamination supplies
- Brushes
- Baking powder, Fuller’s Earth, Diatomaceous Earth, etc.
- Baby wipes
- Other:

The American National Standards Institute (ANSI) standard 2358.1 defines tepid water as between 60 and 100 degrees Fahrenheit. Water should be kept between 98-100 degrees Fahrenheit when used to decontaminate infants and children. A water temperature less than 98 degrees Fahrenheit may increase the potential for hypothermia. (NYC Health and Mental Hygiene, 2006)

Light scrubbing (with brushes or cloths) is recommended only when the contaminant is a chemical vapor, or a biological or radiological material, or if the patient is free of open wounds/skin abrasions. (U.S. Army Edgewood Chemical Biological Center, 2008)
Which of the following supplies does your facility use to address patients’ concerns of privacy during decontamination procedures?

- Gender-specific decontamination lanes, stalls, or screens (not necessary for smaller children)
- Patient replacement clothing (ponchos, coveralls, gowns, scrubs, booties)
- Towels
- Blankets
- Other:

Which of the following supplies does your facility use to assist with patient tracking purposes throughout the decontamination process?

- Waterproof patient triage tags
- Waterproof wrist bands/bracelets
- Wax pens and/or waterproof permanent markers
- Small and large sealable plastic bags (one of each recommended per patient)
- Waterproof labels to affix to bagged patient belongings
- Biohazard bags and/or large sealable drums for storage and/or disposal of patient belongings
- Polaroid camera with film, digital camera, or smartphone with photo capability
- Other:

How do decontamination team personnel provide instruction to patients regarding decontamination procedures?

- Pictorial/illustrated signage
- Multilingual signage
- Scripted, looped audio messaging
- Scripted, looped video messaging
- Verbal instruction, using megaphones or other amplified device
- Other:

“Trash bag” decontamination kits may serve as a cost-effective method of addressing patients’ concerns for privacy during decontamination. Large, opaque trash bags are cut to serve as a covering under which the patient can undress. Additional information on trash bag decontamination kits can be found at:

Does your facility institute minimum/maximum per-patient shower times, scalable to the specific hazard and/or other decontamination considerations?

Which of the following supplies does your facility maintain onsite in order to assist with non-ambulatory patient decontamination procedures?

- Litter conveyor system/rollers
- Sawhorses
- Spine boards/backboards
- Wheelchairs
- Backpack sprayers
- Snub-nosed trauma scissors
- Plastic chairs
- Other:

Has your facility developed specific decontamination procedures to address the needs of the following patient populations and scenarios?

- Individuals with physical and/or cognitive impairments
- Non-English speaking individuals or Limited English Proficiency (LEP) individuals
- Individuals with prosthetic devices or other medical aids (e.g. hearing aids)
- Individual with service animals and/or pets
- Law enforcement personnel or other individuals carrying weapons
- “Worried well” Individuals, and those displaying signs of psychological distress
- Noncompliant Individuals, refusing to disrobe and/or participate in the decontamination process
- The contaminated deceased

Has your facility developed specific plans and procedures regarding decontamination of infants and small children?

Current guidance suggests a minimum per-patient shower time of 30 seconds and a maximum per-patient shower time of 5 minutes. The approximate per-patient shower time should be determined based on the specific hazard and scale of the incident. (U.S. Army Edgewood Chemical Biological Center, 2008)

Snub-nosed/blunt scissors are recommended for removal of non-ambulatory patient clothing as a way to prevent further spread of the contaminant from pulling clothing over the head and body. (OSHA, 2005)

In conjunction with the Agency for Healthcare Quality and Research (AHRQ), Children’s Hospital Boston developed a video that provides safety considerations for decontamination of infants and children. The video can be accessed at:

http://www.remm.nlm.gov/deconvideo.htm
Does your facility maintain a list of items that cannot be decontaminated, such as hearing aids?

Has your facility established a policy for the return of valuables to patients following decontamination?

Which of the following resources does your facility use to perform patient decontamination in instances of extreme cold (temperature of 35 degrees Fahrenheit and below)?

- Decontamination trailers
- Indoor shower facilities
- Indoor swimming pools
- Dry decontamination only
- Other:

Do decontamination team personnel medically monitor patients before, during, and following the decontamination process?

Does your plan specify how patients will be inspected for thorough decontamination prior to leaving the hospital decontamination zone?

In a small-scale incident, is your facility able to decontaminate the resulting number of patients per hour, using the algorithm below?

\[
\text{Annual Number of ED Visits/1000} = \text{Patient per Hour Capacity}^{15}
\]

In a large-scale incident, is your facility capable of decontaminating approximately 12 patients per showerhead, per hour?
REFERENCES

5. CHEMTREC. Emergency Responders. (2013)
6. OSHA Best Practices. 13-19
8. OSHA Regulations, Standards 29-CFR. Respiratory Protection.
11. Ramesh and Kumar, 3.
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# Decontamination Recovery

Has your facility appointed at least one dedicated, skilled decontamination team member to perform and/or oversee contracted vendor technical decontamination of the following?

- [ ] Suited decontamination team personnel
- [ ] Decontamination equipment
- [ ] Hospital decontamination zone /warm zone
- [ ] Contaminated vehicles

Has your facility established a MOA/MOU or other agreement with a local hazardous waste company or municipal wastewater treatment facility to provide assistance with waste and waste water removal following a decontamination incident?

Has your facility developed discharge plans/follow-up procedures for decontaminated patients?

Does your facility follow an established process for returning all decontamination equipment and supplies to a centralized location?

Does your facility have a method of determining whether equipment used in conjunction with decontamination operations is able to be decontaminated and reused?

Does your facility have a process for timely replacement of disposed-of decontamination equipment and resources?

Does your facility’s decontamination plan demobilize resources and personnel by priority levels or phases?

Does your facility have a method of determining the approximate time it will take to fully restore decontamination capability following a decontamination response?

---

**Technical Decontamination** includes decontamination of response personnel, equipment, and surface areas. The U.S. Agency for Toxic Substances and Disease Registry (ATSDR) developed a Technical Decontamination Process for Hospital Personnel which can be accessed here: [http://www.atsdr.cdc.gov/MHMI/mhmi-v2-2.pdf](http://www.atsdr.cdc.gov/MHMI/mhmi-v2-2.pdf)
Hospital Decontamination
Self-Assessment Tool

☐ Does your plan specify procedures for storage and analysis of collected patient belongings in the event of a suspected terrorist or intentional hazardous material release?

☐ An intentional hazardous materials release is considered a criminal offense and requires investigation by law enforcement personnel. (OSHA, 2005)

☐ Does your facility provide post-event counseling and/or other mental health services for staff involved in the decontamination response?

☐ Does your plan specify whether patients will be billed for decontamination services in both small and large-scale incidents?

☐ For potential reimbursement purposes, does your facility utilize a cost-tracking system to document all expenses associated with the decontamination response?

☐ Does your facility conduct a hotwash following decontamination demobilization in order to capture key response actions, forming the basis of an Improvement Plan?

☐ Does your facility follow an established process for timely implementation of recommendations/lessons learned from either real-world decontamination events or simulated decontaminated exercises?

☐ Does your facility have a method of sharing lessons learned from decontamination exercises and real world events with community partners?
Appendices

Appendix A: Planning Matrices

Appendix B: Acronym List

Appendix C: List of References
Appendix A: Planning Matrices

Figure 1. Hospital Decontamination Planning Matrix

The following matrix provides an overview of essential decontamination planning considerations regarding collaboration with local response agencies. Select the boxes that are applicable to your facility.

<table>
<thead>
<tr>
<th>OBJECTIVE:</th>
<th>FIRE SERVICES</th>
<th>EMS</th>
<th>LAW ENFORCEMENT</th>
<th>PUBLIC HEALTH</th>
<th>EMERGENCY MANAGEMENT</th>
<th>OTHER:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your facility work collaboratively with a Planning Point of Contact (POC) from the agency, at least twice per year?</td>
<td></td>
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<tr>
<td>Is a representative from the agency routinely present at Local Emergency Planning Committee (LEPC) meetings?</td>
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</tr>
<tr>
<td>Does your facility have contact information for at least one POC from the agency that can be reached on a 24/7 basis?</td>
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</tr>
<tr>
<td>Is your facility able to initiate and sustain redundant, two-way communication with the agency during an incident?</td>
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<tr>
<td>Does your facility conduct training and exercises focused on or inclusive of hospital decontamination operations with the agency at least once annually?</td>
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<tr>
<td>Has your facility established MOUs/MOAs with the agency to provide assistance with decontamination operations?</td>
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<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
**Figure 2. Hospital Decontamination Team Matrix**

The following matrices provide an overview of essential decontamination team planning considerations. Select the boxes that are applicable to your facility.

<table>
<thead>
<tr>
<th>DECONTAMINATION TEAM PERSONNEL CONSIDERATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ED PHYSICIANS</strong></td>
</tr>
<tr>
<td>Which positions are represented on your hospital's decontamination team?</td>
</tr>
<tr>
<td>Which positions are staffed on a 24/7 basis?</td>
</tr>
<tr>
<td>Does your plan include up-to-date contact information for each staff member assigned to the position?</td>
</tr>
<tr>
<td>Which positions require use of PPE?</td>
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<tr>
<td>Which positions have received training on PPE?</td>
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<tr>
<td>Which positions have received medical clearance to use PPE?</td>
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</tbody>
</table>
## OSHA HAZWOPER HAZARDOUS MATERIALS TRAINING

<table>
<thead>
<tr>
<th>OSHA HAZWOPER TRAINING:</th>
<th>ED PHYSICIANS</th>
<th>ED NURSES</th>
<th>ED NURSING ASSISTANTS</th>
<th>SECURITY</th>
<th>MAINTENANCE/ FACILITIES</th>
<th>ENVIRONMENTAL HEALTH</th>
<th>RECORD KEEPER</th>
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<tr>
<td>Which positions have received <strong>Hazwoper Awareness-Level Training</strong>?</td>
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<td>Which positions have received <strong>Hazwoper Operations-Level Training</strong>?</td>
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<td>Which positions have received <strong>Hazwoper Technician-Level Training</strong>?</td>
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## DECONTAMINATION TEAM CAPACITY

<table>
<thead>
<tr>
<th>DECONTAMINATION TEAM CAPACITY:</th>
<th>ED PHYSICIAN</th>
<th>ED NURSE</th>
<th>ED NURSING ASSISTANT</th>
<th>SECURITY</th>
<th>MAINTENANCE/FACILITIES</th>
<th>ENVIRONMENTAL HEALTH</th>
<th>RECORD KEEPER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which position(s) have the capacity to serve as the <strong>Decontamination Team Leader</strong>?</td>
<td>□</td>
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<tr>
<td>Which position(s) have the capacity to serve as <strong>Decontamination Safety Officers</strong>?</td>
<td>□</td>
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<tr>
<td>Which positions have the capacity and have received training to perform decontamination triage?</td>
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<tr>
<td>Which positions have the capacity and have received training to conduct medical monitoring of suited decontamination response personnel?</td>
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<tr>
<td>Which positions have the capacity and have been trained to perform <strong>technical decontamination</strong> (decontamination of personnel, equipment, and/or surface areas)?</td>
<td>□</td>
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</table>
Appendix B: Acronym List

**CBRNE:** Chemical, Biological, Radiological, Nuclear, and Explosives

**EMS:** Emergency Medical Services

**EOP:** Emergency Operations Plan

**HEPA:** High Efficiency Particulate Air

**HVA:** Hazard Vulnerability Analysis

**JAS:** Job Action Sheets

**LEPC:** Local Emergency Planning Committee

**MOA:** Memorandum of Agreement

**MOU:** Memorandum of Understanding

**NIOSH:** National Institute for Occupational Safety and Health

**OSHA:** Occupational Safety and Health Administration

**PAPR:** Powered Air Purifying Respirator

**PIO:** Public Information Officer

**PPE:** Personal Protective Equipment

**REPC:** Regional Emergency Planning Committee

**SLUDGEM:** Salivation, Lacrimation, Urination, Defecation, Gastrointestinal upset, Emesis, Miosis
Appendix C: List of References


End Document
ICS Forms and the Planning P

IS-201: Forms Used for the Development of the Incident Action Plan
http://emilms.fema.gov/IS201/ICS01summary.htm

The Planning Cycle, or "Planning 'P'" as it's generally referred to, establishes a continuum for Incident Action Planning (IAP) during both emergency and non-emergency operations. The Planning "P" as defined in the Planning "P" video is an integral tool for the NIMS ICS All-Hazards Position-Specific coursework. The Planning "P" used in that coursework and video is a slight modification of the Planning "P" identified in NIMS, which is used in this course.

The timing of the Command and General Staff meeting, as noted on the Planning "P", accounts for the difference in the planning cycles. NIMS places this meeting between the Incident Command/Unified Command Develop/Update Objectives Meeting and the Preparing for the Tactics Meeting. The Planning "P" used in the previously mentioned coursework and the video recognizes the flexibility of the Command and General Staff meeting, and relies on the needs of the incident to determine the timing for the meeting.

The Incident Action Plan (IAP):

- Is defined as an oral or written plan containing general objectives reflecting the overall strategy for managing an incident
- May include the identification of operational resources and assignments
- May include attachments that provide direction and important information for management of the incident
- Should be considered a work in progress during the initial stages of incident response
Planning Process Overview:

Sound, timely planning provides the foundation for effective incident management. The planning process represents a template for strategic, operational, and tactical planning that includes all steps that an Incident Command/Unified Command (IC/UC) and other members of the Command and General Staff should take to develop and disseminate an IAP.

The planning process may begin with the:

- Scheduling of a planned event
- Identification of a credible threat
- Initial response to an actual or impending incident

The process continues with the implementation of the formalized steps and the staffing required for the development of a written IAP.

Planning Process: Five Primary Phases:

The five primary phases should be followed in sequence to ensure a comprehensive IAP. These phases are designed to enable the accomplishment of incident objectives within a specified time.

The primary phases of the planning process are essentially the same for the IC who develops the initial plan, for the IC and Operations Section Chief revising the initial plan for extended operations, and for the Incident Management Team (IMT) developing a formal IAP.

The five primary phases are:

1. Analyze the Situation, Including Future Developments
2. Establish Incident Objectives and Strategy
3. Develop the Plan
4. Prepare and Disseminate the Plan
5. Execute, Evaluate, and Revise the Plan

1. Analyze the Situation, Including Future Developments:

The first phase includes gathering, recording, analyzing, and displaying situation, resource, and incident-potential information in a manner that will facilitate:

- An ICS-201 or other initial incident tracking resource, such as a status board or jurisdiction-specific forms, which are often used to capture initial incident command objectives, resource status, and immediate actions and may be used to provide an initial briefing for additional command personnel
- The ability to determine the resources committed and those that may be required, including Command and General Staff who may be needed to develop and implement an effective IAP
- Increased situational awareness of the magnitude, complexity, and potential impact of the incident
This phase is the vertical leg of the Planning “P”.

2. Establish Incident Objectives and Strategy:

The second phase includes formulating and prioritizing SMART incident objectives and identifying appropriate strategies to meet incident challenges (ICS-215 and ICS-215A).

SMART objectives are:

- **Specific**—what exactly are we going to do, with whom, and for whom?
- **Measurable**—is it measurable and how do WE measure it?
- **Action-Oriented**—what are the performance expectations?
- **Realistic**—can it be accomplished as proposed?
- **Time frame**—when will we accomplish this objective?

Within the Planning “P”, this is the phase when the IC/UC develop the initial incident objectives or revise the incident objectives for the next operational period.

3. Develop the Plan:

The third phase involves determining the tactical direction and the specific resources, reserves, and support requirements for implementing the selected strategies and tactics for the operational period (ICS-215, ICS-215A, ICS-202, ICS-203, ICS-204, ICS-205, ICS-206).
This phase in the Planning “P” includes a meeting of the Command and General Staff, with each position making a determination as to what they forecast, how they prioritize their resource needs, and how they will achieve specific objectives. This is the preparation for the Planning Meeting to finalize the IAP.

4. Prepare and Disseminate the Plan:

The fourth phase involves preparing the plan to include the detail that is appropriate for the level of complexity of the incident.

Within the Planning “P”, this step includes:

- Giving an update on the situation, resource status, and incident potential
- Reviewing and reconfirming objectives
- Identifying geographic operational lines, establishment of Branch and/or Division boundaries, and identifying functional Group assignments
- Assigning specific tactics for each Division and/or Group
- Identifying operational facilities and reporting locations
- Confirming resource orders
- Communications, Medical, and Traffic Plan requirements and considerations
- Finalization, approval, and implementation of the IAP
5. Execute, Evaluate, and Revise the Plan:

The planning process includes the expectation to execute and evaluate planned activities and check the accuracy of information to be used in planning for subsequent operational periods. The General Staff should regularly compare planned progress with actual progress during the operational period.

Within the Planning “P”, this phase of the planning process is the lower right corner and bottom half, which now completes the Planning “P” and the operational period in which it was used.

Summary:

- During all stages of incident management, planners should gather, assess, and disseminate information
- ICS forms are valuable tools to assist in developing a simple plan that can be communicated through briefings
- Frequently, the initial plan must be developed very quickly and with incomplete situation information
- Using the ICS forms to gather information provides a template for strategic, operational, and tactical planning
Hospital Haz Mat Operations Level Training Course

Patient Decontamination Procedure:

**Ambulatory Patients**

1. Direct patient to Decon Sector.
2. Children should be kept with their parents if at all possible; if no parent or older sibling is available then a Decon Team member should provide needed assistance to a child. Patients should be given Personal Decon set as soon as it is available and be given rapid instructions on its’ use. The kit stays with the patient through the decontamination process.
3. All patient clothing should be removed and valuables put into a clear plastic bag and clothing into large bag. Place both bags into 3rd bag and cinch tight with triage tag number. Clothing should be cut away where necessary.
4. The clothing bag should be set aside in secure area.
5. If staff is available, patients name and number should be recorded on Patient Decon Record.
6. The patient should continue forward into the Decon Sector with remaining part of Personal Decon Kit.
7. The patient should quickly rinse themselves from head to toe with water using either the hand held sprayer, garden hose or shower head
8. The patient should next wash with soap and wash cloth or brush from the kit in a systematic fashion cleaning open wounds first and then in a head to toe fashion for five minutes when the agent is non-persistent and eight minutes when a persistent or unknown agent is involved. Discourage the patient from rubbing too vigorously while washing. Eye irritation may require the use of a topical anesthetic first before irrigating.
9. The Decon Team should closely observe each victim to ensure they are thorough in washing themselves. Particular attention should be made to ensure they wash the axilla, creases, folds and hair. Help should be offered as necessary.
10. Once the washing is completed then each patient should thoroughly rinse themselves (this should require about a minute to complete.)
11. Decon soap bars, wash cloths, brushes and sponges should be put into a nearby trashcan and NOT carried into the Cold Zone.
12. After the rinse/wash/rinse cycle is complete the patient should next proceed to the towel off area and complete drying off and leave towel in trashcan.
13. Following drying off the patient should put on the patient gown and proceed to the Triage Officer for rapid assessment and assignment to a Treatment Sector.
14. Additional treatment will be limited only to those interventions deemed life saving by the Decon Officer. Antidote administration should be done via the IM route after cleaning the affected area first.
15. Decon Team members should be alert to the possibility that an ambulatory patient may clinically deteriorate and require immediate removal to the Non Ambulatory Sector via backboard, stretcher or wheelchair.
Non-Ambulatory Patients

1. Patient should be brought to the Decon Sector and tended to by a minimum of four decon personnel.
2. Each patient should be put onto a backboard or EMS stretcher with the pad removed.
3. All patient clothing should be removed and valuables put into a clear plastic bag and clothing into large bag. Place both bags into 3rd bag and cinch tight with triage tag number. Clothing should be cut away where necessary.
4. Attention should be paid to minimizing the aerosolization spread of particulate matter by folding clothing inside out as removal is being done and dabbing the skin with sticky tape and or vacuuming.
5. Patients should have clothing bag tag around their neck and wear it through decon and treatment. This can be the triage tag.
6. The clothing bag should be set aside in secure area. If staff is available, patients name and number should be recorded on Patient Decon Record.
7. While resting the backboard on saw horses or other device or with patient on EMS stretcher the patient should quickly be rinsed from head to toe with water using either the hand held sprayer, garden hose or shower head; protection from aspiration of the rinse water should be initiated.
8. Next, the patient should be washed with soap and either a brush or wash cloth in a systematic fashion cleaning airway first followed by open wounds then in a head to toe fashion for five minutes when the agent is non-persistent and eight minutes when a persistent or unknown agent is involved. Avoid rubbing too vigorously.
9. The patient should be rolled on their side for washing of the posterior head, neck, back, buttocks and lower extremities by 2-4 personnel; attention to a possible neck injury should be given.
10. Careful attention should be given to washing the voids and creases such as the ears, eyes axilla, and groin.
11. Topical eye anesthetic may be required for effective eye irrigation to be done.
12. The patient should then be rinsed in a head to toe fashion that minimizes contamination spread for about one minute. Overspray or holding the rinsing devise too close so as to irritate the skin should be avoided.
13. Decon Team members should be alert to the probability that the non-ambulatory patient may require support (airway positioning, suctioning, O2 administration, spinal stabilization etc.) and administration of life saving antidote administration by IM injection. If IV therapy is needed the extremity site for the IV should be decontaminated quickly before the IV is started. If IV therapy is needed the patient should be pulled out of line in the Decon Corridor but remain in the Decon Sector. **CPR or ACLS intervention should not be started unless there are no other patients awaiting decontamination.**
14. The patient should be dried off, put into a hospital gown and transferred to a clean backboard (or clean off and dry the board they are on if additional boards are not available). Patients on an EMS stretcher should be transferred to a clean backboard.
15. Decon soap bars, brushes and sponges should be put into a trashcan and not carried into the Cold Zone. O2 materiel should remain in the Decon Sector.
16. The patient should be taken to the Triage Officer for rapid assessment and assignment to area in the Treatment Sector.
Patients with Special Needs:

**Glasses/Contact Lenses**

1. Patients with glasses should keep them if they cannot see without them. Glasses must be washed and rinsed thoroughly during the decon process before being worn. Otherwise, the glasses should be placed in the valuables portion of the clothing bag.

2. Contact lenses should be removed and placed in the valuables portion of the clothing bag.

**Canes/Walkers**

1. Patients who use walking assist devices may retain them but, the devise must be washed with soap and water during the decon process before being allowed into the Treatment Sector.

2. Patients who are unsteady standing and or walking should be given a walker upon entry into the Decon Corridor. The walker should be used to assist with ambulation until they get to the end of the line when it should be retrieved, decontaminated and returned to the front of the Decon Corridor for the next patient who needs it.

**PIC Lines/Saline Locks**

1. Unless contaminated PIC lines and saline locks should be covered with Tegoderm or Saran wrap before the area is decontaminated.

2. Contaminated PIC lines or saline locks should be removed before being decontaminated. After the area is cleaned a dressing should be applied until in The Treatment Sector where antibiotic ointment and a new bandage should be applied.

**Hearing Aids**

1. Hearing aids CANNOT be immersed or otherwise be soaked with water. Thus, they should either be removed and placed in the valuables portion of the patient’s clothing bag or if they must be used by the patient because there is no hearing without them they should be carefully wiped off with a slightly saline moistened 4x4 gauze, dried off, put into a clear plastic bag and handed to the patient. The cleaned hearing aid is NOT to be worn until the patient has completed the decon process (including washing the ears) and is in the Treatment Sector.

**Dentures**

1. Unless the oral cavity is contaminated dentures should remain in place and no decontamination is necessary.

2. If the oral cavity is contaminated then the dentures should be removed, placed in a clear plastic bag with the patient’s name or clothing identification number placed on it. The dentures should later be decontaminated in accordance with instructions received from the Poison Center and/or a dentist. The patient’s mouth should be decontaminated with mouthwash or saline that is gurgled and safely spit out into a bio-hazard bag.
Law Enforcement Officers with Weapons:

1. In most cases law enforcement personnel who have been injured on the scene will have had their gun(s) removed before arrival and given to a fellow officer. However, if that is not the case the weapon should be left in the holster and the gun belt removed by a Decon Team member and placed in a clear plastic bag labeled with the patient’s name and/or clothing number. The bag should then be passed to the Treatment Sector where it should be given to a fellow officer or hospital Security Officer for safe keeping until it can be given to a representative of the injured officers department. **THE GUN SHOULD BE LEFT IN THE HOLSTER IF AT ALL POSSIBLE.** If the gun must be removed it should be handled by a Decon Team member familiar with firearms, rendered safe, placed in a clear plastic bag marked with the patient’s name and/or clothing identification number and given to a fellow officer or hospital Security Officer in the Treatment Sector.

2. Decon Team personnel should be aware that often times an officer may have a backup weapon usually found in a holster near the ankle, in their pocket, in a ballistic vest or near an armpit. The holster with the weapon in place should be removed and secured as described above.

3. An officer’s gun belt may also contain items that could prove dangerous if allowed to get in the wrong hands. Thus, the belt should be collected and separately bagged as soon as possible and passed to a fellow officer or hospital Security Officer in the Treatment Sector. **DECONNING OF AN OFFICER’S WEAPON AND/OR GUN BELT WILL BE THE RESPONSIBILITY OF THE POLICE DEPARTMENT.**

4. If the Officer is wearing a ballistic vest it must be removed prior to undergoing decontamination. The vest is usually easily removed by loosening the Velcro straps and then pulling the vest apart and then off the patient. It should then be placed in a large plastic bag identified with the patient’s name and/or clothing number on it and then passed to a fellow officer or Hospital Security Officer in the Treatment Sector.
**Service Animals:**

**Working dogs** are sometimes not safely separated from their handlers and search-and-rescue or other detection dogs (bombs, cadaver, arson, etc.) may belong to handlers who are themselves hazmat-trained, emergency first responders. Working animals are considered responders and are processed through the decontamination station.

**Service Animals** meeting ADA requirements provide assistance and reassurance to their owners. Removing a service animal from their owner may not be possible due to the severe distress this may cause both individuals in an already stressful situation. In this case, normal human decontamination procedures will need to be altered to accommodate both service animal and its owner at the same time.

1. Individuals with animals, Working and/or Service animals should be instructed to remove collars, leashes and other equipment by Decon Team personnel. Designate an equipment drop area where equipment (leashes, muzzles, leads, etc.) can be dropped and decontaminated and should be placed in appropriate containers or bags as provided by the hospital and labeled.

2. Once through the shower, each animal should be dried and immediately, the animal should be given a unique identification number on a wristband placed around the leg or other accessible location. This number should match the triage or identification number assigned to their owner.

3. Veterinary evaluation station (exit point to the cold zone where veterinary medical personnel may attend to illnesses or injuries of the animal(s) and monitor for hypo- and hyperthermia); and a recovery and rehabilitation station (animals and humans need periodic rest times in order to prepare to return to home, the mission, or home) may be designated in a location in the cold zone, however is not required.

Hospital Hazmat Operations Level Training for First Receivers  
Post Test - ANSWERS

1. First Responder Awareness and First Responder Operations are classified as defensive approaches to mitigate a hazmat incident.  True  False

2. There is no one definition of a hazardous material, but a common definition is, “Any substance to which exposure results or may result in adverse effects on life, environment, and property.”  True  False

3. Victims of a Hazmat exposure are likely to seek care from the nearest Emergency Department and then fan out to other hospitals in surrounding areas.  True  False

4. ________________ is when a hazardous materials incident occurs within the hospital or on hospital property.

5. Hazmat scene clues include:
   A. Container labels  
   B. Placards  
   C. Influx of patients with the same symptoms  
   D. Reports of a mass casualty incident (MCI)  
   E. People down or running from an area  
   F. All of the Above

6. The goal of any hazmat is to protect ________________, ________________ & ________________  
   (in order)

7. Chemical agent dispersal will vary on all but:
   A. Concentration  
   B. Wind Speed  
   C. Direction  
   D. Humidity  
   E. Time  

8. Emergency response spills require Hazmat response if at risk to employees and overexposure to employees.  True  False

9. Example of a small spill includes:
   A. A 55 gallon drum with an unknown substance leaking  
   B. A chemical causing a vapor that exceeds the quantity amounts on the SDS  
   C. A 250 ml spill of a known chemical in the lab  
   D. None of the above

10. Initial actions for a spill include:  
   Safety, Isolation & Notification
11. SDS is the acronym used to identify:
   A. Selection & Data Statistics
   B. Selection of Dangerous Substances
   C. Safety & Dangerous Stuff
   D. Safety Data Sheets

12. If a contaminated patient walks into the hospital, you:
   A. Take the patient to triage
   B. Walk the patient out the closest exit and take the patient to the ED lobby
   C. Wrap the patient in blankets and have them wait for the hazmat team
   D. Have the patient exit the same way they came into the hospital and proceed to the designated staging area

13. Chemical reference guides include all but:
   A. NIOSH
   B. SDS
   C. Webster’s Dictionary
   D. ERG

14. Routes of exposure include inhalation, absorption, injection, and ingestion. True False

15. The blue diamond on the NFPA 704 system indicates what type of hazard:
   A. Health
   B. Flammability
   C. Reactivity
   D. Miscellaneous

16. An Action Plan establishes overarching, measurable, realistic, and time oriented objectives. True False

17. Level C PPE provides a lower level of ____________________________ protection from Level B.

18. Once operationally trained you can control or stop a hazmat release. True False

19. Medical screening must be completed prior to donning and after doffing PPE? True False

20. A person has stepped into a standing puddle of a liquid hazardous material. This person has been:
   A. Exposed
   B. Contaminated
   C. Cross Contaminated
   D. Respiratory
21. The Safety Officer has the authority to alter, suspend, or terminate activity that is deemed unsafe.  
   True   False

22. If a patient still complains of burning after emergency decontamination you:  
   A. Wait for 5 minutes and see if the patient still feel a burning sensation  
   B. Take the patient into the Post Decontamination Zone  
   C. Have the patient go through decon again  
   D. Apply a topical ointment

23. Technical decontamination is when decon team members go through decontamination to wash off 
   PPE and equipment.   True      False

24. Complete the tactical Acronym:

   S
   I
   N
   C
   I
   A
   P
   C
   P
   D
   D
   D
   D

25. Now that you have completed the Operations course, you must demonstrate annual competency 
   donning and doffing PPE and participate in an annual decon drill.   True      False
Hospital Hazmat Operations Level Training for First Receivers
Post Test

1. First Responder Awareness and First Responder Operations are classified as defensive approaches to mitigate a hazmat incident.  True  False

2. There is no one definition of a hazardous material, but a common definition is, “Any substance to which exposure results or may result in adverse effects on life, environment, and property.”  True  False

3. Victims of a Hazmat exposure are likely to seek care from the nearest Emergency Department and then fan out to other hospitals in surrounding areas.  True  False

4. ______________________ is when a hazardous materials incident occurs within the hospital or on hospital property.

5. Hazmat scene clues include:
   A. Container labels
   B. Placards
   C. Influx of patients with the same symptoms
   D. Reports of a mass casualty incident (MCI)
   E. People down or running from an area
   F. All of the Above

6. The goal of any hazmat is to protect ________________, ________________ & ________________ (in order)

7. Chemical agent dispersal will vary on all but:
   A. Concentration
   B. Wind Speed
   C. Direction
   D. Humidity
   E. Time

8. Emergency response spills require Hazmat response if at risk to employees and overexposure to employees.  True  False

9. Example of a small spill includes:
   A. A 55 gallon drum with an unknown substance leaking
   B. A chemical causing a vapor that exceeds the quantity amounts on the SDS
   C. A 250 ml spill of a known chemical in the lab
   D. None of the above
10. Initial actions for a spill include: ___________________________________________________

11. SDS is the acronym used to identify:
   A. Selection & Data Statistics
   B. Selection of Dangerous Substances
   C. Safety & Dangerous Stuff
   D. Safety Data Sheets

12. If a contaminated patient walks into the hospital, you:
   A. Take the patient to triage
   B. Walk the patient out the closest exit and take the patient to the ED lobby
   C. Wrap the patient in blankets and have them wait for the hazmat team
   D. Have the patient exit the same way they came into the hospital and proceed to the designated staging area

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   A. NIOSH
   B. SDS
   C. Webster’s Dictionary
   D. ERG

14. Routes of exposure include inhalation, absorption, injection, and ingestion. True    False

15. The blue diamond on the NFPA 704 system indicates what type of hazard:
   A. Health
   B. Flammability
   C. Reactivity
   D. Miscellaneous

16. An Action Plan establishes overarching, measurable, realistic, and time oriented objectives. True    False

17. Level C PPE provides a lower level of ________________________________ protection from Level B.

18. Once operationally trained you can control or stop a hazmat release. True    False

19. Medical screening must be completed prior to donning and after doffing PPE? True    False
20. A person has stepped into a standing puddle of a liquid hazardous material. This person has been:
   A. Exposed
   B. Contaminated
   C. Cross Contaminated
   D. Dispersed

21. The Safety Officer has the authority to alter, suspend, or terminate activity that is deemed unsafe.
   True   False

22. If a patient still complains of burning after emergency decontamination you:
   A. Wait for 5 minutes and see if the patient still feel a burning sensation
   B. Take the patient into the Post Decontamination Zone
   C. Have the patient go through decon again
   D. Apply a topical ointment

23. Technical decontamination is when team members go through decontamination to wash off PPE and equipment. True   False

24. Complete the tactical Acronym:

   S
   I
   N
   C
   I
   A
   P
   C
   P
   D
   D
   D

25. Now that you have completed the Operations course, you must demonstrate annual competency donning and doffing PPE and participate in an annual decon drill. True   False
SELF DECONTAMINATION INSTRUCTIONS

1. REMOVE ANY JEWELRY AND VALUABLES AND PLACE THE ITEMS INTO THE SMALL PLASTIC ZIPLOCK BAG. PUT THE IDENTIFICATION BAND ON YOUR WRIST.

2. STEP BEHIND THE MODESTY SCREEN AND REMOVE OUTER LAYERS OF CLOTHING, BEING CAREFUL NOT TO PULL CLOTHING OVER YOUR HEAD, CUT OFF IF NECESSARY, PLACE THIS CLOTHING IN THE LARGE PLASTIC ZIPLOCK BAGS.

3. PLACE THE BLACK PLASTIC BAG OVER YOUR HEAD AND BODY AND PUT YOUR HEAD THROUGH THE HOLE IN THE TOP OF THE BAG.

4. REMOVE THE REST OF YOUR CLOTHING, WHILE UNDER THE BAG, AGAIN CUT OFF IF NECESSARY, AND PLACE THE CLOTHING IN THE SAME LARGE PLASTIC ZIPLOCK BAG AS BEFORE. IF THIS BAG IS FULL, USE THE OTHER LARGE PLASTIC ZIPLOCK BAG.

5. TAKE HOSE AND START RINSING OFF FROM HEAD DOWN, TRYING TO KEEP WATER OUT OF MOUTH AND NOSE.

6. TAKE SOAP FROM PLASTIC CONTAINER AND WASH THOROUGHLY ALL OVER YOUR BODY.

7. NEXT RISE OFF WITH LOTS OF WATER, STARTING FROM THE TOP OF YOUR HEAD.

8. TAKE TOWEL AND DRY OFF.

9. STEP BEHIND THE MODESTY CURTAIN AND REMOVE THE BLACK BAG, PUT ON GOWN.

10. WAIT FOR THE NURSE TO CHECK YOU.
ИНСТРУКЦИИ ПО САМОСТОЯТЕЛЬНОЙ ДЕЗАКТИВАЦИИ И ДЕЗИНФЕКЦИИ

1. СНИМИТЕ УКРАШЕНИЯ И ПОМЕСТИТЕ ИХ ВМЕСТЕ С ЦЕННЫМИ ВЕЩАМИ В НЕБОЛЬШОЙ ЗАКРЫВАЮЩИЙСЯ ПОЛИЭТИЛЕНОВЫЙ ПАКЕТ. НАДЕНЬТЕ НА ЗАПЯСТЬЕ ИДЕНТИФИКАЦИОННЫЙ БРАСЛЕТ.

2. ЗАЙДИТЕ ЗА ШИРМУ И ОСТОРОЖНО СНИМИТЕ ВЕРХНЮЮ ОДЕЖДУ. НЕ СНИМАЙТЕ ОДЕЖДУ ЧЕРЕЗ ГОЛОВУ, РАЗРЕЖЬТЕ ОДЕЖДУ ПРИ НЕОБХОДИМОСТИ. ПОМЕСТИТЕ ЕЕ В ОДИН ИЗ БОЛЬШИХ ЗАКРЫВАЮЩИХСЯ ПОЛИЭТИЛЕНОВЫХ ПАКЕТОВ.

3. НАДЕНЬТЕ ЧЕРНЫЙ ПОЛИЭТИЛЕНОВЫЙ МЕШОК, ПРОДЕВ ГОЛОВУ ЧЕРЕЗ ОТВЕРСТИЕ ВВЕРХУ МЕШКА.

4. СНИМИТЕ ОСТАЛЬНУЮ ОДЕЖДУ, ТАКЖЕ РАЗРЕЗАЯ ЕЕ ПРИ НЕОБХОДИМОСТИ, И ПОМЕСТИТЕ ЭТУ ОДЕЖДУ В БОЛЬШОЙ ЗАКРЫВАЮЩИЙСЯ ПОЛИЭТИЛЕНОВЫЙ ПАКЕТ С ВЕРХНЕЙ ОДЕЖДОЙ. ЕСЛИ В ЭТОМ ПАКЕТЕ НЕТ МЕСТА, ВОЗЬМИТЕ ДРУГОЙ ПОЛИЭТИЛЕНОВЫЙ ПАКЕТ.

5. НАЧНИТЕ ОБМЫВАТЬСЯ, ПОЛИВАЯ СЕБЯ СВЕРХУ ВОДОЙ ИЗ ШЛАНГА. СЛЕДИТЕ, ЧТОБЫ ВОДА НЕ ПОПАДАЛА В РОТ И В НОС.

6. ВОЗЬМИТЕ МЫЛО ИЗ ПЛАСТМАССОВОГО КОНТЕЙНЕРА И ТЩАТЕЛЬНО НАМЫЛЬТЕ ВСЕ ТЕЛО.

7. ПОСЛЕ ЭТОГО СМОЙТЕ МЫЛО ОБИЛЬНЫМ КОЛИЧЕСТВОМ ВОДЫ, ПОЛИВАЯ СЕБЯ СВЕРХУ.

8. НАСУХО ВЫТРИТЕСЬ ПОЛОТЕНЦЕМ.

9. ЗАЙДИТЕ ЗА ШИРМУ, СНИМИТЕ ЧЕРНЫЙ МЕШОК И НАДЕНЬТЕ ХАЛАТ.

10. ПОДОЖДИТЕ, ПОКА ВАС ОСМОТРИТ МЕДСЕСТРА.
INSTRUCCIONES PARA LA DESCONTAMINACIÓN PERSONAL

1. QUÍTESE TODAS LAS JOYAS Y OBJETO DE VALOR Y PÓNGALOS EN UNA BOLSA RESELLABLE DE PLÁSTICO PEQUEÑA. PÓNGASE LA BANDA DE IDENTIFICACIÓN EN LA MUÑECA.

2. PÁRESE DETRÁS DE LA PANTALLA DE DISCRECIÓN Y QUÍTESE LAS CAPAS EXTERNAS DE ROPA, CON CUIDADO DE NO SACARSE LA ROPA POR ENCIMA DE LA CABEZA; CÓRTELA DE SER NECESARIO. PONGA ESTA ROPA EN UNA DE LAS BOLSAS RESELLABLES DE PLÁSTICO GRANDES.

3. PÓNGASE LA BOLSA NEGRA DE PLÁSTICO SOBRE LA CABEZA Y CUERPO Y META LA CABEZA POR EL AGUJERO A TRAVÉS DE LA PARTE SUPERIOR DE LA BOLSA.

4. QUÍTESE EL RESTO DE LA ROPA MIENTRAS SE ENCUENTRA DENTRO DE LA BOLSA; DE NUEVO, CÓRTELA SI ES NECESARIO. PONGA LA ROPA EN LA MISMA BOLSA RESELLABLE DE PLÁSTICO GRANDE DE ANTES. SI ESTA BOLSA ESTÁ LLENA, USE OTRA BOLSA RESELLABLE DE PLÁSTICO.

5. TOME LA MANGUERA Y COMIENCE A ENJUAGARSE DE LA CABEZA HACIA ABAJO. TRATE DE QUE EL AGUA NO LE ENTRE EN LA BOCA NI EN LA NARIZ.

6. TOME EL JABÓN DEL CONTENEDOR DE PLÁSTICO Y LÁVESE BIEN TODO EL CUERPO.

7. LUEGO, ENJUÁGUESE CON MUCHA AGUA, COMENZANDO POR LA PARTE SUPERIOR DE LA CABEZA.

8. TOME LA TOALLA Y SÉQUESE.

9. PÁRESE DETRÁS DE LA CORTINA DE DISCRECIÓN, QUÍTESE LA BOLSA NEGRA Y PÓNGASE LA BATA.

10. ESPERE A QUE UN(A) ENFERMERO(A) LE HAGA UN CHEQUEO.
Hospital Hazardous Materials Site Safety and Control Plan - Annex
(To be used with and attached to IAP and Hazardous Materials Site Safety and Control Plan and HARM Worksheet)

1. Incident Name:          2. Date Prepared:          3. Operational Period:

<table>
<thead>
<tr>
<th>Decon</th>
<th>Spill Response</th>
<th>Both</th>
</tr>
</thead>
</table>

4. Site Access Issues? (including weather)

5. Decon Organization (Include names and medical monitoring info)

Branch Director

Technical Specialists

Assistant Safety Officer

Victim Decon Group Sup.

Facilities Unit Leader
- Site Logistics
- Site Set Up
- PPE Donning
- Site Support
- PPE Doffing

Forward Unit Leader
- Site Access Control
- Initial Contact
- Decon Triage
- Safe Refuge
- Safe Haven

Services Unit Leader
- Sniper/Bagger
- Washer/Rinser
- Dryer/Dresser
- Non-Ambulatory

Rapid Intervention Unit Leader
- Rapid Intervention Team
- Team Re-Hab Area

Hospital HazMat
Decon Incident
Command Chart
6. Spill Response Organization (Include names and medical monitoring info)

Hospital HazMat
Spill Response Incident
Command Chart

Branch Director

Technical Specialists

Assistant Safety Officer

Spill Response Group Sup.

Entry Team Unit Leader

Forward Unit Leader

Services Unit Leader

Rapid Intervention Unit Leader

Entry Team

Site Set Up

PPE Donning

Site Support

PPE Doffing

Site Access Control

Safe Refuge

Rapid Intervention Team

Team Re-Hab Area

7. Incident Commander
8. Operations Chief
9. Safety Officer
10.

11. Hazard Monitoring (type and readings)

<table>
<thead>
<tr>
<th>Type</th>
<th>Oxygen</th>
<th>Flammability (LEL)</th>
<th>Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiological</td>
<td>Other</td>
<td>Other</td>
<td>Other</td>
</tr>
</tbody>
</table>
12. Communications

<table>
<thead>
<tr>
<th>Tactical Frequency</th>
<th>Decon</th>
<th>Spill Response</th>
<th>Command Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>○ Hand Signals Reviewed</td>
<td></td>
<td></td>
<td>Whiteboard</td>
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<tr>
<td>Loud Hailer (bull horn)</td>
<td></td>
<td></td>
<td>Other</td>
</tr>
</tbody>
</table>

13. Decontamination Objectives

14. Spill Response Objectives

15. Type of Decon

<table>
<thead>
<tr>
<th>○ Precautionary/Secondary/ Patient</th>
<th>○ Emergency</th>
<th>○ Technical</th>
</tr>
</thead>
</table>

16. Type of Spill Response

<table>
<thead>
<tr>
<th>○ Offensive (Tech/Spec)</th>
<th>○ Contain/ Control (Ops)</th>
<th>○ SIN (Awareness)</th>
</tr>
</thead>
</table>

17. Victim Decon Guidelines and Work Practices and Special/Safety Instructions (include maximum time in suit based on heat stress guidelines, chemical specific hazards and warning signs, decon solutions if other than soap and tepid water)

18. Response Guidelines and Work Practices and Special/Safety Instructions (include maximum time in suit based on heat stress guidelines, chemical specific hazards and warning signs, tools needed, Responder Decon Guidelines if different than above)

19. Personal Protective Equipment (PAPR w/Multigas Cartridge, Liquid Splash Suit, Double gloves, Boots) Note if different

<table>
<thead>
<tr>
<th>Respiratory Protection</th>
<th>None</th>
<th>APR</th>
<th>PAPR</th>
<th>SAR</th>
<th>SCBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Contact/ Decon Triage/ Safe Refuge</td>
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<tr>
<td>Stripper-Bagger/Washer-Rinser/ Non-Ambulatory</td>
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<td>Site Access</td>
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<tr>
<td>Rapid Intervention</td>
<td></td>
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<td>Entry Team</td>
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<tr>
<td>20. Emergency Procedures</td>
<td>Victim Decon</td>
<td>Spill Response</td>
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<tr>
<td>Injury/Illness in Zones</td>
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<td>Fire/Explosion</td>
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<tr>
<td>PPE Failure</td>
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<tr>
<td>Emergency Evacuation Route and Congregation Area</td>
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</table>

<table>
<thead>
<tr>
<th>21. Victim Decon Site Map</th>
<th></th>
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<tr>
<th>22. Spill Response Site Map</th>
<th></th>
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</table>

| 23. Safety Briefing Completed: Time | 24. By Whom: |
## Personnel Roster Assigned

<table>
<thead>
<tr>
<th>NAME</th>
<th>ICS Position</th>
<th>Home Base</th>
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## Activity Log (Continue on Reverse)

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<tr>
<th>Time</th>
<th>Major Events</th>
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NFES 1337
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<th>TIME</th>
<th>MAJOR EVENTS</th>
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<tr>
<td>Incident Name</td>
<td>Date</td>
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<tbody>
<tr>
<td>Name</td>
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<td>Pulse</td>
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<td>B/P</td>
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<tr>
<td>Respirations</td>
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| Allowable Work Time |   |   |   |   |   |   |   |   |
| Time In           |   |   |   |   |   |   |   |   |
| Time to Cold Zone (post decon) | | | | | | | | |

| Time Off Air/PAPR |   |   |   |   |   |   |   |   |

<table>
<thead>
<tr>
<th>Air Temperature</th>
<th>Full Sun 100% Shadows</th>
<th>Partly Sunny 50% Shadows</th>
<th>Full Shade 0% Shadows</th>
<th>Clinical Staff Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Circle Temperature</strong></td>
<td>Minutes of Work</td>
<td>Minutes of Work</td>
<td>Minutes of Work</td>
<td>Name:</td>
</tr>
<tr>
<td>70 degrees</td>
<td>60</td>
<td>90</td>
<td>120</td>
<td>ED Tech</td>
</tr>
<tr>
<td>75 degrees</td>
<td>30</td>
<td>60</td>
<td>90</td>
<td>RN</td>
</tr>
<tr>
<td>80 degrees</td>
<td>20</td>
<td>30</td>
<td>60</td>
<td>MD</td>
</tr>
<tr>
<td>Temperature (°F)</td>
<td>15</td>
<td>20</td>
<td>30</td>
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<tr>
<td>85 degrees</td>
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<tr>
<td>90 degrees</td>
<td>15 (light work)</td>
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<tr>
<td>95 degrees</td>
<td>Extreme Danger</td>
<td>Danger</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>100 degrees</td>
<td>Extreme Danger</td>
<td>Extreme Danger</td>
<td>Danger</td>
<td></td>
</tr>
</tbody>
</table>

Donning of personal protective equipment may be denied to any person with: Temperature > 99.2°F, Respirations > 24, Pulse > 110, Blood Pressure > 150/90. Decontamination Personnel will not exceed 1 hour in chemical protective suits and PAPR hood. There must be a minimum of 20 minutes of rest prior to return to work.

Name:
ED Tech RN MD
(Circle One)
# Hospital Hazmat Operations Level Training

## TtT Instructor Assignments

<table>
<thead>
<tr>
<th>Time</th>
<th>Lesson</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre Class</td>
<td>1. Order coffee service and snacks. Make sure to have water available.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Organize training PPE for class. Make sure to have enough sizes available of suits boots and gloves.</td>
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<tr>
<td></td>
<td>3. Put together class resources, forms, and presentations.</td>
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<tr>
<td></td>
<td>4. Complete course certificates.</td>
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<tr>
<td></td>
<td>5. Have pre-hospital CE certificates available if applicable. If BRN CEU’s are to be mailed after the class, have students address a blank envelope.</td>
<td></td>
</tr>
<tr>
<td>30 min.</td>
<td>Welcome /Introductions/Overview:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Welcome students and introduce instructors.</td>
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</tr>
<tr>
<td></td>
<td>2. Have students introduce themselves, where they work, and previous hazmat experience.</td>
<td></td>
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<tr>
<td></td>
<td>3. Make administrative and safety announcements (i.e. location of restrooms, evacuation, etc.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Provide a course overview, physical requirements, and safety/information briefing.</td>
<td></td>
</tr>
<tr>
<td>30 min.</td>
<td>Lesson 1:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Discuss regulatory requirements supporting hospital decontamination programs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Discuss regulatory requirements for hospital spill response.</td>
<td></td>
</tr>
<tr>
<td>1 hour</td>
<td>Lesson 2:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Provide an overview of the increasing need for healthcare operations based hazmat programs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Verbalize definitions of basic hazardous materials terms.</td>
<td></td>
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<tr>
<td></td>
<td>3. Describe the risks and problems that can occur with hazardous material incidents.</td>
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<td></td>
<td>4. Provide an overview of hazardous materials material classification.</td>
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<tr>
<td></td>
<td>5. Describe methods for identifying hazardous materials and the characteristics of a substance.</td>
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<tr>
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<td>6. Recognize hazardous material incidents during an emergency and potential incident outcome.</td>
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<tr>
<td></td>
<td>7. Provide an overview of CBRNE incidents.</td>
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<tr>
<td>45 min</td>
<td>Lesson 3:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Discuss priorities for hazardous spill response and clean up.</td>
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</tr>
<tr>
<td></td>
<td>2. Review when to activate a “Code Orange,” or facility specific announcement, in response to a spill and discuss immediate priorities (safety, isolate &amp; notify).</td>
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<tr>
<td></td>
<td>3. Verbalize notification priorities for a hazardous material incident and how these notifications are made.</td>
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<td>4. Review when additional resources are required.</td>
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<td>5. Discuss the steps in responding to a hazardous material incident safely and effectively and the role of the operationally trained individual.</td>
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<td>6. Demonstrate finding key information within the Safety Data Sheets (SDS) and chemical information resources.</td>
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<tr>
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<td>7. Discuss changes to the Hazard Communication Standard (HCS).</td>
<td></td>
</tr>
</tbody>
</table>
# Hospital Hazmat Operations Level Training

## TtT Instructor Assignments

<table>
<thead>
<tr>
<th>Duration</th>
<th>Lesson</th>
<th>Overview</th>
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</table>
| 1 hour  | **Lesson 4:** | 1. Discuss the challenges of zero notice and escalating incidents.  
2. Review and discuss the Hospital Incident Command (HICS) model and the Hazmat Branch.  
3. Review and discuss Job Action Sheets (JAS) and when these are to be used.  
4. Demonstrate use of the DOT Emergency Response Guidebook (ERG), NIOSH Pocket Guide to Chemical Hazards, SDS, and other resources.  
5. Review and apply hazard and risk assessment techniques.  
6. Review the Incident Action Planning Process (IAP) and the Planning “P”. |
| 30 min  | **Lesson 5:** | 1. Explain levels of Personal Protective Equipment (PPE) and selection priorities.  
2. Discuss control, containment, and confinement utilizing hospital resources.  
3. Discuss protective actions and rescue operations within capabilities and resources. |
| 1 ½ hours | **Lesson 6:** | 1. Conduct equipment safety inspection.  
2. Demonstrate safe and competent PPE donning and doffing.  
3. List the components and parameters for PPE monitoring before, during, and after an incident.  
4. Discuss safety procedures, emergency hand signals, medical monitoring, and rescue objectives. |
| 1 hour  | **Lesson 7:** | 1. Identify the necessity for decontamination and clean up procedures.  
2. Review the functions of a decon team.  
3. Review types of decontamination.  
4. Review decontamination tent set up procedures.  
5. Discuss decontamination corridors to include site security and control.  
6. Discuss procedures for the appropriate triage, decontamination, and treatment considerations of the contaminated patient.  
7. Discuss the decontamination of vulnerable patient populations.  
8. Explain decontamination procedures for hospital personnel and equipment (technical decontamination).  
9. Identify appropriate disposal considerations.  
10. Review documentation requirement during and after a Hazmat incident. |
| 30 min. | **Lesson 8:** | 1. Review the Hazmat Tactical Operations/Priorities Acronym.  
2. Review annual training requirements, annual competency, and drill requirements.  
3. Review documentation requirements.  
4. Discuss hospital hazmat program priorities. |
|         | **Wrap Up/Evaluations/Adjourn:** | 1. Administer Post Test.  
2. Collect books and class resources.  
3. Collect all course evaluations.  
4. Hand out CE’s as needed.  
5. Clean room and put away equipment. |
## Instructor Module

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Participants in the Hospital Hazmat Operations Train the Trainer course will have opportunity to review and discuss the following in accordance with regulatory requirements and best practices:</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Program implementation</td>
</tr>
<tr>
<td>2.</td>
<td>Hospital Emergency Response Teams (HERT)</td>
</tr>
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<td>3.</td>
<td>Facilitating classes</td>
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<td>4.</td>
<td>Training and PPE competency</td>
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<tr>
<td>5.</td>
<td>Equipment &amp; upkeep</td>
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<td>6.</td>
<td>Class participation requirements</td>
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<tr>
<td>7.</td>
<td>Annual competency &amp; drills</td>
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<tr>
<td>8.</td>
<td>Ongoing support and program maintenance</td>
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<tr>
<td>9.</td>
<td>Dignity Health Hospital Hazmat Operations Training Program course content</td>
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</tbody>
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<thead>
<tr>
<th>Module Structure</th>
<th>1 instructor module/ 8 FRO course modules</th>
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<tbody>
<tr>
<td>Time Requirement</td>
<td>Eight hours</td>
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<tr>
<td>Handouts/Resources</td>
<td>Identified within the Instructor Guide</td>
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