



# Instructor's Manual

# HOSPITAL FIRST RECEIVER'S TRAINING DECONTAMINATION



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OHSA Respiratory Questionnaire  
template
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5. Information submitted to STRAC





## **Hospital First Receiver Training Guide**

### **4 Weeks Prior:**

1. Confirm class date with site coordinator and STRAC
2. Coordinate with correct number of faculty and adjunct faculty needed to have 4:1 ratio for skills station
3. Ensure CEUs through STRAC

### **2 Weeks Prior:**

1. Coordinate with STRAC and site coordinator equipment for skill stations (i.e., PPE and shower)
2. Send out reminder notice

### **1 Week Prior:**

1. Make copies of class handouts
2. Confirm additional faculty and adjunct faculty assistance
3. Offer assistance to site coordinator for Respiratory Questionnaire process

### **Follow-up:**

1. Submit evaluations to STRAC
2. Give copies of roster, tests and skill checklist for site coordinator, keep one set for files
3. Submit expenses to STRAC



# Hospital First Receiver Training Agenda

**Date:** \_\_\_\_\_

**Facility:** \_\_\_\_\_

Welcome, Introductions and Expectations	8:00 a.m. – 8:30 a.m.
Lecture	8:30 a.m. – 9:45 a.m.
<ul style="list-style-type: none"><li>• Purpose of Training</li><li>• Hazardous Agents</li><li>• Response</li><li>• Patient Decontamination</li><li>• Decon / Disaster Response Team Roles and Responsibilities</li><li>• Personal Protective Equipment</li></ul>	
BREAK	9:45 a.m. – 10:00 a.m.
Lecture (continued)	10:00 a.m. – 11:00 a.m.
LUNCH	11:00 a.m. – 12:00 p.m.
Decon Response Skills Training	
<ul style="list-style-type: none"><li>• Decon Operations Setup (15 min rotations)<ul style="list-style-type: none"><li>• Connecting the water supply</li><li>• Connecting the electric supply</li><li>• Setting up the tent</li><li>• Using the Ludlum rate meter</li></ul></li><li>• Donning and Doffing PPE w/ Respirator Use<ul style="list-style-type: none"><li>• Full Face-Masks with CBRNE cartridges</li><li>• Powered Air Purifying Respirators (PAPRs)</li></ul></li></ul>	12:00 p.m. – 1:00 p.m.
	1:00 p.m. – 1:45 p.m.
	1:45 p.m. – 2:15 p.m.
BREAK	2:15 p.m. – 2:30 p.m.
Skills Station Cont.	2:30 p.m. – 4:30 p.m.
Closing and Evaluation	4:30 p.m. – 5:00 p.m.



# Certificate of Completion

*to*

---

*for*

Successfully completing the Hospital First  
Receiver's Training for Decontamination

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*Presenter Name and Title*

*Date*



# Hospital First Receiver Training Sign-In Sheet

**Date:** \_\_\_\_\_

**Facility:** \_\_\_\_\_

**Name**

**Department**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_



## Hospital First Receiver Training Evaluation

Date: \_\_\_\_\_

Facility: \_\_\_\_\_

We hope that your class was fun, yet, informative. However, we continually strive to provide you with quality information that benefits you as a healthcare professional

Please rate the following, on a 1-5 scale (1 being the worst, 5 being the best)

Class format

1 2 3 4 5

Organization of information

1 2 3 4 5

Class content meets expectations

1 2 3 4 5

Class content was helpful

1 2 3 4 5

Educator's preparation level

1 2 3 4 5

Instructor's communication skills

1 2 3 4 5

Instructor's knowledge level

1 2 3 4 5

What did you like best about this class?

What did you like least about this class?

Do you have any suggestions for improving the class?

Additional comments:





## **Hospital First Receiver Course Objectives**

### **Purpose of Decontamination Response Teams**

1. Describe the risks and problems for healthcare systems that can occur with hazardous materials incidents
2. Explain exposure
3. Explain contamination
4. Define decontamination
5. Explain the purpose of a hospital/healthcare facility decontamination

### **Need for Decontamination Response Teams**

6. Identify hazardous materials
7. Define the process for maintaining personal safety during a hazardous materials incident

### **Decontamination Response**

8. Define Directed Self Decon
9. Explain the process of Directed Self Decon
10. Demonstrate the procedure for Directed Self Decon
11. Define Decontamination Response Team
12. Differentiate between the need for directed self decon and decontamination response team initiation
13. Define the roles and responsibilities of members of a Decontamination Response Team
14. Explain the process for decontaminating a patient
15. Identify the role of a greeter
16. Demonstrate the role of a greeter
17. Identify the role of a stripper/bagger
18. Demonstrate the role of a stripper/bagger
19. Explain the process for proper collection of patient belongings
20. Explain the process for proper disposal of patient belongings
21. Demonstrate the process for proper collection and disposal of patient belonging
22. Identify the role of a washer/rinse



## **Hospital First Receiver Course Objectives**

### **Decontamination Response**

23. Demonstrate the wash-rinse process for an ambulatory patient
24. Demonstrate the wash-rinse process for a non-ambulatory patient
25. Identify the role of a dryer/dresser
26. Demonstrate the role of a dryer/dresser
27. Identify the role of a hospital gatekeeper
28. Demonstrate the role of a hospital gatekeeper
29. Explain the purpose of performing self-decon once decontamination activities have ceased.

### **Personal Protective Equipment**

30. Identify proper personal protective equipment for decontamination response
31. Verbalize the limitations of personal protective equipment
32. Explain the importance of correctly using personal protective equipment
33. Explain the dangers associated with using personal protective equipment
34. Demonstrate how to don personal protective equipment
35. Demonstrate proper self-decon
36. Demonstrate how to doff personal protective equipment
37. Demonstrate the hand signal used to say 'I need help/assistance with this patient.'
38. Demonstrate the hand signal used to say 'I'm having trouble breathing.'
39. Demonstrate the hand signal used to say 'I'm O.K.'
40. Explain the process for addressing Decontamination Response Team members in distress



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# Hospital Decontamination Response Teams



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# Presented by...

## Your Facility Information

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# Welcome and Introductions

- Class Schedule
- Breaks
- Refreshment availability
- Restrooms
- And...please turn your cell phones and pagers off or to silent

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# Section I

## Introduction

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# Course Objectives

- Develop an understanding of hazardous substances in an emergency
- Develop an understanding of the role of the First Receiver
- Develop an understanding of the selection on use of Personal Protective Equipment (PPE)
- Develop an understanding of detection devices and decontamination equipment
- Develop an understanding of basic decontamination procedures



# Why are we here?

- People who have been contaminated by hazardous agents may arrive at the hospital for medical treatment
- An estimated 33% of persons from a hazmat incident will bypass EMS and self present at hospital.
- We do not want to compromise the safety of our staff or our facility by exposing them to hazardous agents

# If a contaminated person is allowed inside our facility...

- What are the impacts:
  - To you?
  - To the emergency department?
  - To the hospital?
  - To the community?



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Employee exposure  
and hospital closure is  
what we want to avoid!



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# Exposure vs. Contamination

- **Exposure:**  
A person has been in the area of a contaminate (generally a vapor)
- **Contaminated:**  
A person has come in contact with a contaminate (generally a liquid or solid)



# How does a person become exposed?

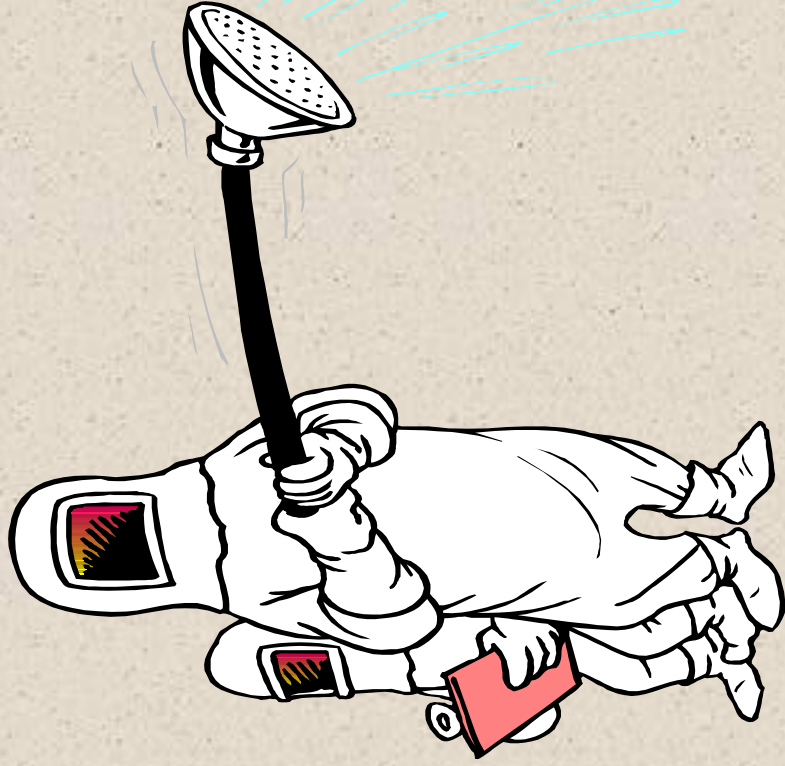
- Exposure routes include:
  - Inhalation
  - Ingestion
  - Absorption
  - Injection
- Precautions, decontamination, and treatment options may vary based on exposure.

# How does a person become contaminated?

- Home Chemical Exposures
- Agricultural Exposures
- Transportation Spills
- Industrial Spills
- Weapons of Mass Destruction

# What is decontamination?

- While it has many definitions, it is a method for cleaning off contaminated patients
- Decontamination reduces and prevents the spread of hazardous agents to employees and within the facility





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# Section II

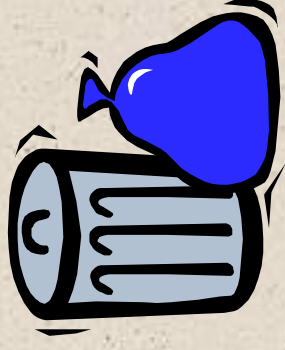
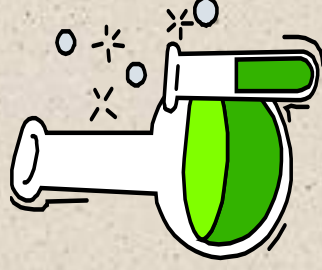
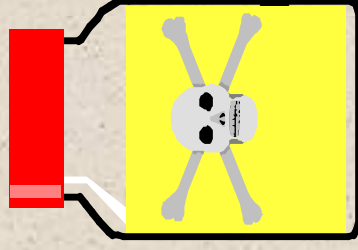
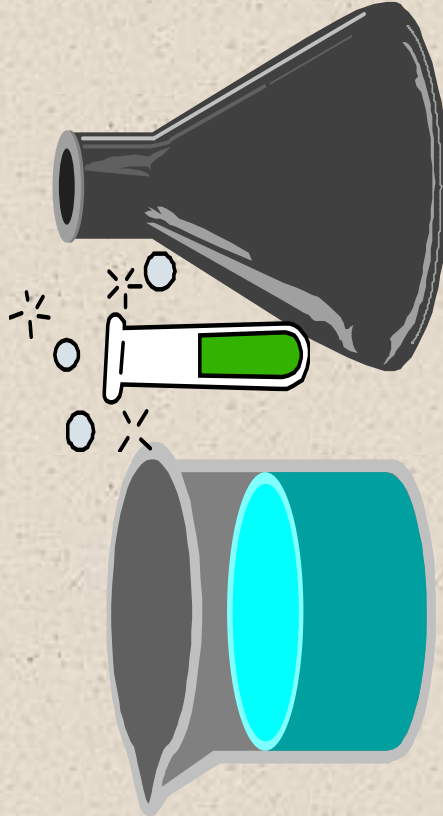
## Hazardous Agents



# Hazardous Agents

According to OSHA: 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.”

OSHA 29 CFR 1910.120 (a)



# Hazardous Agents

- Class 1 – Explosives
- Class 2 – Compressed Gases
- Class 3 – Flammable Liquids
- Class 4 – Flammable Solids
- Class 5 – Oxidizers and Organic Peroxide
- Class 6 – Poisons or Infectious Materials
- Class 7 – Radioactive Materials
- Class 8 – Corrosive Materials
- Class 9 – Miscellaneous

# How do you know if a patient has been exposed?

- Obvious physical signs and symptoms of hazardous agent exposure:
  - Liquids or powders on the patient
  - Odors emanating from the patient
  - Difficulty breathing
  - Burns, blisters
  - Foaming at the mouth or tearing
  - Emesis, defecation, urination



# Bioagents - what to look for in triage...

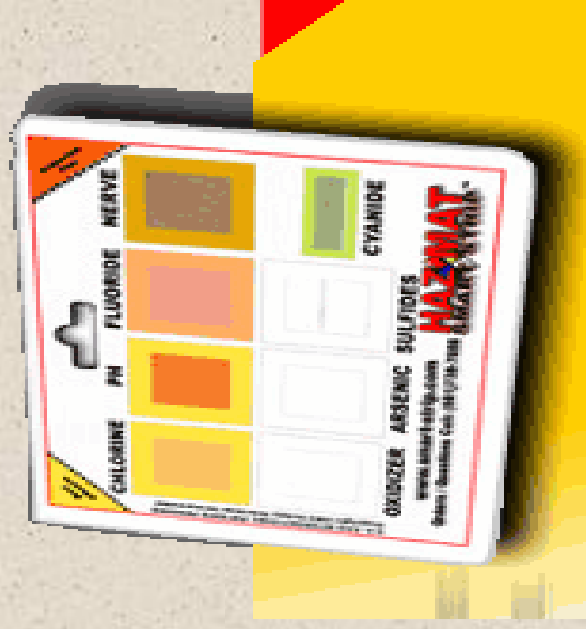
- Patients who:
  - Have traveled out of the country
  - Exhibit unusual signs and symptoms
  - Are very sick
- Several patients who present with similar symptoms
- Patients who present from the same event or location

# Don't be deceived!

- Initial reports from the patient or EMS may not indicate exposure
- Ask questions – complete a thorough and accurate assessment
- Patient may not understand that they have been exposed
  - Mixed chemicals at home or work

# Methods of detection: CHEMICAL

- Smart Strips - Changes colors when exposed to chlorine, pH, fluoride, nerve agents, oxidizers, arsenic, sulfides and cyanide in liquid or aerosol form at minute levels. To use, peel-and-stick adhesive strip or a clip to decon suit. Once the protective film is peeled off, the cards are operational for 12 hours, or until they are exposed to one of the eight substances.





# Methods of detection: RADIOLOGICAL

Portals-  
Portable and  
Expandable!



Personal Pocket Dosimeter  
Detects Beta and  
Gamma Radiation



Pancake Probe  
(Ludlum) detects  
Alpha, Beta and  
Gamma radiation



# Weapons of Mass Destruction (WMD)

## CBRNE:

C = Chemical

B = Biological

R = Radiological

N = Nuclear

E = Explosives





# Biological Agents

- Anthrax
- Botulism
- Plague
- Smallpox
- Tularemia
- Viral Hemorrhagic Fever (VHF)
- Infectious Respiratory Disease (SARS or Avian Flu)

# Signs and Symptoms of exposure to biological agents

- Fever
- Headache
- Rash
- Neck stiffness
- Respiratory symptoms



# Where can Radiation be Found?

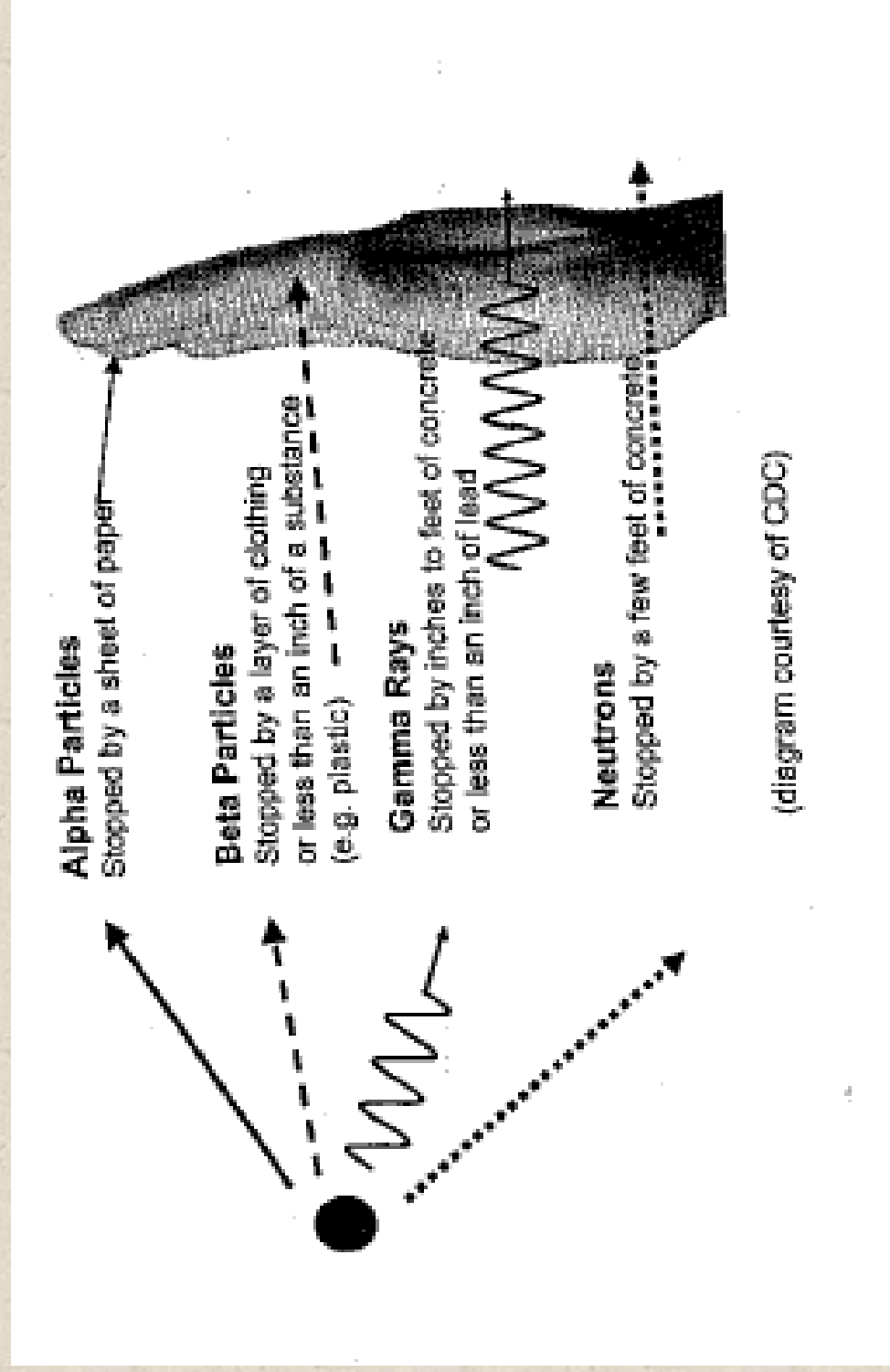
- Found in:
  - Sunlight and natural elements
  - X-rays
  - Nuclear medicine procedures
  - Cancer-related radiation treatments
  - Industry



# Radiological

- Alpha particles (common) - most harmful if inhaled or ingested. These can be stopped by a sheet of paper.
- Beta particles - smaller than alpha and stopped by regular PPE.
- Gamma/X-ray – not a particle and can penetrate skin and tissue. Will penetrate most PPE.
- Neutrons – found in nuclear reactions, can penetrate skin and tissue, cannot be stopped by PPE.

# Radiation Exposure



# Radiological Contamination

- Internal contamination may result when particles are ingested or inhaled.
  - Acute radiation sickness
- External contamination occurs when particles come in contact with the skin
- Minimal exposure risk to care giver. Treat acute injury first!



# Radiation Protection

- Time – Limit exposure time
- Distance – Increase distance from source
- Shielding – Shield self from the hazard
- PPE – Use Standard Precautions
  - Respiratory
  - Contact

# Chemical Agents

Nerve Agents  
Blister Agents  
Blood Agents  
Choking Agents  
Irritant Agents



# Nerve Agents

## Nerve agents (pesticides/military agents)

- Affect the body's nervous system
- Signs and symptoms:
  - S – Salivation (drooling)
  - L – Lacrimation (tearing)
  - U – Urination (loss of bladder control)
  - D – Defecation (loss of bowel control)
  - G – Gastrointestinal (abdominal pain)
  - E – Emesis (vomiting)
  - M – Miosis (pinpoint pupils)

# Chemical Agents

## Blister Agents:

- Cause burns and blisters
- Examples include mustard gas and Lewisite

## Blood Agents:

- Affect the body's ability to transport and use oxygen
- Examples include cyanide

# Chemical Agents

## Choking Agents:

- Damage lung tissue and mucous membranes
- Examples include phosgene and chlorine

## Irritants:

- Cause a person to become incapacitated
- Examples include tear gas, mace, and pepper spray



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# Section III

## Response

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If a contaminated person  
presents to the hospital,  
what do you do?

**S-I-N**

**S** = Shield

**I** = Isolate

**N** = Notify



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# SHIELD

Don't become part of the problem...

- Protect yourself by using standard precautions
- Do not touch the patient or allow anyone else to have patient contact without at least an N-95 mask and gloves

# ISOLATE

- Get the contaminated patient out of the facility to a pre-designated location
- If someone has something on them, don't let them go away
- Isolate the exposed scene and deny entry until hazard assessment is completed and area is cleaned, if needed



# NOTIFY

- Notify your Supervisor that a contaminated patient has arrived at the facility
- If needed, call Security to secure the area
  - Security should wear appropriate PPE while securing the area.
- Work with your Supervisor to determine your facility's need to activate the Decontamination Response Team (DRT) or initiate disaster response procedures



# Activation of the Decontamination Response Team

- A contaminated non-ambulatory patient presents to the facility
- More contaminated patients present to the facility than can be managed by staff on-site
- A Mass Casualty Incident (MCI) has been declared in your community

# What is a Decontamination Response Team?

- A trained group of personnel with resources to operate in a contaminated area and perform the following functions:
  - Maintain Safe Environment – Safety Officer and RSO
  - Decon Set Up / Support – Team Leader
  - Site Access Control - Security
  - Triage – Nurse or Physician
  - Stripper / Bagger
  - Washer / Rinser
  - Dryer / Dresser
  - Hospital Gatekeeper

# Duties of DRT Members in the Hospital Decontamination Zone

- Ensure the safety of the facility and personnel
- Setup of decon operations
- Triage, reassure and direct contaminated patients through the process
- Perform decontamination procedures
- Recovery operations:
  - Equipment cleaning
  - Management of wastewater
  - Team debriefing



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# Hospital Decontamination Zone



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# Control Zones – Contamination

## Reduction Corridor

- Contaminated Area **HOT**
  - Area of isolation
  - MUST use appropriate hazardous agent PPE
- Hospital Decontamination Zone **WARM**
  - Area where decontamination activities take place
  - MUST use appropriate hazardous agent PPE
- Hospital Post-Decontamination Zone **COLD**
  - Safe area
  - Use Standard Precautions

### **HOT**

Site Access Control  
START Triage

Stripper / Bagger

### **WARM**

Washer / Rinser  
Dryer / Dresser

### **COLD**

Hospital Gatekeeper

# Hospital Decontamination Zone

- To ensure that the agent does not contaminate the 'clean' area, set-up decontamination activities so that they are:
  - Up Hill
  - Up Wind
  - Up Stream

# Ensure the Safety of the Facility and Personnel

- Secure the area
- Establish a perimeter
- Establish control zones
- Initiate crowd control measures
- Ensure proper PPE is worn and safety procedures are followed

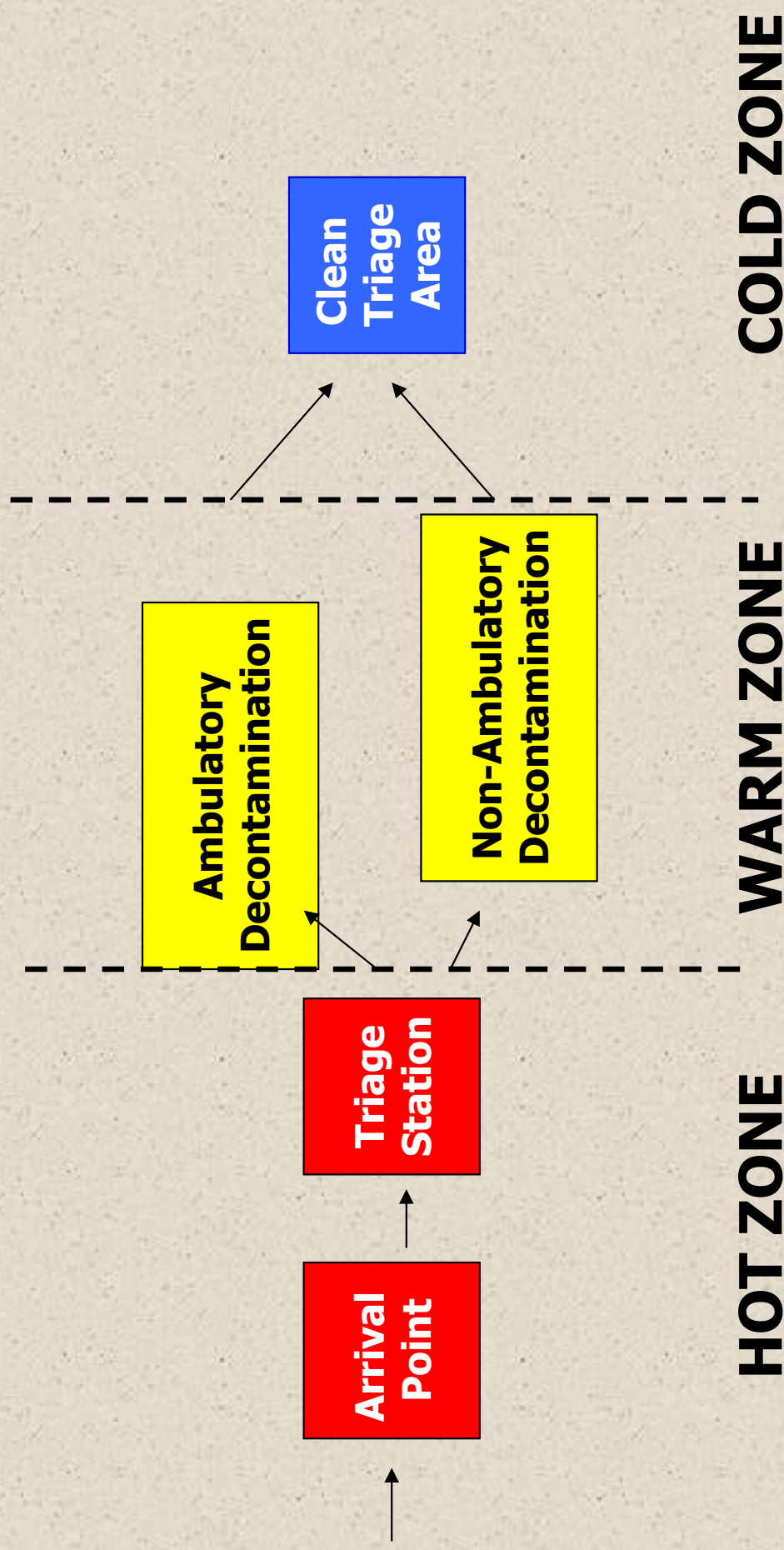


# Setup of Decon Operations

- Establish Decontamination Zone
- Access decontamination supplies
- Assemble the decontamination shelter and adjunct equipment
- Ensure access to contaminated waste for ease of removal during decon operations
- EPA requires run-off be contained if at all possible for proper disposal



# Our Hospital's Decon Set-Up



# Triage, Reassure and Instruct Contaminated Patients

- Utilize START (Simple Triage and Rapid Treatment)
- Explain the decontamination process
- Collect contaminated belongings

# Triage during a Mass Casualty Incident



- Focus on doing the most for the most
- Utilize START Triage method



# Collection of contaminated belongings

- Separate clothing and valuables
- Place in transparent and sealable collection bags
- Label clothing and valuables for tracking, retrieval and investigation purposes





# Directed Decon

- Appropriate for conscious and ambulatory patients
- Directed decon can be used for small numbers of contaminated patients
- Protect yourself first:
  - Use Standard Precautions
  - May require use of hazardous agent PPE
- Consider patient modesty

# Process for Performing Directed Decon

- Have patient remove all valuables and clothing
- Place contaminated valuables and clothing in a sealable bag
- Starting from the head down, have patient:
  - Wash body with soap and warm water for 5 minutes
  - Rinse body with warm water for 5 minutes
- Have patient dry their body
- Provide patient with a clean covering
- Re-evaluate patient



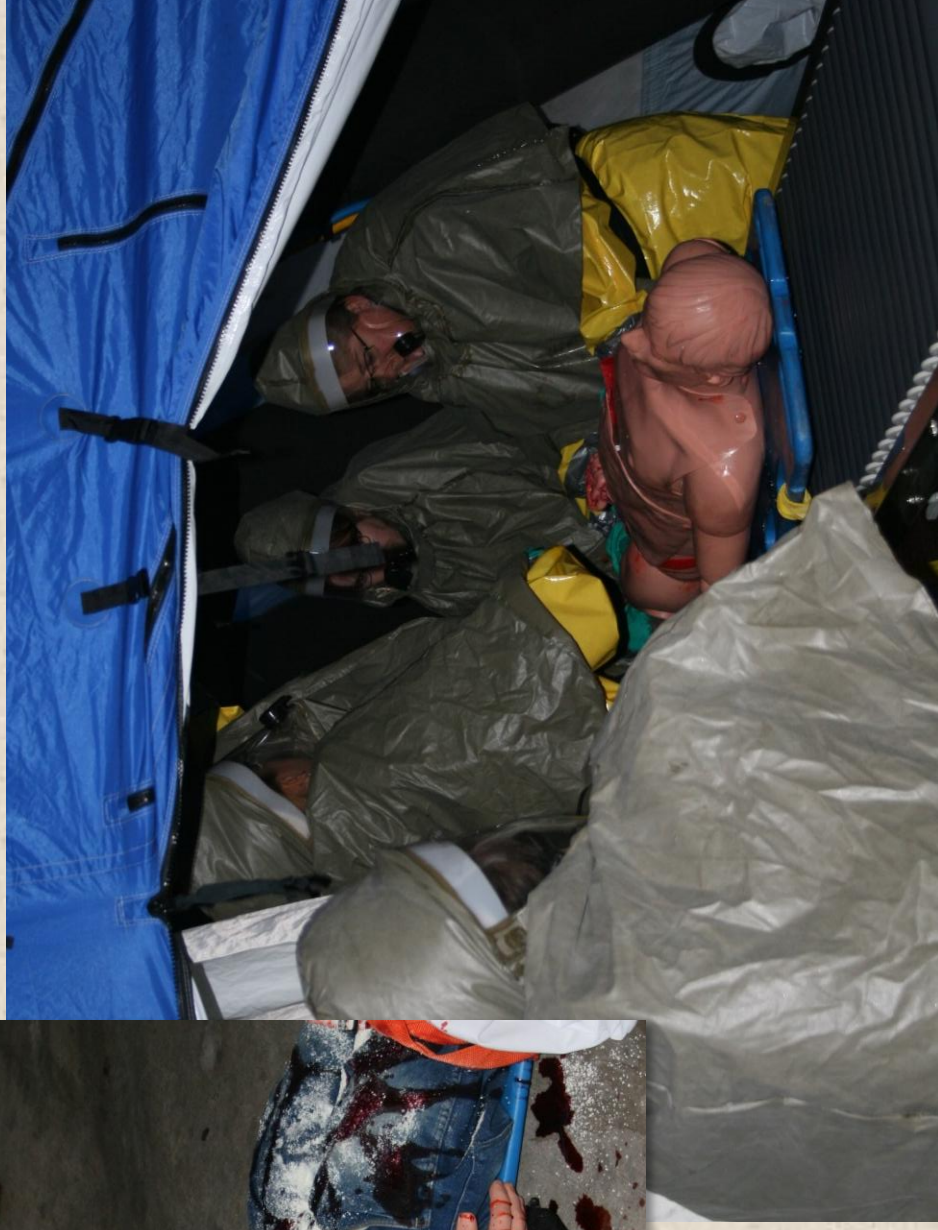
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# Decontamination of Non- Ambulatory Patients “Assisted Decon”



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# Special Populations

- Children
- Infants
- Disabled
- Service Animals
- Law Enforcement
- Deceased Individuals
- Other Special Needs



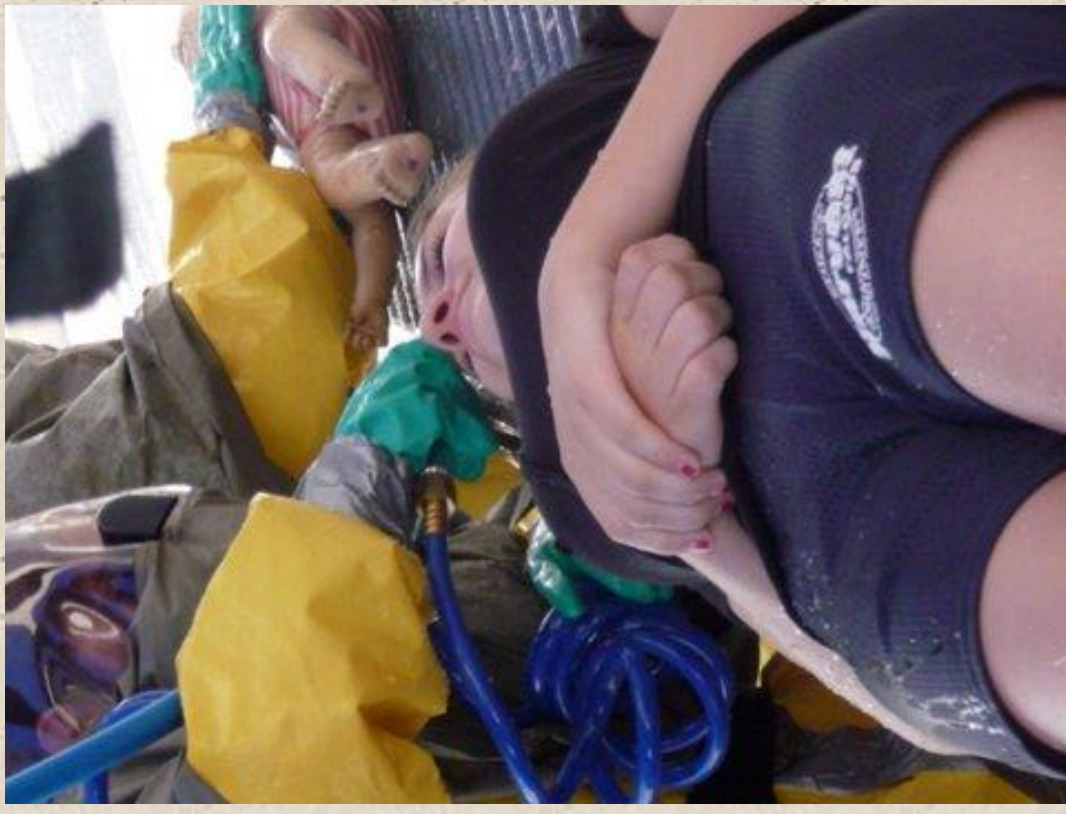
# Special Population: Children

- Parents
- Ease fears
- Decon parent and child
- Extend rule of thumb time
- Additional assistance for parent



# Special Population: Infants

- Take precautions against dropping infant
- Enter through non-ambulatory side
- Precautions against hypothermia
- Parental accommodations
- Ease fears
- Decon parent and child
- Extend rule of thumb time
- Additional assistance for parent





## Special Population: Disabled

- Consider type of disability and associated equipment
- Wheelchair, walker, etc., is treated as personal property
- Casts (temporary or fixed) will require removal for decon
- Considerations for deaf and or blind population



# Special Population: Service Animals

- Muzzle's for all animals should be requirement
- Handler should be kept with the service animal when possible
- Animal: wash for 10, rinse for 10
- Consider vinyl collar or muzzle to ensure all areas rinsed
- Leather apparatus will be disposed of





# Special Population: Law Enforcement

- Weapons must be rendered safe prior to decon
- Inventory & secure weapon
- Weapons may be government property not personal



# Special Population: Decedent

- Decedent handled last
- Move decedent through non-ambulatory line
- Treat decedent with reverence
- Ensure decedent is properly covered
- Secure personal effects





# Special Population: Other Needs

- Language considerations: federal requirement to provide translation services
- Cultural considerations: nationality, religion, etc.



# Duties of DRT Members in the Hospital Post-Decon Zone

- Evaluate decontamination efforts
- Re-triage
- Begin patient tracking
- Transport to patient care areas



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# SECTION IV

## PERSONAL PROTECTIVE EQUIPMENT



# How are you at risk?

- Many hazardous agents are odorless, colorless and tasteless; you may be exposed before you know it!
- Recent studies have shown that only a small number of health care workers have had adverse effects following exposure to contaminated patients
  - **These could have been prevented with the use of appropriate safety measures and personal protective equipment**



# Personal Protective Equipment (PPE)

- Unfortunately, no one type of PPE will protect against all hazardous agents!
- Appropriate PPE is determined by the characteristics and amount of the hazardous agent present.
- PPE must be used correctly in order to reduce exposure.
- When the agent is unknown – use the highest level of PPE available prior to starting any decon procedure.

# Standard Precautions

- Hazardous agents may require, at a minimum, specific types of Standard Precautions to prevent exposure
- Examples include:
  - Face shield
  - Mask
  - Gown
  - Gloves
  - Booties
  - Bonnet

# Hazardous Agent PPE

- Four levels:
  - Level A PPE
  - Level B PPE
  - Level C PPE
  - Level D PPE
- Each level provides for a certain amount of skin and respiratory protection against biological and chemical agents



# Level A PPE

- Provides the highest level of skin and respiratory protection:
  - Vapor protective suit (fully encapsulating)
  - Self contained breathing apparatus (SCBA)
  - Chemical resistant gloves and boots
- Weakness: bulky, heavy, and increased potential for heat stress and slip, trip or fall injuries, requires a great deal of education for safety

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# Level A Protection



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# Level B PPE

- Provides a lower level of skin protection with the highest level of respiratory protection:
  - Liquid splash protection suit (chemical resistant)
  - Self contained breathing apparatus (SCBA)
  - Chemical resistant gloves and boots
- Weakness: bulky, heavy, increased potential for heat stress and slip, trip or fall injuries and may not reduce exposure to all agents, requires a great deal of education



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# Level B Protection



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# Level C PPE

- Provides a lower level of skin and respiratory protection:
  - Liquid splash protection suit with or without a hood (chemical resistant)
  - Air-Purifying Respirator (filters vary)
  - Chemical resistant gloves and boots
- Weakness: bulky, heavy, increased potential for heat stress and slip, trip or fall injuries and may not reduce exposure to all agents, cannot be used in an oxygen-deprived area.



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# Level C Protection



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# Level D PPE

- Provides the lowest level of skin and respiratory protection:
  - Clothes (uniform, scrubs, street clothes)
  - Standard Precautions
- Weakness: provides no chemical protection and limited respiratory protection

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# Level D Protection

- Your every day work clothes!



# Radiation PPE

- “Trauma Team” gear:

- Face shield
- Mask
- Gown
- Gloves
- Booties
- Bonnet





# Risks of Hazardous Agent PPE

- Incorrect use or improper selection
- Penetration into the PPE (holes/rips)
- Slips, trips and falls
- Loss of dexterity, limited vision, impaired communication
- Heat-related illness
  - Heat Exhaustion
  - Heat Stroke

# Heat Cramps

- Signs and symptoms:
  - Muscle spasms
  - Dry skin
  - Fatigue
  - Dizziness
  - Dry mouth
  - Increased heart rate and breathing

# Heat Exhaustion

- Signs and symptoms:
  - Headache
  - Heavy sweating. Intense thirst
  - Light-headedness
  - Feeling faint/weakness
  - Pale and cool, moist skin
  - Increased pulse (120-200)



# Heat Stroke

- Signs and symptoms:
  - High body temperature ( >103 degrees)
  - Absence of sweating
  - Skin is hot and red
  - Rapid pulse; difficulty breathing; constricted pupils
  - Severe symptoms of Heat Exhaustion
  - Advanced symptoms may include seizure, loss of consciousness or death

# Be careful...

- If you recognize any of these signs and symptoms in yourself or another team member, NOTIFY the DRT Leader
- Immediately remove the DRT member from their post
- Doff the DRT member
- Perform decontamination procedures
- Treat accordingly

# Medical Screen Pre- and Post-Decon

- DRT members must receive a pre- and post-decon medical screen:
  - Blood Pressure
  - Pulse
  - Respirations
  - Temperature
  - Weight
  - Recent medical history for diarrhea, vomiting, etc...
- Orally hydrate during this time
- Team leader needs to be aware of environmental factors that may limit time in suits. Maximum time in suits is 45 minutes (including self-decon)





# What are we going to be using?

- Tychem suits with duct tape to seal
  - Cooling Vest optional
- Air Purifying Respirators (APRs)
  - Scott O-Vista Full Face Mask
- Powered Air Purifying Respirators (PAPRs)
  - 3-M Breath Easy
- Chemical resistant booties or rubber boots
- Chemical-resistant and nitrile gloves

# APRS

- Requires fit-testing and appropriate filter for use



# PAPRS

- Does not require fit-testing
- Requires batteries and appropriate filters





# Respiratory Protection Program

- Medical surveillance of DRT member
- Staff must be fit tested for APR
  - No fit testing needed for PAPR
- Equipment must be properly maintained and checked before and after each use

# Donning PPE

## Work with a Buddy!

- Put on:
  - Inner Gloves
  - Tychem Suit
  - PVC Boot Covers or chemical resistant rubber boots
  - Outer Gloves
  - Duct Tape around glove and boot openings and suit zipper
  - Respirator – if using APR, duct tape seal
  - Write identifier and don time on duct tape on back of suit



# Communicating while using PPE

- It's important to be able to communicate with the other members of the Decon Response Team while wearing PPE
- Some facilities have communication equipment that fits under PPE. If you do not have access to that equipment or it fails...



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**EMS HOSPITAL DISASTER GROUP**

# “I need help with this patient”



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# “I’m having trouble breathing”



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# “I’m OK”





# The last patient has been decontaminated - now what?

- Decon Response Team must now decon themselves in their PPE and then the equipment
- Once in the Post-Decontamination Zone, DRT members can doff PPE



# Doffing PPE

- Work with a Buddy!
- For speed, cut with scissors and peel off or
- Take off:
  - Duct tape at suit and glove seals
  - Outer gloves
  - Respirator
  - Peel suit away from body
  - PVC boot covers
  - Inner gloves





# What do you do if one of the DRT Members goes down?

- If one of the team becomes a patient:
  - Remove them from their post
  - Remove their PPE suit and clothes
  - Perform assisted decon
  - Treat



# Questions and Answers

# Practice Activities

- Donning and Doffing PPE
  - Use of APRs
  - Use of PAPRs
- Setup of Decon Equipment
  - Connecting the Water Supply
  - Connecting the Electrical Supply
  - Setting up the Shower System
- Patient Decontamination
  - Directed Decon
  - Ambulatory Patient Decon
  - Non-Ambulatory Patient Decon

# Medical Surveillance Questionnaire



# Class Evaluation



Thank you for your time and your interest in being a member of your facility's Decon Response Team.

We hope that you found this informative and fun!





**Regional Decontamination Response Team (DRT) Curriculum**

Updated: 02-2008

#	Slide Title	Slide Text
1.	Hospital Decontamination Teams	Welcome to the Regional Decontamination Response Team Course sponsored by the EMS-Hospital Disaster Group or EHDG. This curriculum was developed by the health care providers within Trauma Service Area-P as a way to provide specific training on healthcare facility decontamination response. This training course is based on the HazMat for Healthcare curriculum and was developed on a regional level to ensure a consistent and coordinated response to any incident that results in contaminated patients, as well as, to reduce facility-training costs.
2.	Presented By...	Introduction of Instructors Name Place of Employment/Department Background Related Training
3.	Welcome & Introductions	Introduction of Class Participants Name Place of Employment/Department Background Related Training Explain the Class Logistics Class length and break times Cell phone/pager use Location of restrooms and phones Location of vending machines Food/drink restrictions (if any) Lunch arrangements Questions regarding class set-up / agenda
4.	<b>Section I:</b>	<b>Introduction:</b>
5.	Course Objectives	Develop an understanding of hazardous substances in an emergency Develop an understanding of the role of the First Receiver Develop an understanding of the selection on use of Personal Protective Equipment (PPE) Develop an understanding of detection devices and decontamination equipment Develop an understanding of basic decontamination procedures
6.	Why are we Here?	Since 9/11, hospitals have become increasingly aware of their vulnerability to manmade and natural incidents. Our focus today will be on contaminate related events, whether from an

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		<p>accidental internal or external event. Persons exposed to hazardous materials may present to hospitals for treatment and possible decontamination.</p> <p>Prior to their treatment for medically related issues, contaminated patients must be decontaminated so as not to place the facility or its personnel at risk for becoming contaminated with biological, chemical, or radiological agents. A healthcare facility's number one priority is to protect their employees, their environment, and their property.</p> <p>You are being trained to become a member of your healthcare facility's Decontamination Response Team. This team will most likely be activated AFTER emergency management personnel know an incident has occurred.</p> <p>As part of a healthcare facility's Decon Response Team, you are tasked with ensuring the safety of personnel and the facility. This is accomplished by performing complete and thorough decontamination of contaminated or exposed patients.</p>
7.	If a contaminated person is allowed inside our facility...	<p>What if a contaminated patient were able to enter a facility for treatment prior to decontamination, what are the possible consequences for that facility?</p> <p>Facilitate discussion among participants. Answers may include:</p> <ul style="list-style-type: none"> <li>Close the department/hospital</li> <li>Damaged public image</li> <li>Contamination of staff, patients</li> <li>Cost of facility decontamination</li> <li>Employee health effects</li> <li>Loss of work</li> <li>Loss of revenue</li> </ul>
8.	Employee exposures & hospital exposure is what we want to avoid!	<p>As you've heard, the potential consequences of a contaminated person entering your facility for treatment can have severe and lasting effects.</p>
9.	Exposure vs. Contamination	<p>Patients that have been exposed to biological, chemical, or radiological agents may be contaminated...so, what's the difference between exposed and contaminated?</p> <p>Exposure is when a person has been in the area of an agent and there is a potential for absorption or surface contamination.</p> <p>Contamination means there is an agent on the person that MUST be removed or washed away to prevent additional harm.</p> <p>Anyone that is in the area of exposure to a hazardous agent</p>

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		should be decontaminated because it may not be possible to see the agent on the person. Err on the side of caution.
10.	How does a person become exposed?	<p>People can be exposed to biological, chemical, and radiological toxins through internal and external accidental spills, as well as through terrorist attacks. Any one of these agents will adversely affect a hospital if a contaminated person is allowed inside prior to decon.</p> <p>Exposure routes include:</p> <p>Inhalation – breathing in air with hazardous particles</p> <p>Ingestion – eating or drinking food with particles on them</p> <p>Absorption – through the skin, especially if clothes are allowed to remain on</p> <p>Injection – through needles and other invasive devices</p> <p>*Based on exposure, precautions, decontamination, and treatment options may vary.</p>
11.	How does a person become contaminated?	<p>Contamination can occur any day through average means. One could be exposed from the chemicals under their kitchen sink, working in the fields, or driving down the highway.</p>
12.	What is decontamination?	<p>It is the process of reducing and preventing the spread of contamination by having a person wash their body – a shower and a shampoo.</p> <p>You are here to learn critical skills to protect yourself when working with a small number of patients and/or to use these skills in a team approach for mass casualty events.</p>
13.	<b>Section II:</b>	<b>Hazardous Agents:</b>
14.	Hazardous Agents	<p>There is no one definition; however, hazardous agents, according to OSHA are ‘any substance to which exposure results or may result in adverse affects on the health or safety of employees’. They are also ‘any chemical, which is a physical hazard or a health hazard’.</p>
15.	Hazardous Agents	<p>Hazardous agents include materials that can cause cancer, chemicals that burn the skin or eyes on contact, infectious materials, blood borne pathogens, radiological agents and bioterrorism agents. Hazardous agents are classified according to the properties they have.</p> <p>Any of these could be used by terrorists to cause mayhem and harm.</p>
16.	How do you know if a patient has been exposed?	<p>How do you know if a patient that has presented has been exposed to a hazardous agent? Be highly suspicious of</p>



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		<p>patients who present with:</p> <ul style="list-style-type: none"> <li>Liquids or powders on them</li> <li>Odors emanating from them</li> <li>Difficulty breathing</li> <li>Burns, blisters</li> <li>Foaming at the mouth or tearing</li> <li>Emesis, defecation, urination</li> </ul> <p>Prior to providing treatment, rule out exposure to hazardous agents.</p>
17.	Bio agents: What to look for in triage...	Biological events will unfold over a period of hours, days, or weeks. Biological events can occur across the globe but are only one plane trip from your hospital.
18.	Don't be deceived!	However, the initial reports from most patients are not likely to indicate exposure to a hazardous agent. Therefore, it is important to complete a thorough and accurate assessment of each patient. They may not even KNOW they have been exposed to a hazardous material!
19.	Methods of detection: Chemical	Smart strips have been provided to you to help you determine if a chemical agent has been involved. Just peel and stick it to your suit, a change in color would indicate a specific chemical was involved.
20.	Methods of detection: Radiological	You've also been provided several devices to check for radiological exposure. Portals can identify radiation on an individual or an 18-wheeler. Pocket dosimeters detect beta and x-ray with a pager-like device. The Ludlum detects alpha, beta and gamma. If any of these devices register radiation, always ask if the person has had a nuclear medication study and verify that information. If no study has been done, have the person remove their clothing and use the Ludlum to determine if the clothes or the patient is radioactive. Notify security and your RSO.
21.	Weapons of Mass Destruction (WMD)	Any of the above agents may be made into a weapon. These weapons can be designed to kill, but can also cause fear and panic, injury or incapacitation, or disruption of services.
22.	Biological Agents	Biological agents include bacteria, viruses, and toxins. Persons contaminated with biological agents should be treated as though they have been exposed to an infectious disease. Generally, these people will not require decontamination – only the use of proper protective equipment to include the use of negative pressure rooms.

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23.	Signs & Symptoms of Exposure to Biological Agents	Persons exposed to biological agents may present with unusual signs and symptoms. Watch for: Fever Headache Rash Neck stiffness Respiratory symptoms Treatment of these may include medications, vaccines, and/or supportive care
24.	Where can radiation be found?	Radiological agents are used in X-rays, nuclear medicine procedures, cancer-related radiation treatments, research and industry. Proper use of personal protective equipment minimizes healthcare worker exposure. A facility's Radiation Safety Officer or Radiology Department can be a good resource for questions or concerns on radiological agents.
25.	Radiological	Alpha particles (common) - most harmful if inhaled or ingested. These can be stopped by a sheet of paper. Beta particles - smaller than alpha and stopped by regular PPE. Gamma/X-ray – not a particle and can penetrate skin and tissue. Stopped by inches to feet of concrete or less than an inch of lead. Neutrons – found in nuclear reactions, can penetrate skin and tissue, cannot be stopped by PPE. Exposure can lead to contamination. A radiological event can result from the detonation of a dirty bomb or the sabotage of a radiation source. This type of device will produce more blast and trauma injuries to people than radiation contamination, which is likely to be minimal and not hazardous to the health care worker. A nuclear device is a several ton radioactive device such as an atom bomb that would produce wide spread devastation and contamination. Explosive events include any device that can blow up a structure, cause shrapnel dispersal and possibly cause fire. Exposure to Neutrons can cause an internal reaction.
26.	Radiation Exposure	Use diagram to reinforce exposure information
27.	Radiological Contamination	Internal contamination may result when particles are ingested or inhaled and may result in acute radiation sickness. External contamination occurs when particles come in contact with the skin requiring decontamination.

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#	<u>Slide Title</u>	<u>Slide Text</u>
		<p>Minimal exposure risk to care giver. Treat acute injury first!          Internal contamination may result when particles are ingested or inhaled or when exposed to gamma rays or x-rays and may result in acute radiation sickness.          External contamination occurs when particles come in contact with the skin requiring decontamination.          Not contagious!!!! Treat acute injury first!          Tips to reduce particle spread:          Swaddle with blanket, double glove, change gloves frequently, put people with the same symptoms in the same area.</p>
28.	Radiation Protection	<p>The degree of illness is in direct proportion to the time exposed, distance from the source, and the amount of radiation given off by the source. Limiting time exposed and shielding are important when exposure occurs. PPE should include N-95 Mask or better for respiratory protection and full body coverage to protect from particles.</p>
29.	Chemical Agents	<p>Chemical agents can be inhaled, absorbed through the skin or mucous membranes, or ingested. Proper use of personal protective equipment minimizes healthcare worker exposure. Chemical agents that are used as weapons fall into one of five general categories:          All could be used as WMD.</p>
30.	Nerve Agents	<p>The body's nervous system sends messages through chemical reactions; nerve agents interrupt these reactions. Examples of nerve agents include Sarin, Tabun, VX, Soman and many others.          Signs and symptoms of exposure to nerve agents can be remembered by using the acronym: SLUDGEM          S – Salivation (drooling)          L – Lacrimation (tearing)          U – Urination (loss of bladder control)          D – Defecation (loss of bowel control)          G – Gastrointestinal (abdominal pain)          E – Emesis (vomiting)          M – Miosis (pinpoint pupils)</p>
31.	Chemical Agents	<p>Blister agents cause burns and blistering of the skin such as mustard gas and Lewisite.          Blood agents affect the body's ability to transport and use oxygen. Cyanide is an example of a blood agent. Persons exposed to blood agents will have breathing problems.</p>
32.	Chemical Agents	<p>Choking agents damage lung tissue and mucous membranes.</p>



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		<p>These agents cause the person's airway to become obstructed from the swelling. Phosgene and chlorine are examples of choking agents.</p> <p>Irritants generally don't kill but they cause a person to become unable to perform their duties. Tear gas, mace, and pepper spray are irritants.</p>
<b>33.</b>	<b>Section III:</b>	<b>Response:</b>
34.	If a contaminated person presents at the hospital, what do you do?	<p>Regardless of how you might come in contact with a contaminated person, your safety is the MOST important thing. Anytime you encounter a situation with potential exposure to a biological, chemical or radiological agents, you SIN.</p> <p>How do you protect yourself? SIN!</p>
35.	Shield	<p>Remember, your safety comes first. It doesn't help you, your facility or the patient, if you take unprotected or uninformed actions that incapacitate or kill you.</p> <p>Shield yourself by putting on personal protective equipment at the first sign of danger.</p> <p>No direct patient contact should be made! Protect yourself and use standard precautions/splash protection:</p> <ul style="list-style-type: none"> <li>N-95 mask</li> <li>Face shield</li> <li>Gown</li> <li>Gloves</li> <li>Booties</li> </ul>
36.	Isolate	<p>Isolate the scene and deny entry. This will limit the spread of contamination. This could be something as simple as closing the door, posting personnel to seal off the area or establishing a perimeter with caution tape or barricades.</p> <p>As soon as it is discovered, escort the person to the designated decon area – not through the hospital. Have the person/persons exit the same way they came or exit through the closest exit.</p> <p>Isolate the contaminated area until it is deemed safe by your facility's designated safety personnel.</p> <p>Be sure to identify anything that the contaminated person has contacted ie. Floor, desk, other people, hallways.</p> <p>Identify an alternative entrance, if needed.</p> <p>Observe for and isolate anyone who may have received secondary contamination.</p>
37.	Notify	<p>Be familiar with your hospital's and department's emergency response plan and contact the designated personnel for guidance. (Insert facility-specific info here)</p>

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38.	Activation of the Decontamination Response Team	Our hospital's Decontamination Response Team may be activated by: _____. They should be activated when a non-ambulatory patient arrives or when more help is needed than is currently available or if there has been an MCI event. Be aware that people escorting the non-ambulatory patient may need decontamination, as well.
39.	What is a Decontamination Response Team?	<p>A facility's Decon Response Team falls under the Operations Section in an Incident Command structure and is a group of personnel and resources operating within a contaminated area. The personnel that make up this team are trained to properly use personal protective equipment, setup the decontamination area and equipment, and perform decontamination activities. The ultimate purpose of every member is to ensure the safety of personnel, patients, and the facility.</p> <p>A Decon Response Team performs the following functions:</p> <ul style="list-style-type: none"> <li>Safety Officer - Ensuring the Safety of the Facility, Personnel and Patients</li> <li>Decon Response Team Leader and/or Nurse Manager are tasked to ensure the DRT has the appropriate supplies to complete their activities. Additionally, they supervise the clean up of contaminants and equipment; as well as, arrange for proper disposal of contaminated items.</li> <li>Site Access Control</li> <li>Pre-Decon Triage</li> <li>Stripper / Bagger</li> <li>Washer / Rinser</li> <li>Dryer / Dresser</li> <li>Hospital Gatekeeper</li> </ul> <p>Minimum response should have at least four members. Plan on these members needing to be replaced in 30 minutes (depending on the weather) and one person can perform multiple functions.</p>
40.	Duties of DRT Members in the hospital decontamination zone	<p>Duties of DRT Members in the Hospital Decontamination Zone includes:</p> <ul style="list-style-type: none"> <li>establish the perimeter</li> <li>crowd control</li> <li>setup of decon operations</li> <li>triage and tag contaminated patients</li> <li>establish care area for expectant patients</li> <li>remove and bag clothing and valuables</li> <li>wash and rinse contaminated patients</li> </ul>

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		dry and dress contaminated patients
41.	Hospital Decontamination Zone	Hospital Decontamination Zone
42.	Control Zone – Contamination Reduction Zone	The Hospital Contamination Zone is the area where the type and quantify of hazardous substance is unknown. It is also where contaminated victims, equipment, and waste may be present. It is the HOT area The WARM zone is there the decontamination process occurs The COLD zone is when decon has occurred and the patient is clean
43.	Hospital Decontamination Zone	To ensure that the agent does not contaminate the 'clean' area, set-up decontamination activities so that they are: Up Hill Up Wind Up Stream
44.	Ensure the Safety of the Facility & Personnell	The Decon Team Leader assures the safety of personnel and property during decontamination operations must supervise the Decontamination Zone. This person organizes and enforces employee and facility protection. Their duty is to modify, alter or stop the decontamination process if it has become unsafe and, if necessary, order personnel to leave the dangerous area. This person must be able to communicate the needs and progress of the Decon Response Team with the hospital command center.
45.	Setup of Decontamination Operations	DRT members work to setup the decon operation area by establishing the decontamination zone, ensuring access to supplies, and assembling the necessary decontamination equipment. Additionally, DRT members must ensure easy access to contaminated waste during decon operations.
46.	Our Hospital's Decon Setup	Our Hospital's Decon Setup
47.	Triage, Reassure & Instruct Contaminated Patients	In the Hospital Decontamination Zone, DRT members are responsible for greeting, triaging and escorting contaminated patients to the decon operations area for decontamination. Pre-decontamination triage should focus on assessing the medical status of victims and prioritizing decontamination efforts according to the patient's medical instability.
48.	Triage During a Mass Casualty Incident (MCI)	In a Mass Casualty Incident (MCI) situation, patient care / treatment is postponed until the patient has been fully



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		decontaminated and moved into the Hospital Post-Decontamination Zone. In an MCI situation, the goal of decontamination is to provide 'the most for the most'. Contaminated patients should be sorted according to priority: ability to ambulate and level of contamination. Utilization of START Triage will ensure the greatest number of contaminated victims will be decontaminated and can receive treatment.
49.	Collection of Contaminated Belongings	Research has proven that upwards of 85% of the contaminate is removed when the contaminated victim removes his/her clothing. While it is important to ensuring patient privacy, contaminated victims should remove their clothing and valuables as soon as possible. Clothing and valuables should be placed into separate, transparent, sealable bags and labeled. This is important for decontamination, tracking, retrieval, and investigation purposes. In a Mass Casualty Incident, contaminated belongings could be considered evidence; therefore, it is important that all belongings are correctly labeled and tracked.
50.	Directed Decon	A way to minimize contact with a contaminated person is to have them perform directed decon. If the patient is ambulatory, can understand instructions, and there is no physical contact needed, they can perform the steps of decon themselves
51.	Process for Performing Directed Decon	First and foremost – attempt to maintain the patient's modesty during the self-decontamination process. The steps for Directed Decon are: Remove all valuables and clothing (to prevent further contamination, should not be removed over the head – may need to use scissors to cut clothing off) Place contaminated valuables and clothing in sealable, labeled containers/bags Rinse with tepid water – start at the head and move down Wash with soap and tepid water for 5 minutes Gentle washing Best to use sponges or soft brushes Start at the head and move down – remember the nooks and crannies Wash bottom of foot, step into 'clean' area without putting foot back into 'dirty' water. Repeat with the other foot. Rinse for 5 minutes Use lots of water Start at the head and move down

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		<p>Rinse bottom of foot, step into 'clean' area without putting foot back into 'dirty' water. Repeat with the other foot.</p> <p>Dry</p> <p>Provide patient with a clean covering</p> <p>There are times when Directed Decon is not appropriate and the facility's Decon Response Team must be activated.</p>
52.	Decontamination of Non-Ambulatory Patients: "Assisted Decon"	<p>Non-ambulatory patient decontamination follows the same process as ambulatory patient decon; however, since most non-ambulatory patients will be on a stretcher, washing and rinsing are initiated at the part of the body that is located closest to the Hospital Post-Decontamination Zone. This is to ensure that contaminated waste is kept as far away from the facility as possible.</p>
53.	Duties of DRT Members in the Hospital Decontamination Zone	<p>Once the patient has been through the decontamination process, it is important to evaluate the success of the decontamination effort. Depending on the type of contaminate, this can be accomplished through the use of agent-specific detection equipment such as M8 Chemical Detection Paper or Radiation Detection equipment.</p> <p>Once the patient has been decontaminated, the patient may enter the facility where patient registration and treatment can begin.</p> <p>Keep in mind that each person on the Decon Response Team performs an essential function – protection of life, environment, and property.</p>
54.	<b>Section IV:</b>	<b>Personal Protective Equipment</b>
55.	How are you at Risk?	<p>Before beginning any decontamination procedure, one must always remember that the 'S' in SIN stands for SHIELD. Your safety is the number one priority. To ensure your safety, you must use proper personal protective equipment when dealing with any suspected contaminated patient.</p> <p>At a very basic level, DRT members should always use standard/universal precautions because they are being exposed to hazardous agents. It is important to protect yourself. Responders are there to save lives, not risk lives! Without the correct use of personal protective equipment, you place yourself at risk for exposure to the agent you are working with.</p> <p>Decon Response Team members run the greatest risk of inhalation and absorption exposure when working with contaminated persons. Possible routes of entry are inhalation, ingestion, absorption and, even, injection.</p>

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56.	Personal Protective Equipment (PPE)	<p>In the Hospital Decontamination Zone, properly selected and worn personal protective equipment is your best defense against exposure! Remember that many agents are odorless, colorless and tasteless. You may be exposed before you know it!</p> <p>No one type of PPE will protect against all biological or chemical agents. However, Personal Protective Equipment (PPE) is your last line of defense against an agent because now you are 'in contact'. If you fail to use PPE, exposure is likely.</p> <p>Take care to properly select and use PPE, otherwise it can fail and place the user at risk. Incorrect use of PPE can lead to exposure due to penetration, degradation, or permeation. Penetration can occur from the passage of chemicals through holes, seams or rips in the PPE. PPE degradation or deterioration can occur from exposure to temperature, abrasion, and sunlight. Permeation can occur from the passage of chemicals through PPE.</p>
57.	Standard Precautions	<p>No one type of equipment is good against all types of agents. The characteristics and amount of the hazardous material present determine the appropriate personal protective equipment. Some hazardous agents may only require the use of Standard Precautions. However, when the agent is unknown always use hazardous agent personal protective equipment.</p>
58.	Hazardous Agent PPE	<p>There are four levels of PPE for protection against biological, chemical or radiological agents: Level A, Level B, Level C, and Level D.</p>
59.	Level A PPE	<p>Level A PPE offers the highest levels of skin and respiratory protection from agents.</p>
60.	Level A Protection	<p>Notice that the people in the picture are squatting, not kneeling, in order to protect their suits.</p>
61.	Level B PPE	<p>Level B PPE provides a lower level of skin protection but the highest level of respiratory protection. Level A and Level B type PPE is necessary for individuals working at the release site or in an environment permeated by the contaminate.</p>
62.	Level B Protection	<p>Notice that the face masks and tanks are not encapsulated in the suits. Suit color is immaterial to level of protection.</p>



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63.	Level C PPE	Level C PPE provides for liquid splash protection and a lower level of respiratory protection through the use of air-purifying respirators. This is the level of PPE that we use as first receivers. Cannot be used in O2 deprived area.
64.	Level C Protection	Level C Protection
65.	Level D PPE	Level D PPE provides for the lowest level of protection against hazardous agents. Level D PPE offers no protection from chemical agents and limited respiratory protection. However, Level D PPE is appropriate for protection against most radiological agents. Level D PPE consists of work uniforms/scrubs and Standard Precautions (N-95 mask, face shield, gown, gloves, and booties).
66.	Level D Protection	Level D Protection
67.	Radiation Protection	For protection against radiation use: Face shield Mask Gown Gloves Booties Bonnet
68.	Risks of Hazardous Agent PPE	As we discuss the types and proper use of hazardous agent PPE, keep in mind the potential for heat stress, slips, trips, falls, and overexertion when using this equipment.
69.	Heat Cramps	Heat cramps are muscle spasms which usually affect the arms, legs, or stomach. Frequently they don't occur until sometime later after work, at night, or when relaxing. Heat cramps are caused by heavy sweating, especially when fluid is replaced by drinking water, but not salt or potassium. Although heat cramps can be quite painful, they usually don't result in permanent damage. To prevent them, drink electrolyte solutions such as Gatorade during the day and try eating more fruits like bananas.
70.	Heat Exhaustion	Heat exhaustion is more serious than heat cramps. It occurs when the body's internal air-conditioning system is overworked, but hasn't completely shut down. In heat exhaustion, the surface blood vessels and capillaries which originally enlarged to cool the blood collapse from loss of body

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#	Slide Title	Slide Text
		<p>fluids and necessary minerals. This happens when you don't drink enough fluids to replace what you're sweating away. The symptoms of heat exhaustion include: headache, heavy sweating, intense thirst, dizziness, fatigue, loss of coordination, nausea, impaired judgment, loss of appetite, hyperventilation, tingling in hands or feet, anxiety, cool moist skin, weak and rapid pulse (120-200), and low to normal blood pressure. Somebody suffering these symptoms should be moved to a cool location such as a shaded area or air-conditioned building. Have them lie down with their feet slightly elevated. Loosen their clothing, apply cool, wet cloths or fan them. Have them drink water or electrolyte drinks. Try to cool them down, and have them checked by medical personnel. Victims of heat exhaustion should avoid strenuous activity for at least a day, and they should continue to drink water to replace lost body fluids.</p>
71.	Heat Stroke	<p>Heat stroke is a life threatening illness with a high death rate. It occurs when the body has depleted its supply of water and salt, and the victim's body temperature rises to deadly levels. A heat stroke victim may first suffer heat cramps and/or the heat exhaustion before progressing into the heat stroke stage, but this is not always the case. It should be noted that, on the job, heat stroke is sometimes mistaken for heart attack. It is therefore very important to be able to recognize the signs and symptoms of heat stroke - and to check for them anytime an employee collapses while working in a hot environment. The early symptoms of heat stroke include a high body temperature (103 degrees F); a distinct absence of sweating (usually); hot red or flushed dry skin; rapid pulse; difficulty breathing; constricted pupils; any/all the signs or symptoms of heat exhaustion such as dizziness, headache, nausea, vomiting, or confusion, but more severe; bizarre behavior; and high blood pressure. Advance symptoms may be seizure or convulsions, collapse, loss of consciousness, and a body temperature of over 108° F.</p> <p>It is vital to lower a heat stroke victim's body temperature. Seconds count. Pour water on them, fan them, or apply cold packs.</p>
72.	Be Careful...	<p>If you recognize any of these signs and symptoms in yourself or another Decontamination Response Team member, you should:</p> <ul style="list-style-type: none"> <li>Remove the DRT member from their post</li> <li>Off the DRT member</li> <li>Perform decontamination</li> </ul>

**Regional Decontamination Response Team (DRT) Curriculum**

Updated: 02-2008

#	Slide Title	Slide Text
		Treat accordingly, once inside the Post-Decontamination Zone
73.	Medical Screen Pre- and Post-Decon	DRT members should be monitored before and after the decon process to ensure team safety.
74.	What are we going to be using?	As a First Receiver, OSHA recommends using Level C PPE as it provides adequate liquid splash and respiratory protection. Exposure to First Receivers operating in a Hospital Decontamination Zone is greatest during the pre-decon activities and the wash/rinse step. Liquid splash protection is achieved by using Tychem suits; in conjunction with butyl rubber gloves and PVC boot covers.
75.	APRs	Respiratory protection will be achieved through the use of an air-purifying respirator (APR) or powered air-purifying respirator (PAPR). An APR is a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element. APR's have special filters that attach to either a tight or loose fitting face piece. A person is able to breath through an APR through the use of a demand valve or powered supply system. APRs provide a filtered air source; however, they may not protect against all biological or chemical agents. APRs may not fit over glasses and facial hair
76.	PAPRs	A powered air-purifying respirator (PAPR) is a powered respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element. For training, NiCad Batteries last 5 hours. During an event, use lithium batteries – 10 hour life. The life of the filter depends on the agent.
77.	Respiratory Protection Program	Members of a Decon Response Team that use any level of respiratory protection must be enrolled in a Respiratory Protection Program at their facility. Prior to participating on a Decon/Disaster Response Team, members will be fit-tested for use of N-95 facemasks and air-purifying respirators (APRs). Fit-testing of PAPRs is not required. Decon Response Team members must participate in a Respiratory Protection Program that meets the OSHA Respiratory Standard which establishes guidelines for maintenance and care, fit-testing, and medical clearance. At the conclusion of this training, you will be given a respiratory



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#	Slide Title	Slide Text
		questionnaire to complete for your Employee Health files. Additionally, DRT members will participate in medical surveillance program. Medical monitoring is key to maintaining the health and safety of DRT members.
78.	Donning PPE	<p>Donning is the term used to describe the process of putting on personal protective equipment. When properly donning PPE, you must work with a buddy!</p> <p>To appropriately don PPE, put the following on in order:</p> <ul style="list-style-type: none"> <li>A pair of gloves</li> <li>Tychem suit</li> <li>PVC boot covers</li> <li>Outer butyl rubber gloves</li> <li>Appropriate respiratory protection (either an APR or PAPR)</li> </ul> <p>When donning PPE, the last thing that should be done is putting on the respiratory protection. Duct tape should then be used to cover all seals between the suit, gloves, boot covers, and APR/PAPR.</p> <p>Prior to beginning any decontamination operation, every DRT member will be checked to ensure they have correctly protected themselves using PPE.</p> <p>Note identifier (name, identifying number) and don time on duct tape on back of suit</p>
79.	Communicating while using PPE	Wearing a respirator can hinder the ability to communicate verbally. Therefore, we have created non-verbal signs to facilitate communication among DRT members. Resist the urge to remove the respirator to communicate with others during decontamination operations.
80.	"I need help with this patient."	This is the sign to communicate if you are having trouble with a particular patient.
81.	"I'm having trouble breathing."	This is the sign to communicate if you are having trouble breathing.
82.	"I'm OK."	This is the sign used to communicate if you are 'OK'.
83.	The last patient has been decontaminated - now what?	<p>Once the last patient has been through the decontamination process, you must decontaminate your suit before you can remove it. This will ensure that you do not exposure yourself to any contaminants. Decontamination of DRT Members should be performed accordingly:</p> <ul style="list-style-type: none"> <li>First – members in the Contaminated Zone</li> <li>Second – members in the Decontamination Zone</li> </ul> <p>Once DRT members have entered the Post-Decontamination</p>

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#	<u>Slide Title</u>	<u>Slide Text</u>
		Zone, they may doff their PPE.
84.	Doffing PPE	<p>Doffing is the term used to describe the process of taking off personal protective equipment. When doffing PPE, it should be done so that the last thing to be removed is the respiratory protection. To safely doff PPE, you must work with a buddy! To appropriately doff PPE, remove the following in order:</p> <ul style="list-style-type: none"> <li>Duct tape at the suit and glove seals</li> <li>Outer butyl rubber gloves</li> <li>Respirator</li> <li>Peel the suit away from the body</li> <li>PVC boot covers</li> <li>Remove gloves</li> </ul> <p>When doffing PPE, the last thing that should be removed is the respiratory protection!</p>
85.	What do you do if one of the DRT members goes down?	<p>There may come a time where a Decon Response Team member has difficulty wearing the personal protective equipment. If that happens, other DRT members should:</p> <ul style="list-style-type: none"> <li>Remove the DRT member from their post</li> <li>Doff the DRT member</li> <li>Perform decontamination</li> <li>Treat accordingly, once inside the Post-Decontamination Zone</li> </ul>
86.	Questions & Answers	Questions & Answers
87.	Practice Activities	Practice Activities
88.	Medical Surveillance Questionnaire	Practice Activities
89.	Class Evaluation	Thanks
90.		<p>Thank you for your time and your interest in being a member of your facility's Decon Response Team.</p> <p>We hope that you found this informative and fun!</p>







### DRT Post-Test Questions

1. Which of the following patients are contaminated and will need decon?
  - A. 27 year old female mixed bleach and ammonia in her toilet. Family brought her gasping to the ER
  - B. 57 year old male crashed his motorcycle, gas tank ruptured and gasoline soaked his jeans. His friend brought him to the ER without taking jeans off.
  - C. 18 year old female assisting with putting lime on foot ball field, had container of lime spill onto her legs. She brushed off lime and rinsed off her legs. Presents with redness and pain to both legs.
  - D. 28 year old male complains of headache after working on auto in closed garage, had engine running while adjusting timing.
2. List the following actions in the proper order.
  1. Escort patient to Decon Area by closest route
  2. Identify contaminated patient
  3. Inform leadership of contaminated patient in hospital
  4. Don proper PPE
  - A. 1, 2, 3, 4
  - B. 3, 1, 2, 4
  - C. 2, 4, 1, 3
  - D. 4, 1, 3, 2
3. Most patients infected with Biological WMDs will present with:
  - A. Seizure activity
  - B. Death
  - C. Flu like symptoms
  - D. High fever
4. Patients may be contaminated with chemicals from.
  - A. Transportation spills
  - B. Acts of terrorism/warfare
  - C. Home products
  - D. All the above



5. Two patients arrive at your facility and walk through the door. You determine that they will need decontamination prior to treatment. The most effective method will be
  - A. Call decon team to set up decon shower system then have patients deconned.
  - B. Tell patients to go home, shower and change clothes then return for treatment.
  - C. At your designated location have the patients do Directed Decon.
  - D. Tell patients that you are sorry but they need to go to next hospital.
6. EMS brings in a Priority 1 patient that is in severe distress, they called and said the patient was contaminated with radioactive material at his job site when he was injured. The proper response is to
  - A. Call Decon team to set up decon shower system and decon patient before treatment.
  - B. Have treatment team don Level D PPE and do life saving treatment.
  - C. Call 911 and have hazmat team respond.
  - D. Tell ambulance crew to divert to a radiation treatment hospital.
7. You receive a call from the ER, charge nurse reports that there has been a major wreck on the highway, it is estimated that in 15-20 minutes there will be approximately 25 patients arriving by POV and EMS that have been contaminated at the scene. To effectively deal with this you:
  - A. Alert decon team and set up decon shower system.
  - B. Develop a major migraine headache and go home.
  - C. Try and call the Safety Officer at home and ask what to do.
  - D. Find the nearest TV to watch what is happening at the scene.
8. The decon team has been alerted and will be setting up the decon shower system in a new location due to damage to primary site. You know they will need all the following for operations except:
  - A. Water source
  - B. Electricity
  - C. Diesel fuel
  - D. Shaded area to set up in
9. Using the PAPR you know the team members can use the NiCad batteries for a maximum time of:
  - A. 1 hour before recharging
  - B. 5 hours before recharging
  - C. 1 hour then disposing
  - D. 5 hours then disposing
10. What is not a feature of the Type C PPE that we are using?
  - A. Splash protection
  - B. Respiratory protection
  - C. Increased heat stress and decreased mobility
  - D. The ability to work in an oxygen deprived environment

**Regulations (Standards - 29 CFR)**

**OSHA Respirator Medical Evaluation Questionnaire (Mandatory). - 1910.134 App C**

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**Appendix C to Sec. 1910.134: OSHA Respirator Medical Evaluation Questionnaire (Mandatory)**

To the employer: Answers to questions in Section 1, and to question 9 in Section 2 of Part A, do not require a medical examination.

To the employee:

Can you read (circle one): Yes/No

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your supervisor must not look at or review your answers. **Your answers will be kept confidential in your employee health file. If you have any questions please contact your Employee Health Nurse. Employee Health will be responsible for reviewing all questioners.**

Part A. Section 1. (Mandatory) The following information must be provided by every employee who has been selected to use any type of respirator (please print).

1. Today's date: \_\_\_\_\_

2. Your name: \_\_\_\_\_

3. Your age (to nearest year): \_\_\_\_\_

4. Sex (circle one): Male/Female                      **SSN:** \_\_\_\_\_

5. Your height: \_\_\_\_\_ ft. \_\_\_\_\_ in.

6. Your weight: \_\_\_\_\_ lbs.

7. Your job title: \_\_\_\_\_

8. A phone number where you can be reached by the health care professional who reviews this questionnaire (include the Area Code): \_\_\_\_\_

9. The best time to phone you at this number: \_\_\_\_\_

10. Has your employer told you how to contact the health care professional who will review this questionnaire (circle one): Yes/No

11. Check the type of respirator you will use (you can check more than one category):



- a.   X   N95 3M 8170 Particulate Respirator.
- b.        Other type (for example, half- or full-face piece type, powered-air purifying, supplied-air, self-contained breathing apparatus).

12. Have you worn a respirator (circle one): Yes/No

If "yes," what type(s): \_\_\_\_\_

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Part A. Section 2. (Mandatory) Questions 1 through 9 below must be answered by every employee who has been selected to use any type of respirator (please circle "yes" or "no").

1. Do you **currently** smoke tobacco, or have you smoked tobacco in the last month: Yes/No

2. Have you **ever had** any of the following conditions?

- a. Seizures (fits): Yes/No
- b. Diabetes (sugar disease): Yes/No
- c. Allergic reactions that interfere with your breathing: Yes/No
- d. Claustrophobia (fear of closed-in places): Yes/No
- e. Trouble smelling odors: Yes/No

3. Have you **ever had** any of the following pulmonary or lung problems?

- a. Asbestosis: Yes/No
- b. Asthma: Yes/No
- c. Chronic bronchitis: Yes/No
- d. Emphysema: Yes/No
- e. Pneumonia: Yes/No
- f. Tuberculosis: Yes/No
- g. Silicosis: Yes/No
- h. Pneumothorax (collapsed lung): Yes/No
- i. Lung cancer: Yes/No
- j. Broken ribs: Yes/No
- k. Any chest injuries or surgeries: Yes/No
- l. Any other lung problem that you've been told about: Yes/No

4. Do you **currently** have any of the following symptoms of pulmonary or lung illness?

- a. Shortness of breath: Yes/No
- b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline: Yes/No
- c. Shortness of breath when walking with other people at an ordinary pace on level ground: Yes/No
- d. Have to stop for breath when walking at your own pace on level ground: Yes/No
- e. Shortness of breath when washing or dressing yourself: Yes/No
- f. Shortness of breath that interferes with your job: Yes/No
- g. Coughing that produces phlegm (thick sputum): Yes/No
- h. Coughing that wakes you early in the morning: Yes/No
- i. Coughing that occurs mostly when you are lying down: Yes/No

- j. Coughing up blood in the last month: Yes/No
- k. Wheezing: Yes/No
- l. Wheezing that interferes with your job: Yes/No
- m. Chest pain when you breathe deeply: Yes/No
- n. Any other symptoms that you think may be related to lung problems: Yes/No

5. Have you **ever had** any of the following cardiovascular or heart problems?

- a. Heart attack: Yes/No
- b. Stroke: Yes/No
- c. Angina: Yes/No
- d. Heart failure: Yes/No
- e. Swelling in your legs or feet (not caused by walking): Yes/No
- f. Heart arrhythmia (heart beating irregularly): Yes/No
- g. High blood pressure: Yes/No
- h. Any other heart problem that you've been told about: Yes/No

6. Have you **ever had** any of the following cardiovascular or heart symptoms?

- a. Frequent pain or tightness in your chest: Yes/No
- b. Pain or tightness in your chest during physical activity: Yes/No
- c. Pain or tightness in your chest that interferes with your job: Yes/No
- d. In the past two years, have you noticed your heart skipping or missing a beat: Yes/No
- e. Heartburn or indigestion that is not related to eating: Yes/ No
- f. Any other symptoms that you think may be related to heart or circulation problems: Yes/No

7. Do you **currently** take medication for any of the following problems?

- a. Breathing or lung problems: Yes/No
- b. Heart trouble: Yes/No
- c. Blood pressure: Yes/No
- d. Seizures (fits): Yes/No

8. If you've used a respirator, have you **ever had** any of the following problems? (If you've never used a respirator, check the following space and go to question 9:) Never worn a respirator \_\_\_\_\_.

- a. Eye irritation: Yes/No
- b. Skin allergies or rashes: Yes/No
- c. Anxiety: Yes/No
- d. General weakness or fatigue: Yes/No
- e. Any other problem that interferes with your use of a respirator: Yes/No

9. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire: Yes/No

[63 FR 1152, Jan. 8, 1998; 63 FR 20098, April 23, 1998]







## Decontamination Response Training For Hospital First Receivers Decontamination Equipment Skills Checklist

NAME: \_\_\_\_\_ DEPT: \_\_\_\_\_

YES OR NO		INSTRUCTOR INITIALS	ATTENDEE INITIALS
	Correctly sets up the decon shower system.		
	Correctly disassembles the decon shower system.		
	Correctly identifies and connects to water supply.		
	Correctly identifies and connects to the electrical supply.		
	Performs correct setup of ambulatory and non-ambulatory patient decontamination routes.		
	Verbalizes correct use of chemical agent detection equipment: M8 paper and Chem-Strips.		
	Correctly uses Ludlum ratemeter.		
	Correctly explains the use of EPDs.		
	Verbalizes correct cleaning and maintenance procedures for decontamination and detection equipment.		

Attendee's Signature/Initials: \_\_\_\_\_ Date: \_\_\_\_\_

Instructor's Signature/Initials: \_\_\_\_\_ Date: \_\_\_\_\_



## Decontamination Response Training For Hospital First Receivers Patient Decontamination Skills Checklist

NAME: \_\_\_\_\_ DEPT: \_\_\_\_\_

YES OR NO		INSTRUCTOR INITIALS	ATTENDEE INITIALS
	Verbalizes the process for Directed Decon.		
	Explains the process of performing decontamination on ambulatory patients.		
	Explains the process of performing decontamination on non-ambulatory patients.		
	Verbalizes the process for providing decontamination to an escalating number of patients.		
	Correctly identifies the Cold, Warm and Hot Zones of the Patient Decontamination Area.		
	Explains the roles of the Decontamination Response Team Members: <ul style="list-style-type: none"> <li>• Decon Unit Leader / Safety Officer</li> <li>• Greeter</li> <li>• Triage</li> <li>• Stripper / Bagger</li> <li>• Washer / Rinser</li> <li>• Dryer / Dresser</li> <li>• Hospital Gatekeeper</li> </ul>		
	Verbalizes correct disposal process for contaminated belongings, equipment and hazardous waste.		
	Verbalizes correct cleaning and maintenance procedures for decontamination equipment.		

Attendee's Signature/Initials: \_\_\_\_\_ Date: \_\_\_\_\_

Instructor's Signature/Initials: \_\_\_\_\_ Date: \_\_\_\_\_



## Decontamination Response Training For Hospital First Receivers Personal Protective Equipment Skills Checklist

NAME: \_\_\_\_\_ DEPT: \_\_\_\_\_

YES OR NO		INSTRUCTOR INITIALS	ATTENDEE INITIALS
	Correctly dons and doffs Level C personal protective equipment		
	Demonstrates familiarity with Air Purifying Respirator (APR)		
	Correctly uses a Powered Air Purifying Respirator (PAPR)		
	Verbalizes correct disposal process for contaminated personal protective equipment		
	Verbalizes correct cleaning and maintenance procedure for personal protective equipment		

Attendee's Signature/Initials: \_\_\_\_\_ Date: \_\_\_\_\_

Instructor's Signature/Initials: \_\_\_\_\_ Date: \_\_\_\_\_