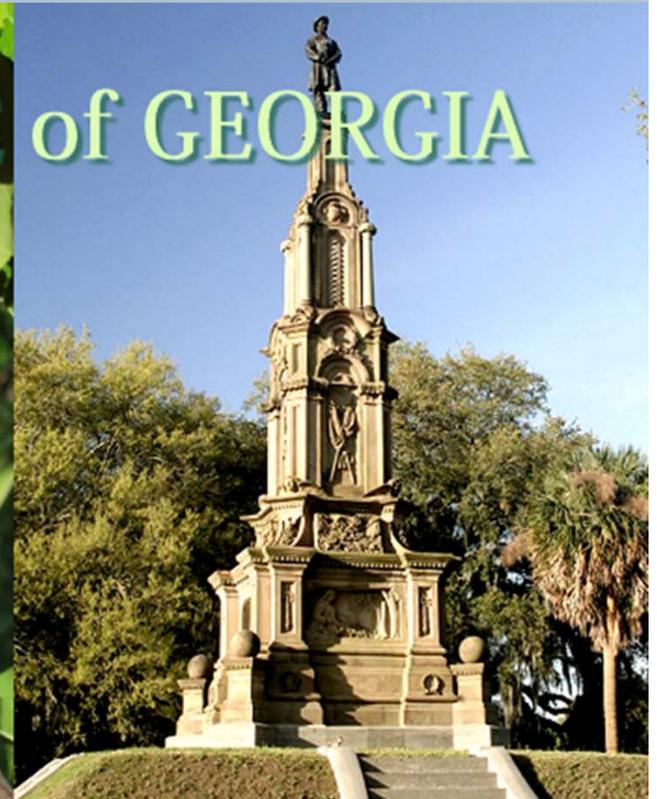


Hospital Preparedness for Disasters: Handling Contaminated Patients

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Objectives

- Discuss the different types of PPE.
- Describe radiological decontamination.
- Describe chemical decontamination.
- Discuss the differences between different types of decontamination.



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Steps to a Solution

- Each hospital should be able to handle 1 contaminated pt, with on-site staff, 24x7, safely
- Steps needed:
 - Select and acquire equipment
 - Develop local plan
 - Document local plan
 - Install equipment
 - Train to use equipment to match local plan



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Choosing the type of PPE

- Can choose PPE necessary for respiratory protection separately from PPE needed for skin protection
- Should use at least the minimum level for each, as appropriate



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Level A



Disadvantages of Level A Suits

- Oxygen source is limited.
- Needs a physically fit person.
- Heat stress.
- Heat stroke.
- Cumbersome.
- Lose manual dexterity.



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Level B



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Firefighters: Flame Retardant Suit



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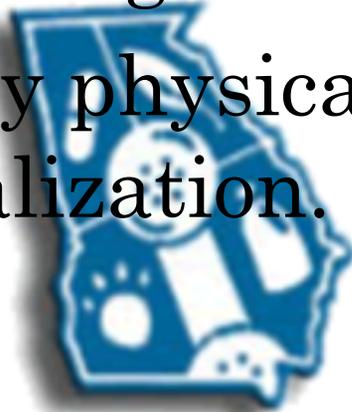
Level C



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Decontamination

- Decontamination is the reduction or removal of hazardous materials such as chemical or radiological compounds.
- It can be done by physical removal or chemical neutralization.



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General Principles

- Removal of all clothing can reduce contamination on the patient up to 90%.



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Chemical Decontamination

- Hazards to staff dictate decontamination prior to caring for victims with life threatening conditions.



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Physical State

- Victims contaminated with solids and liquids should receive decontamination.
- For gas and vapor exposures, removal from the source is sufficient –wet decon *not* needed.



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Tokyo Sarin Attack

- Vapor exposure.
- And yet, 10-20% of health care workers at treating hospitals developed mild to moderate symptoms of cough and miosis.



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Historical Incidents

- Goiania, Brazil (1985):
 - Health care workers caring for patients internally contaminated with cesium, were not secondarily exposed or contaminated.



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Historical Incidents

- London, England
 - 26 health care workers who cared for Mr. Litvinenko did not get secondarily contaminated with polonium.



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Wound Decontamination

- Wounds need to be assessed for foreign bodies as well as underlying injuries.
- Wound care needs to be balanced against contamination.
 - What is in there? How much is in there?



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Methods

- Washing with soap and water.
- Oxidation/Hydrolysis (Dilute bleach) for inert objects only.



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Disposal of Decon Rinse Water

- In a small event, collection into a separate drainage and storage system is feasible and desirable.
- In large mass casualty events, collection of waste effluent may not be easy.
- Control it to the best extent possible.



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Radiological Decontamination

- Decontamination should not delay or impede stabilization of any patient contaminated with radiological material.



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Whole or Partial Body Exposure to Radiation

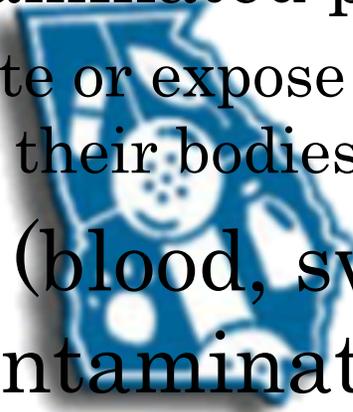
- A person who was irradiated, or exposed to radiation, is like having had an x-ray study.
- Decontamination is unnecessary and will not reduce the exposure.



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Secondary Radiological Contamination

- Can occur from:
 - Externally contaminated patients.
 - Internally contaminated patients
 - Can contaminate or expose others from the material inside their bodies.
- The body fluids (blood, sweat, urine) of an internally contaminated person can contain radioactive materials.



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Potential Hazard

- May occur with highly radioactive shrapnel.
- In that case, apply principles of Time-Distance-Shielding-Forceps



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OSHA Recommendation for Hospital-Based Decon

- Level C
- Is it realistic in an a mass casualty incident?
- Is it necessary?



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Level C in Tokai Mura Japan



Cut Away from the Head



Roll Clothes Inwards



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Remove Clothes by Rolling them into a Sheet



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Survey the Back



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Store Clothes in Bag and Store it Away from Patient



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Remember

- Label bag with date, patient name, time, and name of staff.
- Store away from patient in a designated area.
- Work with your RSO.



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Radiological Decontamination

- Paired with radiological survey.
- Draping.
- Soap and Water.
- Out to In.
- Targeted.
- Meticulous.



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Draping



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Targeted

- Soap and water
- Decontamination should proceed in a centrifugal manner



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Meticulous



Check the Radiation Counts

- Try to maintain the same location for the probe when reading the counts



Radiation detection

- Excreta or swabs from the victims should be collected and labeled.



When to Stop

- The activity is less than twice the average background activity.
- Decontamination efforts do not substantially reduce the activity.
- Skin is being abraded.



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Survey Staff

- Perform staff survey and decontamination if necessary.
- Use step off pad.



Remember Commonly Ignored Areas During decontamination

- Scalp
- Genitalia
- Skin creases & folds
- Hands
- Feet
- Nails



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Summary Points

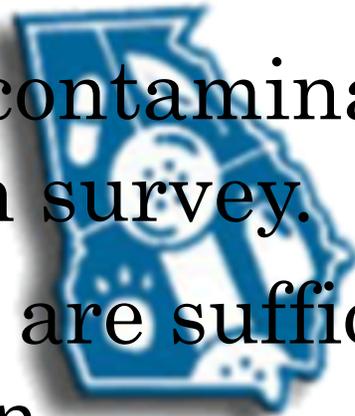
- Radioactive contamination is easy to detect.
- Chemical contamination may be difficult to detect.
- Provision of life-saving treatment should take priority over radiological decontamination.



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Summary Points

- Provision of life-saving treatment does not take priority over chemical decontamination.
- Radiological decontamination is paired with a radiation survey.
- Soap and water are sufficient for decontamination.



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Questions?

