

Nuclear Plant Emergency Response

Population Monitoring and the Community Reception Center

Module 4

Objectives

- Discuss population monitoring in the aftermath of a nuclear power plant accident.
- Describe the structure and function of the community reception center.



What is Population Monitoring?

- A process of immediate monitoring after an incident.

AND

- Long-term monitoring for health effects from the event.



Population Monitoring in Aftermath

- Four parameters should be assessed:
 - Contamination
 - Dose
 - Level of anxiety
 - Physical symptoms



Immediate Monitoring

- In the first hours after an incident:
 - Determine who is contaminated
 - Internal vs. external
 - Decontamination
 - Dose assessment and health risk
- There may be hundreds/thousands of people involved!



Long-term Monitoring

- Establish a health registry:
 - Exposed persons will be enrolled
 - Document health effects over time
 - Effects from radiation
 - Effects from stress of event



Nuclear Plant Emergency Response

National Response Framework

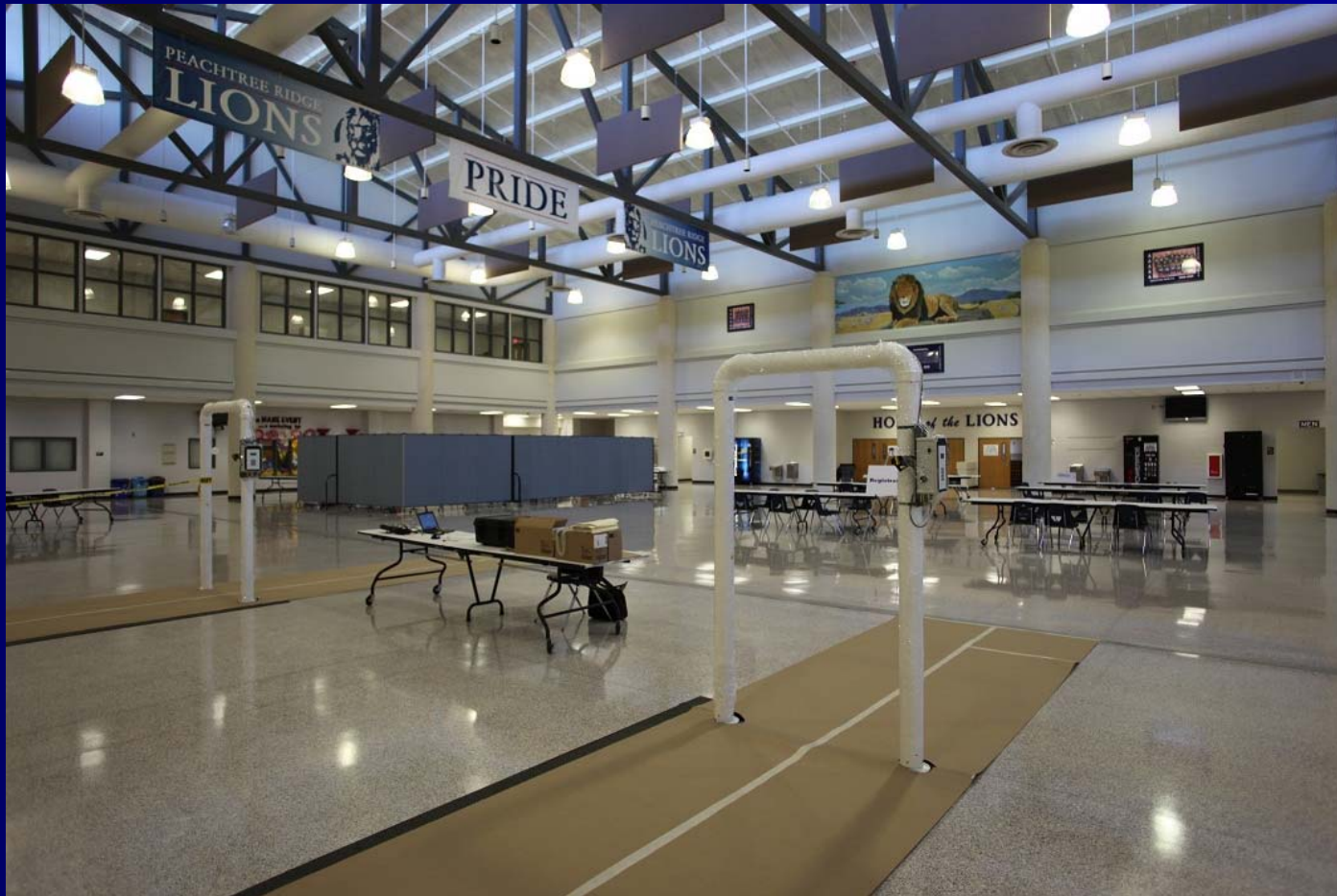
- Guiding principles for national response to all-hazards disaster.
- After a nuclear plant disaster:
 - CDC will be lead agency for population monitoring guidance
 - Described in Nuclear/Radiological Incident Annex of NRF
<http://www.fema.gov/emergency/nrf>



CDC Responsibilities

- Provide guidance to state, local, tribal governments for:
 - Establishing monitoring operations
 - Treating internal contamination
 - Creating a health registry
 - Determining radiation doses and health risk

Community Reception Center (CRC)



CRC Overview

[Click to play video](#)



Guiding Principles

1. The first priority is to save lives: respond to and treat the injured first.
2. Contamination with radioactive materials is not immediately life-threatening.
3. Initial population monitoring activities should focus on preventing acute radiation health effects.
4. Scalability and flexibility are an important part of the planning process.
5. Fear of radiation is high, perhaps higher than with other agents of terrorism.



Guiding Principles

1. A key resource for implementing this population monitoring guide is a state's lead agency for radiation control.
2. First responders and local officials may not be aware initially that a radiation incident has occurred (applies to terrorism incidents).
3. Radiological decontamination recommendations differ from those for chemical agents.
4. Law enforcement agencies will be involved in response to a radiological terrorism incident.

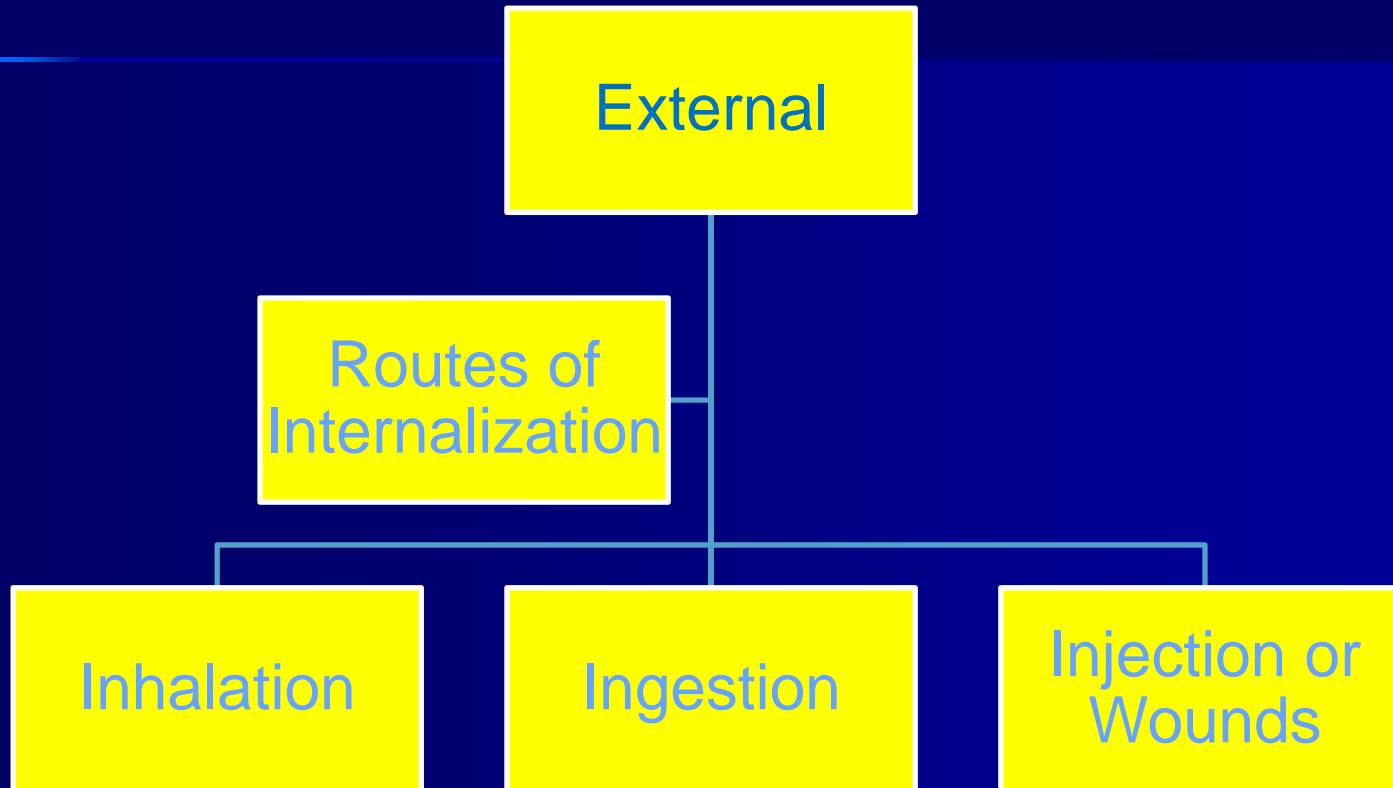


CRC

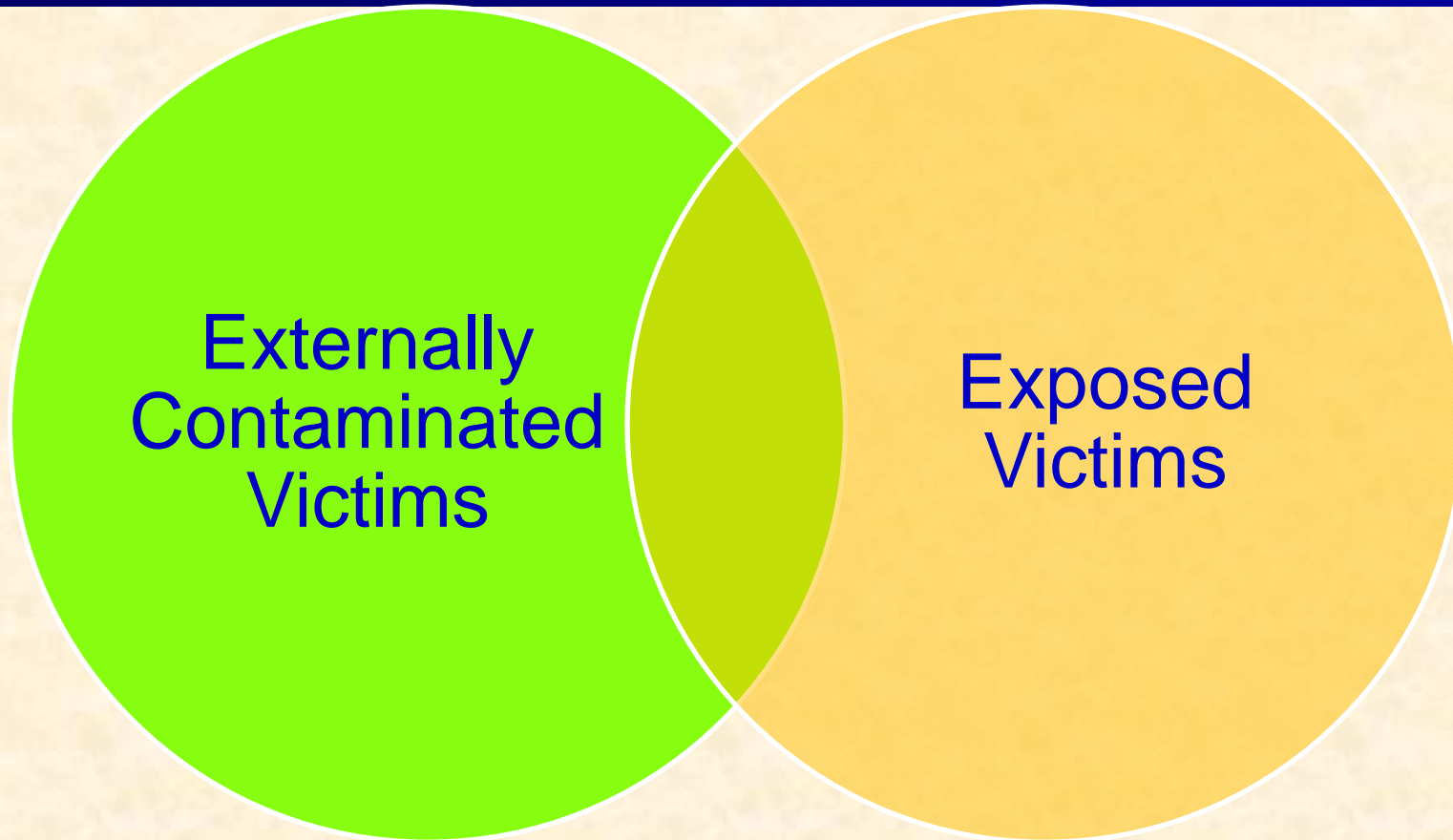
- A monitoring and decontamination facility.
- Used to screen for contamination, decontaminate, and enroll people in health registry.
- Prioritizing further care



Contamination



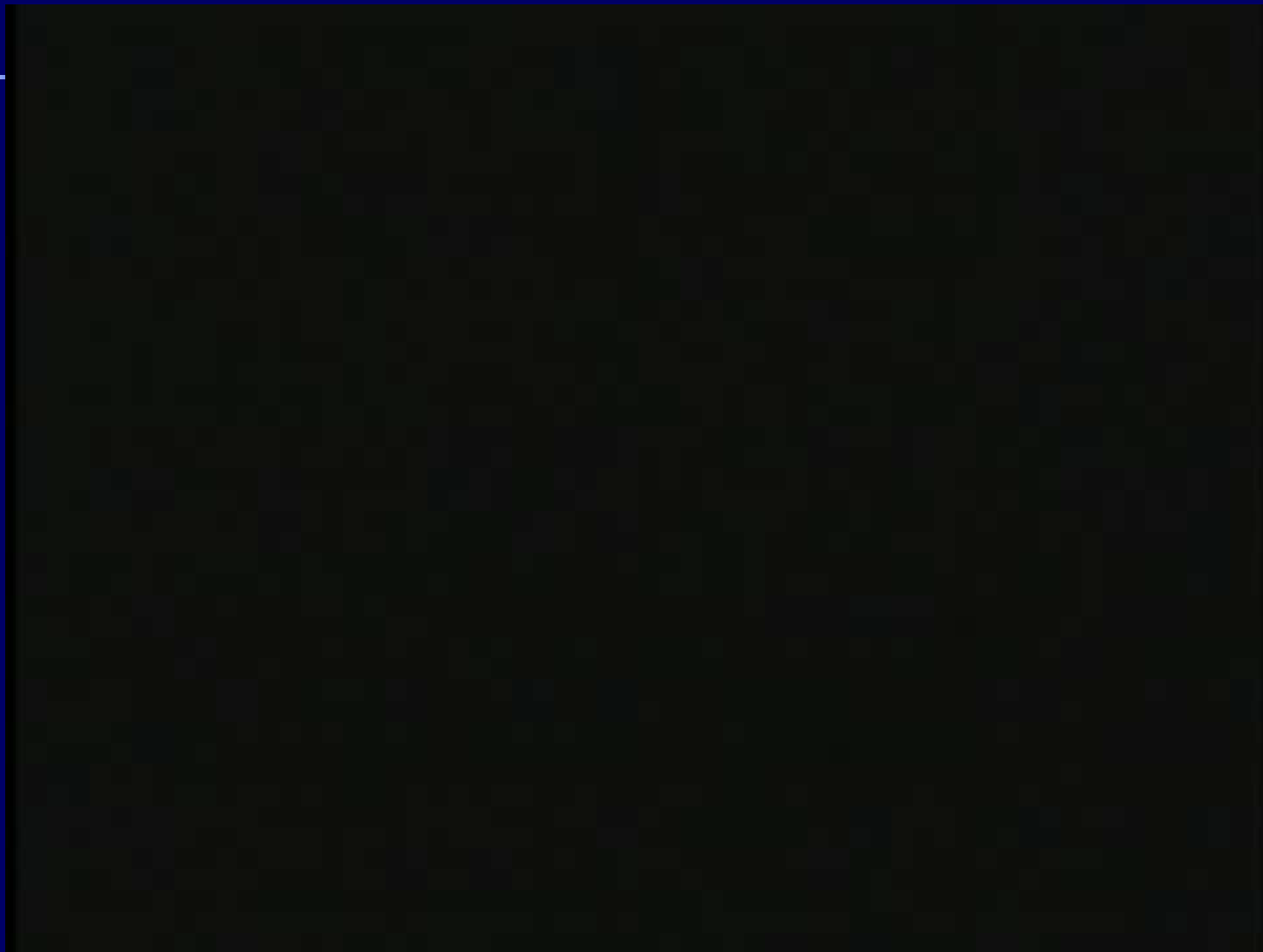
Externally Contaminated Patients can be Exposed



All Internally Contaminated Patients are Potentially Exposed Depending on the Specific Situation



Video (Contamination-CDC)





A



B



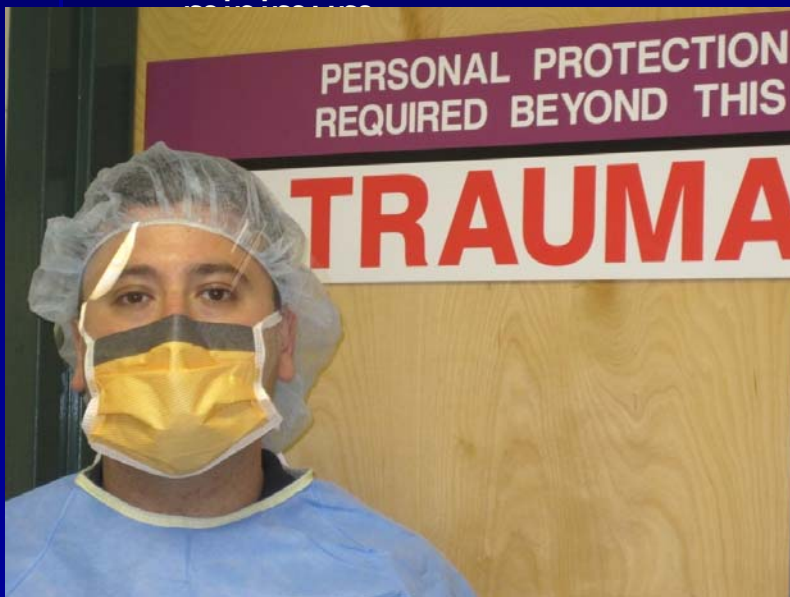
D



C

Respiratory Protection

- Commonly available protective masks are generally sufficient pre-decontamination.
- OSHA/NIOSH: Hospital staff taking care of patients in the pre-decontamination and decontamination areas, PAPRs or HEPA filter negative pressure masks are described as

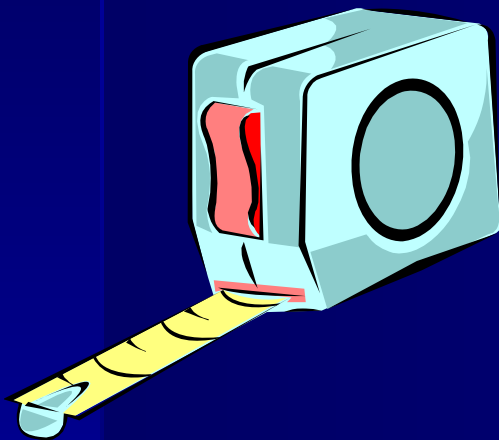


Personal Protection

- Standard Precautions



Radiation Protection Principles from External Exposure

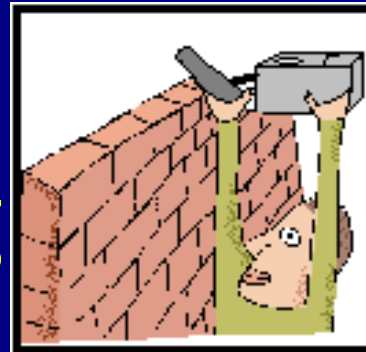


Distance

Time

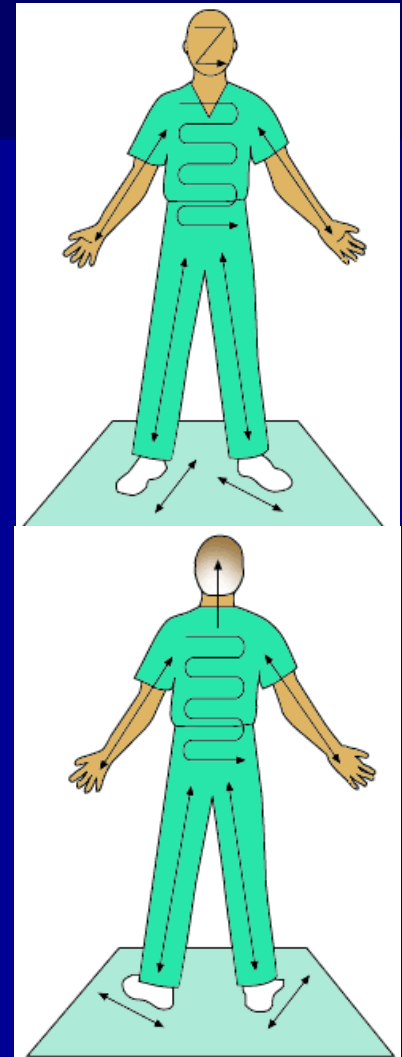


Shielding



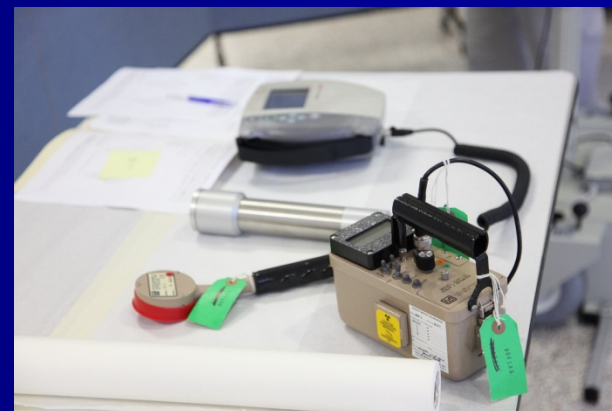
Radiation Detection in the CRC

- Survey patient for contamination with radioactive material and mark areas on body diagram.
- May use partial body contamination screening (hands, face, shoulder and head)



Except for an instance of highly-radioactive shrapnel, contamination should NOT deter medical staff from treating life-threatening injuries.

Monitoring Equipment



External Decontamination

- Paired with radiological survey.
- Soap and Water.



Further Evaluation

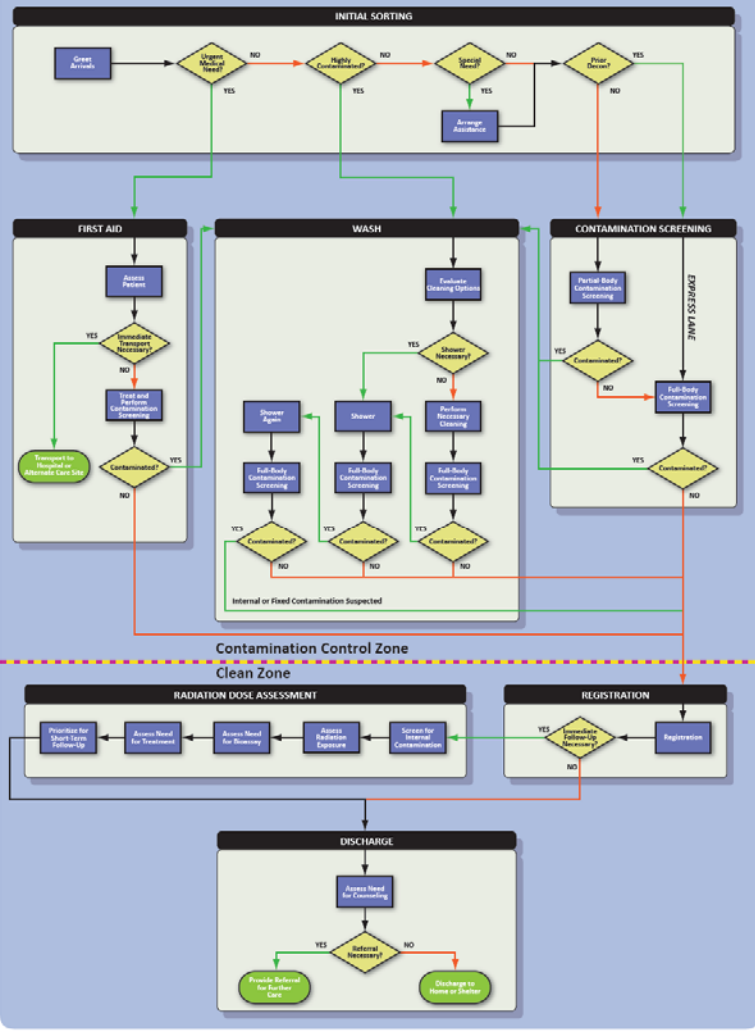
- Internal contamination
- Exposure to radiation



Questions or Comments?



Community Reception Center Flow Diagram



For updates and additional resources, visit:
<http://emergency.cdc.gov/radiation>



Summary

- Population monitoring involves immediate and long-term efforts.
- Appropriate triage crucial to prevent health system overload.
- Radiation detection and decontamination can be performed at the CRC as well as internal contamination and exposure evaluation.

