Radiological Dispersal Device (RDD) Fact Sheet

Respond:

- Contact the Radiation Emergency Assistance Center Training Site (REAC/TS) at 865-576-1005 to speak to a health physicist if you do not have one immediately available to discuss the effects and respond to the event.
- Call Minnesota Duty Officer 800-422-0798 (Greater MN only) or 651-649-5451 (Twin Cities metro & outside MN).
- Refer to your response protocols for radiological injury and decontamination--focus should be on decontamination, screening, assessment and patient care.
- Cesium 137 and Cobalt 60 are the most likely contaminant agents.

Recognize:

- RDD's (dirty bombs) can produce blast injury as well as external and internal radiological contamination, as they are conventional bombs containing non-fissile radioactive material to be released by the explosion.
- In the presence of radioactivity, assess the dose of exposure and likely isotopes involved. This must be done in conjunction with Public Safety and HAZMAT at the scene of the blast.

Protect Yourself and Others:

- Standard OSHA recommendations for hospital HAZMAT "first receivers" (include Tyvek suits and PAPRs) are appropriate for radiological decontamination.
- PPE similar to that worn in operating rooms with N95 mask is appropriate when only radiation decontamination and care are indicated (1)(2).
- Wear double gloves during decontamination, in case the outer glove tears.

Decontaminate/Evaluate/Triage:

- Define warm and cold zones. Triage and assessment for radioactive contamination should occur at the entry to decontamination/warm zone. Measure background radiation prior to performing patient assessments.
- Make sure G-M counter probe head is covered with disposable glove and set to most sensitive range.
- Conduct an initial total body survey with G-M counter (or equivalent). Collect samples—external swabs/swipes (orifices, wounds, "hot" areas). All wounds should be surveyed with counter. A "swipe" sample on a gauze sponge should be collected from any wound with a high count and bagged for further assessment.
- External contamination should be removed with soap and water.
- Decontaminate with a goal to reduce radiation to 2 times background.
- Decontamination of eyes, ears, nose, skin, and injury site should be performed (or supervised) by personnel familiar with decontaminating these body areas. Refer to organizational plans, policies &/or radiation safety officer for specifics (3).
- For pediatric patients, follow the AHRQ peds decontamination procedure(4).

Treat:

- Address life-threatening conditions and significant injuries FIRST. Note: Reduce the risk of cross-contamination of equipment, the environment, staff and patients when patient care is delivered prior to decontamination. External contamination with radioactive material has no early signs or symptoms. This is different than chemical contamination.
- Wounds should be dried by application of absorbent material, rather than by rubbing with gauze, which can force contaminants into the tissue. Wound care may require a health physicist and surgeon to assure maximal debridement and removal of contamination.
- Internal contamination depends on the nature of the radioisotope and its physical quantity--involve a health physicist for information about treatment.

1. OSHA Best Practices for Hospital-Based First Receivers of Victims from Mass Casualty Incidents Involving the Release of Hazardous Substances. January 2005. Retrieved January 28, 2008, from: http://www.osha.gov/dts/osta/bestpractices/html/hospital_firstreceivers.html.
2. Training: Radiological Terrorism: Medical Response to Mass Casualties. Retrieved January 28, 2008, from: http://www.bt.cdc.gov/radiation/masscasualties/training.asp
3. Radiation Emergency Assistance Center/Training Site (REAC/TS): Guidance for Radiation Accident Management: Decontamination of body orifices. Retrieved January 28, 2008, from: http://orise.orau.gov/reacts/guide/emergency.htm#Decontamination.
4. Decontamination of Children. October 2005. Agency for Healthcare Research and Quality, Rockville, MD. Retrieved January 28, 2008, from: http://www.ahrq.gov/research/decontam.htm.

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