Decontamination

HSEES Perspective on Decontamination of Patients Prior to Admittance or Transportation to Care Facilities

The Hazardous Substances Emergency Events Surveillance (HSEES) system collects data on hazardous material releases. From January 1, 1995, through December 31, 2001, a total of 2,562 hazardous material release events produced injuries where the victims were ultimately transported to a hospital. In 11 (0.4%) of these 2,562 events, 32 hospital employees were injured.

Healthcare workers and patients at health care facilities risk exposures to hazardous materials when a hospital receives contaminated patients. Additionally, contamination may occur during transportation of patients to a care facility. Hospital Emergency Planning Committees benefit from information designed to assist in planning for incidents involving hazardous materials.

Terms and Definitions:

- *Decontamination:* The process of removing or neutralizing surface contaminants that have accumulated on personnel and equipment.
- *Hazardous Substance:* Any substance to which exposure may result in adverse effects on health or safety, death or disease, or any other health problem.
- *First Responders*- Personnel who have responsibility to initially respond to emergencies, typically at the site where the hazardous substance release occurred.
- *First Receivers*- Employees who work at a site remote from the location where the hazardous substance release occurred.
- *Personal Protective Equipment* (PPE): includes such clothing and equipment required by applicable Occupational Safety and Health Administration (OSHA) standards needed to enhance operational safety. **Note**: Level C (chemically-resistant suit with a filter respirator) provides protection for hospital based exposures.

Equipment:

It is necessary to match the decontamination equipment to the needs of the care facility and the community it serves. Permanent decontamination systems have many advantages, but temporary equipment may be adequate for care facilities with minimal risk of receiving multiple contaminated victims. The Joint Committee for Accreditation of Healthcare Organizations (JCAHO) requires a hazard vulnerability analysis that will aid in determining the need for each facility. Equipment items that are necessary for all care facilities include:

- Shower station, preferably with soap.
- Personal protective equipment.
- Blunt scissors to cut away contaminated clothing.

Decontamination steps:

The procedure of decontamination will be unique to the care facility and situation, but some basic steps have been agreed on according to OSHA Best Practices for Hospital-based First Receivers:

- Put on PPE that corresponds to the requirements and limitations of the site, the task-specific conditions and duration, and the potential hazards identified.
- Triage victims to determine which individuals require decontamination and provide critical medical treatment to stabilize them before decontamination.
- Assist victims in removing contaminated clothing and securing personal property.
- Place clothing and other contaminated items in an approved hazardous waste container.
- Wash victims using soap, with good surfactant properties, and large amounts of warm water.
- Inspect victims to evaluate the effectiveness of decontamination.

Hazardous Material Event Reports:

November 2002

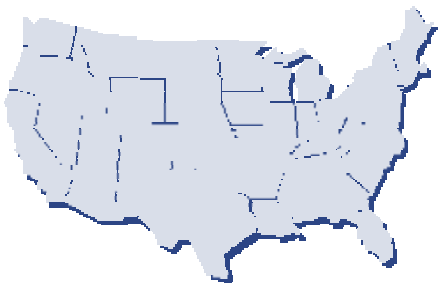
- The unannounced presentation of 3 symptomatic, contaminated patients to an emergency department (ED) in Oregon resulted in secondary contamination of 2 ED personnel who experienced skin, eye and respiratory irritation. The contamination caused the ED entrance to be closed for approximately 4 hours to prevent further contamination.

January 1999

- A Colorado city jail evacuated forty-two people for 3 hours due to a release of chlorine gas. Twenty eight victims were transported to the hospital without being decontaminated, resulting in the injury of 4 ED personnel. Chlorine gas was thought to have permeated some of the clothing and all clothing was removed and bagged after the ED personnel became symptomatic.

March 1995

- Terrorist released sarin, a hazardous substance, on several lines of the Tokyo subway, killing 12 and injuring many. One hospital received 640 victims that had not been decontaminated prior to arrival at the healthcare facility. More than 100 healthcare providers sustained injury while treating victims.



Team Approach:

Recent incidents including anthrax attacks and the World Trade Center provide a strong incentive for healthcare facilities to take the necessary steps to prepare for mass casualty incidents.

- Educate staff about the potential for secondary contamination.
- Establish decontamination protocols.
- Ensure proper selection and training in the use of personal protective equipment.
- Simulate drills for receiving contaminated patients.

What to do from here:

- Have victims undergo proper decontamination during the Pre-ED stage of a hazmat event.
- Establish effective communication from the hazmat scene or while victims are en route to the ED.
- Wear proper PPE at the ED and on-site at the hazmat release when working with potentially contaminated hazmat victims. Inhalation and skin exposure offer the most frequent occasion for risk to an incident responder.
- Isolate contaminated victims who arrive unannounced outside the ED entrance while a decontamination area is established to prevent further contamination.
- Care facilities need to develop plans for decontamination and practice implementing those plans.

References:

OSHA- Best practices for hospital-based first receivers of victims from mass casualty incidents involving the release of hazardous substances, January 2005

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