Handling of Disaster Victim Human Remains

A Quick Reference Guide For Health Care Workers Medical Examiners Funeral Services
Handling of Disaster Victim Human Remains

Responders who must physically handle deceased disaster victims need to be equipped with information to help them perform their mission with as much safety as possible while preserving as much dignity as possible for the deceased. This brochure is designed to illustrate the basic steps to be taken to minimize risk to all responders when handling possibly contaminated human remains.

Golden Rule
DO NOT RUSH IN!
Without proper Personal Protective Equipment (PPE) and recent training, you could be a victim. If a contamination emergency occurs, stay calm. Let a trained HAZMAT team assess the type and extent of the hazard.

Scope of Potential Events
Disaster or contamination events may involve situations ranging from just a few human remains to very high numbers. Additionally, the event may involve one or more of the following complications (prioritized by complexity):
- Weather events resulting in drowning and blunt trauma victims,
- Transportation accidents resulting in fragmented human remains,
- Bomb/Blast events resulting in burned and fragmented human remains,
- Chemical exposure events resulting in hazardous-material contaminated victims,
- Radiological exposure events resulting in radiation-material contaminated victims, or
- Biological agent exposure events resulting in infectious or toxic-agent contaminated victims.
These complications can arise regardless of whether the event was an act of nature, a minor or catastrophic accident, a terrorist act, an outbreak of infectious disease, or the intentional release of a weapon of mass destruction.

Biologic Contamination
Human remains contaminated with infectious/toxic agents, whether from a terrorist act or epidemic, present particular problems especially for medical examiners and funeral service providers. An excellent guidebook is provided in the Centers for Disease Control and Prevention’s (CDC) Morbidity and Mortality Weekly Report (MMWR) of June 11, 2004, and is available at www.cdc.gov/mmwr/PDF/rr/rr5308.pdf. A valuable and more thorough discussion of mass fatality issues is presented in the final draft Department of Defense’s Capstone Document: “Mass Fatality Management for Incidents Involving Weapons of Mass Destruction” (due for release September 2004), and is available through the SBCCOM web-site hld.sbccom.army.mil.
Medical Examiner Statutory Responsibility
Deaths resulting from acts of homicide, suicide, or accident, and those constituting a threat to public health, fall under the jurisdiction of the medical examiner (Ch. 406.11, Florida Statutes). For this reason, the medical examiner takes custody of any such death to establish identity, determine the cause of death, and issue the death certificate.

State Authority for Disposition of Contaminated Human remains
Under the emergency management powers of the Governor and pursuant to the authority vested in her or him under paragraph (a) of Chapter 252.36, Florida Statutes, the Governor may issue executive orders, proclamations, and rules and may amend or rescind them. Such executive orders, proclamations, and rules have the force and effect of law. The Governor may direct the Florida Department of Health to take certain actions necessary to protect the health and welfare of its citizens. Such orders may include suspension of routine regulations regarding the disposition of human remains and granting the Department of Health quarantine and disposition powers including cremation.

At-Risk Responders and Service Providers
Responders exposed to potentially contaminated human remains often include:
• Health Care Providers when
  • attempting to save lives and triage patients (EMS and EMT units responding to an incident site),
  • treating patients (hospital emergency departments upon receipt of victims),
  • providing outpatient health care services (when an infectious disease is diagnosed);
• Medical Examiner personnel notified of disaster related deaths; and
• Funeral Service personnel who
  • may respond to a home death only to discover a possible delayed disaster related death, or
  • arrange final disposition of the decedent for families.
Handling contaminated human remains should be managed in the same fashion as handling any other contamination related incident. The U.S. Environmental Protection Agency levels of protection for PPE can be found on the Internet at www.ehso.com/OSHA_PPE_EPA_Levels.htm. Additional information regarding selection of PPE can be found in the Guide for the Selection of Personal Protective Equipment for Emergency First Responders NIJ Guide 102-00, Nov 2002 (www.ncjrs.org/pdffiles1/nij/191518.pdf).

PPE levels range from highest protection (Level A) to least protection (Level D). The minimum requirements for each level are as follows.

**Level A protection** should be worn when the highest level of respiratory, skin, eye and mucous membrane protection is needed.

- Positive pressure (pressure demand), self contained breathing apparatus (NIOSH approved), or positive-pressure supplied air respirator with escape SCBA.
- Fully encapsulating chemical protective suit.
- Gloves, inner, chemical resistant.
- Gloves, outer, chemical resistant.
- Boots, chemical resistant, steel toe and shank (depending on suit boot construction, worn over or under suit boot).

**Level B protection** should be selected when the highest level of respiratory protection is needed, but a lesser level of skin and eye protection. Level B protection is the minimum level recommended on initial site entries until the hazards
have been further identified and defined by monitoring, sampling, and other reliable methods of analysis, and equipment corresponding with those findings utilized.

- Positive-pressure (pressure-demand), self-contained breathing apparatus (NIOSH approved), or positive-pressure supplied air respirator with escape SCBA.
- Chemical resistant clothing (overalls and long-sleeved jacket, coveralls, hooded two-piece chemical splash suit, disposable chemical resistant coveralls).
- Gloves, inner, chemical resistant.
- Gloves, outer, chemical resistant.
- Boots, outer, chemical resistant, steel toe and shank.

**Level C protection** should be selected when the type of airborne substance is known, concentration measured, criteria for using air-purifying respirators met, and skin and eye exposure is unlikely. Periodic monitoring of the air must be performed.

- Full-face or half-mask, air-purifying respirator (NIOSH approved).
- Chemical resistant clothing (one piece coverall, hooded two piece chemical splash suit, chemical resistant hood and apron, disposable chemical resistant coveralls).
- Gloves, outer, chemical resistant.
- Gloves, inner, chemical resistant.
- Boots, steel toe and shank, chemical resistant.

**Level D protection** is primarily a work uniform and is used for nuisance contamination only. It requires only coveralls and safety shoes/boots. Other PPE is based upon the situation (types of gloves, etc.). It should not be worn on any site where respiratory or skin hazards exist.
Health Care Provider Precautions

Health care providers who encounter potentially contaminated human remains must take steps to protect
• themselves,
• other patients in the area,
• fellow workers, and
• others who must handle the remains (morgue release and medical examiner staff).

Activation of pre-established disaster plans can limit exposure risk to others.

Potentially contaminated human remains must be segregated from the general population of a hospital or other facility as soon as the risk is recognized. Only those wearing the appropriate level of PPE should perform segregation of contaminated human remains. Segregation involves:
• placing the human remains along with all personal effects and clothing into an impermeable body bag (double bagged if possible),
• attaching available identifying information to the body and bag,
• decontaminating the outside of the body bag (HAZMAT teams may assist with determining the most appropriate agent to use),
• using extreme care to avoid tearing the body bag during handling,
• moving the bagged human remains to a secure holding area,
• notifying the medical examiner of the circumstances of the death, and
• releasing the human remains to personnel designated by the medical examiner.
Health Care Providers handling contaminated human remains should:

1. STOP! Don’t rush.
2. Get appropriate PPE assistance.
3. Tag human remains and body bag,
4. Decontaminate body bag exterior,
5. Segregate body bag, and
6. Release to medical examiner.

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**Take Home Message**

Health Care Providers handling contaminated human remains should:

1. STOP! Don’t rush.
2. Get appropriate PPE assistance.
3. Tag human remains and body bag,
4. Decontaminate body bag exterior,
5. Segregate body bag, and
6. Release to medical examiner.
Medical Examiner personnel who encounter potentially contaminated human remains must take steps to protect
• themselves,
• morgue staff, and
• others who must handle the remains (funeral service staff).

Activation of pre-established disaster plans can limit exposure risk to others.

With proper handling and decontamination the majority of contaminated fatalities can be safely returned to families for disposition. Potentially contaminated human remains must be decontaminated prior to introducing them into a medical examiner facility. If feasible, potentially contaminated human remains should be placed into a segregated refrigerated holding area until appropriate decontamination teams can be arranged.

For events involving significant numbers of contaminated human remains, the medical examiner may need to contact the local Emergency Operations Center or Incident Command to request refrigerated storage and the assistance of specialized teams such as the Federal WMD (Weapons of Mass Destruction) Team of the Disaster Mortuary Operational Response Team (DMORT).

For events involving low numbers of contaminated human remains, the medical examiner may need to approach other HAZMAT departments that normally use PPE to request that they make a portion of their resources available to assist the medical examiner.

Following decontamination of the human remains, and using standard biohazard PPE universal precautions, routine processing of the remains may take place to establish identity and cause of death.

If the human remains cannot be adequately decontaminated, arrangements with the receiving funeral service may need to be coordinated to provide for a sealed container that can be externally decontaminated and will not be reopened prior to final disposition in accordance with the Department of Health directives and Governor emergency actions.
Handling Contaminated Human Remains in the Medical Examiner Setting

**Take Home Message**
Medical Examiners handling contaminated human remains should:
1. STOP! Don’t Rush.
2. Get appropriate PPE assistance.
3. Retrieve decontaminated body bag,
4. Refrigerate until decontamination team is ready,
5. Decontaminate remains,
6. Process decontaminated remains, and
7. Release to funeral service.

Or
1. Seal non-decontaminated remains, and
2. Release to funeral service.

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**Event**

- Notification of Contaminated Human Remains
- PPE Equipped Staff Respond for Transport
- Decontaminated Body Bag Retrieved
- Tagged Body Bag Placed in Refrigeration
- Decontamination Team Processes Remains
- OR
- Non-Decontaminated Remains Sealed
- Sealed Remains Released to Mortuary
- Decontaminated Remains to Morgue
- Processed Remains Released to Mortuary
Funeral Service Personnel Precautions

Funeral service personnel who encounter potentially contaminated human remains must take steps to protect
- themselves,
- mortuary staff, and
- others who must handle the remains (funeral service staff).

With proper handling and decontamination the majority of medical examiner processed human remains can be safely embalmed or otherwise prepared for disposition.

If the human remains could not be adequately decontaminated, coordination of final disposition arrangements, either burial in a sealed container or cremation, may need to be arranged with the local health department and the family.

Handling Contaminated Human Remains in the Funeral Service Setting
Funeral service personnel often respond to transport human remains that have not been processed by a medical examiner.

Principally these involve apparent natural deaths that do not normally fall under medical examiner jurisdiction. Occasionally, funeral service personnel discover details of the death that indicate a potential for medical examiner jurisdiction including any death related to a prior exposure from a disaster or contamination event. In such cases, the funeral service personnel should:
• immediately stop the removal process, or
• if removal has already been made to the mortuary facility, stop all processing efforts,
• notify the medical examiner of the circumstances as then known, and
• prepare to release the human remains to the medical examiner for investigation.

**Discovery of Contaminated Human Remains in the Funeral Service Setting**

**Take Home Message**
Funeral Service responders handling contaminated human remains should:
1. STOP! Don’t Rush.
2. Get appropriate PPE assistance.
3. Retrieve decontaminated human remains and
4. Prepare for routine final disposition.

Or
1. Retrieve contaminated human remains and
2. Bury or cremate sealed human remains.

Or
1. Discover contaminated human remains and
2. Notify medical examiner.

This brochure may be downloaded and reprinted as needed from www.FEMORS.org.

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