FATALITY MANAGEMENT TOOLKIT

STATE OF ALABAMA DEPARTMENT OF
PUBLIC HEALTH

Donald E. Williamson, MD
State Health Officer

June 22, 2009

Dear County Coroner/ Medical Examiner:

The Alabama Department of Public Health (ADPH), Center for Emergency Preparedness (CEP), Alabama Department of Forensic Sciences (ADFS), and the Alabama Coroners Association (ACA), have developed a tool kit designed to assist you in planning for mass fatality events. This project will provide consolidated mass fatality incident planning and response information to key responders.

Mass fatality incidents can occur at any time, due to many causes. Types of incidents include deaths from naturally occurring disasters (hurricanes, tornados, floods, fires, etc.), and deaths from disease (pandemics), transportation accidents and man-made events (such as terrorist acts). County Coroners and Medical Examiners are involved with issues related to death essentially every day. A mass fatality incident, however, will be much more challenging and may quickly overwhelm local capabilities and resources. It is very important that we are prepared to respond to mass fatality events.

It is the responsibility of local EMA officials to prepare the County Emergency Operations Plan (EOP). In the event a mass fatality incident occurs in your county, it is likely that all or part of the EOP will be implemented. In 2008, ADPH received fatality management planning templates from 52 of the 67 County EMA Directors in the state. The templates indicated that the County Coroner will be involved in local fatality management planning. If you are a Coroner and have not been contacted regarding this planning, we encourage that you contact your local EMA Director or local fatality management planning group to ensure you are including in this planning.

While the tool kit contains a wide range of resources it is not to be considered an all-inclusive resource. Attendees of the 2009 Coroners Association Annual Conference provided useful input regarding information included in the tool kit. The length of some documents was so extensive that we included a resource page that contains website addresses that will allow you to access the documents electronically, so you may choose whether or not to print them. Please note that the information contained in the documents may not apply to Alabama law, but were included as possible guidance for various situations. The tool kit also contains reproducible forms, zip ties and tags, all of which may be used in mass fatality responses. Relating to Pandemic Influenza planning specifically, an estimate of daily death counts based on population by county is included.

In closing, we would again like to encourage all of you to become familiar with local response plans and partners, available resources and the steps required to obtain additional resources. Please contact Bill Harris, ACA President, at 334-705-5099 or 877-745-8484; Alice Floyd with ADPH CEP at 334-206-3898 or your county EMA Director for more information.

Sincerely,

Donald E. Williamson, M.D.
State Health Officer

Bill Harris, President
Alabama Coroners Association

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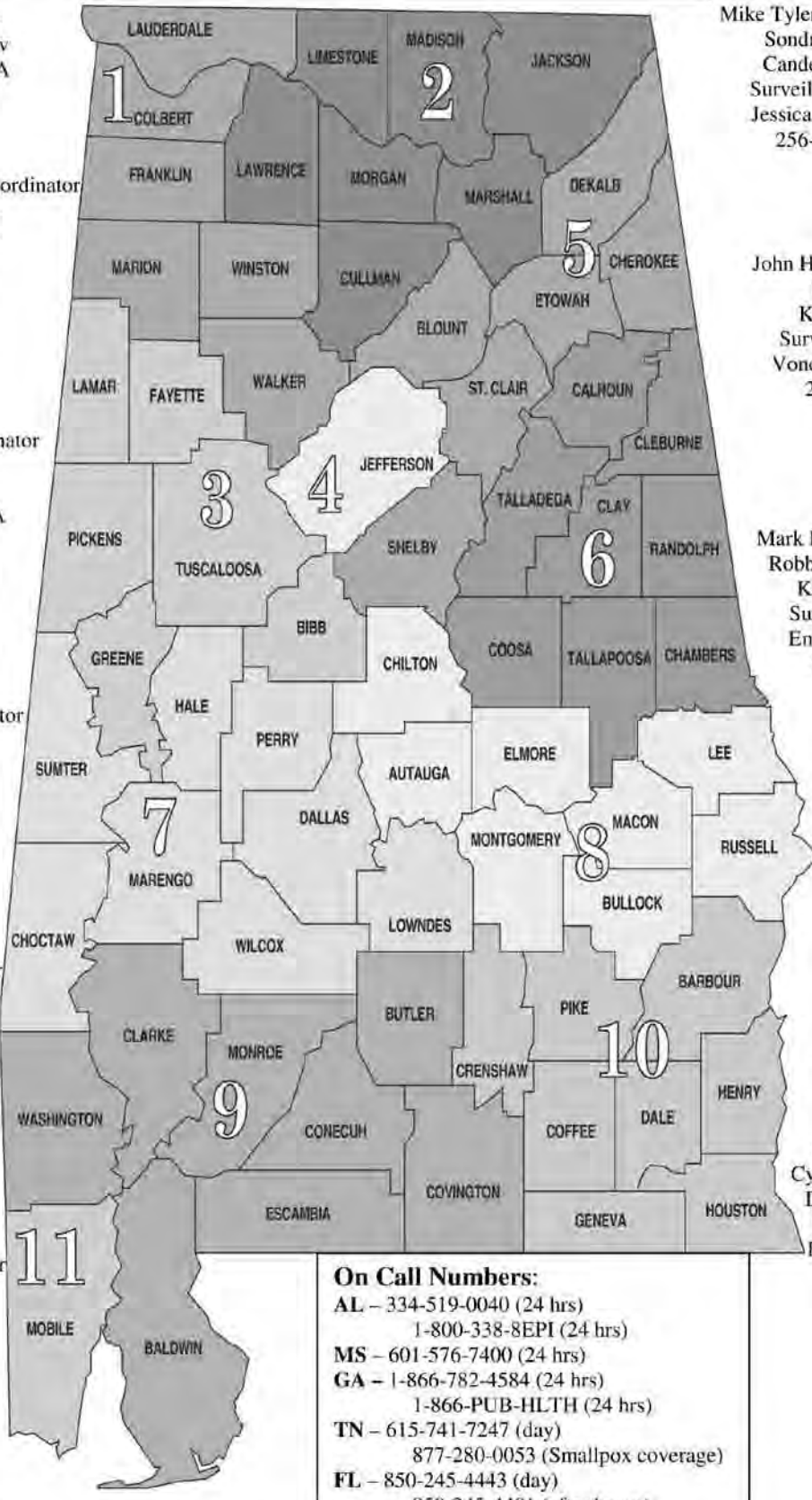
Alabama Department of Public Health
Area Emergency Preparedness Teams



Area 1
Ronnie Moore, DID, Coordinator
Angie Bretherick,
Surveillance Nurse
Elizabeth Foster, Env
Janet Barzegari, ASA
256-383-1231

Area 2
Bart Crabtree, Coordinator,
Mike Tyler, Social Worker
Sondra Nassetta,
Candece Adkins,
Surveillance Nurses
Jessica Smith, ASA
256-340-2113

Area 3
Tommy Dockery, Acting Coordinator
Donna Richardson,
Surveillance Nurse
205-554-4500

Area 4
Heather Hogue, Coordinator
Shila Glass, RN
Julie Cobb, RN
Amidah Davis, ASA
205-930-1987

Area 5
John Hooper, Coordinator
Terri Crane,
Karen Sullivan,
Surveillance Nurses
Voncile Rogers, ASA
256-547-6311

Area 6
Mark Hendrix, Coordinator
Robbie Coffman Stubbs,
Karen Bennefield,
Surveillance Nurses
Emmitt Black, ASA
256-237-1896

Area 7
Barbara Etheridge, Coordinator
Betty Jowers,
Surveillance Nurse
Bradly Cooper, Env
Donna Rhone, ASA
334-295-1000

Area 8
Skip Gray, Coordinator
Mary Conway,
Seratia Johnson,
Surveillance Nurses
Teresa Young,
Adriane Lawrence,
ASAs
334-277-8464

Area 9
Teresa Porter, Coordinator
Jenni Guerry, Senior Env
Teresa Porter,
Mechelle Nowlin,
Surveillance Nurses
Jessica Wade, ASA
251-947-6206

Area 10
Joe Ellington, DID,
Coordinator
Lesa Smith,
Debbie Baker,
Surveillance Nurses
Cyndi Tereszkiewiez, Env
Deborah Coxson, ASA
Main: 334-792-9070
Branch: 334-693-9716

Area 11
David Schultz, Coordinator
Melissa Tucker,
Sandy Evans,
Surveillance Nurses
Raffias Redmon, Env
Teresa Raines, ASA
251-690-8851

On Call Numbers:
AL – 334-519-0040 (24 hrs)
1-800-338-8EPI (24 hrs)
MS – 601-576-7400 (24 hrs)
GA – 1-866-782-4584 (24 hrs)
1-866-PUB-HLTH (24 hrs)
TN – 615-741-7247 (day)
877-280-0053 (Smallpox coverage)
FL – 850-245-4443 (day)
850-245-4401 (after hours)

4/3/2009

County and Municipal Fatality Management (FM) Plan Template

County:
Date Completed:
EMA Contact:
EMA Contact Phone:

1. Identify local partners who will assist in planning and responding to a fatality management incident.

Local Partners	Contact Name	Title	Office Phone	Email
County Commissioner				
EMA				
ADPH PHA EP Team				
Law Enforcement				
Coroner/Medical Examiner				
Funeral Home				
Faith-based				
EMS				
Local Hospital				
Dispatch/911/PSAP				
Fire				
City/				
City/				
Other				

2. List local fatality management capabilities/resources.

Total # of county mortuary staff	
Total # of bodies that can be stored indefinitely	
Max # of bodies that can be processed in 1 day	
What is the trigger to call for help outside of your county?	

3. Identify potential temporary storage.

Cold Storage

Organization	Contact Name	Title	Office Phone	Email

Non Cold Storage

Organization	Contact Name	Title	Office Phone	Email

4. Identify potential local transportation to pick up decedents from home and other collection points.

Organization	Contact Name	Title	Office Phone	Email

5. Identify specific people to report uniform daily death count data for the entire county to state public health.

Organization	Contact Name	Title	Office Phone	Email

6. Identify who is responsible for community education of the countyÕs emergency procedures for deaths at home.

Organization	Contact Name	Title	Office Phone	Email

7. Give a complete FM Plan Template to ADPH EP Team

Date Given to EP Team	EP Team Contact	Office Phone	Email

Comments

Estimated Pandemic Daily Deaths by County*

County by PHA	County Population	Percent of State Pop	Deaths During a Pandemic		Average Daily Death Given Events		
			Moderate**	Severe***	1 wave of 8 Weeks Moderate+	3 waves of 8 weeks Severe++	2 waves of 8 weeks Severe+++
Colbert	54,824	1.21%	38	345	1	3	4
Franklin	30,823	0.68%	21	194	1	2	2
Lauderdale	87,515	1.93%	61	551	2	4	5
Marion	30,267	0.67%	21	191	1	2	2
Walker	70,005	1.55%	48	441	1	3	4
Winston	24,475	0.54%	17	154	1	1	2
PHA 1 Total	297,909	6.58%	206	1,877	4	12	17
Cullman	79,189	1.75%	55	499	1	3	5
Jackson	53,821	1.19%	37	339	1	3	4
Lawrence	34,418	0.76%	24	217	1	2	2
Limestone	69,387	1.53%	48	437	1	3	4
Madison	293,072	6.47%	203	1,847	4	11	17
Marshall	84,781	1.87%	59	534	2	4	5
Morgan	113,211	2.50%	78	713	2	5	7
PHA 2 Total	727,879	16.07%	504	4,586	9	28	41
Bibb	21,317	0.47%	15	134	1	1	2
Fayette	18,273	0.40%	13	115	1	1	2
Greene	9,746	0.22%	7	61	1	1	1
Lamar	14,975	0.33%	10	94	1	1	1
Pickens	20,401	0.45%	14	129	1	1	2
Tuscaloosa	167,104	3.69%	116	1,053	3	7	10
PHA 3 Total	251,816	5.56%	174	1,587	4	10	15
Jefferson	658,495	14.54%	456	4,149	9	25	38
PHA 4 Total	658,495	14.54%	456	4,149	9	25	38
Blount	54,988	1.21%	38	346	1	3	4
Cherokee	24,525	0.54%	17	155	1	1	2
DeKalb	66,935	1.48%	46	422	1	3	4
Etowah	103,250	2.28%	71	651	2	4	6
Shelby	165,677	3.66%	115	1,044	3	7	10
St. Clair	70,245	1.55%	49	443	1	3	4
PHA 5 Total	485,620	10.72%	336	3,060	7	19	28
Calhoun	112,425	2.48%	78	708	2	5	7
Chambers	35,567	0.79%	25	224	1	2	3
Clay	14,092	0.31%	10	89	1	1	1
Cleburne	14,458	0.32%	10	91	1	1	1
Coosa	11,368	0.25%	8	72	1	1	1
Randolph	22,603	0.50%	16	142	1	1	2
Talladega	80,277	1.77%	56	506	1	4	5
Tallapoosa	40,861	0.90%	28	257	1	2	3
PHA 6 Total	331,651	7.32%	230	2,090	5	13	19
Choctaw	15,238	0.34%	11	96	1	1	1
Dallas	44,884	0.99%	31	283	1	2	3
Hale	18,275	0.40%	13	115	1	1	2

Marengo	22,084	0.49%	15	139	1	1	2
Perry	11,522	0.25%	8	73	1	1	1
Sumter	14,141	0.31%	10	89	1	1	1
Wilcox	12,958	0.29%	9	82	1	1	1
PHA 7 Total	139,102	3.07%	96	876	2	6	8
Autauga	47,468	1.05%	33	299	1	2	3
Bullock	11,229	0.25%	8	71	1	1	1
Chilton	41,466	0.92%	29	261	1	2	3
Elmore	71,944	1.59%	50	453	1	3	5
Lee	120,714	2.66%	84	761	2	5	7
Lowndes	13,210	0.29%	9	83	1	1	1
Macon	23,179	0.51%	16	146	1	1	2
Montgomery	222,559	4.91%	154	1,402	3	9	13
Russell	49,262	1.09%	34	310	1	2	3
PHA 8 Total	601,031	13.27%	416	3,787	8	23	34
Baldwin	156,701	3.46%	108	987	2	6	9
Butler	20,764	0.46%	14	131	1	1	2
Clarke	27,422	0.61%	19	173	1	2	2
Conecuh	13,453	0.30%	9	85	1	1	1
Covington	36,875	0.81%	26	232	1	2	3
Escambia	38,336	0.85%	27	242	1	2	3
Monroe	23,725	0.52%	16	149	1	1	2
Washington	17,906	0.40%	12	113	1	1	2
PHA 9 Total	335,182	7.40%	232	2,112	5	13	19
Barbour	28,557	0.63%	20	180	1	2	2
Coffee	45,041	0.99%	31	284	1	2	3
Crenshaw	13,610	0.30%	9	86	1	1	1
Dale	49,122	1.08%	34	310	1	2	3
Geneva	25,599	0.57%	18	161	1	1	2
Henry	16,699	0.37%	12	105	1	1	1
Houston	92,947	2.05%	64	586	2	4	6
Pike	29,396	0.65%	20	185	1	2	2
PHA 10 Total	300,971	6.64%	208	1,896	4	12	17
Mobile	400,526	8.84%	277	2,524	5	16	23
PHA 11 Total	400,526	8.84%	277	2,524	5	16	23
AL Pop	4,530,182	100.00%	3,135	28,545	56	170	255
US Pop	293,656,842		209,000	1,903,000	3,733	11,328	16,992

* Based on HHS Pandemic Influenza Planning Assumptions

* Moderate(1957/1968-like)

** Severe (1918-like)

Calculations

+ Total number of moderate deaths divided by 1 wave, divided by 8 weeks, and divided by 7 days

++ Total number of severe deaths divided by 3 waves, divided by 8 weeks, and divided by 7 days

+++ Total number of severe deaths divided by 2 waves, divided by 8 weeks, and divided by 7 days

Hospital Mass Fatality Plan (Checklist)

To provide guidance in the development or update of a hospital mass fatality plan containing detailed information, instructions, and procedures for a mass fatality incident. The expectation will be that the local Coroner/Medical Examiner may be overwhelmed and existing policies and procedures will not meet the demands placed on the healthcare and medicolegal systems.

Coordination of the facility mass fatality plan with county/region mass fatality planning must occur to provide better community response. Education, training and exercises must be conducted to ensure that staff have a working knowledge of the plan and to ensure that the plan is workable. The hospital mass fatality plan should be consistent with state and local regulations, National Incident Management System and The Joint Commission requirements.

Template Element	
1. General Plan Requirements	**Completed**
• Integrate with other pertinent protocols in facility's comprehensive Emergency Operations Plan, including activation of hospital incident command system (ICS)	
• Identify back-up measures for key components wherever appropriate	
• Assign responsibilities and formal process for review and update of plan, including incorporation of after action report results	
• Develop staff training including plan overview, specific roles and responsibilities, utilization of mass fatality equipment, and knowledge of primary/surge morgue areas	
• Identify points of contact for information on Mass Fatality Incident planning resources 1. Coroner/Medical Examiner 2. Local Mass Fatality Planner 3. Funeral Directors 4. Cultural and Faith-based community contacts	
• Establish mass fatality incident management unit or similar management unit or team	
• Uses standard terminology in common and consistent plain English language and emphasize its use by staff during a mass fatality plan activation	
2. Activation	**Completed**
• Define criteria and authority for decision to activate the plan	
• Define the plan for communication and coordination with the Coroner/Medical Examiner, Multi-Agency Coordination (MAC) System and the operational area Incident Command Center (e.g., EMS DOC or EOC)	
• Identify and/or reference Public Information Plan (Public Information Officer, Joint Information Center coordination as appropriate for Liaison Officer)	
3. Mass Fatality Incident Management	**Completed**
• Identify the lead person to implement the hospital's Mass Fatality incident Plan	
• Develop or adopt hospital specific Job Action Sheets for Mass Fatality Incident Management Unit positions (See Appendix Job Action Sheets)	
• Identify Mass Fatality Incident Unit Administrative section location	
• Identify equipment and supplies for the Mass Fatality Incident Unit Administrative section. (See Appendix - Mass Fatality Incident Management Unit Equipment/Supplies Checklist)	
4. Communication	**Completed**
• Assign responsibility for maintaining communication with the Hospital Command Center to receive mortality estimates in order for Logistics to anticipate and provide needed administrative and morgue equipment	
• Define the process for communications with local government point of contact (Liaison Officer or designee)	

Note: this document does not represent a requirement for hospitals to reorganize their plans to coincide with the checklists; it is provided to assist hospitals in assessing and updating their mass fatality plans.

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Template Element	
• Define the process for contacting County Emergency Medical Services –Departmental Operations Center (DOC) and/or facilities (Liaison Officer or designee)	
• Define the process for contacting the Coroner/Medical Examiner (i.e., case reporting, status updates) during an activation	
5. Morgue Surge	**Completed**
• Identify current morgue capacity: number and location (May also be labeled Primary Morgue)	
• Identify surge capacity morgue: number and locations (May also be labeled Secondary or Surge Morgue)	
• Consider identification of a tiered level with triggers to add or change morgue locations. This may be the result of the number of decedents (escalation and de-escalation), new resources available, the viability of the current location, etc.	
6. Staff Training and Exercises	**Completed**
• Develop staff training to include plan overview, specific roles and responsibilities, utilization of mass fatality equipment, supplies, notification, decedent tracking, and secondary or surge morgue areas	
• Conduct and track staff training on plan overview, specific roles and responsibilities, utilization of mass fatality equipment, supplies, notification, decedent tracking, and secondary or surge morgue areas	
• Identify staff trained on the California Electronic Death Registration System (EDRS)and additional training needs	
• Track staff Electronic Death Registration System training, if needed	
• Assign responsibilities and formal review process, including incorporation of after action report results and updates	
• Incorporate mass fatality plan into exercise program, including specific objectives in future exercises	
7. Resources	**Completed**
• Identify a list of mental/behavioral health, community and faith-based resources to provide counseling to personnel during a Mass Fatality Incident	
• Identify Personal Protective Equipment (PPE) needed	
• Identify local/city/county/regional caches	
8. Tracking and Next of Kin Notification	**Completed**
• Develop a process to identify decedent (such as DNA swabs, photos and/or fingerprints) and attach hard copy to the outside of the body bag. (See Appendix Sample Decedent Tracking Card)	
• Develop a process to track decedents (such as using a database, a tracking form or inputting into regional emergency communication systems such as ReddiNet , if available)	
• Describe the process for assignment of staff members to conduct and track family/responsible party notification.	
• Develop and/or follow standard operating procedures to identify, protect decedent personal property, including transfer to next-of-kin, Coroner/Medical Examiner, law enforcement, or funeral director. (See Appendix – Decedent Tracking Card or similar form can be used to catalog this information.)	
• Develop and/or follow standard operating procedures to maintain integrity and chain-of-custody of decedent personal property if identified as potential evidence. (See Appendix - Decedent Tracking Card or similar form can be used to catalog this information.)	
9. Recovery, Reverting to Daily Morgue Plans	**Completed**
• Develop criteria and responsibilities for closing temporary or surge morgue site and reverting to primary morgue	
• Define process to address staff stress and debriefing	
• Identify plan to restock supplies and equipment	

Source: *CHA Emergency Preparedness Program modifications to the Los Angeles Hospital Mass Fatality Incident Planning Checklist published in August 2008.*

Note: This document does not represent a requirement for hospitals to reorganize their plans to coincide with the checklists; it is provided to assist hospitals in assessing and updating their mass fatality plans.

Coping with Stress After a Traumatic Event

Tip Sheet

A traumatic event turns your world upside down.

After surviving a disaster or act of violence, people may feel dazed or even numb. They may also feel sad, helpless, or anxious. In spite of the tragedy, some people just feel happy to be alive.

It is not unusual to have bad memories or dreams. You may avoid places or people that remind you of the disaster. You might have trouble sleeping, eating, or paying attention. Many people have short tempers and get angry easily.

These are all normal reactions to stress.

It will take time before you start to feel better.

You may have strong feelings right away. Or you may not notice a change until much later, after the crisis is over. Stress can change how you act with your friends and family. It will take time for you to feel better and for your life to return to normal. Give yourself time to heal.

Give yourself time to heal.

Coping with Stress After a Traumatic Event

These steps may help you feel better.

A traumatic event disrupts your life. There is no simple fix to make things better right away. But there are actions that can help you, your family, and your community heal. Try to

- Follow a normal routine as much as possible.
- Eat healthy meals. Be careful not to skip meals or to overeat.
- Exercise and stay active.
- Help other people in your community as a volunteer. Stay busy.
- Accept help from family, friends, co-workers, or clergy. Talk about your feelings with them.
- Limit your time around the sights and sounds of what happened. Don't dwell on TV, radio, or newspaper reports on the tragedy.

Sometimes the stress can be too much to handle alone.

Ask for help if you:

- Are not able to take care of yourself or your children.
- Are not able to do your job.
- Use alcohol or drugs to get away from your problems.
- Feel sad or depressed for more than two weeks.
- Think about suicide.

If you or someone you know is having trouble dealing with the tragedy, ask for help. Talk to a counselor, your doctor, or community organization, such as the National Suicide Prevention Lifeline (1-800-273-TALK).

For more information, please contact:

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control
Division of Violence Prevention

1-800-CDC-INFO • www.cdc.gov • cdcinfo@cdc.gov

Operations, Identification and Command and Control of Mass Fatalities resulting from a Pandemic Influenza Event in the United States

PREFACE

The Cremation Association of North America hereafter known as CANA is posting “highlights” on this website of Summary Papers otherwise known as White Papers of a recent Pandemic Event (PI) event held March 22-23, 2006 at Fort Monroe, Hampton, Virginia.

This event was held on behalf of US Northern Command (USNORTHCOM) Joint Task Force Civil Support and in cooperation with the Department of Health and Human Services.

In attendance were fifty subject matter experts including Medical Examiners from across the Country, Representatives from the Department of Homeland Security, Department of Defense, US Senate, Red Cross and the Department of Health and Human Services to name a few. This was the first time the Private Sector was invited and included organizations and companies such as CANA, NFDA, ICFA, SCI, Matthews Cremation Division and Batesville Casket Company.

The purpose of the event was to assemble these experts to address major issues, provide potential solutions and make recommendations to leaders within the United States and our global sphere of influence as they relate to a Pandemic Influenza Mass Fatality Event.

CANA was represented at this event by Board Members Michael Nicodemus and Paul Rahill.

The opinions that follow are not the expressed or written opinions of CANA, but are “highlights” that have been compiled from the White paper summations.

CANA would like to thank USNORTHCOM for inviting our Organization to participate in this event.

White Paper

Operations, Identification and Command and Control of Mass Fatalities resulting from a Pandemic Influenza Event in the United States

Executive Summary

The number of those estimated to perish during another pandemic influenza (PI) event in the United States (US) may be between 5%-7% of the infected population (infected population est. to be 25%) or 3,612,500 - 5,057,500 respectively(1). Governmental authorities, primarily the medical examiner/coroner (ME/C), law enforcement, public health, and associated death care professionals will not only need to manage these fatalities but also the 2.4 million deaths that occur annually. The purpose of this paper is to identify the predominant issues regarding command and control of mass fatalities, morgue operations, and body identification during a PI event and provide senior leaders actionable recommendations to managing this most daunting task.

Subject matter experts identified eleven major issues senior leaders need to address to manage numerous fatalities resulting from a PI event. These issues, described in more detail throughout this paper, direct local, state and federal leaders to shift all limited resources, associated with fatality operations, toward performing only the most time-critical tasks and centralize the processing of remains at the most appropriate local level. Until the spread of the disease and the associated mortality rate slows, authorities must focus on the recovery of remains, the collection of minimal but specific victim identification materials (but not processing the material) and the placement of the deceased in temporary storage.

At the federal level, the most critical and actionable recommendation is the creation of a Mass Fatality Management Emergency Support Function (ESF), under the National Response Plan (NRP) that is separate from the management of living causalities (ESF#8). Although a PI event will necessitate local and state government performing a large portion if not ALL fatality management related tasks, clear and consistent federal policy will assist jurisdictions that are not familiar with managing large numbers of fatalities from a disaster and alleviate the public pressure these agencies experience when non-traditional death practices are employed.

(1) Infection numbers and fatality rate numbers provided by JTF-CS during the Pandemic Influenza Workshop on March 22-23, 2006, at Fort Monroe, Hampton, Virginia.

Assumptions

The working group participants formulated the following planning assumptions regarding managing fatalities that result from a PI event

- A PI event IS NOT a single incident but an on-going event that will take place over a period of weeks and months. Bodies will need to be repeatedly recovered from multiple geographic sectors and processed at central locations until the PI event subsides to the point that normal operations can accommodate the surge in deaths.
- A PI event will affect the entire nation and tax every jurisdiction. It is unlikely that professionals from surrounding regions will be able to provide help outside their locale. Local and state authorities will have insufficient personnel, supplies, equipment, and storage to handle the demand. Agencies will need to obtain assistance from existing public and private agencies in their area instead of looking to acquire these resources elsewhere.
- Every jurisdiction will require similar types of critical resources to include personnel, equipment and supplies, to manage the surge in the number of decedents. Our nation's just-in-time inventory method however, will not be able to respond quickly enough to manufacture these additional supplies.
- Some states may attempt to contain disease spread by closing their borders. Such actions, though of limited proven disease containment value, may instead slow and frustrate the delivery and receipt of needed supplies and equipment.
- The public utility infrastructure may temporarily shut down or be hampered causing shortages of water, food, medicine and gasoline. Without such items all government personnel will have a difficult time performing their tasks. Agencies may need to develop creative methods to decrease their need for gasoline, which is believed to be the most likely item in short supply.
- For those jurisdictions whereby influenza is the cause of death and therefore is not considered a ME/C case, the public health department will authorize the ME/C to take jurisdiction of the bodies.
- The death care industry, comprised of public and private agencies will not be able to process remains in the traditional manner due to the increased number of cases.
- PI deaths will primarily fall into two major categories, attended and unattended. The process to identify remains from attended deaths will be relatively straightforward, however, unattended deaths, which require verification of identity, issuing a death certificate, and notifying the next of kin, will be labor intensive.
- There will be delays in the issuances of death certificates for both attended and unattended deaths. This delay will place substantial pressure on the ME/C to issue death certificates so the next of kin can manage the decedent's estate.

Issues

The Volume of Incoming Cases will Increase Significantly

- A large number of people will die in a short time period and will continue to die at a high rate for an extended period of time during a PI event. Resultantly, most ME/C will not have additional staff to manage this surge.
- The ME/C and Funeral Directors will still need to process those that typically die (normal death rate 2.4 million annually) during the PI event.

Transportation, Morgue and Funeral Assets will be Overwhelmed

- Because the number of decedents will rise dramatically, normal transportation resources for any given jurisdiction will be overwhelmed.
- It is highly likely that agencies will use non-traditional means of transportation, such as buses, trucks and vans and employ non-traditional drivers and handlers.
- It is also likely that some family members will transport their deceased loved one to a known local collection point/morgue, when the ME/C is not able to recover bodies quickly.
- Even if bodies can be recovered in a timely manner, it is unlikely that funeral homes will be able to process remains for final disposition at the same rate.
- It is unlikely all bodies will be able to be processed using current infrastructure (i.e. standard morgues).

Storage Capacity will be Overwhelmed

- ME/C offices, hospitals and funeral homes DO NOT have adequate storage facilities. Most of these entities storage locations already operate at 90% capacity.
- Even if bodies can be recovered in a timely manner, it is unlikely that funeral homes will be able to process remains for final disposition at the same rate the bodies can be recovered.
- For those agencies that do have a surge capacity plan, it is likely that they have only identified one means of expanding their storage instead of identifying two or three.
- It is unlikely that during a PI event the number of fatalities needing storage will exceed the local capability.

Issues (con't)

- Those who die during a PI event may need to be stored for an extended period until the ME/C is able to identify remains, determine cause and manner of death, and issue a death certificate.
- Temporary refrigerated storage (between 37 – 42 degrees Fahrenheit) provides the best temporary storage option; however, bodies can only be held in refrigerated storage for approximately 6 months before the body decays.
- Placing all remains in refrigerated storage may not be an option due to several factors, including limited gasoline supply generators, limited maintenance personnel to repair broken units, limited refrigeration units (as the entire nation will need this same resource). Thus, the ME/C may need to use non-traditional methods of temporary storage, such as temporary internment.

Tracking and Identification Process Must Remain a Priority

- Although identifying remains during a PI event may not initially be problematic, a subset of those who die may not be easily identified, thereby slowing the ME/C ability to release remains for final disposition.
- For this reason, identification and tracking should begin upon body recovery, but at the latest upon the time remains are received at the local collection point/morgue.
- Historically, numbering systems have been unwieldy, disjointed and complicated during mass fatality events, as each jurisdiction agency has its own method of numbering.
- To add to the confusion, the ME/C will also need to process their daily caseload during the same time the PI event takes place.

There will be a Delay in Issuing Death Certificates and Obtaining Decedent Identifications

- During a PI event, it will be more difficult than normal to identify decedents of unattended deaths.
- When a death is unattended and the identity is known, it still may be difficult to obtain a signed death certificate because physicians will be overwhelmed caring for the living.

Issues (con't)

- Before a death certificate can be signed, the ME/C will need to make a positive identification.
- Before a body can be released to the family or transition to permanent final disposition, a death certificate is required.

There will be a Depletion in the Workforce

- Many individuals will be sick or taking care of their family members who are sick and will not be available to perform their regular job.
- Only individuals that are accustomed to processing and handling remains should handle bodies. This requirement, however, limits the ME/C ability to assign just anyone to perform most fatality processing related tasks.
- The ME/C and those in authority must be prepared to shift the function their staff performs from being "workers" to "managers". Thus, they must be able to fill key leadership roles that can appropriately manage, train, inform, direct and coordinate the efforts of "volunteers".
- The ME/C must incorporate a means to protect employee health and reduce the spread of infection to workers (to include ad-hoc workers i.e., volunteers).

Critical Infrastructure, Supply Chains will likely be Compromised and Mutual Aid Support Will Not be Available

- During a PI event, local jurisdictional agencies will need to primarily rely on local resources.
- It is likely that the entire community infrastructure will be compromised and only partly operating during certain periods of the PI event. Water, supplies, food and gasoline may be compromised.
- Manufacturing agencies within the United States employ just-in-time inventory systems and do not stock large inventories, thus there may be a supply shortage nation-wide for critical items.

Issues (con't)

- Because the very nature of a PI event is widespread, surrounding states will not be able to support fatality management efforts for anyone other than their own location.
- Additionally, federal Disaster Mortuary Operational Response Teams (DMORT) will not be available, as they are professional volunteers, which support mortuary professions on a daily basis. These individuals will likely support the needs of their local region.

Public Expectations Regarding Fatality Management Operations and Final Disposition Must be Modified

- The American culture has strong beliefs and traditions regarding handling decedents with dignity. Often these beliefs are enmeshed with religious beliefs. When the public is told that they cannot proceed with final disposition in the traditional manner, family members become upset. Often the result includes negative media coverage, involvement of elected officials, public distrust of the government, or concerns that the government is hindering individual civil liberties.
- In almost every state in the US, public laws dictate that all human remains must be returned to the decedent's next of kin. There are a few states that provide exception to these laws. Those states that have passed an Emergency Health Powers law will provide ME/C the authority they need to not return the decedent and determine final disposition when an incident is considered a public health hazard.

There is a Lack of Federal Leadership and Clarity within the National Response Plan

- Mortuary affairs is normally a local and state function, however, in a mass fatality scenario, which encompasses a large geographical area, neither one has the resources necessary to meet the demands.
- Federal agencies are required to fund, prioritize, and manage mass fatalities from a PI event, however, no single agency at the federal level sufficiently has its focus on mass fatality/mortuary affairs.

Issues (con't)

- It has become apparent that unless one agency focuses on this issue fully then no progress will be made. During Hurricane Katrina we learned how devastating it was for the victims, as well as the nation, to see our citizens dead and uncared for on the streets of New Orleans. The perception was that the government, at all levels, was uncaring and incompetent and media coverage of these scenes simply reinforced this perception. As a result, Katrina's dead took on national and international dimensions.
- With the potential of a PI event on the horizon it is critical that deliberate planning and prior coordination to affect a synchronized approach to mass fatality operations.

Conclusion

Due to the size and duration of a pandemic influenza (PI) event, the negative impact on existing systems to handle the large increase in deaths will be very significant. This will also likely be true for other mass-fatality events such as natural disasters or WMD-related terrorism incidents. The trained professionals, who are normally charged with carrying out unattended death scene investigations, will be over extended, and will probably have to prioritize by limiting their response to deaths that appear to be accidents, suicides or homicides, are otherwise suspicious, or that do not fit the pattern for a PI-related scene.

Many of our JTF-CS committee members believe the single most important message that must be relayed to our senior leaders at the local, state and federal levels is the need to develop a mass fatality/mortuary affair Emergency Support Function (ESF). Presently mass fatality management is listed as one functional element of eighteen under ESF#8 Health and Medical Support and does not adequately address the diverse approach and skill sets required to manage mass fatalities.

Additionally, mass fatality/mortuary operations must move to the forefront of disaster planning rather than continue as a topic no one wants to address for all levels of government.

This document was prepared for CANA by Michael Nicodemus and as previously stated has been scaled back to accentuate the "highlights" of all four working groups who attended the PI. I thank all of you for your hard work and dedication in addressing an extremely serious event

Cultural & Religious Considerations During A Mass Fatality: A Coroner's Guide From A Public Perception

- Logic vs. Emotion – Response to death is not a always "logical", but rather grief is a *very strong* emotion; the reaction varies by age, culture, religion, and demographics, to name a few
- People react to the death of a loved one in many ways and try to cope using some of the following: *withdrawal*; *regression* to infant behaviors; *fixation* of emotion on some goal or action; *disassociation* by criticizing someone else's actions; *projection* of one's faults to another; *negativism*; *displacement* by blaming others or God; *irritation*; *rationalization* by self-justification; *compensation* or overcompensation for personality traits; *sublimation* or "blowing off steam" to keep from exploding emotionally; and *conversion* where the person may literally become physically ill from the trauma.
- Generally all of these emotions can be seen in Elizabeth Kubler-Ross' five stages of grief: *Denial → Anger → Bargaining → Depression → Acceptance*. They may not occur in sequential order and some move through more quickly than others.
- Death and the disposition of the body are many times based upon strongly held religious beliefs, particularly in Alabama. The response to death and the resulting need and want for a funeral or memorialization is based upon the Judeo-Christian Ethic which implies that, while the soul is no longer in the body, each body is due respect and is deserving of a "decent burial (or disposition)."
- Some religious groups, such as those of Jewish and Muslim faiths, have very strict belief regarding blood, embalming, and disposition of blood-stained clothing, sheets, etc.
- Therefore, communication with the family and the funeral director is vital to bridging the gap of legal responsibilities for death investigation with those of compassion and respect for religious and cultural beliefs.
- People are looking for information. They want you to explain to them, with the best of your ability, what has happened; if they are responsible (and one would hope they are not…they need to know that they are not); and what is about to take place, such as where is the body going, what type of exam will take place, will viewing be possible, when can they have a funeral or memorial service, etc. Most importantly, they want to see empathy and compassion, not overdone, but sincere.
- Remember that you, like funeral directors, are a vital part of society; however, people do not want to conduct business with you! Reverence for the dead is a vital part of all major societies in history; when a society has forgotten, diminished respect, or otherwise dishonored the dead…that society has always fallen in history. From a religious and cultural perspective, the coroner is a vital link in this chain of respect and trust. That is what the public wants most; accuracy, honesty, sincerity, truthfulness, compassion, and respect….those things that most coroners and funeral directors already display.

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The Medical Examiner/Coroner's Guide For Contaminated Deceased Body Management

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Preface

In the past few years, a number of publications and other resources have appeared concerning the management of mass fatality incidents. Some are geared toward the general management of incidents while others cover more specific topics such as decontamination procedures. Still others cover selected agents including chemical, biological, or radiological ones. Few publications have been written specifically for medical examiners and coroners.

The Medical Examiner and Coroner's Guide for Contaminated Deceased Body Management is written specifically for the medical examiner or coroner who will be in charge of investigations of fatalities that result from terrorism or other events that result in contaminated remains. In some such cases, agents may be used that will require mitigation of environmental hazards and decontamination of human bodies. To that end, this *Guide* provides information and suggestions that may be useful in understanding the principles involved in decontamination procedures, recognizing that it may not be the medical examiner or coroner staff who actually conducts decontamination procedures.

The suggestions in this guide may differ slightly from those in other publications. However, those who have contributed to this guide believe that the recommendations are practical, workable, have a scientific basis, and do not differ much in substance when compared with other relevant publications.

 Reference to specific commercial products is for informational purposes only and does not constitute endorsement of the product or company which produces the product.

The recommendations contained in this Guide are not mandated nor are they required by federal, state, or local law. Rather, the recommendations are intended to assist medical examiners and coroners for the purposes of planning and providing a set of reasonable practice guidelines for incident response.

Acknowledgements

The authors of this Guide wish to thank the authors, contributors, and organizations who have produced the following publications and materials:

- *Guidelines for Mass fatality Management During Terrorist Incidents Involving Chemical Agents*. Produced by the U.S. Army Soldier and Biological Chemical Command (SBCCOM). November, 2001. Available in 2006 at: http://www.mipt.org/pdf/guidemassfatalitymgmt.pdf
- *Medical Examiner/Coroner Guide for Mass Fatality Management of Chemically Contaminated Remains.* Prepared by the Department of Justice, Office of Justice Programs, Office of State and Local Domestic Preparedness, and the Department of Defense, US Army Soldier and Biological Chemical Command, Improved Response Program. Available in 2006 at: http://www.kyha.com/documents/CoronerGuide.pdf
- *Model Procedure for Medical Examiner/Coroner on the Handling of a Body/Human Remains that are Potentially Radiologically Contaminated*. Prepared by the Transportation Emergency Preparedness Program. Available in 2006 at http://web.em.doe.gov/otem/Medical_Examiner_Coroner.pdf
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This *Guide* is heavily based on the references cited above and, within this Guide, these helpful resources are not repetitively referenced. Additional references are cited in standard reference format.

We also wish to thank those at the Centers for Disease Control and Prevention who provided suggestions for this guide at various points during its preparation:
Sam Groseclose, Paul Garbe, Mike Bell, Charles Wood, Dan Payne, and Andrew Koger

Introduction

In the event of a terrorist attack or unintentional event with fatalities involving biological, chemical or radiological (BCR) agents, decontamination procedures may be required that can be complex and require the expertise of fully trained and qualified responders such as hazardous materials (HazMat) technicians. The medical examiner/coroner (ME/C) will certainly be involved in the investigation and certification of such deaths because deaths resulting from intentional acts may be considered as homicides and those involving unintentional injury also fall under the ME/C's jurisdiction. Because of a lack of or inadequately trained ME/C personnel, the ME/C and his/her staff may not be directly involved in decontamination or other pre-morgue procedures. However, the ME/C should at least be familiar with decontamination procedures because they may impact on evidence collection and/or the temporal sequence of death investigation conducted by the ME/C.

This Guide was developed to provide information for ME/Cs and is based on a review of established procedures, scientific literature, and current thinking about fatality incidents in which decontamination procedures may be required. It is virtually impossible for pre-planning or guidelines to address all possible scenarios and contingencies. This Guide, however, provides a core set of suggestions that may need to be modified or supplemented as dictated by the specific circumstances of a given incident.

An attempt has been made to identify core topics that need to be considered when decontamination procedures are needed. These include:

- Definitions
- Potential Agents
- Incident Command
- Personal Protective Equipment
- Communication
- Initial Scene Assessment
- The Hot Zone, Warm Zone, Dismount Area, and Cold Zone
- Numbering Systems
- Basics of Decontamination Procedures
- The Decontamination Site
- General Processing Procedures
- Transport Between Zones
- Body Storage
- The Morgue-Autopsy Area
- Post-Examination Processing and Storage
- Removal and Disposition of Hazardous Materials
- Radioactivity Issues
- Other Considerations
- Demonstrative Photographs

In this Guide, discussion of topics is arranged in the general order shown above.

Definitions

- *Agent.* The chemical, biological, or radiological entity(ies) used in a terrorist attack or involved in an untoward unintentional event causing death.
- *Decontamination.* The process of removing or chemically degrading an agent on the body surface to a level that poses little or no risk to others in proximity to that surface (1).
- *Hot Zone*. The area contaminated by the agent (2) and/or immediately surrounding such an area and extending far enough to prevent the agent from being released to personnel outside the zone. This zone is also referred to as exclusion zone, red zone, or restricted zone (US DOT, 2000 North American Emergency Response Guidebook). Access is limited and controlled.
- *Warm Zone*. The area surrounding the Hot Zone which may include areas used for decontamination, in which hazards are expected to be controlled and/or mitigated. Access is limited and controlled.
- *Cold Zone*. Any area outside of the Hot and Warm Zones in which bodily or other processing is carried out but hazards have been controlled or abated, eliminating or significantly reducing risks to workers. Access to the Cold Zone is also controlled and limited to authorized personnel.

The ME/C will, at a minimum, need to communicate with those working in the Hot Zone and Warm Zone to ensure that evidence and information of importance to the ME/C is preserved and documented. It may be helpful for at least two ME/C personnel to be HazMat-trained in the donning of various types of personal protective equipment (see below) in case entry into the Hot or Warm Zone is required, although HazMat training can be time-consuming . Medical examiners and coroners will, almost certainly, be involved in the Cold Zone where postmortem examinations are likely to be performed.

Potential Agents

The Centers for Disease Control and Prevention has developed a list of critical chemical and biologic agents that may be used by terrorists (3).

<u>Chemical agents</u>

- **Nerve agents:** Tabun, Sarin, Somon, GF, and VX
- **Blood agents:** Hydrogen cyanide and cyanogens chloride
- **Blister agents:** Lewisite, nitrogen and sulfur mustards, and phosgene oxime
- **Heavy metals:** Arsenic, lead, mercury
- **Volatile toxins:** Benzene, chloroform, trihalomethanes
- **Pulmonary agents**: Phosgene, chlorine, vinyl chloride
- **Incapacitating agents**: BZ (3-quinuclidinyl benzilate), pesticides, dioxins, furans, PCBs
- **Explosives**: Ammonium nitrate combined with fuel oil
- **Flammable gases and liquids**: Gasoline, propane
- **Poisonous industrial gases, liquids, solids**: Cyanides, nitriles
- **Corrosive industrial acids and bases**: Nitric acid, sulfuric acid

Biologic Agents:

- **Category A (High-level risk**): Smallpox, anthrax, plague, botulism, tularemia, Filoviruses such as Ebola and Marburg causing hemorrhagic fevers, and Arenaviruses such as Lassa and Junin causing hemorrhagic fevers
- **Category B:** Q Fever, brucellosis, glanders, alphaviruses causing encephalitis, ricin toxin, epsilon toxin from *Clostridim perfringes*, *Staphylococcus* enterotoxin B, *Salmonella* species, *Shigella dysenteria*, *E Coli* O157:H7, *Vibrio cholerae*, and *Cryptosporidium parvum*
- **Category C:** NipahVirus, Hantavruses, Tickborne hemorrhagic fever and encephalitis viruses, Yellow Fever virus, multidrug-resistant TB.

Although chemical agents are more likely than biological agents to require decontamination procedures, some biologic agents also may require such procedures. Biologic agents that involve spores (such as anthrax), external lesions (such as smallpox), or infected secretions are some examples. Radiologic agents may also be used in terrorist attacks. The most important in terms of decontamination is the so-called "dirty bomb" in which radioactive residue may exist on bodily surfaces and clothing and may be amenable to removal using decontamination procedures.

Incident Command

Most likely, the incident will be managed using the Incident Command System (ICS) with a structured hierarchy of leaders who report to a single Incident Commander (2). This structure, and the specific personnel in each responsible leadership position, need to be clearly defined before response is initiated. In advance of any event, the ME/C should contact local emergency response agencies to determine who would probably serve as the Incident Commander in the case of an incident, to identify persons who would need to be contacted during response, and to determine how the ME/C will fit into the ICS response. It will probably be the Incident Commander who, in conjunction with needed consultants, will determine the level of protective gear and other precautions required, and who will enter and have access to the Hot Zone and other zones.

Personal Protective Equipment

Initially, until the need for lesser protection is established, it must be assumed that the highest caliber of personal protective gear needs to be worn in the Hot Zone. This should include:

- A full body suit that is resistant to chemicals and biological agents.
- Self-contained breathing units, then, as indicated by identification of specific suspect agents and degree of exposure in the Warm and Cold Zones, cartridge respirators with HEPA and/or charcoal filtration or lesser forms of respiratory protection as indicated (based on circumstances and the agent involved). Such phasing would be determined by the Incident Commander in consultation with appropriate experts.

In any case, even with low risk, the minimum protective equipment should include

- A full body suit that can be removed at the site
- Gloves, appropriate respirators (masks), and face shields or eye cover as dictated by the suspected agent. A full face mask will protect against inhalation of radioactive dust.

After decontamination is accomplished (see below), routine personal protective equipment should suffice for most agents (assuming that decontamination has been effective).

Level A PPE utilizes a self-contained breathing apparatus, a fully encapsulating chemical resistant suit, and inner chemical/biological resistant hand covers and boots or shoes.

Level B PPE utilizes a single or 2-piece chemical suit that need not be fully encapsulating, and also employs a self contained breathing apparatus. This gear is similar to standard fire-fighting gear.

It is doubtful that many medical examiner or coroner personnel will be trained in the use of Level A or B equipment, although offices with larger staffs may be able to accomplish this via specific in-house training or training through working with other groups such as HazMat or weapons of mass destruction (WMD) preparation.

Level C PPE utilizes a full-face air-purifying canister-equipped respirator, full body chemical-resistant suit, inner and outer chemical resistant gloves, and resistant boots/shoes. Level C includes not only the full-face air-purifying canister-equipped respirators but also powered air-purifying respirators (PAPRs). The PAPRs operate and deliver filtered air under positive pressure and the non-powered air purifying respirators (NAPRs) depend on the efforts of the wearer and operate under negative pressure. The filters used are variable and the correct filters are needed to filter particulate matter, chemicals, organic vapors, or gases.

Level D PPE utilizes simple overgarments, preferably water-resistant, to provide a physical barrier to cover the skin and clothing.

It is imperative that personnel entering contaminated areas be fully trained in the proper use of personal protective equipment, and such personnel will usually consist of fully qualified HazMat technicians. Additionally, it may be helpful for at least two people from the ME/C's office to be trained in the donning and use of Level A and B PPE (all ME/Cs should be familiar with Level C which is the standard for airborne pathogens) to enable ME/C personnel to enter the Hot or Warm Zone, as needed for their purposes. As an alternative, HazMat personnel, through mutual agreement with the ME/C, may perform necessary duties on-scene at the direction of the ME/C. Whomever performs these duties, the persons would alternate, as needed to allow for needed rest and equipment changes. In most cases where ME/C personnel would be needed, Level B or Level C PPE will suffice. Level C will be adequate in most cases where decontamination or autopsy procedures are performed.

Level A and B PPE can be hot to wear and sight can be restricted. This is even more true for some Level C equipment such as PAPRs which can also impose problems with communication because of inability to hear or communicate with electronic devices such as radios. The air supply may last less than an hour. For these reasons, aside from any ME/C personnel, multiple teams of workers trained in the use of PPE need to be available (and a "suited up" backup team needs to be ready) to replace workers whose air supply is exhausted, or who are prone to being overcome by heat, or who may need emergency care due to injury or unforeseen complications (2). A "buddy system" of workers should be used.

Level C respirator cartridges last about three hours before replacement is needed. Of the various Levels of PPE, Level C is the least expensive to purchase and easiest to maintain, learn how to use, and don (2).

Communication

All operational sites should include direct communication lines that are not subject to unwanted monitoring and the failures typical of radio and cell phone systems (4). Use of the latter two systems is acceptable but should not be relied upon without direct communication lines also in place. This may require the running of telephone or other hard wire or cable types.

Initial Scene Assessment

Its is recommended that the initial assessment team at the scene include a:

- Trained HazMat Technician
- Medical Examiner/Coroner or investigator
- Law Enforcement evidence technician

The FBI has HazMat technicians who may respond to the scene, but they may not be immediately available. Usually, the fire department which serves the scene area— along with its associated HazMat team— will have (or can obtain) the necessary equipment, technology, and personnel to assess the scene for chemical and radiological hazards. Such equipment usually consists of:

- Geiger counter or similar field devices capable of detecting gamma and beta radiation at levels as low as 1 millirem/hour. 1mrem/hr detection sensitivity is adequate for personal safety assessment, but more sensitive equipment may be needed to detect contamination above normal background of .01/mrem/hr.
- Chemical detection units that can sample air
- Chemical detection units into which chemical detection tickets (which can be touched to potentially contaminated surfaces) can be placed for chemical analysis – much like the detection units used at airports for detection of explosive residues.

HazMat team members may not be familiar with the needs and usual practices of the ME/C. Discussion of HazMat and ME/C needs and roles should occur through advance planning prior to any event. Reiteration of these needs and roles should occur at the

incident site before scene processing so that HazMat operations do not interfere with the needs of the medical examiner or coroner, and to ensure that HazMat personnel may be able to collect evidence on behalf of the ME/C, if needed, especially if ME/C personnel lack appropriate PPE and Hazmat training.

It is unlikely that a biological toxin or agent will first be detected at a scene where there are multiple deceased. Events involving biologicals will probably be detected based on the sequence and timing of events, common "syndromes," tests performed on victims who become ill and have time to seek medical care, and autopsy findings. There is currently no "quick and dirty" way to quickly screen for a broad scope of biological agents or toxins at the scene, although such methods are being developed.

Sensitivity/Specificity. Modern equipment is sensitive enough to detect most predictable chemical and radiological hazards. The methods, sensitivity, and specificity for detection of biological agents at scenes have not been established.

Critical levels. There are established and published criteria for various chemicals and other agents and the parts per million or millirems that impose risks over an 8-hour exposure. This information should be used when assessing whether special decontamination procedures will be needed and whether processed bodies have been rendered "safe." The characteristics and risks of biological agents have been recently published in a Guide Book for Medical Examiners and Coroners (5), and additional information is available on the SBCCOM website at http://www.mipt.org/Source.asp?id=95

Evidence. In the event that a BCR agent is used, there will probably be enough evidence at the scene, in historical and circumstantial information, on clothing, and on or within the body (biologic organisms or toxins) that decontamination procedures will not significantly interfere with the collection of evidence needed by the ME/C to determine the cause, manner, and circumstances of death. However, if there is a need for the medical examiner/coroner to collect evidence at the scene (such as swabs of residue on the skin), such evidence should be placed in glass containers—especially if a chemical agent is suspected—because some chemical agents can interact with plastic. If glass containers are used, they should be packaged in a secondary container (such as a metal tube) that will prevent breakage of the glass and allow for decontamination of the container. Evidence labels and all tags used for bodies, bags, and personal effects must be of a type that will not deteriorate or become illegible when subject to soap, water, bleach, or other chemicals. Embossed metal tags (or bracelets for bodies) may be required.

> *Key Point: Work with the HazMat team to secure needed equipment and personnel to detect the type of hazard(s) that may exist at the scene, to determine whether decontamination procedures will be needed and, if needed, which type of procedures will be required.*

In the Hot Zone

Some general procedures for the Hot Zone area include the following:

- If ME/C personnel cannot enter the Hot Zone, HazMat personnel could prepare videotape of the scene area so death investigators can review it at another site.
- The area needs to be documented and photographed (or imaged) and mapped with GPS or other system before manipulation or movement so relative positions of bodies, parts and objects can be re-created
- Waterproof and chemical-resistant numbering tags or bracelets need to be placed on bodies, parts, and containers
- Loose items need to be collected and tagged so they are not lost during transport
- Loose clothing and other non-human items can be collected in labeled, sealed containers such as paint cans which are not easily broken, are easily cleaned, and which will contain and preserve "volatile" substances.
- An open wire mesh body litter can be used to bring bodies and other parts or items to an accessible point(s) at the edge of the Hot Zone so they may be prepared for transport to the Dismount or Decontamination area (see below)

In the Hot Zone, the use of durable equipment should be minimized in favor of disposable alternatives. Information should be collected in a manner that avoids the use of paper documents at the work site and does not require person to person contact. Equipment and supplies in the Hot Zone should include:

- Appropriate personal protective equipment, donned in a clean and secure area with controlled access
- Tags to label bodies, other items, and containers
- Communication devices to relay documentary information without the use of paper documents at the incident site
- GPS instruments to record the location of bodies and other items
- Digital cameras that, preferably, can transmit images to a nearby operations center
- Transport vehicles to transfer bodies and workers, if needed, to the edge of the Hot Zone or beyond

The Dismount Area

The Dismount Area is where bodies (and clothing) are taken when removed from the Hot Zone or Hot Zone Margin for temporary holding or storage until decontamination procedures can occur (6). The Dismount area should be:

- Located upwind from the incident site and close to decontamination area
- Out of common view (e.g., behind temporary barriers)
- Accessible via land transport vehicle, if possible
- Equipped with lifts to assist with body movement
- Cool, if possible, but not necessarily refrigerated unless lengthy delays are expected prior to decontamination. Refrigeration may be required, however, and may also provide a place to store bodies out of public view.
- Covered (tent-like roof)
- Protected against scavengers, vermin, and insects

Hot Zone Margin and Dismount Area
A decision will need to be made whether the Hot Zone Margin and Dismount Area (see above) will be at one location or in different locations. The decision will be made on the basis of the suspected agent and to some extent, geography and the setting.

At the Hot Zone Margin or Dismount Area, the following need to be available:

- Body bags (one for each body), humans remains pouches (if bodies are fragmented), and sealable containers such as paint cans for clothing and other smaller items
- Tags to label bodies, other items, and containers
- Transport vehicles to transfer bodies (and workers as needed) and items to the Dismount Area or decontamination area.

Clothing should be removed, containerized, and labeled at the site serving as the Dismount Area. Jewelry and watches securely fixed to the body may be left in place. Bodies should be placed in labeled body bags. Body bags should not contain vinyl which is subject to degradation by certain chemical agents.

Wallets and other identifying paperwork in the clothing should remain with the clothing for processing at the decontamination site. It may be useful to process apparently identifiable bodies as one group and those that cannot be readily identified as another.

Numbering System

A useful and simple numbering system is to label items with the initials of the recovery person followed by a number, with each new body or part being numbered sequentially (RLH-1, RLH-2, etc). **The numbers on the tags on bodies, body bags, and the clothing clearly associated with that body or body part should all be the same**. This system avoids having to coordinate numbers with other personnel, so long as it is assured that no two recovery personnel have the same initials. In a large scale event with many recovery personnel, other numbering systems may be needed. If clothing is to be kept and not discarded after initial processing, it should be decontaminated before being transferred from the decontamination area.

Basics of Decontamination (Derived from SBCCOM publications)

Decontamination consists of rinsing, washing, or immersing the body (or clothing or other items) to remove adherent substances and provide some bactericidal action. Basically, decontamination either removes, neutralizes, or degrades the offending agent. In almost all instances, a 1% to 2% bleach (hypochlorite) solution is more than adequate to remove, hydrolyze, or neutralize the offending agent.

Decontamination of clothing and other items should be considered after forensic investigation requirements have been met. If decontamination of such items poses additional risks to personnel, it may be best to seal items in containers—after adequate

documentation and forensic analysis—for disposal. In many instances, simple removal of the clothing (after photography) will eliminate most or all contaminants.

Decontamination may be accomplished by:

- Removal of clothing
- Manually washing and rinsing (probably best)
- Spraying with a soft spray that minimizes spatter and aerosolization
- Submersing the body or items in a tank, pit, or trench (the “soak” method)

Spraying alone does not guarantee decontamination, especially if remains are heavily soiled with greasy, organic, or proteinaceous materials such as blood clots. Mechanical cleaning such as brushing with soap solution is essential prior to applying bleach or other decontamination agents. The time required for the soak method to be effective may be prohibitively long, and manual scrubbing would still be needed. Thus, the best method is probably one which includes manual washing and scrubbing with detergents followed by cleaning with bleach/hypochlorite.

Household bleach solutions usually contain 5% hypochlorite. This strength of bleach may pose respiratory risks and poses other risks for living persons. For most decontamination procedures involving dead bodies, 5% household bleach diluted 1 part bleach to 3 parts water will be adequate in providing a final concentration of 1-2%. .

The decontamination solution should be allowed to remain in contact with the body or object for a minimum of 5 minutes and preferably 15 minutes. The body or object should then be rinsed thoroughly with water.

.After a decontaminated body is placed in a container such as a body bag, the outside of the container should be decontaminated by washing or spraying. Duct tape may be used to seal the zipper area, if needed to prevent leakage.

If bodies need to be physically scrubbed, soft sponges or brushes should be used. Nylon products should be avoided because bleach solution will damage them.

If bodies are to be submersed, a tank or constructed pit (lined with a bleach-resistant material) large enough to fully submerse a body will be needed. Other items that may be required are:

- Ropes (non-nylon) to assist with raising and lowering of the body into the tank or pit
- A platform or basket on which to place the body while it is being submersed. This platform or basket needs to be of neutral or negative buoyancy so submersion of the body is facilitated
- Weights to assist in submersion of the body and to keep the body submersed
- If bodies are soft or decomposed, a small-gauge mesh container into which the body may be placed for submersion to avoid disarticulation, dismemberment, or sloughing and loss of soft tissue

- Chlorine monitor to ensure that spray, tank or pit fluid maintains a chlorine level equivalent to a 1-2% bleach solution.

In most instances, clothing will have been previously removed from bodies at the Hot Zone Margin or Dismount Area (after necessary documentation, tagging, and photographing). The clothing will then need to be decontaminated separately from the body, unless a decision is made to destroy clothing without decontamination. Separate decontamination procedures for clothing accomplishes several things:

- The unclothed body will be easier to decontaminate
- Initial manipulation of the clothing (which will probably have the highest extent of contamination because it covered the body) is done nearer to the Hot Zone which is already contaminated
- The packaged clothing will be easier to process and decontaminate under controlled circumstances
- The clothing and bodies may be sent to separate facilities for processing and documentation
- Personal effects may be more readily examined for identification purposes

Mild detergent/soap should be used to clean remains prior to decontamination- especially when chemical agents are involved-- because the soap may help dissolve or remove oily residues.

Basically, decontamination involves washing of bodies, clothing, and the exterior of their containers with bleach solution—nominally 1 to 2%—although lower concentrations will probably be as effective against most agents. A major component of decontamination is the washing and removal of agent-containing residue, independent of the actions of the bleach. The body is rinsed with water after the bleach solution has been in contact with the body for at least 5 minutes, and preferably 15 minutes.

Commercial household bleach usually contains about 5.25% hypochlorite. A 0.5% hypochlorite solution is the concentration of bleach often used for cleaning floors and equipment, although higher concentrations are acceptable. If <u>living</u> persons need to be decontaminated, initial cleaning should be done with soap and water. If bleach solution is then used on a living person, its concentration should not exceed 0.5% hypochlorite, and lower concentrations can be effective.

The physical movement of bodies through the decontamination area may be accomplished in a variety of ways, including the use of back boards, mesh litters, plywood on saw horses, commercial roller systems like those used to move boxes, or any practical method that allows serial movement of the body and exposure of all body surfaces. In some locations, it may be possible to use a longitudinal, water-filled culvert or ditch though which the body may pass while the water/soap/bleach solution is progressively diluted with water along the way to accomplish the rinse. However, maintaining proper concentrations may be difficult.

It is imperative that decontamination procedures be performed by those with appropriate training and protective equipment. Usually, this will involve HazMat technicians trained in decontamination procedures.

The Decontamination Site

The decontamination site is where decontamination procedures are carried out. The site selected for decontamination should, if possible, have the following characteristics:

- A safe distance from the Dismount Area, and upwind from it, if possible
- Far enough from the incident site that the Dismount Area may be placed between the Hot Zone margin and decontamination site
- Ready access to fresh water supply or water transport vehicles
- Reasonably accessible via ground transport
- Large enough and flat enough to accommodate large tents or tent-like roofs
- Have a sloped area of 1:12 minimum slope to allow for water runoff
- Have ground cover or artificial cover or turf that can serve as a sump to absorb water and control its runoff, and to avoid soiling of bodies with dirt and other ground debris
- Enable the placement of ditches, drains, ponds or pools to control and direct water runoff
- Be close to electrical or fuel supplies (if generated power needs to be provided)

Minimum equipment and supplies at the decontamination site include:

- Bleach and fresh water (water from natural sources such as streams, rivers, and lakes may be used)
- Soft sponges and brushes made of non-nylon materials
- Pumps, hoses, and other devices capable of pumping bleach solution at the rate of normal water pressure (20 to 90 psi), and pumps capable of collecting runoff at a rate greater than or equal to water inflow rate
- Drums to mix solutions and hold collected runoff (if tank trucks are not available on site to collect runoff as it occurs)
- Spray units to spray bodies with bleach solution if submersion is not required
- Tanks or pits large enough to submerse a body or clothing in bleach solution
- Personal protective equipment as dictated by the suspected agent(s)
- Clean body bags (2 for each body)
- Clean, sealable containers to hold clothing
- Tags for marking bodies and clothing with identification numbers
- Decontamination showers (soap and water for personnel after removal of protective equipment) and areas for workers
- Receptacles for discarded body bags, protective wear, and other items that can be transported and incinerated or otherwise disposed of as hazardous waste
- Chlorine monitor to ensure adequate bleach/chlorine concentration
- Clean and climate-controlled operations center with restroom facilities, showers, and changing area. This are should be separated from areas where disinfectants

are sprayed and should be well-ventilated to ensure that unprotected personnel are not exposed to respiratory or other hazards.
- Chemical detection unit (or Geiger Counter) to verify that decontamination was effective
- A station at which transport vehicle cargo areas may be decontaminated

The decontamination area may be structured as three separate zones including red, yellow, and green. Contaminated bodies are in the red zone. Photographs can be taken here as bodies are received. The clothing can then be removed and additional photographs can then be taken before the body is moved. Having one photographer and one contaminated camera may be advisable. The body is then moved to the yellow zone where decontamination is performed using solutions and techniques that are suitable for the agent involved. After decontamination, chemical activity monitors or Geiger counters, depending on the incident, can be used to test the effectiveness of decontamination as bodies are prepared for transport to the green zone. If additional decontamination is needed, this is conducted in the yellow zone. Once a body arrives in the green zone, in can then be double bagged or otherwise sealed for transport to the morgue facility.

The use of tanks and soaking may pose problems. There are possible splash risks and cross contamination. Further, maintaining the needed concentration of hypochlorite may be difficult.

Following decontamination, bodies and clothing are rinsed with water and should be double-bagged. The exterior of each bag should be decontaminated on all surfaces.

The PPE worn by workers in the decontamination area also need to be decontaminated. Special showers, solutions, and brushes are needed for the workers as they exit the decontamination area, where they can shower in their garb (perhaps with assistance from others in contaminated PPE), and then remove their PPE once decontaminated.

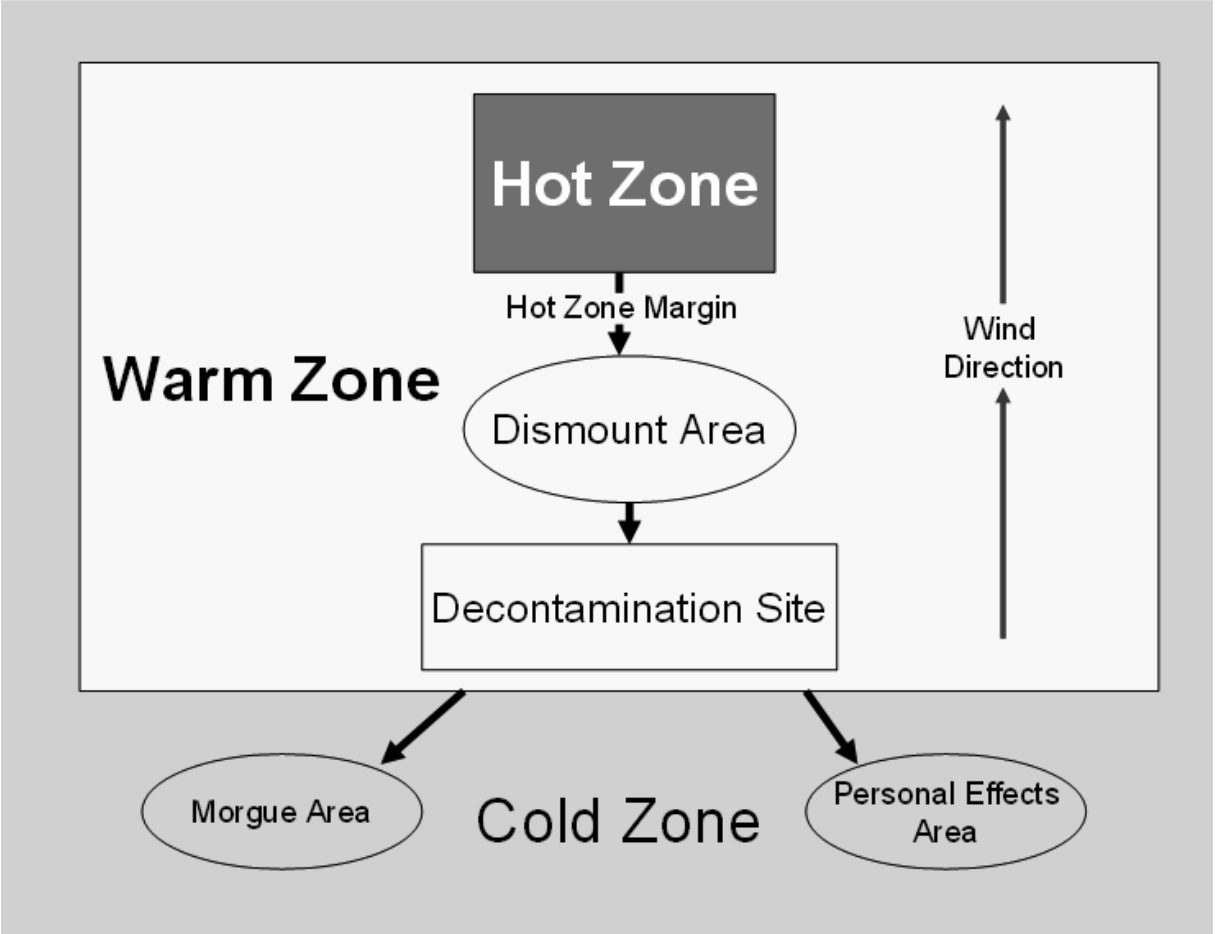
Summary of General Processing Flow

When decontamination is required, various processing areas need to be defined and strategically located. In addition to the Hot Zone, the following areas need to be established:

- Hot Zone Margin
- Warm Zone
    - Dismount Area (where bodies are taken from the incident site in preparation for decontamination)
    - Decontamination Site (where bodies and clothing are actually decontaminated)
- Cold Zone Areas to include morgue and personal effects areas
- Morgue area (where bodies are taken for examination after decontamination)
- Personal Effects/Clothing Area (where clothing is taken for processing after decontamination. This may or may not be the same area as the morgue.)

Waste handling, including effluent from washing stations, and waste incineration or waste packaging for removal to off-site incineration also need to be considered when planning site operations and layout.

Schematically, the workflow may be depicted as:



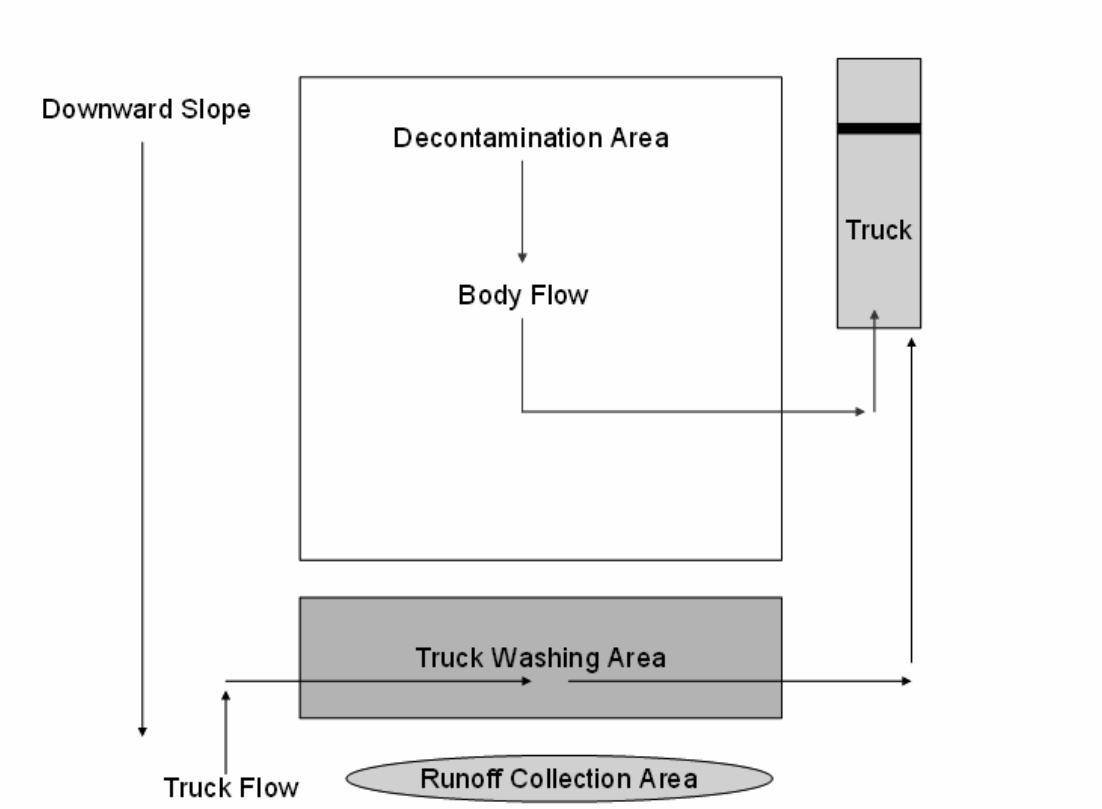
The distance between, and the specific locations of these areas depends on many factors including, but not limited to:

- Terrain
- Available facilities, supplies, fuel, power, and water
- Access
- Wind direction (Dismount area should be upwind from the incident site, and the decontamination area should be upwind from the dismount area). Remember that wind direction can change and that procedures may need to be temporarily halted or relocated.

Transport to Dismount/Decontamination Areas

Bodies and other containerized items should be transported using land vehicles, when possible. The route between the Hot Zone and Dismount Area should be made inaccessible to all except those driving transport vehicles and any workers who must supply support services to the vehicles or drivers. To facilitate decontamination of transport vehicles, open, flat-bed trucks with low side walls and rear gate should be used. The truck bed cargo area should be decontaminated after each delivery of bodies, at a point between the decontamination area and the area where water runoff is collected (see diagram, below).
The following schematic shows a workable spatial relationship between the:

- decontamination area
- area where the body storage truck may be placed
- truck decontamination area
- runoff collection area

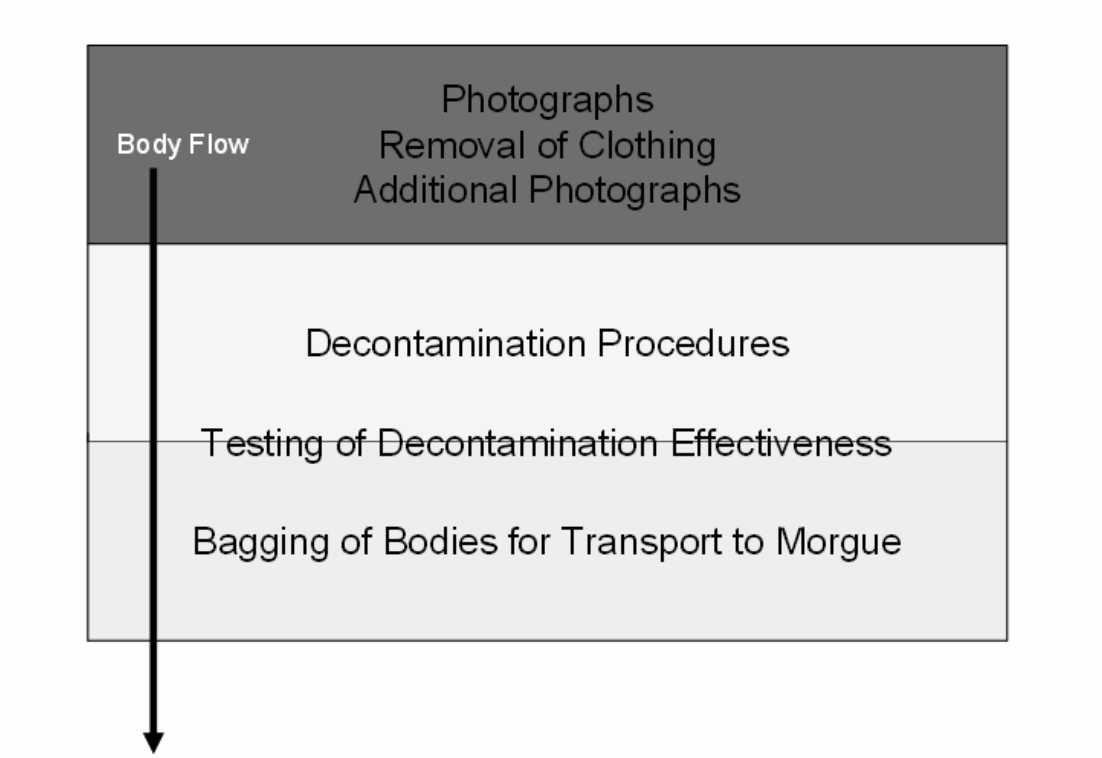


Drivers should wear disposable protective suites and appropriate PPE, as dictated by the circumstances, and remain in their vehicles at all times except when preparing to leave duty and undergo decontamination. Those loading bodies onto transport vehicles at the incident site (or unloading bodies at the dismount area) should not leave their work sites until they are transported to the decontamination area at the end of their work shift or at other times, as needed, for gear changes or personal needs.

If air transport is required between the incident site and dismount/decontamination area, the type of aircraft will depend on available landing areas and their proximity . If helicopters are used, bodies may be transported on a suspended platform (or basket), but the helicopter should remain high enough above the platform (and ground) to minimize or eliminate wind (and spreading of the agent) from the rotors. Also, a body or item transported by air from the Hot Zone should be containerized and the outer container decontaminated before transport.

Railroad transport may be used if nearby. The location of the dismount area and decontamination site should be near the tracks if rail transport is utilized. Railroad has the advantage that refrigerated cars may be readily available and serve both purposes of transport and storage. Work areas may even be established in railroad cars.

The decontamination area itself can be conceptualized and schematically depicted as follows:



From the Decontamination Area to the Morgue and Personal Effects Areas

Procedures for the transport of decontaminated and containerized bodies and clothing are the same. If the morgue and personal effects processing location will be at the same facility, these items may be transported together in the same vehicle. If the bodies will be transported to one location and the personal effects and clothing to another, parallel systems can be established with one vehicle for clothing and personal effects and another for bodies.

At the decontamination site, a refrigerated truck may be used to store decontaminated, containerized bodies (and clothing). This truck can remain on site until the morgue area has been readied to receive and process bodies. At that time, the truck may be relocated to the morgue area property (or nearby area) where the truck can remain as an "in" cooler to store bodies as they subsequently arrive at the morgue area. A second refrigerated truck can be placed near the morgue area to store bodies after they have been processed at the morgue and undergone examination. A third refrigerated truck can be placed at the decontamination area to replace the original, if needed. Such a decision will be based on the anticipated number of bodies and their recovery and processing rate. If the number of bodies is small, or the recovery rate is expected to be slow, bodies may be transported from the decontamination area to the morgue area individually or a few at a time in smaller vehicles suitable for such purposes. Each time a vehicle returns from the morgue area to the decontamination site, the cargo area should be decontaminated before new bodies are placed in the cargo area.

Storage of Bodies Pre- and Post-Examination

Even if a permanent autopsy facility is available with adequate storage for bodies, it may be helpful to use refrigerated trucks to store bodies prior to bodily examination and after bodily examination (separate trucks). This will minimize risk of contamination of the permanent facility and will also provide a place to store bodies that will continue to arrive due to routine case load. The interior and exterior of the trucks may be monitored to assess the effectiveness of decontamination procedures and to identify unsuspected contamination hazards.

The Morgue-Autopsy Area

Whether or not the morgue area is a temporary or permanent facility, at the morgue area, a station should exist at which the following can be accomplished for each body prior to its being taken into the autopsy area for examination:

- Placement on a gurney or autopsy cart
- Washing of exterior container with bleach solution
- Removal and discard of the container into a biowaste receptacle for subsequent incineration or other required disposition
- Washing or rinsing of body with water (or dilute bleach solution if the external aspect of the body appears to have been re-soiled during transport)
- Tagging of the body with identification number (if not already tagged)
- Discharge of the runoff into a sanitary sewer (this should be safe if decontamination procedures were effective, plus, non-solid biowaste at autopsy is discharged into the same sanitary sewer system)
- Immediate transport of the body into the autopsy/examination area for examination without further storage in the morgue facility.

In some instances, it may be desirable to divide remains into two groups—those that will need specific examination at the morgue and those that will not— and store them separately to facilitate operations. In other instances, it may be feasible to conduct all needed aspects of bodily examination at or near the decontamination area. Doing so will minimize the need for separate morgue operations. Whether this can be accomplished will depend on the scope and nature of the incident.

Other than cyanide, the risk of off-gassing to autopsy and morgue personnel is low or negligible if decontamination procedures have been properly carried out. For most respiratory and other chemical agents, what is left in the deceased body will not endanger morgue personnel.

In general, autopsies should be done on all cases if the case load and agent-specific biosafety constraints do not preclude doing so. With some diseases such as viral hemorrhagic fevers, autopsy may need to be limited to index cases or cases in which the findings or possible cause of death seems atypical in comparison to other cases in the incident. Minimal examination should consist of thorough external examination with written and photographic documentation, and the collection and processing of appropriate specimens and evidence.

Post-Examination Processing

After examination, the body should be placed in a body bag. The sealed bag should then be placed in a second bag, the outer surface of which should be cleaned with 0.5% bleach solution (The 1:10 solution normally used for routine disinfection). The double-containerized bodies may then be taken directly to, and stored in the refrigerated truck placed on site for body storage prior to release, or treated as below.

If air transport will be required, the double-bagged body should be placed in a Ziglar case and Ziglar Casket and the lids affixed using a continuous bead of silicon sealant and screws. If cremation is required, the double-bagged body may be placed in a sealed zinc coffin and a surrounding wood casket; both will burn at cremation temperatures.

In general, with infectious bioterrorism agents, embalming should not be performed. It poses unnecessary risk to workers and can retard the decomposition process, which may facilitate the elimination of infectious agents of concern. Further, embalming can cause agents that were formerly on the inside of the body to resurface on the exterior of the body or associated surfaces. Some embalming chemicals may adversely react with bleach, posing hazards to workers.

It may not be feasible for each body to be tested to ensure effective decontamination before it is released. It may be more practical to monitor levels of chemicals or radiation in the general area where bodies are stored prior to release, and immediately outside the storage area(s). Measuring of biologic agents, of course, is not feasible at present.

The medical examiner/coroner should do what he/she can to return remains for disposition at the family's direction. However, if decontamination has not brought hazards to a safe level, it may be necessary to retain the body or, under some circumstances, request voluntary cremation or impose mandatory cremation after appropriate involvement of public health and safety officials. Virtually all chemical or biological agents are effectively mitigated at cremation temperatures above 1000 degrees F. Cremation, however, does not affect radioactive material and to protect the crematorium and area, radioactive remains should not be cremated. Bodies contaminated with highly infectious agents (e.g., smallpox, hemorrhagic fever viruses) or spore producing bacillus anthracis should be cremated. Bodies infected with other types of infectious bioterrorism agents can be directly buried.

In general, the basic procedure at most stages of processing are:

- Preliminary examination
- Decontamination
- Detailed examination
- Packaging or containerizing
- Decontamination of package or container exterior surfaces

Implanted Devices

Bodies will need to be screened at some point to identify and remove implanted devices such as pacemakers. Whether screening is done with metal detectors or x-rays will depend on available equipment. Whether devices are removed at the scene, elsewhere, or at all will depend on the circumstances of the incident, available morgue facilities, federal regulations regarding the management of implanted devices, and the intended method of disposition. For example, some devices such as battery-powered pacemakers can explode if cremated. Removed devices need to be decontaminated and packaged in containers that have their exteriors decontaminated. Such items should be forwarded to the funeral director so that return to the appropriate party (such as the physician who implanted the device, the device manufacturer, or family member) may occur as required.

Removal and Disposition of Hazardous Materials

The main items that will need to be disposed of include:

- Used body bags
- Collected runoff at decontamination area
- Used personal protective equipment
- Used cleaning utensils

It should be feasible to place used body bags and used protective equipment and cleaning materials in approved receptacles that can be transported by authorized and licensed hazardous waste management companies. Incineration in approved incinerators is a reasonable method of disposal, although the plastic elements of body bags may produce toxic by-products into the air that will need to be controlled and appropriately managed.

Incineration is reported to be capable of aerosolizing anthrax spores and, where anthrax spores are involved, an approved afterburner may be required to avoid aerosolization.

Runoff from the decontamination area needs to be collected by authorized and licensed hazardous waste management agencies and disposed of using methods and locations that are compliant with state law, Environmental Protection Agency (EPA) regulations, CDC's Agency for Toxic Substances and Disease Registry (ATSDR) recommendations, and department of transportation regulations regarding the vehicles used for transport.

According to the EPA, in general, Good Samaritan statutes protect responders from liability if runoff of contaminated material occurs uncontrolled while rescue of living victims is occurring. Once imminent threats to human health and life are addressed, responders need to take all reasonable effort to contain contamination and avoid or mitigate environmental consequences. After imminent threats are mitigated, gross misconduct or negligence does create a liability for responders from both governmental and private sector viewpoints. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) addresses these issues. A Federal On-Scene Coordinator (FOSC) can determine which environmental regulations are applicable, relevant, or appropriate. Local and state officials should utilize a FOSC as needed, available through EPA (7).

Further discussion of specific methods and sites for disposal are beyond the scope of this Guide.

Radioactivity Issues

Immediate deaths from a nuclear weapon will probably result from blast injury. However, fallout can cause acute radiation syndrome after many hours or days. Radioactive fallout decays very rapidly—to about 10% of original levels in 8 hours and 1% after 2 days.

"Dirty bombs" contain radioactive material combined with explosives that would contaminate surfaces but should be amenable to washing and decontamination. People who die quickly following an explosion with radioactive material would not be expected to harbor significant radiation internally. Dirty bombs may also produce radioactive shrapnel in the body and can pose hazards. Shrapnel needs to be identified and removed using instruments other than the hands.

Radiation levels should be measured on the ground because detection by air can miss hot spots. Bodies and clothing should be washed using the usual procedures and the containers should be marked as radioactive. After decontamination, bodies and clothing should be checked with a meter to ensure that decontamination was successful. More than one treatment may be required.

Radioactivity warning tags should be applied to remains or items that are radioactive. A radioactivity report may need to be attached to, and accompany the remains.

At the time of this writing, the Centers for Disease Control and Prevention and the New York City Medical Examiner were developing more specific guidelines for the handling of decedents contaminated with radioactive materials. In brief, key elements are:

- Purchasing, maintaining, and calibrating radiation survey equipment is probably not feasible for most medical examiner or coroners offices. Advance arrangements need to be made with a local nuclear facility, hospital nuclear medicine department, or state radiation control director to develop plans for equipment and survey response to an incident involving radioactivity.
- When dosimeters are used to check exposure, they should be read when starting exposure, worn in an area that is not covered or concealed by clothing, and be read at the end of the work assignment. It may be helpful to put a single contact person in charge for monitoring dosimeter usage, reading, and documentation of exposure. Protective wear should be removed and left at the area.
- When the scene is first evaluated, radiation should be surveyed and plotted on a map of the area so workers know where the hotter areas are. When not directly engaged in work, workers should migrate to the area with the lowest radiation. It might be possible to use a video camera and have the radiation levels be verbally recorded as the scene is processed. The tape could then be used outside the hot area to construct the scene map so workers know where the hot areas are.
- More likely, a radiologic dispersal device (RDD or “dirty bomb”) would be involved and would require decontamination of external aspects of the body
- Radioactive shrapnel from a dirty bomb probably poses the greatest risk. Bodies need to be surveyed for radioactivity and x-rayed so that any identified shrapnel can be removed (with forceps, not the hands) even if an autopsy is not performed and before release of the body. A radioactivity meter may be needed to locate small fragments which may not show up on x-ray.
- In the rare event that persons inhale or ingest radioactive materials (as may occur with a nuclear bomb) and develop radiation sickness, there is little risk of dangerous levels of radioactivity with casual exposure to the external aspects of the body, but the interior of the body may pose hazards from handling organs and tissues, albeit it probably low risk in most cases if shrapnel has been removed. Thus, autopsy is not recommended unless absolutely necessary. This is a question of risk versus benefit.
- Stay times near radioactive remains must be calculated by determining radioactivity dose rates in mrem/hour and using 200 mrem per worker as a practical exposure limit, although 5 rem is the legal limit. Use the highest radiation count in the work area (derived from the map) to make such calculations, and set the limit as low as possible without hampering the work effort.
- Actual exposure should be measured with dosimeters worn by staff
- A Geiger Mueller pancake probe can be used to conduct initial surveys of the radioactivity of decedents, and counts in excess of 300 per minute above background should result in labeling as radioactive

- Bodies causing a pancake probe reading of more than 100 mrem/hour should be stored in a refrigerated area at least 10 meters removed from workers until plans can be made to handle such bodies
- If radioactive shrapnel is present it should be removed with forceps to minimize exposure to the hands
- BioSeal or Zieglar cases will prevent release of radioactive material into the environment.

Further details and practical guidelines are anticipated when this publication is finalized.

Other Considerations

New Methods. Newer methods of decontamination, such as the use of microwaving or x-raying, are being investigated. However, there is insufficient information and technology readily available to address such methods in this publication.

Temporary interment. If, for some reason, bodies cannot be transported from the incident site in a timely manner and there is no suitable place to store bodies, the bodies may be bagged and temporarily interred on site until transport can be accomplished.

Special agents. Cholera, TB, plague, smallpox, yellow fever, viral hemorrhagic fevers, and diphtheria may bring into play special quarantine or detention procedures mandated by public health authorities. If such bodies are brought into the United States from elsewhere, the Code of Federal regulations requires either: embalming and placement in a sealed casket; cremation; or a permit issued by the Centers for Disease Control and Prevention.

Cremation recommended in smallpox cases. Because smallpox virus can survive in buried bodies in lesions, cremation is recommended in such cases.

Recommendation for no autopsy. In cases viral hemorrhagic fevers it has been recommended that an autopsy not be performed unless needed to establish the diagnosis in an index case, and that experts at the CDC should be consulted before an autopsy is performed. Although there is not uniform agreement regarding cases of anthrax or smallpox, vaccination of workers would allow autopsies of smallpox cases to be performed, when needed, and appropriate PPE should abate major risks when autopsies are performed in cases of anthrax.

Recommendation for NO embalming. Although embalming does provide some advantages-- allowing bodies to be kept without refrigeration up to three weeks, for example-- in general, embalming is not required. Embalming should not be performed on remains that contain residual hypochlorite due to the potential for generation of dangerous gases when mixed with embalming fluid.

Anthrax spores. Anthrax requires oxygen to sporulate. Spores do not form inside of a closed corpse. The major risk occurs if body fluids are exposed to air. Thus, proper disinfection is required of working surfaces when autopsy is performed. Autopsy tools used in an anthrax case should be autoclaved or incinerated.

Body bags and containment material. BioSeal ™ containment material is reportedly effective for containment of all known hazardous substances, vapors, fluids, gases, and powders. It may be used as needed to enclose bodies or other items such as clothing. Type II and Type IIA body bags are made of special material to contain hazardous substances and prevent leakage. These types of bags should be used, when indicated.

Marking of containers and coffins. Once examination is complete and bodies are identified and containerized, the exterior of the container or coffin should be marked indelibly to indicate case number, decedent name, social security number, and date of birth.

Policy of not reopening. Once bodies are finally containerized for final disposition, the containers should not be reopened to view the body or further prepare the body for burial or funeral service purposes. When possible, facial photographs of the deceased should be provided to funeral directors to affirm to the next of kin that the correct body has been provided. When this is not possible, other distinct identifying information should be provided.

Coffin preparation. During final casketing, formaldehyde, sawdust, and/or tow may be placed around the body bag inside of the impermeable casket if possible interactions with hypochlorite have been eliminated.

Other disinfectants. Other potentially useful disinfectants exists but can be dangerous and pose respiratory risks. They should be used only in controlled settings with adequate ventilation and protective equipment.

Organ Donation. Being the victim of a chemical or radiologic event does not necessarily preclude the availability of organs or tissues for transplantation purposes. If someone survives a chemical poisoning for a period of time the agent may no longer be present. Biologic agents may well preclude the use of organs or tissues for such purposes. Decisions will need to be made depending on the type of agent and in consultation with appropriate experts. Most likely, the time required for decontamination and processing, however, will preclude the procurement of tissue within allowable time frames.

Animal remains. Contaminated remains of small animals may be containerized in metal containers or drums. Processing of such remains will need to be coordinated after consultation with the FBI, Health Department, and veterinary consultants.

Informing families. Family members should be provided with prompt information that includes description of what remains and effects the family will likely receive and how long it may take. Advance explanation for anticipated delays should also be provided.

Fragmented Remains. Except for a dirty bomb, a situation with fragmented remains or body parts that will require decontamination seems unlikely. In certain circumstances, however, it may be necessary to decontaminate fragmented remains. In these situations, care should be taken to avoid the use of chemicals that would jeopardize the quality of DNA samples. The laboratory personnel assigned to process the DNA should be consulted before any chemicals are applied to fragmented remains. Chemicals applied to the remains for purposes other than decontamination, such as insect repellants, should also be avoided unless approval for their use is granted by the DNA laboratory personnel.

Interment. It may be necessary to inter bodies temporarily to preserve them if an incident has occurred in a location that makes safe storage or transport of bodies difficult. In other instances, such as those with very large numbers of fatalities or fragmented remains, it may be necessary to have a mass interment (or cremation) that is essentially permanent. Such decisions will need to be made by the incident commander in conjunction with appropriate authorities and must take into account public health, political, and cultural considerations.

Demonstrative Photographs

The Red Zone. The clothed body is photographed before the clothing is removed. (The hoods are all labeled with a number. This is done not only to keep track of individual equipment but also so people outside of the line can identify individual workers.)

Body being immersed into decontamination solution. This particular decontamination tub has jet sprayers to assist in decontamination. With this system, a special filtration system is required to gather tissues such as skin and hair that comes off the body while it is in the tub.

Shower for the contaminated workers as they exit the decontamination zone. They shower with scrub brushes in the blue tent. The shower can be done with a “buddy”. The green pool is used for a final rinse of the feet. The worker then exits the pool and removes the PPE. It may be necessary to have individuals with Geiger counters or chemical monitors at this point to test worker before s/he removes his/her PPE.

Testing “tissue” for contaminants as it exits the yellow zone and enters the green zone.

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For a more exhaustive list of research articles and summaries, see:

- Department of Defense (DOD) Armed Forces Epidemiological Board (AFEB) Memorandum. *Disposition of Contaminated Remains-2003-06*. 14 January 2003.

Useful Web Sites:

CDC information on biological, chemical, and radiologic agents
http://www.bt.cdc.gov/

DMORT. For information on DMORT and its procedures.
www.dmort.org

DOJ OVC. For information on family assistance
www.ojp.usdoj.gov/ovc

SBCCOM .
http://www.mipt.org/Source.asp?id=95

Other decontamination resources
http://www.wmdfirstresponders.com/Decontamination.htm

Joint Publication 4-06, Mortuary Affairs in Joint Operation, June 5 2006
http://www.fas.org/irp/doddir/dod/jp4_06.pdf#search=%22JP%204-06%22

The Members of the National Association of Medical Examiners' Biological and Chemical Terrorism Committee and Bioterrorism and Infectious Disease Committee during the preparation of this *Guide* are:

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White Paper
The Provision of Family Assistance and Behavioral Health Services in the Management of Mass Fatalities Resulting from a Pandemic Influenza in the United States

I Executive Summary

- Purpose

The purpose of this white paper is to identify behavioral health and other supportive services that would be of specific concern for families and responders during a mass fatalities event resulting from a pandemic influenza in the United States. These services, termed "family assistance" in this paper for ease of reference, are identified and addressed with recommendations to facilitate efficient implementation of services in mass fatalities planning and response operations.

- Overview

Due to the contagious nature of a pandemic influenza, the use of the traditional model of a family assistance center is not feasible. The need for social distancing, with the ultimate possibility of quarantine areas, would prohibit the establishment of a central facility where surviving family members would exchange information about missing loved ones while obtaining spiritual and emotional support. Mass fatalities response operations would most likely need to establish "virtual" family assistance centers in order to provide important public information.

- ID major conclusion to establish a separate ESF

It is evident that a separate Emergency Support Function (ESF) needs to be established, within the National Response Plan specifying the lead agency responsible for providing mass fatality management and family assistance services to community members and responders in the event of a significant mass fatality event. There is a distinct need for federal direction and guidance in planning for family assistance in the wake of mass fatalities events.

II. Key Assumptions

The use of the traditional model of a Family Assistance Center (FAC) is not feasible in meeting the needs of surviving family members of the deceased during a pandemic influenza. A traditional FAC is a secure facility established as a centralized location to provide information about missing persons who may be victims of the disaster; a gathering point where information is exchanged in order to facilitate the body identification process and the reunification with next of kin; a location for the collection of DNA; and where spiritual and emotional support is provided for those awaiting information about their missing loved ones. Following recent mass fatalities events, additional supportive services such as housing information/referral, insurance, and legal assistance have been provided at the FAC.

Given the contagious nature of a pandemic influenza, the gathering of people in a specific location would be prohibited for public health reasons. Additionally, unique aspects of a pandemic would significantly alter the need for services provided by a FAC in the following ways.

- A pandemic would be ongoing (chronic) rather than a static (acute) event.
- Deaths are likely to occur over a period of several weeks and may involve multiple family members at different times.

- Most bodies will have complete integrity and will be identified more readily.
- Most information will need to be distributed out to the public (pushed) rather than needing to bring people in (pulled) to obtain information about potential fatalities.

The greatest family assistance need is likely to be the provision of information and can best be delivered with a public health educational approach.

III. Managing a Mass Fatality Event

Family Assistance Center

Issue: Family Assistance Center would function as a "Family Information Center" or "Fatality Management Center" with services focused on the provision of information, education and support through a tiered approach to service delivery, primarily via public media.

Recommend: Family assistance in an infectious disease environment to be provided from "virtual" center using internet, newspapers and television to disburse educational information to the public.

Recommend: A tiered approach to provision of services through the FAC would allow for provision of most services from a distance or virtual center approach. Existing service providers should be strengthened to manage missing persons inquiries and reports; the mass media be prepared to provide information and education; a telephone call system established staffed by trained personnel to interface with individuals who need personal contact; and trained personnel in personal protective equipment available to provide face-to-face interaction for identified individuals who require specific, identified services (crisis intervention).

Recommend: Family Information/Fatality Management Center should be the responsibility of DHHS which would have the authority to activate the virtual center(s).

National Database

Issue: A national database for missing persons is needed to coordinate inquiries and reports. There is no policy or definition for multiple databases and there is a need to share information between data systems. During a pandemic, local jurisdictions may be overwhelmed and due to the need for federal coordination and management, information regarding missing persons will need to be shared. The example of the National Find Family Hotline and call center (virtual FAC) used in Hurricane Katrina and Rita in Baton Rouge, Louisiana is a godd model with many applicable commonalities.

Recommend: Build upon the National Crime Information Center (NCIC) via FBI/DOJ if possible. National database needs to b focused on victims of the pandemic and not on the general public. Current work being done toward national medical tracking system of patients and this, combined with NCIC database might be utilized without violating confidentiality.

Recommend: Department of Justice to be the lead agency for national database.

Recommend: U.S. State Department to be the lead agency for international issues, e.g., repatriation issues, coordination with World Health Organization and State Department to review procedures.

Recommend: Establish a fatality/missing person information telephone number to report unidentified fatalities, incorporating this information into a national patient tracking system. Utilize the National Find Family Hotline model.

Recommend: Establish a national voluntary registry of next of kin for families to register information for potential disasters. No recommendation for lead agency.

Education

Issue: There would be a need to provide timely, accurate information to the public via the mass media regarding mortuary affairs, public health issues and other concerns relative to the pandemic.

- General Information
  - Financial assistance – resources, application/referral process
  - Social security – access to death and disability benefits
  - Legal assistance – insurance benefits, death-related concerns
  - Health – safety issues regarding food, water, medications
- Individualized Information and Support
  - Burial sites
  - Death certificate information
  - Information regarding keeping the dead in the home when the potential exists for a prolonged period before removal of the body

Recommend: Prepare emergency public information, public educational materials and succinct statements that can be ready to be pushed, when needed. Information may include how to manage those loved ones that have died in the home, how to cope with stress and grief and legal issues regarding deaths. This material may be developed by HHS resources such as CDC and SAMHSA.

Recommend: Public affairs officers are provided education and materials through HHS/CDC/SAMHSA.

Recommend: Develop and provide education and informational materials regarding family issues for response personnel who may be at higher risk due to potential exposure to the disease.

Issue: There is a critical need for communities to develop plans for the provision of family assistance and to obtain education/training in this area.

Recommend: Develop a template for local jurisdictions to develop family assistance/family information centers including just-in-time training to run call centers and to provide crisis intervention with appropriate PPE when appropriate.

Issue: Need to develop surge capacity to bolster Medical Examiner/Coroner system and Public Health system

Recommend: Utilize those subject matter experts from non-deployed and non-tasked sources that have mortuary affairs expertise. Some sources include: FEMA: Disaster Mortuary Operational Response Teams- DMORT, Retired Medical Examiner/Coroners, Justices of the Peace, Pathologists, Academics, Medical Reserve Corp, etc.

Issues without recommendations:

Issue: Identify individuals at potentially higher risk for psychological distress and behavioral complications and develop plan for mitigating impact including:

- those with previous mental illness
- those with serious physical illness
- those with disabilities
- general pharmaceutical needs
- medication withdrawal issues
- addictions to legal/illegal drugs, tobacco products, alcohol

Issue: Need to quickly determine who is in charge of immigrant and illegal persons

Issue: Key services needed by families include provision of supplies to meet basic needs, particularly in the event of quarantines and/or restriction of normal, daily services.

Mass Fatality Incident Management: Guidance for Hospitals and Other Healthcare Entities

August 2008

Developed in collaboration between the following Los Angeles County partners:

Department of Coroner

Department of Health Services, Emergency Medical Services Agency

Department of Public Health, Office of Health Assessment & Epidemiology, Data Collection & Analysis Unit

TABLE OF CONTENTS

PURPOSE

A mass or multi-fatality incident (MFI) results in a surge of deaths above what is normally managed by normal medicolegal systems. In the event of a major disaster within Los Angeles County, it may be several days before the Department of Coroner, County Morgue, or private mortuaries can respond, process and recover decedents. The following guidelines have been developed to aid hospitals and other healthcare entities in their response to an MFI.

While this guidance is intended for use during a county-wide MFI, the principles can be applied anytime a hospital is experiencing a surge of deaths above what is normally managed by the hospital. These principles can also be used by any healthcare entity of any size to manage an MFI. The forms and checklists are designed to be personalized by your facility as needed.

This guidance includes information on preserving and safeguarding decedents, property, and evidence. It will also discuss the processes and issues for decedent identification, next of kin notification, death certificate processing, tracking, storage, and final disposition.

The goal of these guidelines is to enhance the ability of Los Angeles County and its healthcare partners to respond to and manage a surge in the number of decedents as a result of any disaster, including an influenza pandemic. While the importance of religious, cultural and mental health considerations is recognized, it is not addressed here. These guidelines focus on decedent processing for medical and legal reasons.

This guidance was developed in collaboration between the Los Angeles County Department of Coroner, Department of Health Services, Emergency Medical Services Agency (EMS), and Department of Public Health, Office of Health Assessment & Epidemiology, Data Collection & Analysis Unit. This document is available for download at the EMS Web site: http://ems.dhs.lacounty.gov/.

ASSUMPTIONS

- The Los Angeles County Department of Public Health registers approximately 57,000 deaths/year.
- It is the duty of the Department of Coroner to determine the circumstances, manner and cause of all violent, sudden, or unusual deaths.
- A mass or multi fatality incident (MFI) results in a surge of deaths above which is normally managed by a community's usual medicolegal system.
- The Los Angeles County Department of Coroner is the lead agency to manage an MFI, however it is not solely responsible for all aspects of response to an MFI.
- Medicolegal systems may continue to experience a "normal" case load as well as the case load from the MFI with the possibility of an increase in accidental deaths (due to therapeutic complications and/or those resulting from the increased use and operation of motor vehicles/heavy equipment), homicidal (due to civil unrest), and/or suicide cases.
- The Department of Coroner, Department of Health Services, Department of Public Health, hospitals and other healthcare entities have limited fatality surge space or equipment.
- Federal or military assistance in fatality management may not be available to local jurisdictions in widespread incidents such as a pandemic.
- Disposition of human remains requires a death certificate.
- In all US jurisdictions, a treating or primary care physician is authorized to sign a death certificate provided the patient dies from natural causes and has knowledge of the causes of death.
- Human remains do not pose additional health risks to the community.
- Those who physically handle remains may be at risk of blood borne or body fluid exposure requiring universal precautions and proper training for handling the dead.
- It is more important to ensure accurate and complete death investigations and identification of the dead than it is to quickly end the response.
- The time to complete fatality management of a mass fatality event may exceed six months to a year.
- Mental health professionals, social service organizations and religious leaders will have to be educated in the mass fatality management process at all levels to ensure the process is understood and can be properly communicated to the general population in their response activities.

COUNTY-WIDE COORDINATION

Mass fatalities may occur as the result of a variety of events, including natural disasters or disease outbreaks, large accidental incidents, or as the result of the intentional use of a chemical, biological, radiological, or explosive agent. Since an MFI is likely to result from a major incident, the Los Angeles County (LAC) Sheriff's Department has overall responsibility for managing the incident response, and the LAC Office of Emergency Management has overall responsibility for managing recovery.

The Department of Coroner is the lead agency on fatality management during a disaster, and has an established Emergency Response Plan. Included is an MFI Plan that outlines the actions to be taken by the Coroner and its relationships (via the Standardized Emergency Management System and Incident Command System) with the Operational Area (Los Angeles County), local, state and federal law enforcement, fire, hazmat, LAC Department of Public Health Data Collection and Analysis Unit, on such topics as team deployment, equipment, scene assessment, decedent transport, examining and processing, and body storage options. (Note: Federal or military assistance in fatality management may not be available to local jurisdictions in widespread incidents such as a pandemic.)

Each disaster scenario presents specific considerations, however all sudden and unexpected deaths as well as traumatic deaths fall under Coroner jurisdiction. A community-wide MFI, especially one due to a disease outbreak or other public health emergency may also fall under the jurisdiction of the Public Health Officer. Hospitals should stay alert for supplemental guidance on identifying the underlying cause of death or other significant conditions contributing to death. This information may be issued from the Department of Coroner or the Department of Public Health.

Hospitals will continue to interact and receive incident updates with Los Angeles County through the LAC Department of Health Services Emergency Medical Services Agency via established systems including the Medical Alert Center, ReddiNet, Hospital Emergency Administrative Radio (HEAR), and with the Department of Public Health through usual channels such as the Acute Communicable Disease Control Hospital Outreach Unit or the Health Alert Network (HAN).

KEY CONTACTS

Los Angeles County Department of Coroner

- 24/7: 323-343-0714
- Renee GrandPre, Disaster Coordinator, RGrandPre@coroner.lacounty.gov

Los Angeles County Department of Health Services Emergency Medical Services Agency

- General: 562-347-1500
- 24/7 Medical Alert Center (MAC): 323-722-8073 [note: MAC will be moving and have a new number in Fall 2008]
- http://ems.dhs.lacounty.gov

Los Angeles County Department of Public Health

Acute Communicable Disease Control

- For biological incident reporting, including suspect pandemic influenza
- Business Hours (Mon-Fri, 8:00am-5:00pm): 213-240-7941
- After Hours: 213-974-1234

Data Collection and Analysis Unit

- 213-240-7785; http://www.lapublichealth.org/dca
- Vital Records Office: 213-240-7816 (deaths)

Los Angeles County Morgue / Decedent Affairs

- 323-226-7161

Los Angeles County Public Administrator's Office

- General: 213-974-0404
- Investigation Unit: 213-974-0460
- http://ttc.lacounty.gov/Proptax/PA_openning.htm

California Electronic Death Registration System (EDRS) Helpdesk

- 916-552-8123
- https://ca.edrs.us (CA-EDRS login page)

HOSPITAL MFI PLANNING OVERVIEW

Joint Commission

While conducting hospital MFI planning is prudent and should be a part of all emergency management plans and emergency operations plans, it is also a new element in the 2008 Joint Commission Environment of Care Emergency Management Standards, EC.4.18: The organization establishes strategies for managing clinical and support activities during emergencies, specifically EC.4.18.5: The organization plans to manage the following during emergencies: mortuary services.

In 2009, MFI planning will be incorporated in the Emergency Management Chapter and included in Standard EM.02.02.11 which states that as part of its Emergency Operations Plans, the organization prepares for how it will manage patients during emergencies. Specifically in EM.02.02.11.7, the performance measure states that the Emergency Operations Plan describes the following: How the hospital will manage mortuary services.

Hospital Preparedness Program

According to US Department of Health and Human Services Hospital Preparedness Program guidance (Target Measure H4.1), all HPP-funded hospitals will have a finalized written plan for mass fatality management by August 08, 2009. A finalized written plan is one that has received senior management approval. This plan should include at minimum, current on information on (a) trained and available personnel; (b) equipment, supplies, facilities, and other material resources; and (c) operational structure and standard operating procedures for disposition of the deceased.

Review Existing Hospital Resources and Plans/Policies/Practices

As part of the planning process, identify existing resources and procedures in place for the management of deaths at your facility. This may include your Decedent Affairs or Medical Records departments. Staff may already be familiar with and regularly use common forms such as the LAC Department of Coroner Form 18: Hospital and Nursing Home Facility Report and Form VS-11: Certificate of Death. They may already be trained on using the Electronic Death Registration System (EDRS). Also identify any formal or informal mass fatality or fatality surge plans that you may have. These may include memoranda of understanding (MOUs) with local mortuaries or refrigeration container companies. Many facilities have informal plans on managing a surge of fatalities, and these should be converted to written plans.

Develop a Written Plan

The included Hospital MFI Plan checklist (see page 9) can be used to evaluate a current MFI plan or provide guidance in developing an MFI plan. And as always, be sure to train to and exercise the plan. The fact sheets and flow charts included in this guidance may be helpful when developing the plan and in conducting trainings.

HOSPITAL MFI PLANNING: 10 QUESTIONS TO GET STARTED

"Death does not end human suffering, especially when death is sudden, as the result of a disaster. The death of a loved one leaves an indelible mark on the survivors, and unfortunately, because of the lack of information, the families of the deceased suffer additional harm because of the inadequate way that the bodies of the dead are handled. These secondary injuries are unacceptable, particularly if they are the consequence of direct authorization or action on the part of the authorities or those responsible for humanitarian assistance." *Mirta Roses Periago, Director, Pan American Health Organization*

1. What are the decedent management priorities of your organization? What key assumptions are these priorities based upon?

2. Does your organization have a written mass fatality plan in place? If so, who has the authority to activate these plans and/or procedures, and have you trained to the plan?

3. Do you have staff and resources identified that will be dedicated to mass fatality incident management?

4. What are the possible bottlenecks in the decedent processing procedures? Have any solutions been developed and/or implemented to mitigate these issues?

5. What is the capacity of your morgue? Do you have alternate on-site and off-site surge morgue capacity? Do you have memoranda of understanding in place (if applicable)?

6. Do you have staff and resources identified that will be dedicated to surge morgue management?

7. To what extent can technology assist with decedent processing?

8. Who in your organization or jurisdiction has the authority to make the decision to alter or change the current decedent processing and identification plan?

9. What legal hurdles, if any, does your organization or jurisdiction face when executing your mass fatality incident plan? How will your organization and jurisdiction deal with them to ensure that the processing of decedents is not delayed or otherwise stalled by legal matters?

10. What reputation management issues could arise if your facility does not adequately manage a mass fatality incident?

HOSPITAL MFI PLANNING: SAMPLE TABLE OF CONTENTS

HOSPITAL MFI PLANNING: CHECKLIST

This checklist was developed to help hospitals prepare and respond to a mass fatality incident regardless of cause. It is designed to be adapted to meet the unique needs and circumstances of your facility, and can be used as a tool for developing or evaluating MFI plans.

1. Written MFI Plan			
Completed	**In Progress**	**Not Started**	**Actions**
			MFI planning has been incorporated into disaster planning and exercises for the hospital.
			A written MFI plan has been developed.
			Primary and backup responsibility has been assigned for coordinating MFI planning. Primary (Name, Title and Contact info): _____ Backup (Name, Title and Contact info): _____
			A multidisciplinary planning committee has been identified specifically to address MFI planning exercising.
			Members of the MFI planning committee may include: ☐ Hospital administration ☐ Disaster coordinator ☐ Morgue operations ☐ Decedent affairs ☐ Medical records ☐ Infection control/hospital epidemiology ☐ Laboratory services ☐ Occupational health ☐ Legal counsel/risk management ☐ Public relations coordinator/public information officer ☐ Engineering and maintenance ☐ Environmental (housekeeping) services ☐ Central (sterile) services ☐ Security ☐ Information technology ☐ Expert consultants (e.g., ethicist, mental/behavioral health professionals, LCSWs) ☐ Other member(s) as appropriate (e.g., clergy, local coroner, medical examiner, morticians)

1. Written MFI Plan			
Completed	**In Progress**	**Not Started**	**Actions**
			Points of contact for information on MFI planning resources have been identified within local government. ▪ LAC Dept of Coroner: Renee GrandPre, Disaster Coordinator, RGrandPre@coroner.lacounty.gov ▪ LAC DHS EMS Agency, Disaster Management Unit, 562-347-1500
			The MFI plan identifies the trigger to activate the MFI Plan
			The MFI plan identifies the person(s) authorized to implement the plan and the organizational structure that will be used, including the delegation of authority to carry out the plan 24/7.
			The MFI plan includes a mass fatality incident management unit or similar management unit/team.
			Responsibilities of key personnel and departments within the facility related to executing the plan have been described.
			Personnel who will serve as back-up (e.g., B team) for key personnel roles have been identified.
			The MFI plan indicates to notify the LAC EMS Agency via the Medical Alert Center or ReddiNet, and who is responsible for making the notification.
			Tabletop exercise and/or other exercises have been conducted to test the plan. Date performed: _____ Date performed: _____
			A full scale drill/exercise has been developed to test the plan. Date performed: _____
			The plan is updated regularly and includes current contact information and lessons learned from exercises and drills.
			A list of mental/behavioral health, community and faith-based resources that will be available to provide counseling to personnel during an MFI.

2. Mass Fatality Incident Management Unit			
Completed	**In Progress**	**Not Started**	**Actions**
			The plan identifies who is the lead to implement the hospital's MFI Plan. (Is this person the MFI Unit Leader?)
			Staff trained on EDRS have been identified.
			Location of the MFI Unit Administrative section has been identified.

2. Mass Fatality Incident Management Unit			
Completed	**In Progress**	**Not Started**	**Actions**
			Equipment and supplies have been identified and/or procured for the MFI Unit Administrative section (review MFI Management Unit Equipment/Supplies Checklist on page 17).
			A process has been developed to identify decedents (such as taking a photo or fingerprint upon admission or immediately upon death) and maintaining records of the information (see sample Decedent Tracking Card on page 18).
			A process has been developed to track decedents (such as using a database, a tracking form (see page 19), or inputing into ReddiNet (if available).
			Responsibility has been assigned for maintaining communication with the hospital command center to receive mortality estimates in order to anticipate and supply needed administrative and morgue equipment.
			Responsibility has been assigned for communications with LAC Dept of Public Health (ACDC, Vital Records, or as needed) and monitoring public health advisories.
			Responsibility has been assigned for communications with LAC Dept of Health Services (EMS, MAC, ReddiNet, or as needed).
			Responsibility has been assigned for communications with coroner authorities (i.e., case reporting, status updates) during a disaster.
			Responsibility has been assigned for communications with next of kin.
			A protocol has been established to identify and protect decedent personal property and maintain chain of custody if identified as evidence. The Decedent Tracking Card (page 18) or similar form can be used to catalog this information.

3. Morgue Surge			
Completed	**In Progress**	**Not Started**	**Actions**
			The plan identifies current morgue capacity: # and location (can also be labeled something like Primary Morgue)
			Identify surge capacity: # and locations (can also be labeled something like Secondary or Surge Morgues).
			May also identify a tiered level with triggers to add or change morgue locations. This may be a result of the number of decedents (escalation and de-escalation), new resources available, the viability of the current location, etc.

3. Morgue Surge			
Completed	**In Progress**	**Not Started**	**Actions**
			Identify staff resources that may be needed (review Morgue Task Force recommendations on page 13)
			Identify supplies and equipment needed (review Surge Morgue Equipment and Supplies Checklist on page 34).
			A protocol has been developed to rapidly identify the location of where decedents are stored. For example, each decedent will have an 'address' such as Morgue Room 1, Row 2, # 5, or other such nomenclature.
			An infection control policy that requires morgue personnel to use Standard Precautions
			Hospital security personnel have input into procedures and a plan for securing access to morgue areas

HOSPITAL MASS FATALITY INCIDENT (MFI) MANAGEMENT UNIT

The purpose of a Hospital MFI Management Unit is to have a centralized location where all mass fatality information is being processed in your facility in response to a mass-casualty event, pandemic outbreak, terrorist attack, or large natural disaster. Functions include:

- Decedent identification (if not already done upon admittance)
- Family / next of kin notification
- Coroner, County morgue or mortuary notification/contact
- Tracking decedents who die in the hospital to disposition out of the hospital
- Managing morgue capacity
- Managing surge morgue capacity

It is suggested that the MFI Unit be located in the HICS Operations Section Medical Care Branch, and that the MFI Unit Leader reports directly to the Medical Care Branch Director. The MFI Unit will coordinate information with the Patient Registration Unit and the Casualty Care Unit, particularly for those patients identified as expectant. The MFI Unit will also coordinate information with the Planning Section Situation Unit Patient Tracking Manager. During a disaster, it may not be possible for your facility to staff all positions, however they are identified here to help illuminate the roles and responsibilities that should be addressed.

In addition to a MFI Unit Leader (see page 14 for a sample Job Action Sheet), recommended essential disciplines are identified in the table. Due to the sensitive nature of decedent processing, ensure all staff receive psychological support if needed. Be cautious in the use of hospital volunteers who may not have had experience or exposure to mass fatality situations.

Administrative Task Force	Morgue Task Force
▪ Decedent identification staff ▪ Decedent tracking staff ▪ Liaison to HICS Patient Tracking Officer and other HCC contacts ▪ Data entry staff to ReddiNet and EDRS ▪ Liaison to LAC DPH, other relevant County agencies, and mortuaries ▪ Liaison to families ▪ Death Certificate coordinator (a physician with responsibility to coordinate with other physicians to ensure death certificates are signed to expedite decedent processing) ▪ IT support	▪ Morgue supervisor ▪ 1-2 morgue assistants (Minimum of two morgue task force members to safely move decedents) ▪ Infection control staff, as needed ▪ Morgue staff to maintain each morgue area ▪ Facilities/engineering to maintain the integrity of surge morgue areas ▪ Security for all morgues

MFI UNIT LEADER
JOB ACTION SHEET

Mission: Collect, protect, identify and track decedents.

Date: _____ Start: _____ End: _____ Position Assigned to: _____ Initial: _____

Position Reports to: Medical Care Branch Director Signature: _____

Hospital Command Center (HCC) Location: _____ Telephone: _____

Fax: _____ Other Contact Info: _____ Radio Title: _____

Immediate (Operational Period 0-2 Hours)	**Time**	**Initial**
Receive appointment and briefing from the Medical Care Branch Director. Obtain MFI Unit activation packet.		
Read this entire Job Action Sheet and review incident management team chart (HICS Form 207). Put on position identification.		
Notify your usual supervisor of your HICS assignment.		
Determine need for and appropriately appoint MFI Unit staff, distribute corresponding Job Action Sheets and position identification. Complete a unit assignment list.		
Document all key activities, actions, and decisions in an Operational Log (HICS Form 214) on a continual basis.		
Brief MFI Unit staff on current situation; outline unit action plan and designate time for next briefing.		
Confirm the designated MFI Unit area is available, and begin distribution of personnel and equipment resources. Coordinate with the Medical Care Branch Director.		
Regularly report MFI Unit status to Casualty Care Unit Leader.		
Assess problems and needs; coordinate resource management.		
Use your Death Certificated Coordinator physician or request an on-call physician from the Casualty Care Unit Leader to confirm any resuscitatable casualties in Morgue Area.		
Obtain assistance from the Medical Devices Unit Leader for transporting decedents. Assure all transporting devices are removed from under decedents and returned to the Triage Area.		
Instruct all MFI Unit Task Force members to periodically evaluate equipment, supply, and staff needs and report status to you; collaborate with Logistics Section Supply Unit Leader to address those needs; report status to Medical Care Branch Director.		
Coordinate contact with external agencies with the Liaison Officer, if necessary.		
Monitor decedent identification process.		
Enter decedent information in ReddiNet, if appropriate.		
Assess need for establishing surge morgue facilities.		
Coordinate with the Patient Registration Unit Leader and Family Information Center (Operations Section) and the Patient Tracking Manager (Planning Section).		

Immediate (Operational Period 0-2 Hours)	Time	Initial
Contact the Medical Care Branch Director and Security Branch Director for any morgue security needs.		
Document all communications (internal and external) on an Incident Message Form (HICS Form 213). Provide a copy of the Incident Message Form to the Documentation Unit.		

Intermediate (Operational Period 2-12 Hours)	Time	Initial
Maintain master list of decedents with time of arrival for Patient Tracking Manager.		
Assure all personal belongings are kept with decedents and/or are secured.		
Assure all decedents in MFI Areas are covered, tagged and identified where possible.		
Monitor death certificate process.		
Meet regularly with the Casualty Care Unit Leader for update on the number of deceased; status reports, and relay important information to Morgue Unit staff.		
Implement surge morgue facilities as needed.		
Continue coordinating activities in the Morgue Unit.		
Ensure prioritization of problems when multiple issues are presented.		
Coordinate use of external resources; coordinate with Liaison Officer if appropriate.		
Contact the Medical Care Branch Director and Security Branch Director for any morgue security needs.		
Develop and submit a MFI Unit action plan to the Medical Care Branch Director when requested.		
Ensure documentation is completed correctly and collected.		
Advise the Medical Care Branch Director immediately of any operational issue you are not able to correct or resolve.		
Ensure staff health and safety issues being addressed; resolve with the Safety Officer.		

Extended (Operational Period Beyond 12 Hours)	Time	Initial
Continue to monitor the MFI Unit's ability to meet workload demands, staff health and safety, resource needs, and documentation practices.		
Coordinate assignment and orientation of external personnel sent to assist.		
Work with the Medical Care Branch Director and Liaison Officer, as appropriate on the assignment of external resources.		
Rotate staff on a regular basis.		
Document actions and decisions on a continual basis.		
Continue to provide the Medical Care Branch Director with periodic situation updates.		
Ensure your physical readiness through proper nutrition, water intake, rest, and stress management techniques.		
Observe all staff and volunteers for signs of stress and inappropriate behavior. Report		

Extended (Operational Period Beyond 12 Hours)	Time	Initial
concerns to the Employee Health & Well-Being Unit Leader. Provide for staff rest periods and relief.		
Upon shift change, brief your replacement on the status of all ongoing operations, issues, and other relevant incident information.		

Demobilization/System Recovery	Time	Initial
As needs for the MFI Unit decrease, return staff to their normal jobs and combine or deactivate positions in a phased manner, in coordination with the Demobilization Unit Leader.		
Ensure the return/retrieval of equipment/supplies/personnel.		
Debrief staff on lessons learned and procedural/equipment changes needed.		
Upon deactivation of your position, brief the Medical Care Branch Director on current problems, outstanding issues, and follow-up requirements.		
Upon deactivation of your position, ensure all documentation and MFI Unit Operational Logs (HICS Form 214) are submitted to the Medical Care Branch Director.		
Submit comments to the Medical Care Branch Director for discussion and possible inclusion in the after-action report; topics include: • Review of pertinent position descriptions and operational checklists • Recommendations for procedure changes • Section accomplishments and issues		
Participate in stress management and after-action debriefings. Participate in other briefings and meetings as required.		

Documents/Tools

- Incident Action Plan
- HICS Form 207 – Incident Management Team Chart
- HICS Form 213 – Incident Message Form
- HICS Form 214 – Operational Log
- Mass Fatality Incident Activation/Operational Plan
- Mass Fatality Incident / Morgue Unit Assignment List
- Fatality Tracking Form
- Decedent Information and Tracking Card
- Hospital emergency operations plan
- Hospital organization chart
- Hospital telephone directory
- Key contacts list (including Coroner, DPH, ReddiNet, LAC DMH, ARC, etc.)
- Radio/satellite phone

MFI MANAGEMENT UNIT EQUIPMENT AND SUPPLIES CHECKLIST

Equipment and supplies for the MFI Unit may include the following. Be sure to identify where items are stored and how to access the storage area.

Consideration	Consideration
Distance from the morgue ▪ Location of MFI Unit: ▪ Distance from Morgue: *Notes*: **Secure with limited access** ▪ # of security staff required: ▪ Security equipment required: ▪ Description of how access is limited: *Notes*: **Phone lines** ❑ Incoming phone ❑ Outgoing phone ❑ Fax machine ❑ Fax paper and toner ▪ Total number of phones: *Notes*: **ReddiNet and EDRS access/terminal** ❑ Laptop or desktop computer ❑ Access to internet ❑ ReddiNet access established ❑ EDRS access established (via internet for authorized individuals) ▪ Total number of computers: *Notes*:	**Tables and chairs** ❑ # tables procured (based on layout needs) ❑ # chairs procured (based on layout needs) *Notes*: **Office supplies** ❑ Notepads, loose paper, sticky notes, clipboards ❑ Plastic sleeves ❑ Pens, pencils, markers, highlighters ❑ Stapler, staple remover, tape, packing tape, white out, paper clips, pencil sharpener ❑ Extension cords, power strips, surge protectors, duct tape *Notes*: **Printer and Copier** ❑ Printer and cables, copier ❑ Paper ❑ Toner *Notes*: **Forms and Documents** ❑ Hospital MFI Plan ❑ Decedent Information and Tracking Card ❑ Fatality Tracking Form ❑ EDRS "Medical Facilities Users' Guide" (download at www.edrs.us) ❑ Internal and external contact lists *Notes*:

Legend:
❑ Check boxes to indicate completion
▪ These bullets require you to add your information

INSERT HOSPITAL NAME OR LOGO
Hospital Address
Telephone and Fax Numbers

First Letter of Decedent Last Name: _____

DECEDENT INFORMATION AND TRACKING CARD

INCIDENT NAME		**OPERATIONAL PERIOD**		
MEDICAL RECORD / TRIAGE #	**DATE**	**TIME**	**HOSPITAL LOCATION PRIOR TO MORGUE**	
FIRST	**MIDDLE**	**LAST**	**AGE**	**GENDER**

IDENTIFICATION VERIFIED BY

□ DRIVERS LICENSE □ STATE ID □ PASSPORT □ BIRTH CERTIFICATE □ OTHER:_____

IDENTIFICATION #: _____

ADDRESS (STREET ADDRESS, CITY, STATE, ZIP)

LISTED IN REDDINET □ YES □ NO	**RECORD CREATED IN EDRS** □ YES □ NO	**DEATH CERTIFICATE SIGNED** □ YES □ NO

PHOTO ATTACHED TO THIS CARD □ YES □ NO		**FINGERPRINTS ATTACHED TO THIS CARD** □ YES □ NO	
NEXT OF KIN NOTIFIED? □ YES □ NO	**NAME**	**RELATION**	**CONTACT TEL**
STATUS	LOCATION	DATE / TIME IN	DATE / TIME OUT
HOSPITAL MORGUE			
HOSPITAL MORGUE			
HOSPITAL MORGUE			
HOSPITAL MORGUE			
FINAL DISPOSITION	DATE / TIME	NAME OF RECIPIENT	SIGNATURE OF RECIPIENT
RELEASED TO: □ CORONER □ COUNTY MORGUE □ MORTUARY □ OTHER: _____	**DATE** **TIME**		

LIST PERSONAL BELONGINGS	**STORAGE LOCATION**

ORIGINAL ON FILE IN MFI UNIT
COPY WITH DECEDENT
COPY TO MEDICAL CARE BRANCH DIRECTOR

Form Revised: May 2008

FATALITY TRACKING FORM

Adapted from HICS Form 254.

INCIDENT NAME				DATE / TIME PREPARED				OPERATIONAL PERIOD DATE/TIME		
MRN OR TRIAGE NUMBER	NAME	SEX	DOB/ AGE	NEXT OF KIN NOTIFIED YES / NO	ENTERED: YES / NO		HOSPITAL MORGUE		FINAL DISPOSITION, RELEASED TO:	
					REDDINET	EDRS	IN DATE/TIME	OUT DATE/TIME	CORONER, MORTUARY, COUNTY MORGUE, OR OTHER (LIST)	DATE/TIME
COMPLETED BY HOSPITAL MFI UNIT			NAME							

Purpose: Account for decedents in a mass fatality disaster **Origination:** Hospital Mass Fatality Unit **Copies to:** Patient Registration Unit Leader and Medical Care Branch Director

DECEDENT PROCESSING – POTENTIAL BOTTLENECKS

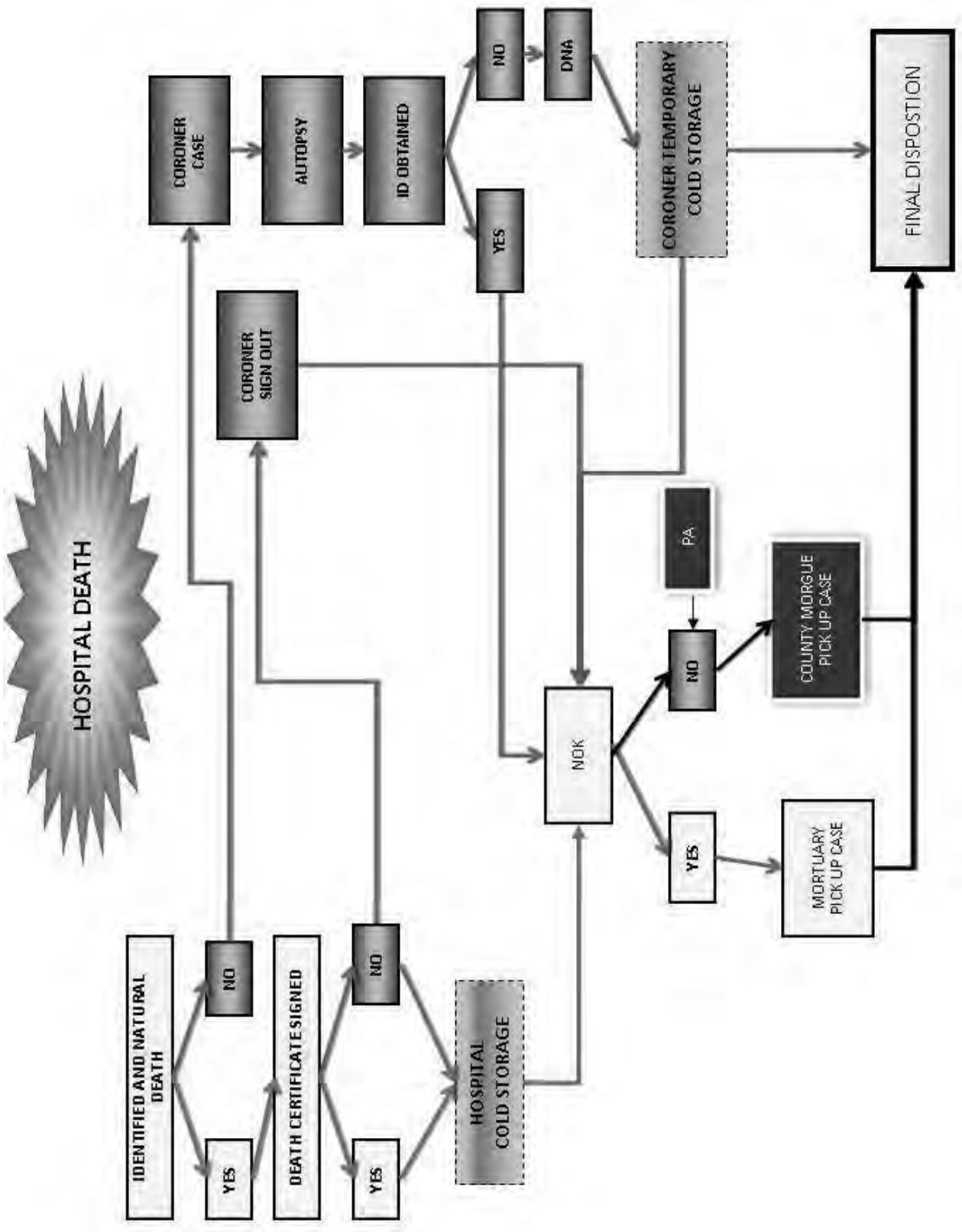
Our goal is to ensure efficient, timely and respectful decedent processing from death to final disposition.

Problem	Solutions

Decedent Identification
The lack of identification impedes the process of identifying next of kin.
	▪ Verify identification with a photo ID
	▪ To confirm identification or to assist in identification at a later date, upon hospital admittance or immediately upon death:
	  ▪ Take a photo (before decomposition sets in)
	  ▪ Get fingerprints
	  ▪ Collect X-rays or dental records

Next of Kin (NOK) The lack of identifying NOK or being able to contact NOK delays the process of identifying desires for final disposition (and out of the hospital), such as which mortuary to contact	▪ Identify NOK and contact information while the patient is still alive (perhaps upon admittance) ▪ Contact LAC Public Administrator's Office
Death Certificate Reluctance by physicians to sign the death certificate can impede the process of a decedent being released for final disposition (and out of the hospital)	▪ Conduct education on what it means to sign the death certificate ▪ During a disaster, identify a single physician who will serve as the a death certificate coordinator (a physician with responsibility to coordinate with other physicians to ensure death certificates are signed to expedite decedent processing)
Decedent Tracking Hospitals may need to store remains for a short term until next of kin can be identified/notified or final disposition has been identified. A system of knowing who and where the decedents are will be crucial to expedite community-wide decedent processing.	▪ Use a form similar to the Decedent Information and Tracking Card to consolidate information about each decedent (see page 18) ▪ Develop a form or process to track all decedents (such as the form on page 19) or electronic database ▪ If ReddiNet is being used by the County to track decedents, ensure staff know how to use ReddiNet, however the hospital will need to maintain its own records ▪ Develop an address or locator process to quickly identify where a decedent is being stored (such as Surge Morgue 1, Rack 3, Tier 2). This can also be monitored on the Decedent Tracking Card if the decedent needs to be moved from one morgue area to another within the facility.
Property/Evidence Depending on the incident, the decedent's property may be evidence of a crime. It will need to be collected and maintained for proper transfer to authorities.	▪ Identify decedent's property and where it is located if not co-located with the decedent. The Decedent Tracking Card or similar form can be used to catalog this information.

FLOW CHART: DEATH AT A HOSPITAL



FACT SHEET

DEATH CERTIFICATES

Los Angeles County Department of Public Health, Data Collection & Analysis Unit

The Data Collection and Analysis Unit is responsible for the collection and processing of state mandated data, including births, deaths, and communicable disease for deaths occurring in Los Angeles County (excluding the cities of Long Beach and Pasadena). This unit also provides statistical reports based on vital records, public health clinic caseloads, and other health status indicators derived from public health data for Los Angeles County. The LACDPH registers approximately 57,000 deaths every year.

ABOUT DEATH CERTIFICATES

- Permanent legal record of fact and cause of death
- Identifies deceased individual
- Includes demographic information of the deceased
- Specifies final disposition of the body
- Specifies the cause of death of the deceased
- Provides information about the funeral director and medical certifier completing the record
- Used for both administrative and public health analytical needs
- Necessary for the family to handle the business matters of the decedent
- If there is no family to take care the matters of the decedent, it becomes a public case and the disposition of the decedent is handled by the Public Administrator's Office under the Los Angeles County Office of the Treasurer and Tax Collector.
- Source of mortality statistics at national and jurisdictional levels
- Data used to:
    - Allocate research and development funding
    - Establish goals related to public health
    - Measure health status

FACTS ABOUT SIGNING THE DEATH CERTIFICATE

- Physicians must complete the medical portion of the death certificate within 15 hours of the death event
- The causes of death are the physician's opinion regarding the death
- The physician is legally responsible to complete the medical portion of the death certificate
- The causes of death on the death certificate are not legally binding in and of themselves; the entire death certificate is the legal document
- The physician is not obligated to sign the death certificate if he/she determines that there was possible something unnatural about the cause of death – these should be referred to the Coroner

Websites

- **Los Angeles County Department of Public Health, Data Collection & Analysis Unit:** http://www.lapublichealth.org/dca
- **Instructions for Completing the Cause-of-Death Section of the Death Certificate**, CDC National Center for Health Statistics: http://www.cdc.gov/nchs/data/dvs/blue_form.pdf

FLOW CHART

DEATH CERTIFICATE PROCESS

For deaths occurring in Los Angeles County (excluding cities of Long Beach and Pasadena).

Death Certificates (DC)

- DC applications filled out either on paper or via the CA-EDRS (Electronic Death Registration System) by funeral directors, hospitals, or by the Coroner.
- Physician or Coroner attests to the causes of death after medical review by LAC Public Health Registrar.
- Once DC is complete, funeral directors or the Coroner file DC applications (including out of state residents) with LAC Public Health Registrars.

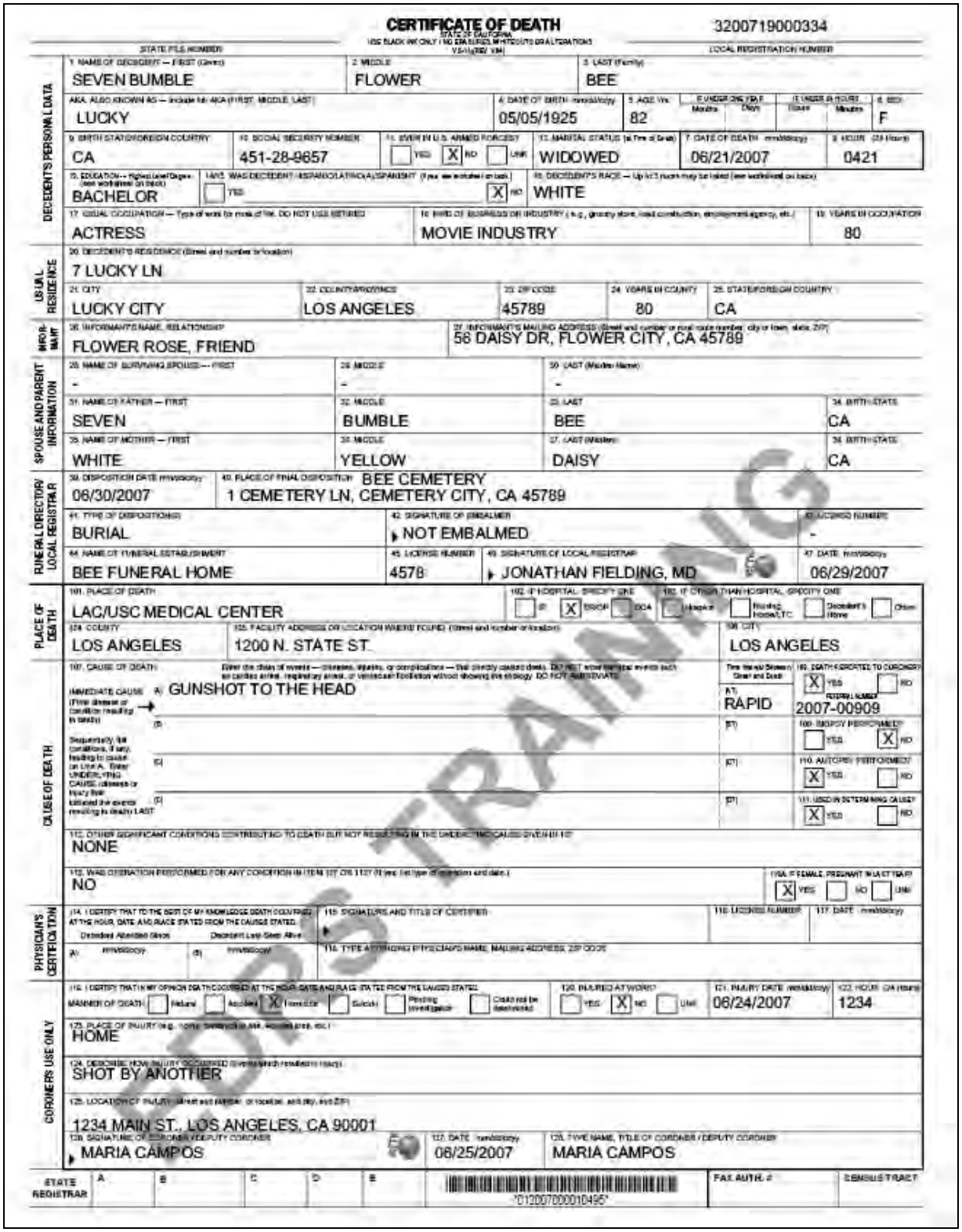
Public Health Registrars

- Stationed in major health centers across LAC, and the Vital Records Office of the Data Collection & Analysis (DCA) unit of LACDPH.
- Certify complete DC applications to become DC, a legal document thereafter, and issue burial permit.
- Pass all DCs to the Vital Records Office (VRO).

Vital Records Office (Data Collection & Analysis Unit)

- Responsible for collecting DCs and chronological registration of all DCs in LA County (coroner cases may be delayed), except for the cities of Pasadena and Long Beach which have their own local Health Departments.
- Original DCs are scanned images and then are archived at the Registrar-Recorder/County Clerk (RRCC). Through a joint collaboration, the VRO and the RRCC share an index of birth and death certificates.
- Originals DCs are sent to the State from the VRO.
- Certified Authorized and Informational DC copies are available to general public at $12.00/copy.

SAMPLE DEATH CERTIFICATE FROM CA-EDRS: FORM VS-11E



CERTIFICATE OF DEATH
STATE OF CALIFORNIA
USE BLACK INK ONLY | NO ERASURES, WHITEOUTS OR ALTERATIONS
VS-11(REV. 1/94)

STATE FILE NUMBER: 3200719000334
LOCAL REGISTRATION NUMBER:

DECEDENT'S PERSONAL DATA

1. NAME OF DECEDENT — FIRST (Given)	2. MIDDLE	3. LAST (Family)
SEVEN BUMBLE	FLOWER	BEE

AKA. ALSO KNOWN AS — Include full AKA (FIRST, MIDDLE, LAST)	4. DATE OF BIRTH mm/dd/yyyy	5. AGE Yrs.	If UNDER ONE YEAR Months / Days	If UNDER 24 HOURS Hours / Minutes	6. SEX
LUCKY	05/05/1925	82			F

9. BIRTH STATE/FOREIGN COUNTRY	10. SOCIAL SECURITY NUMBER	11. EVER IN U.S. ARMED FORCES?	12. MARITAL STATUS (at Time of Death)	7. DATE OF DEATH mm/dd/yyyy	8. HOUR (24 Hours)
CA	451-28-9657	YES [ ] NO [X] UNK [ ]	WIDOWED	06/21/2007	0421

15. EDUCATION — Highest Level Degree (see worksheet on back)	14/15. WAS DECEDENT HISPANIC/LATINO/A/SPANISH? (If yes, see worksheet on back)	16. DECEDENT'S RACE — Up to 3 races may be listed (see worksheet on back)
BACHELOR	YES [ ] NO [X]	WHITE

17. USUAL OCCUPATION — Type of work for most of life. DO NOT USE RETIRED	18. KIND OF BUSINESS OR INDUSTRY (e.g., grocery store, road construction, employment agency, etc.)	19. YEARS IN OCCUPATION
ACTRESS	MOVIE INDUSTRY	80

USUAL RESIDENCE

20. DECEDENT'S RESIDENCE (Street and number or location)				
7 LUCKY LN				
21. CITY	**22. COUNTY/PROVINCE**	**23. ZIP CODE**	**24. YEARS IN COUNTY**	**25. STATE/FOREIGN COUNTRY**
LUCKY CITY	LOS ANGELES	45789	80	CA

INFORMANT

26. INFORMANT'S NAME, RELATIONSHIP	27. INFORMANT'S MAILING ADDRESS (Street and number or rural route number, city or town, state, ZIP)
FLOWER ROSE, FRIEND	56 DAISY DR, FLOWER CITY, CA 45789

SPOUSE AND PARENT INFORMATION

28. NAME OF SURVIVING SPOUSE — FIRST	29. MIDDLE	30. LAST (Maiden Name)	
-	-	-	
31. NAME OF FATHER — FIRST	**32. MIDDLE**	**33. LAST**	**34. BIRTH STATE**
SEVEN	BUMBLE	BEE	CA
35. NAME OF MOTHER — FIRST	**36. MIDDLE**	**37. LAST (Maiden)**	**38. BIRTH STATE**
WHITE	YELLOW	DAISY	CA

FUNERAL DIRECTOR/ LOCAL REGISTRAR

39. DISPOSITION DATE mm/dd/yyyy	40. PLACE OF FINAL DISPOSITION	
06/30/2007	BEE CEMETERY	1 CEMETERY LN, CEMETERY CITY, CA 45789

41. TYPE OF DISPOSITION(S)	42. SIGNATURE OF EMBALMER	43. LICENSE NUMBER
BURIAL	NOT EMBALMED	-
44. NAME OF FUNERAL ESTABLISHMENT	**45. LICENSE NUMBER**	**46. SIGNATURE OF LOCAL REGISTRAR**	**47. DATE mm/dd/yyyy**
BEE FUNERAL HOME	4578	JONATHAN FIELDING, MD	06/29/2007

PLACE OF DEATH

101. PLACE OF DEATH	102. IF HOSPITAL, SPECIFY ONE	103. IF OTHER THAN HOSPITAL, SPECIFY ONE
LAC/USC MEDICAL CENTER	IP [ ] ER/OP [X] DOA [ ]	Hospice [ ] Nursing Home/LTC [ ] Decedent's Home [ ] Other [ ]

104. COUNTY	105. FACILITY ADDRESS OR LOCATION WHERE FOUND (Street and number or location)	106. CITY
LOS ANGELES	1200 N. STATE ST.	LOS ANGELES

CAUSE OF DEATH

107. CAUSE OF DEATH — Enter the chain of events — diseases, injuries, or complications — that directly caused death. DO NOT enter terminal events such as cardiac arrest, respiratory arrest, or ventricular fibrillation without showing the etiology. DO NOT ABBREVIATE.

IMMEDIATE CAUSE (Final disease or condition resulting in death)	a. GUNSHOT TO THE HEAD	
Sequentially list conditions, if any, leading to cause on Line A. Enter UNDERLYING CAUSE (disease or injury that initiated the events resulting in death) LAST	b.	
	c.	
	d.	

108. Time Interval Between Onset and Death	109. DEATH REPORTED TO CORONER?	110. BIOPSY PERFORMED?	111. AUTOPSY PERFORMED?	112. USED IN DETERMINING CAUSE?
a. RAPID	X YES [ ] NO	[ ] YES X NO	X YES [ ] NO	X YES [ ] NO
	REPORT NUMBER 2007-00909			

112. OTHER SIGNIFICANT CONDITIONS CONTRIBUTING TO DEATH BUT NOT RESULTING IN THE UNDERLYING CAUSE GIVEN IN 107:
NONE

113. WAS OPERATION PERFORMED FOR ANY CONDITION IN ITEM 107 OR 112? (If yes, list type of operation and date.)
NO

114. FEMALE, PREGNANT IN LAST YEAR?
X YES [ ] NO [ ] UNK

PHYSICIAN'S CERTIFICATION

114. I CERTIFY THAT TO THE BEST OF MY KNOWLEDGE DEATH OCCURRED AT THE HOUR, DATE, AND PLACE STATED FROM THE CAUSE STATED. Decedent Attended Since: (a) mm/dd/yyyy; Decedent Last Seen Alive: (b) mm/dd/yyyy	115. SIGNATURE AND TITLE OF CERTIFIER	116. LICENSE NUMBER	117. DATE mm/dd/yyyy
	118. TYPE OR PRINT PHYSICIAN'S NAME, MAILING ADDRESS, ZIP CODE		

CORONER'S USE ONLY

119. I CERTIFY THAT IN MY OPINION DEATH OCCURRED AT THE HOUR, DATE AND PLACE STATED FROM THE CAUSE STATED. MANNER OF DEATH: Natural [ ] Accident [X] Homicide [ ] Suicide [ ] Pending Investigation [ ] Could not be determined [ ]	120. INJURED AT WORK?	121. INJURY DATE mm/dd/yyyy	122. HOUR (24 Hours)
	YES [ ] NO [X] UNK [ ]	06/24/2007	1234

123. PLACE OF INJURY (e.g., home, factory, street, office building, etc.)
HOME
124. DESCRIBE HOW INJURY OCCURRED (Describe fully the sequence of events which resulted in injury)
SHOT BY ANOTHER
125. LOCATION OF INJURY (Street and number or location, city, state, ZIP)
1234 MAIN ST., LOS ANGELES, CA 90001

126. SIGNATURE OF CORONER/DEPUTY CORONER	127. DATE mm/dd/yyyy	128. TYPE NAME, TITLE OF CORONER/DEPUTY CORONER
MARIA CAMPOS	06/25/2007	MARIA CAMPOS

STATE REGISTRAR	A	B	C	D	E	FAX AUTH. #	CENSUS TRACT
						"012007000010495"	

DRS TRAINING

FACT SHEET

CALIFORNIA ELECTRONIC DEATH REGISTRATION SYSTEM (CA-EDRS)

CA-EDRS Features
▪ Electronic filing of death certificates ▪ On-line collaboration among multiple death registration system users (funeral directors, medical facilities, local registrar, state registrar, etc.) ▪ User-friendly death record data entry screens ▪ Electronic signature (physicians, coroner staff, local registrar) ▪ Built-in instructions and on-line help ▪ Internet accessibility ▪ Electronic authentication (User IDs/passwords)
CA-EDRS Benefits
▪ Improved efficiency and timeliness in processing of the death certificate ▪ Document tracking – records are transferred electronically with unique record number ▪ Higher quality of data (internal data checks) ▪ Electronic signatures (coroner, physicians, funeral directors, medical facility staff, local registrar) ▪ Internet accessibility ▪ Disposition/burial permits printed at funeral homes, thereby expediting services for families ▪ Reduced number of amendments and duplicates due to error checks
USING EDRS DURING AN MFI
▪ Death certificate processing does not change during a mass fatality incident ▪ Using EDRS will expedite death certificate processing ▪ Hospitals that have staff trained to use EDRS will be able to process death certificates more expediently ▪ **NOTE: EDRS accounts require training – no accounts will be issued on an emergency basis** ▪ Once the hospital has completed the decedent's name, date of death, hour of death, causes of death, and has obtained the physician signature, the hospital can then forward the record to a mortuary or the Coroner
Websites
▪ https://ca.edrs.us (CA-EDRS login page) ▪ http://www.edrs.us (EDRS homepage/general information)

FACT SHEET

INFORMATION ON THE LA COUNTY PUBLIC ADMINISTRATOR

The Public Administrator for the County of Los Angeles has a staff of deputies to provide administration of the estates of decedents who were residents of Los Angeles County. The powers of the Public Administrator are mandated by the Probate Code of the State of California

The Public Administrator should be notified by anyone (mortuary, convalescent facility, hospital or private citizen) who has knowledge of an estate of a decedent under the following circumstances:

1. Where there are no known heirs.
2. When no executor or administrator has been appointed and the estate is being wasted, uncared for or lost.
3. When the named executor of a Will fails to act and the court appoints the Public Administrator.
4. When the Will names the Public Administrator as the estate administrator.

When an heir, or heirs, wish to have the Public Administrator administer the estate for them.

To report such an estate you may call the Investigation Unit of the Public Administrator's Office at 213-974-0460 or TTY: 213-628-4010. An investigator will be available to provide assistance in determining the need for the Public Administrator to administer the estate.

http://ttc.lacounty.gov/Proptax/PA_openning.htm

FACT SHEET

HEALTH RISK FROM DEAD BODIES

KEY MESSAGE

There is no risk of contagion or infectious disease from being near human remains or for people who are not directly involved in recovery efforts.

Victims of natural disasters, accidents, or WMD events usually die from trauma and are unlikely to have acute or 'epidemic-causing' infections. In the event of an intentional release of a biological agent or natural pandemic resulting in mass casualties, the risk is greater from live victims rather than the dead. The microorganisms responsible for these diseases have limited ability to survive in a body that is cooling after death.

BASIC INFECTION CONTROL FOR STAFF HANDLING HUMAN REMAINS

The safety of personnel performing these functions is paramount.
Measures should be taken to reduce the risk of infection associated with handling dead bodies.

- Standard precautions are essential for those handling dead bodies; avoid exposure to potential pathogens and via wounds/punctures or mucus membranes. Follow universal precautions for blood and body and enteric fluids.
- Other PPE such as eyewear, gowns, and masks, may be required where large quantities or splashes of blood are anticipated.
- Appropriately dispose of used protective equipment such as gloves or other garments
- Avoid cross-contamination: personal items should not be handled while wearing soiled gloves. Hand washing is essential.
- In HazMat or WMD events, the appropriate level of PPE is required depending on the agent.
- Vehicles used for transportation should be washed carefully with a disinfectant or decontaminated if appropriate
- Human remains pouches will further reduce the risk of infection and are useful for the transport of decedents that have been badly damaged. Wrapping with plastic and a sheet may be an economical and practical containment solution.
- There is NO risk of contagion from infectious diseases simply by being near or around human remains.

FACT SHEET

HUMAN REMAINS STORAGE MYTHS AND TRUTHS: THE GOOD IDEAS

All delays between the death and autopsy hinder the medicolegal processes. All storage options should weigh the storage requirements against the time it takes to collect information that is necessary for identification, determination of the cause and circumstances of death, and next of kin notification.

WHY REFRIGERATION IS RECOMMENDED

- Most hospital morgues' refrigeration capacity will be exceeded during a disaster, especially if there are many unidentified bodies or remains recovered in the first hours of the event.
- Refrigeration between 38° and 42° Fahrenheit is the best option.
- Large refrigerated transport containers used by commercial shipping companies can be used to store up to 30 bodies. (Laying flat on the floor with walkway between).
    - Enough containers are seldom available at the disaster site.
    - Consider lightweight temporary racking systems. These can increase each container or room's capacity by 3 times.
- Refrigeration does not halt decomposition, it only delays it.
    - Will preserve a body for 1-3 months.
    - Humidity also plays a role in decomposition. Refrigeration units should be maintained at low humidity.
    - Mold can become a problem on refrigerated bodies making visual identification impossible and interfering with medicolegal processes.

WHY DRY ICE IS AN OKAY RECOMMENDATION

Dry ice (carbon dioxide (CO_2) frozen at –78.5° Celsius) may be suitable for short-term storage.

- Use by building a low wall of dry ice around groups of about 20 remains and then covering with a plastic sheet.
- About 22 lbs of dry ice per remains, per day is needed, depending on the outside temperature.
- Dry ice should not be placed on top of remains, even when wrapped, because it damages the body.
- Expensive, difficult to obtain during an emergency.
- Dry ice requires handling with gloves to avoid "cold burns."
- When dry ice melts it produces carbon dioxide gas, which is toxic. The area needs good ventilation.

FACT SHEET

HUMAN REMAINS STORAGE MYTHS AND TRUTHS: THE BAD IDEAS

WHY STACKING IS NOT RECOMMENDED

- Demonstrates a lack of respect for individuals.
- The placement of one body on top of another in cold or freezing temperatures can distort the faces of the victims, a condition which is difficult to reverse and impedes visual identification.
- Decedents are difficult to manage if stacked. Individual tags are difficult to read and decedents on the bottom can not be easily removed.

WHY FREEZING IS NOT RECOMMENDED

- Freezing causes tissues to dehydrate which changes their color; this can have a negative impact on the interpretation of injuries, as well as on attempts at visual recognition by family members.
- Rapid freezing of bodies can cause post-mortem injury, including cranial fracture.
- Handling bodies when they are frozen can also cause fracture, which will negatively influence the investigation and make the medicolegal interpretation of the examination results difficult.
- The process of freezing and thawing will accelerate decomposition of the remains.

WHY ICE RINKS ARE NOT RECOMMENDED

- Ice rinks are frequently brought up as possible storage sites. As previously mentioned, freezing has several undesirable consequences.
- A body laid on ice is only partially frozen. It eventually will stick to the ice making movement of the decedent difficult.
- Management and movement of decedents on solid ground is challenging in good circumstances. Workers having to negotiate ice walkways would pose an unacceptable safely risk.

WHY PACKING IN ICE IS NOT RECOMMENDED

- Difficult to manage due to ice weight and transport issues.
- Large amounts are necessary to preserve a body even for a short time.
- Difficult to resource or obtain during an emergency.
- Ice is often a priority for emergency medical units.
- Results in large areas of run off water.

FACT SHEET

HUMAN REMAINS STORAGE MYTHS AND TRUTHS:

OTHER ISSUES NOT DIRECTLY RELATED TO HOSPITAL STORAGE

Packing with Chemicals

- Some substances may be used to pack a decedent for a short period. These chemicals have strong odors and can be irritating to workers.
- Powdered formaldehyde and powdered calcium hydroxide may be useful for preserving fragmented remains. After these substances are applied, the body or fragments are wrapped in several nylon or plastic bags and sealed completely.

Embalming

- The most common method.
- Not possible when the integrity of a corpse is compromised, i.e., it is decomposed or in fragments.
- Embalming requires a licensed professional with knowledge of anatomy and chemistry.
- Expensive, considerable time involved for each case.
- Used to preserve a body for more than 72 hours after death; transitory preservation is meant to maintain the body in an acceptable state for 24 to 72 hours after death.
- Embalming is required for the repatriation or transfer of a corpse out of a country.

Temporary Interment - *Not a mass grave*

- Temporary burial provides a good option for immediate storage where no other method is available, or where longer-term temporary storage is needed.
- While not a true form of preservation this is an option that might be considered when there will be a great delay in final disposition.
- Temperature underground is lower than at the surface, thereby providing natural refrigeration.
- Temporary burial sites should be constructed in the following way to help ensure future location and recover of bodies.
- Trench burial for larger numbers.
- Burial should be 5 feet deep and at least 600 feet from drinking water sources.
- Leave 1 foot between bodies.
- Lay bodies in one layer only. Do not stack.
- Clearly mark each body and mark their positions at ground level.
- Each body must be labeled with a metal or plastic identification tag.

FACT SHEET

DECOMPOSITION FACT SHEET

Definition
Decomposition is the disintegration of body tissues after death, and begins at the moment of death.
Causes of Decomposition
These processes release gases that are the chief source of the characteristic odor of dead bodies as well as cause the body to swell: ▪ Autolysis: self dissolution by body enzymes released from disintegrating cells ▪ Putrefaction: action of bacteria and other microorganisms ▪ Anthropophagy: insects and animals
Factors That Affect Decomposition
▪ Temperature ▪ Humidity or dryness ▪ The surface where the body lies ▪ Burial ▪ Wrapping ▪ Insect and scavenger activity ▪ Indoors vs outdoors ▪ Water ▪ Fire ▪ Condition of the person prior to death

RECOMMENDED METHODS OF STORAGE FOR HOSPITALS

All storage options should weigh the storage requirements against the time it takes to collect information that is necessary for identification, determination of the cause and circumstances of death, next of kin notification, and length of time the decedent will need to be stored until release to the Coroner, Morgue, or private mortuary.

PROTECTING THE DECEDENT

- Decedents and their personal effects must be secured and safeguarded at all times until the arrival of the coroner's or mortuary's authorized representative, or law enforcement (if evidentiary).
- Placed in a human remains pouch or wrap in plastic and a sheet.
- If personal effects have been removed from the body, ensure the items have been catalogued (such as on the Decedent Information and Tracking Card on page 18) and are secure.
- Be sure the decedent is tagged with identification information.

REFRIGERATION IS THE RECOMMENDED METHOD OF STORAGE

- Refrigeration between 38° and 42° Fahrenheit is the best option.
- Refrigeration units should be maintained at low humidity.
- Existing hospital morgue: most hospital morgues' refrigeration capacity will be exceeded during a disaster, especially if there are many unidentified bodies or remains recovered
- Surge Morgues
    - Rooms, tents or large refrigerated transport containers used by commercial shipping companies that have the temperature controlled may also serve as surge morgues
    - May be cooled via the HVAC system, portable air conditioners, or the correct application of dry ice (see Fact Sheet: Human Remains Storage Myths and Truths: Why Dry Ice Is An Okay Recommendation on page 29)
    - Containers may be used to store up to 30 bodies by laying remains flat on the floor with walkway between

BEDS, COTS, OR RACKING SYSTEMS – NOT STACKING

- See Fact Sheet: Human Remains Storage Myths and Truths: Why Stacking is Not Recommended on page 30
- The floor can be used for storing remains, however it may be safer and easier to identify and move remains on beds, cots or racking systems
- Consider lightweight temporary racking systems. These can increase each room or container's capacity by 3 times, as well as create a specific storage location for tracking. These may be specifically designed racks for decedents, or converted storage racks (such as large foodservice shelving, 72" wide by 24" deep; ensure that these are secured and can handle the weight load).

SURGE MORGUE EQUIPMENT AND SUPPLIES CHECKLIST

Equipment and supplies for the surge morgue areas may include the following. Be sure to identify where items are stored and how to access the storage area.

Consideration	Your Facility Notes / How to Access Equipment
Staff Protection ☐ Personal protective equipment (minimum standard precautions) ☐ Worker safety and comfort supplies ☐ Communication (radio, phone)	▪ Storage area: ▪ How to access: ▪ *Notes*:
Decedent Identification ☐ Identification wristbands or other identification ☐ Method to identify each decedent (pouch label, tag or rack location) ☐ Cameras (may use dedicated digital, disposable, or instant photo cameras) ☐ Fingerprints ☐ X-rays or dental records ☐ Personal belongings bags / evidence bags	▪ Storage area: ▪ How to access: ▪ *Notes*:
Decedent Protection ☐ Human remains pouches ☐ Plastic sheeting ☐ Sheets	▪ Storage area: ▪ How to access: ▪ *Notes*:
Decedent Storage ☐ Refrigerated tents or identified overflow morgue area ☐ Storage racks ☐ Portable air conditioning units ☐ Generators for lights or air conditioning ☐ Ropes, caution tape, other barricade equipment	▪ Storage area: ▪ How to access: ▪ *Notes*:

Note about Human Remains Pouches

Through funding from the Hospital Preparedness Program (HPP) grant, the Los Angeles County (LAC) EMS Agency has provided funding for each Disaster Resource Center to purchase 100 human remains pouches as part of its cache creating a total of 1300 in LAC. In addition, through additional HPP grant funding, each HPP-participating hospital will receive 100 disaster quality human remains pouches to be pre-deployed at each facility as well as a cache stored by LAC (total of 8400 in LAC).

MASS FATALITY PANDEMIC INFLUENZA EXERCISE

SAMPLE PRE AND POST TEST QUESTIONS

	Question	True or False
1.	There is no risk of contagion or infectious disease from being near human remains for people who are not directly involved in handling the bodies. **True**: Unless you are directly handling decedents, there is no risk (including no records of epidemics or outbreaks) from being near dead bodies—and for those handling decedent, basic standard precautions are recommended.	**True**
2.	You can contract influenza (flu) from passive exposure (being near) decedents who have died from flu. **False**: You cannot contract influenza from passive exposure (being near) to dead bodies—dead bodies don't cough. And for those handling decedents, basic standard precautions are all that is necessary.	**False**
3.	During the winter, "influenza" is the most commonly noted cause of death listed on death certificates. **False**: Because diagnostic/confirmatory influenza tests are rarely conducted, and because of the natural progression of disease (from illness to potential subsequent death), while influenza may have been the preceding cause of death, it is rarely listed on death certificates. Instead, pneumonia and other secondary illness (cardiac arrest, etc.) are the predominant listed cause of death.	**False**
4.	Counting the number of people who have "influenza" listed as the cause of death on their death certificate is not an accurate indicator of the number of people who have actually died from flu. **True**: Because of the lag time and natural progression form initial infection to death, flu is rarely identified as the cause of death on death certificates. Instead "pneumonia" is used as a surrogate measure to attempt to better estimate the number of deaths that may have been caused by flu.	**True**
5.	The Coroner is required to investigate the cause of death for every case. **False**: The code requires the Coroner "to determine the circumstances, manner and cause of all violent, sudden, or unusual deaths: including unattended deaths wherein the deceased has not been seen by a doctor in the 20 days prior to death."	**False**
6.	The last flu pandemic resulted in fewer U.S. deaths than what is typically expected from seasonal flu. **True**: The last influenza pandemic (the "Hong Kong Flu" of 1968) resulted in 34,000 US deaths; less than what is expected of a typical US influenza season (36,000 death expected annually).	**True**
7.	By definition, influenza pandemics are more severe (have significantly higher resulting fatality rates) as compared to seasonal strains of influenza. **False:** A pandemic simply means "worldwide illness." A pandemic may not necessarily result in more deaths than what we experience every season from seasonal flu, and the last pandemic (the Hong Kong flu of 1986) actually resulted in fewer U.S. deaths (34,000) than what we expect every year from seasonal flu (approximately 36,000 annually).	**False**
8.	The attending physician must complete the medical portion of the death certificate within 72 hours of the death. **False:** The attending physician is required to complete this medical portion within 15 hours of the death.	**False**

	Question	True or False
9.	A physician signing the death certificate is legally responsible for the cause(s) of death listed on the death certificate. **False**: The physician is legally responsible for completing the medical portion with the causes of death, but it is the entire death certificate that is the legal document, not the causes of death themselves.	**False**
10.	Hospitals will be required to have a mass fatality management plan. **True:** Joint Commission Standards: 2008: EC.4.18.5 which asks for a plan to describe how the hospital will manage mortuary services. The standard will be reassigned in 2009 to EM.02.02.11. It is also a requirement of the Hospital Preparedness Program.	**True**
11.	The Public Administrator gets involved in Decedent Affairs when: ▪ No next-of-kin are found/come forward ▪ Next-of-kin reside outside the U.S., or decline to act for the Decedent ▪ Assets are "subject to loss, injury, waste, or misappropriation…" (Prob. C. §7601(a)) ▪ The appointed administrator or executor fails to act (properly) **True:** As mandated by the Probate Code of the State of California.	**True**
12.	The Public Administrator will investigate any case referred by: ▪ A public officer (§7600) ▪ A hospital, nursing home, etc. (§7600.5) ▪ A mortuary (§7600.6) ▪ A court (§7620(c)) ▪ Any person (§7620(b)) **True:** As mandated by the Probate Code of the State of California.	**True**
13.	The Coroner is the only individual allowed to sign a death certificate. **False**: Others with this ability/responsibility include the attending physician and emergency department physician.	**False**

WEB RESOURCES

Los Angeles County

- **Department of Coroner**: http://coroner.co.la.ca.us
- **Department of Health Services Emergency Medical Services Agency** Medical Alert Center and Disaster Management Unit: http://ems.dhs.lacounty.gov
- **Department of Public Health**
  - Acute Communicable Disease Control: http://www.lapublichealth.org/acd
  - Data Collection and Analysis Unit: http://www.lapublichealth.org/dca
- **Department of Mental Health**: http://www.dmh.lacounty.gov
- **Public Administrator's Office**: http://ttc.lacounty.gov/Proptax/PA_openning.htm

California

- **California Electronic Death Registration System**
  - https://ca.edrs.us (CA-EDRS login page)
  - http://www.edrs.us (EDRS homepage/general information)
- **California Health & Safety Code 103451, Definition of a Mass Fatalities Incident**: http://www.leginfo.ca.gov/cgi-bin/displaycode?section=hsc&group=103001-104000&file=103450-103490

Federal

- CDC: **Instructions for Completing the Cause-of-Death Section of the Death Certificate**, CDC National Center for Health Statistics: http://www.cdc.gov/nchs/data/dvs/blue_form.pdf
- CDC: **Interim Health Recommendations for Workers Who Handle Human Remains**: http://www.bt.cdc.gov/disasters/tsunamis/handleremains.asp
- CDC: **Disposing of Liquid Waste from Autopsies in Tsunami-Affected Areas**: http://www.bt.cdc.gov/disasters/tsunamis/pdf/tsunami-autopsyliquidwaste.pdf
- CDC: **Standard Precautions Guidelines**: www.cdc.gov/ncidod/dhqp/gl_isolation_standard.html
- DHHS: **Radiation Event Medical Management: Management of the Deceased**: http://www.remm.nlm.gov/deceased.htm
- OSHA: **Health and Safety Recommendations for Workers Who Handle Human Remains**: http://www.osha.gov/OshDoc/data_Hurricane_Facts/mortuary.pdf
- CHPPM: **Guidelines for Protecting Mortuary Affairs Personnel from Potentially Infectious Materials**, October 2001: http://chppm-www.apgea.army.mil/documents/TG/TECHGUID/TG195a.pdf

Pan American Health Organization (PAHO)

- **Management of Dead Bodies After Disasters: A Field Manual for First Responders**: http://www.paho.org/english/dd/ped/DeadBodiesFieldManual.htm
- **Management of Dead Bodies in Disaster Situations**: http://www.paho.org/english/dd/ped/ManejoCadaveres.htm
- **Mass Fatality Plan Checklist for Ministries of Health and National Disaster Offices**: http://www.paho.org/english/dd/ped/deadbodies5checklist.htm
- Eberwine, Donna. **Disaster Myths That Just Won't Die**. http://www.paho.org/english/dd/pin/Number21_article01.htm
- Morgan O, Ville de Goyet Cd. **Dispelling disaster myths about dead bodies and disease: the role of scientific evidence and the media**. http://journal.paho.org/index.php?a_ID=121

Other Resources

- **International Mass Fatalities Center**: http://www.massfatalities.com/
- **National Mass Fatalities Institute**: http://www.nmfi.org/
- **Online Mass Fatalities Course**, University of Minnesota Center for Public Health Preparedness: http://cpheo.sph.umn.edu/umncphp/online/home.html

OSHA FactSheet

Health and Safety Recommendations for Workers Who Handle Human Remains

Employers and workers face a variety of health hazards when handling, or working near, human remains. Workers directly involved in recovery or other efforts that require the handling of human remains are susceptible to bloodborne viruses such as hepatitis and HIV, and bacteria that cause diarrheal diseases, such as shigella and salmonella.

General Precautions

The following precautionary measures can help employers and employees remain safe and healthy while handling human remains.

Personal Protective Equipment

- ***Hand Protection.*** When handling potentially infectious materials, use appropriate barrier protection including latex and nitrile gloves (powder-free latex gloves with reduced latex protein content can help avoid reaction to latex allergies). These gloves can be worn under heavy-duty gloves which will, in turn, protect the wearer from cuts, puncture wounds, or other injuries that break the skin (caused by sharp environmental debris or bone fragments). A combination of a cut-proof inner layer glove and a latex or similar outer layer is preferable.
- ***Foot Protection.*** Footwear should similarly protect against sharp debris.
- ***Eye and Face Protection.*** To protect your face from splashes of body fluids and fecal material, use a plastic face shield or a combination of eye protection (indirectly vented safety goggles are a good choice if available; safety glasses will only provide limited protection) and a surgical mask.

Hygiene

- Maintain hand hygiene to prevent transmission of diarrheal and other diseases from fecal materials on your hands. Wash your hands with soap and water or with an alcohol-based hand cleaner immediately after you remove your gloves.
- Give prompt care to any wounds sustained during work with human remains, including immediate cleansing with soap and clean water. Workers should also be vaccinated against hepatitis B, and get a tetanus booster if indicated.
- Never wear PPE and underlying clothing if it is damaged or penetrated by body fluids.
- Ensure disinfection of vehicles and equipment.

Ergonomic Considerations

- Lifting or moving heavy objects, particularly when done repetitively, can result in injuries to the workers involved. Human remains that have been in water for some time are likely to be even heavier than normal. Having more than one person involved in lifting the human remains will help to reduce the potential for injury. Following appropriate lifting techniques will also help to protect people, as will the use of mechanical lifts or other devices when available.

Myths

- There is no direct risk of contagion or infectious disease from being near human remains for those who are not directly involved in recovery or other efforts that require handling the remains.
- Viruses associated with human remains (e.g., hepatitis B and C, HIV, various bacteria, etc.) do not pose a risk to someone walking nearby, nor do they cause significant environmental contamination.

- The smell of human decay is unpleasant; however, it does not create a public health hazard.

Additional Information

- For more information on this, and other health-related issues affecting workers, visit OSHA's Web site at www.osha.gov. More detailed guidance addressing this topic can be found on the Centers for Disease Control and Prevention (CDC) Website at http://www.cdc.gov.

This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

For more complete information:

OSHA Occupational Safety and Health Administration

U.S. Department of Labor

www.osha.gov

(800) 321-OSHA

DSTM 9/2005

Frequently Asked Questions on the Management of Cadavers

Given the widespread interest in the topic of management of dead bodies, PAHO/WHO, the ICRC and a broad group of global experts have collaborated to produce practical decision-making guidelines on this delicate and difficult task. These frequently-asked questions are an example of the kind of information contained in a new publication on the subject, which should be ready by April 2006. Watch this web site for more news.

Information for the Public

1. Do dead bodies cause epidemics?
Dead bodies from natural disasters do not cause epidemics. This is because victims of natural disasters die from trauma, drowning or fire. They do not have epidemic causing diseases such as cholera, typhoid, malaria or plague when they die.

2. What are the health risks for the public?
The risk to the general public is negligible. They do not touch or handle dead bodies. However, there is a small risk of diarrhoea from drinking water contaminated by faecal material from dead bodies. Routine disinfection of drinking water is sufficient to prevent water borne diseases.

3. Can dead bodies contaminate water?
Potentially – yes. Dead bodies often leak faeces, which may contaminate rivers or other water sources with diarrhoeal diseases. However, people will generally avoid drinking water from any source they think has had dead bodies in it.

4. Is spraying bodies with disinfectant or lime powder effective?
No, it is not effective. It does not increase decomposition or reduce the risk of disease.

5. Local officials and journalists say there is a risk of disease from dead bodies. Are they correct?
No. The risk from dead bodies after natural disasters is misunderstood by many professionals or the media. Even local or expatriate health workers are often misinformed and contribute to the spread of rumours.

Information for Workers

6. Is there a risk for those handling the dead bodies?
For people handling the bodies (rescue workers, mortuary workers, etc.), there is a small risk from tuberculosis, hepatitis B and C, HIV and diarrhoeal diseases. However, these diseases do not last more than two days in a dead body (except for HIV that may survive up to six days). These risks can be reduced by wearing rubber boots and gloves and practicing basic hygiene (washing hands).

7. Should workers wear a mask?
The smell from decaying bodies is unpleasant, but it is NOT a health risk in well ventilated spaces/areas and wearing a mask is not required on health grounds. However, workers may feel better psychologically if they are using masks. The public should not be actively encouraged to wear masks.

Information for Authorities

8. How urgent is the collection of dead bodies?
Body collection is NOT the most urgent task after a natural disaster. The priority is to care for survivors. There is no significant public health risk associated with the presence of dead bodies. Nevertheless, bodies should be collected as soon as possible and taken away for identification.

9. Should mass graves be used to quickly dispose of the bodies?
NO. Rapid mass burial of victims is not justified on public health grounds. Rushing to dispose of bodies without proper identification does more harm than good. Mass and commingled burials (pit burials) traumatize families and communities and may have serious legal consequences (i.e., inability to recover and identify remains).

10. What should the authorities do with the bodies?
Bodies should be collected and stored, either using refrigerated containers, dry ice or temporary burial. Identification should be attempted for all human remains. Photographs should be taken and descriptive information recorded for each body. Remains should be stored (i.e. using refrigeration) or buried temporarily to allow the possibility of an expert forensic investigation in the future.

11. What is are the potential mental health issues?
The overwhelming desire of relatives (from all religions and cultures) is to identify their loved ones. All efforts to identify human remains will help. Grieving and traditional individual burial are important factors for the personal and communal recovery or healing process.

12. How should bodies of foreigners be managed?
Families of visitors killed in a disaster are more likely to insist on the identification and repatriation of the bodies. Proper identification has serious economic and diplomatic implications. Bodies must be kept for identification. Foreign consulates and embassies should be informed and INTERPOL contacted for assistance.

Information for Responders

13. I am a volunteer, how can I help?
To be helpful you should advocate for the proper recovery and management of bodies and assist in recording necessary information. You might also assist with the recovery and disposal of the dead, under direction and responsibility of a recognised coordinating authority. However, you would first need to be briefed, advised, equipped and supported for this difficult task.

14. I am a NGO, how can I help?
Providing support for families and collection of information in collaboration with the coordinating authority will best help the surviving relatives. You may also advocate for proper identification and treatment of the dead. NGOs should not be asked to carry out the identification of dead bodies, unless they are highly specialized for this task and work for and under direct supervision and responsibility of a legal authority.

15. I am a health professional, how can I help?
The survivors need you more than the dead do, but any professional help in fighting the myth of epidemics caused by dead bodies which may lead to their hasty disposal will be appreciated. Talk about this to your colleagues and any members of the mass media who may be misinformed.

16. I am a journalist, how can I help?
Your help is most critical. If you hear comments or statements regarding the need for mass burial or incineration of bodies to avoid epidemics, challenge them. Consult WHO locally. Quote this and other publications. Please do not jump on the band wagon of alarmist rumours. Be professional.

Dead Bodies Identification Form

Body/Body Part Code: (Use unique numbering and include on associated files, photographs or stored objects.)	
Possible identity of body:	
Person Reporting Name:	
Official Status:	Place & Date:
Signature:	
Recovery details (Include place, date, time, by whom and circumstances of finding. Indicate if other bodies were recovered in the same area, including name and possible relationship, if identified)	

A. PHYSICAL DESCRIPTION

A.1	**General Condition (mark one):** a)	Complete body	Incomplete body (describe):		Body Part (describe):	
	b)	Well preserved	Decomposed	Partially skeletonized	Skeletonized	
A.2	**Apparent Sex (mark one and describe evidence):**	Male	Female	Probably male	Probably female	Undetermined
		Describe evidence (genitals, beard, etc):				
A.3	**Age Group (mark one):**	Infant	Child	Adolescent	Adult	Elderly
A.4	**Physical Description (measure or mark one):**	Height (crown to heel):		Short	Average	Tall
		Weight:		Slim	Average	Fat
A.5	**a) Head Hair:**	Color:	Length:	Shape:	Baldness:	Other:
	b) Facial Hair:	None	Moustache	Beard	Color:	Length:
	c) Body Hair	Describe:				
A.6	**Distinguishing features:**	Continue on additional sheets if needed. If possible, include a sketch of the main findings.				
	Physical (e.g. shape of ears, eyebrows, nose, chin, hands, feet, nails; deformities, missing limbs/amputation)					
	Surgical implants or prosthesis (artificial limb)					
	Skin marks – (scars, tattoos, piercings, birthmarks, moles etc.)					
	Apparent injuries: include location, side					
	Dental Condition: (crowns (gold teeth), adornments, false teeth.) Describe any obvious features					

B/BP Code:_____ Dead Bodies Identification Form

B. ASSOCIATED EVIDENCE

B.1	**Clothing:**	Type of clothes, colors, fabrics, brand names, repairs. Describe in as much detail as possible
B.2	**Footwear:**	Type (boot, shoes, sandals), color, brand, size: describe in as much detail as possible
B.3	**Eyewear:**	Glasses (color, shape), contact lenses: describe in as much detail as possible
B.4	**Personal items:**	Watch, jewelry, wallet, keys, photographs, mobile phone (incl. number), medication, cigarettes, etc:. Describe in as much detail as possible
B.5	**Identity Documents**	Identity card, driving license, credit card, video club card, etc. Take photocopy if possible. Describe the information contained.

C: RECORDED INFORMATION

C.1	**Fingerprints:**	Yes	No	By whom? Stored where?:
C.2	**Photographs of body:**	Yes	No	By whom? Stored where?:

D: IDENTITY

D.1	**Hypothesis of identity:**	Explain reasons for attributing a possible identity:

E: STATUS OF BODY

Stored:	(morgue, refrigerated container, temporary burial; describe location):
	Under whose responsibility:
Released:	To whom and date:
	Authorized by:
	Final destination:

Missing Persons Form

Missing Person Number/Code: (Use unique numbering and include it on associated files, photographs or stored objects.)	
Interviewer name:	
Interviewer contact details:	
Interviewee(s) name(s):	
Relationship with missing person:	
Contact details: AddressÉ TelephoneÉ É É É É É É É É É É É É É É ..É . E-mailÉ .	
Contact person for missing person- if different from above: (who to contact in case of news: name/contact details)	

A. PERSONAL DETAILS

A.1	**Missing personÕs name:**	Include surname, fathers and/or mother name, nicknames, aliases:				
A.2	**Address/Place of residence:**	Last address & usual address if different from the former				
A.3	**Marital Status:**	Single	Married	Divorced	Widowed	Partnership
A.4	**Sex:**	Male	Female			
A.5	**If Female:**	Unmarried name:				
		Pregnant	Children	How many?		
A.6	**Age:**	Date of Birth:		Age:		
A.7	**Place of Birth, Nationality, principal language**					
A.8	**Identity Document:** Main Details (Nr etc)	if available, enclose photocopy of ID				
A.9	**Fingerprints available?**	Yes	No	Where:		
A.10	**Occupation:**					
A.11	**Religion:**					

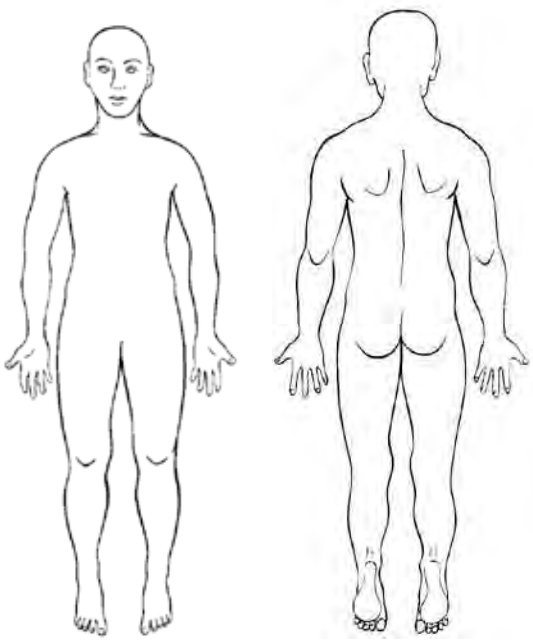
B. EVENT

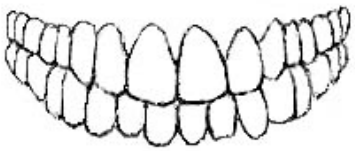
B.1	**Circumstances leading to disappearance:** (use additional sheet if necessary)	Place, date, time, events leading to disappearance, other victims and witnesses who last saw Missing Person alive (incl. name and address):		
	Has this case been registered/ denounced elsewhere?	Yes	No	With whom/Where:
B.2	**Are other family members missing, and if so, have they been registered/ identified?**	List name, relationship, status:		

MP Nr/Code:_____ Missing Persons Data

C. PHYSICAL DESCRIPTION

C.1	**General description** (indicate exact measure, or approximate AND circle the corresponding group):	Height (exact/estimated?):		Short	Average	Tall
		Weight:		Slim	Average	Fat
C.2	**Ethnic group/skin color:**					
C.3	**Eye color:**					
C.4	**a) Head hair:**	Color:	Length:	Shape:	Baldness:	Other:
	b) Facial hair:	None	Moustache	Beard	Color:	Length:
	c) Body hair	Describe				
C.5	**Distinguishing features:** **Physical** e.g. shape of ears, eyebrows, nose, chin, hands, feet, nails, deformities	Continue on additional sheets if needed. Use drawings and/or mark the main findings on the body chart.				
	Skin marks Ð Scars, tattoos, piercings, birthmarks, moles, circumcision, etc.					
	Past injuries/ amputations -include location, side, fractured bone, joint (e.g., knee), and if person limped					
	Other major medical conditions - operations, diseases, etc.					
	Implants - pacemaker, artificial hip, IUD, metal plates or screws from operation, prosthesis, etc.					
	Types of medications - used at time of disappearance					



C.6	**Dental Condition:** Please describe general characteristic, especially taking into account the following: • Missing teeth • Broken teeth • Decayed teeth • Discolorations, such as stains from disease, smoking or other • Gaps between teeth • Crowded or crooked (overlapping) teeth • Jaw inflammation (abscess) • adornments (inlays, filed teeth etc) • any other special feature **Dental Treatment:** Has the Missing Person received any dental treatment such as ▪ Crowns, such as gold-capped teeth ▪ Color: gold, silver, white ▪ Fillings (incl. color if known) ▪ False teeth (dentures)- upper, lower ▪ Bridge or other special dental treatment ▪ Extraction Also indicate wherever there is uncertainty (for example, the family member may know that an upper left front tooth is missing, but is unsure which one).	If possible, use a drawing, and/or indicate the described features in the chart below If the missing person is a child, please indicate which baby teeth have erupted, which have fallen out and which permanent teeth have erupted and use the chart below **BABY/PRIMARY TEETH** **TOP**  **RIGHT** **LEFT**  **BOTTOM** **ADULT/PERMANENT TEETH** **TOP** **RIGHT** **LEFT**  **BOTTOM**

MP Nr/Code:_____ Missing Persons Data

D. PERSONAL EFFECTS

D.1	**Clothing:** (worn when last seen/at time of disaster)	Type of clothes, colors, fabrics, brand names, repairs: describe in as much detail as possible
D.2	**Footwear: :** (worn when last seen/at time of disaster)	Type (boot, shoes, sandals), color, brand, size: describe in as much detail as possible
D.3	**Eyewear:**	Glasses (color, shape), contact lenses: describe in as much detail as possible
D.4	**Personal items:**	Watch, jewelry, wallet, keys, photographs, mobile phone (incl. number), medication, cigarettes, etc: describe in as much detail as possible
D.5	**Identity documents: :** (which the person was/might have been carrying when last seen/at time of disaster)	Identity card, driving license, credit card, video club card, etc. Take photocopy if possible. Describe the information contained.
D.6	**Habits:**	Smoker (cigarettes, cigars, pipes), chewing tobacco, betel nut, alcohol, etc.: Please describe, incl. quantity
D.7	**Doctors, Medical records, X-rays:**	Give details of doctor, dentist, optometrist, or other
D.8	**Photographs of missing person:**	If available, enclose photos or copies of photos: as recent and clear as possible, ideally smiling (with teeth visible). Also, photos of clothing worn when disappeared.

Note: The information collected in this form will be used for the search and identification of the missing person. Its content is confidential and any use outside of the intended context will need explicit consent by the interviewee.

Place and date of interview: É ...É É É É É É ..

Interviewer signature: É É É É É É É É É É É É É É Interviewee signature: É É É É .É É É É É É É É É

If requested, a copy of this form with contact details of interviewer should be made available to the interviewee.

Sequential Numbers for Unique Referencing

See Chapter 6, Box 6.1, for recommended unique numbering (place-team/person-number). When using the list below, cross each number off the list when it is used to avoid using it twice.

001	051	101	151	201	251	301	351	401	451
002	052	102	152	202	252	302	352	402	452
003	053	103	153	203	253	303	353	403	453
004	054	104	154	204	254	304	354	404	454
005	055	105	155	205	255	305	355	405	455
006	056	106	156	206	256	306	356	406	456
007	057	107	157	207	257	307	357	407	457
008	058	108	158	208	258	308	358	408	458
009	059	109	159	209	259	309	359	409	459
010	060	110	160	210	260	310	360	410	460
011	061	111	161	211	261	311	361	411	461
012	062	112	162	212	262	312	362	412	462
013	063	113	163	213	263	313	363	413	463
014	064	114	164	214	264	314	364	414	464
015	065	115	165	215	265	315	365	415	465
016	066	116	166	216	266	316	366	416	466
017	067	117	167	217	267	317	367	417	467
018	068	118	168	218	268	318	368	418	468
019	069	119	169	219	269	319	369	419	469
020	070	120	170	220	270	320	370	420	470
021	071	121	171	221	271	321	371	421	471
022	072	122	172	222	272	322	372	422	472
023	073	123	173	223	273	323	373	423	473
024	074	124	174	224	274	324	374	424	474
025	075	125	175	225	275	325	375	425	475
026	076	126	176	226	276	326	376	426	476
027	077	127	177	227	277	327	377	427	477
028	078	128	178	228	278	328	378	428	478
029	079	129	179	229	279	329	379	429	479
030	080	130	180	230	280	330	380	430	480
031	081	131	181	231	281	331	381	431	481
032	082	132	182	232	282	332	382	432	482
033	083	133	183	233	283	333	383	433	483
034	084	134	184	234	284	334	384	434	484
035	085	135	185	235	285	335	385	435	485
036	086	136	186	236	286	336	386	436	486
037	087	137	187	237	287	337	387	437	487
038	088	138	188	238	288	338	388	438	488
039	089	139	189	239	289	339	389	439	489
040	090	140	190	240	290	340	390	440	490
041	091	141	191	241	291	341	391	441	491
042	092	142	192	242	292	342	392	442	492
043	093	143	193	243	293	343	393	443	493
044	094	144	194	244	294	344	394	444	494
045	095	145	195	245	295	345	395	445	495
046	096	146	196	246	296	346	396	446	496
047	097	147	197	247	297	347	397	447	497
048	098	148	198	248	298	348	398	448	498
049	099	149	199	249	299	349	399	449	499
050	100	150	200	250	300	350	400	450	500

Body Inventory Sheet

Body ID Number	Recovery		Storage		Information recorded		Characteristics (Apparent)			Remarks
	Date	Place	Date	Location	Dead bodies Identification Form	Photos	Sex	Age	Presumed identity	
					Y-yes N-No	Y-yes N-No	M-male F-female U-unknown	I-infant C-child A1-adolescent A2-adult E-elderly		

FATALITY MANAGEMENT TOOLKIT REFERENCE PAGE

Publications/Videos

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Useful Websites

- Alabama Department of Public Health Center for Emergency Preparedness
  www.adph.org/CEP
- Centers for Disease Control and Prevention
  www.cdc.gov
- National Mass Fatality Institute
  www.nmfi.org
- University of Minnesota's Center for Infectious Disease Research and Policy (CIDRAP)
  www.pandemicpractices.org

Contact Information
County EMA Directors

Autauga	Robert "Rocky" Milliman	334-361-3758
Baldwin	Leigh Anne Ryals	251-972-6807
Barbour	Webster Hugh Boyd	334-688-1387
Bibb	Wayne Hayes	205-926-3113
Blount	Max Armstrong	205-625-4121
Bullock	Fred Hollon, Acting Director	334-738-3883
Butler	Bob Luman	334-382-7911
Calhoun	Daniel Long	256-435-0540
Chambers	Donald A. (Donnie) Smith	334-576-0911
Cherokee	Beverly Daniel	256-927-3367
Chilton	Bill Collum	205-755-0900
Choctaw	Jimmy Cowan	205-459-5512
Clarke	Roy Waite	251-275-8775
Clay	Theresa Daugherty	256-396-5886
Cleburne	Steve Swafford	256-463-7130
Coffee	John C. Tallas	334-894-5415
Colbert	Mike Melton	256-386-8558
Conecuh	Johnny Brock	251-578-5911
Coosa	Lester Sellers	256-377-2418
Covington	Kristi Stamnes	334-427-4911
Crenshaw	Jessica Tomlin-Seabrook	334-335-4538
Cullman	Phyllis Little	256-739-5410
Dale	Robert Marsh	334-774-2214
Dallas	Rhonda Abbott	334-874-2515
Dekalb	Michael Leath	256-845-8569
Elmore	Eric Jones	334-567-6451
Escambia	David Adams	251-867-0232
Etowah	Deborah Gaither	256-549-4575
Fayette	Scott Porter	205-932-4510
Franklin	Roy Gober,	256-332-8890
Geneva	Margaret Mixon	334-684-5677
Greene	Hodges Smith	205-372-6969
Hale	Russell Weeden	334-624-8160
Henry	Paul Brown	334-585-6702

Houston	Clark Matthews	334-794-9720
Jackson	Victor Manning	256-574-9344
Jefferson	Allen W. Kniphfer	205-254-2039
Lamar	Johnny Bigham	205-695-7105
Lauderdale	George M. Grabryan Jr.	256-760-6363
Lawrence	Hillard Frost	256-974-7641
Lee	Kathrine Russell	334-749-8161
Limestone	Spencer Black	256-232-2631
Lowndes	Walter S. Hill	334-548-2569
Macon	Judy Kinebrew	334-724-2626
Madison	John "Rusty" Russell	256-427-5130
Marengo	Kevin McKinney	334-295-8870
Marion	Jimmy Mills	205-921-4555
Marshall	Anita McBurnett	256-571-7329
Mobile	Walt Dickerson	251-460-8000
Monroe	Tommy Booker	251-575-8154
Montgomery	Steve Jones	334-241-2820
Morgan	Eddie Hicks	256-351-4620
Perry	DeAndrae Kimbrough	334-683-2236
Pickens	Ken Gibson	205-367-2009
Pike	Larry Davis	334-566-8272
Poarch Creek	April Sells	251-368-9136
Randolph	Donnie Knight	256-357-0014
Russell	William Alexander	334-291-5079
Shelby	Don Greene	205-669-3999
St Clair	Ellen Haynes	205-884-6800
Sumter	Margaret A. Bishop	205-652-6347
Talladega	Nelson Bates	256-761-2125
Tallapoosa	Joe Paul Boone	256-825-1078
Tuscaloosa	David Hartin	205-349-0150
Walker	Johnny Burnette	205-384-7233
Washington	Stewart Jackson	251-847-2911
Wilcox	Joyce Williams	334-682-4843
Winston	James Burnett	205-489-2747

An online list can be viewed on the AEMA website at www.ema.alabama.gov.

Contact Information
County Coroners/Medical Examiners

Autauga County Coroner	Billy Brown	334-361-3787
Baldwin County Coroner	Jim Small	251-970-4051
Barbour County Coroner	Sydney L. (Chip) Chapman, Jr.	334-687-3514
Bibb County Coroner	Downey McGee	205-926-3114
Blount County Coroner	John Mark Vaughn	205-541-0211
Bullock County Coroner	Sidney Jernigan	334-738-2820
Butler County Coroner	Wayne Garlock	334-9894
Calhoun County Coroner	Pat Brown	256-591-0346
Chambers County Coroner	Jeff Jones	334-864-9521
Cherokee County Coroner	Bobby Don Rogers	256-927-6612
Chilton County Coroner	Randall Yeargan	205-294-0002
Choctaw County Coroner	Rocky Bumpers, Sr.	205-459-2515
Clarke County Coroner	Kevin Brunson	251-246-5718
Clay County Coroner	Dale Rush	256-354-7888
Cleburne County Coroner	Rudy Rooks	256-463-2735
Coffee Co Coroner - Elba Division	Marvin McIlwain	334-897-8564
Coffee Co Coroner - Enterprise Division	Robert Preachers	334-347-4000
Colbert County Coroner	Carlton Utley	256-412-5347
Conecuh County Coroner	Clayton Cobb, Jr.	251-578-3511
Coosa County Coroner	Alan Wingfield	256-839-6338
Covington County Coroner	Norman Hobson	334-222-4567
Crenshaw County Coroner	Ronald Turner	334-335-5891
Cullman County Coroner	Gary Murphree	256-734-1821
Dale County Coroner	Woody Hilboldt	334-774-5348
Dallas County Coroner	Alan Dailey	334-874-8034
DeKalb County Coroner	Tom Wilson	256-638-2700
Elmore County Coroner	Tim Ellison	334-567-7880
Escambia County Coroner	Daniel Raulerson, M.D.	334-867-3606
Etowah County Deputy	Alan Hicks	205-589-6652
Fayette County Coroner	Billy Joe Owens	205-932-7288
Franklin County Coroner	Elzie Malone	256-356-4818
Geneva County Coroner	Max Motley	334-684-5610
Greene County Coroner	Ronald Smith	205-523-3021
Hale County Coroner	Howard Paige	334-624-4299

Henry County Coroner	Derek Wright	334-693-3371
Houston County Coroner	Robert Byrd	334-677-4877
Jackson County Coroner	John David Jordan	256-244-0500
Jefferson County Coroner	Dr. Robert Brissie	205-930-3603
Lamar County Coroner	Marchall Guyton	205-698-9146
Lauderdale County Coroner	Andy High	256-760-5750
Lawrence County Coroner	Micah Coffey	256-355-6321
Lee County Coroner	Bill Harris	334-737-3620
Limestone County Coroner	Mike West	256-233-6400
Limestone County Deputy Coroner	Barry Jones	256-233-6400
Lowndes County Coroner	Audrey Marlette	334-268-3174
Macon County Coroner	Hal Bentley	334-727-0140
Madison County Coroner	Bobby Berryhill	256-536-9197
Marengo County Coroner	Stuart Eatmon	334-295-1112
Marion County Coroner	Randy Jackson	205-921-3197
Marshall County Coroner	Marlon Killion	256-878-4109
Monroe County Coroner	Robert Malone	251-282-9225
Montgomery County Coroner	David Thrasher, MD	334-281-4140
Morgan County Coroner	Russell Beard	256-353-2996
Perry County Coroner	George Pullom	334-628-8177
Pickens County Coroner	Chad Harless	205-399-1346
Pike County Coroner	Jerry Williams	334-566-5083
Randolph County Coroner	Randy Gibbs	334-863-4141
Russell County Coroner	Arthur Sumbry, Jr.	334-297-4587
Russell County Deputy	Richard Tyson	334-297-4587
Shelby County Coroner	Diana Hawkins	205-669-3846
St. Clair County Coroner	Dennis Russell	205-699-3181
Sumter County Coroner	Terry Peeler	205-742-8511
Talladega County Coroner	Jerry Castleberry	256-245-4884
Tallapoosa County Coroner	Mike Knox	256-397-2572
Walker County Coroner	Poe J.C.	205-282-1085
Washington County Coroner	Shane Thornton	251-847-6749
Washington County Deputy	Elizabeth Clark	251-847-6749
Wilcox County Coroner	Mark Ramsey	334-682-4374
Winston County Coroner	Larry Gilliland	205-486-2204