



CERT Unit 4: Disaster Medical Operations – Part 2

Participant Manual



FEMA





CERT Unit 4: Disaster Medical Operations – Part 2

In this unit you will learn about:

- ❑ **Mass Casualty Incidents:** How to assist first responders in responding to mass casualty incidents.
- ❑ **Functions of Disaster Medical Operations:** Major functions of disaster medical operations.
- ❑ **Disaster Medical Treatment Areas:** Types of medical treatment areas.
- ❑ **Head-to-Toe Assessment:** How to perform a head-to-toe assessment to identify and treat injuries.
- ❑ **Public Health Considerations:** How to maintain hygiene and sanitation.

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SECTION 1: UNIT 4 OVERVIEW

Unit Objectives

At the end of this unit, you should be able to:

1. Explain the role of the CERT volunteer during a mass casualty incident;
2. Describe the functions of disaster medical operations;
3. Describe how to set up survivor treatment areas;
4. Perform head-to-toe patient assessments; and
5. Take appropriate sanitation and hygiene measures to protect public health.

SECTION 2: MASS CASUALTY INCIDENTS

Mass casualty incidents are incidents in which the number of casualties overwhelms local resources. While these incidents are infrequent, CERT volunteers can play an important role by supporting local resources in responding to the incident.

Examples of mass casualty incidents include:

- Commuter train derailment;
- Multi-car accident;
- Bus accident;
- Building collapse; and
- Natural disasters (e.g., tornadoes).

In mass casualty incidents, first responder personnel:

- Establish command and control of the incident area;
- Conduct a scene size-up and set-up;
- Send survivors with relatively minor injuries to a holding area to await treatment;
- Identify survivors who require life-saving interventions and treat them immediately;
- Identify deceased victims as well as survivors too severely injured to save;
- Manage medical transportation for survivors who require additional treatment;
- Secure the area to protect first responders, survivors, and evidence for law enforcement investigations; and
- Remove debris and other safety or health threats.

In addition to providing critical life-saving interventions, first responders must organize a likely chaotic situation when they arrive on scene. To support first responders, CERT volunteers must understand their role during mass casualty incidents.

Role of CERT Volunteers during Mass Casualty Incidents

Whether dispatched to the scene or located nearby by coincidence, the first task of a CERT volunteer is to conduct a scene size-up. Take a moment to look around the scene and determine the appropriate course of action.

- Call 9-1-1 and provide the operator with the information gathered during your initial size-up.
- Put on your personal protective equipment (PPE), and any CERT affiliated gear, such as a hat, vest, or shirt.
- Locate the nearest first responder and identify yourself as a CERT volunteer. Give them your local agency affiliation.
- If a first responder is not available, assess the situation and determine whether you can provide life-saving interventions, such as controlling bleeding or opening an airway.
- Once responders have arrived, provide them with detailed information from your size-up, and ask how you may be of assistance. Again, communicate your CERT affiliation to first responder personnel.

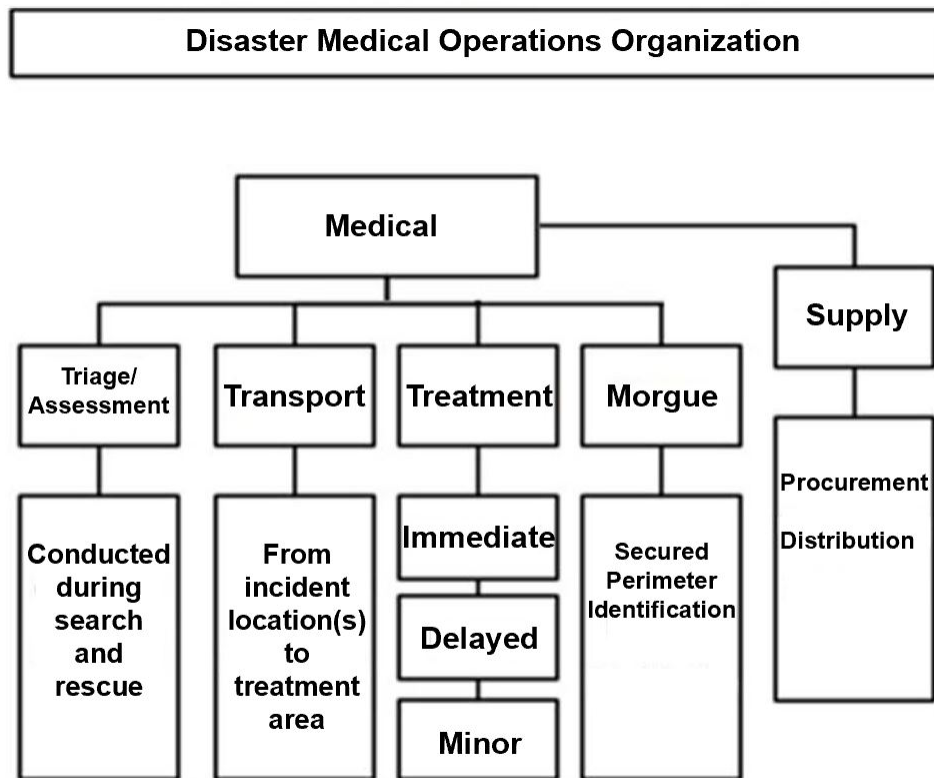
- For your safety, first responders may ask you to leave the area. After leaving, report the incident and your role to your CERT Team Leader and/or local agency CERT affiliation.
- Communication is key for supporting first responders. CERT volunteers can provide valuable information to support an effective response.

SECTION 3: FUNCTIONS OF DISASTER MEDICAL OPERATIONS

Disaster medical operations are the tasks associated with survivor treatment and support during a mass casualty incident. The major functions of disaster medical operations are:

- **Triage/Assessment:** The initial assessment and sorting of survivors for treatment based on the severity of their injuries;
- **Treatment:** The medical services provided to survivors;
- **Transport:** The movement of survivors from the scene to the treatment area or medical facility;
- **Morgue:** The temporary holding area for patients who died at the scene or the treatment area; and
- **Supply:** The hub for getting and distributing supplies.

Image 4.11: Disaster Medical Operations Organization



Disaster Medical Operations Organization showing the functions of disaster medical operations: Triage/Assessment, Transport, Treatment, Morgue, and Supply

Triage/assessment and transport are functions of both search and rescue operations and medical operations.

SECTION 4: ESTABLISHING MEDICAL TREATMENT AREAS

As soon as injured survivors are confirmed, first responders will begin to set up one or more treatment area(s). The location of treatment areas will take into consideration safety for rescuers and survivors, as well as, ease of access to resources (e.g., medical supplies, transport areas). First responders may call on CERT volunteers to help establish treatment areas or supply needs.

Decentralized Treatment Areas: It is sometimes necessary to set up more than one medical treatment location. The severity of the damage, number of injuries and casualties, and the safety of the immediate environment determine where the initial treatment area(s) should be located. Having multiple treatment areas can provide life-saving interventions when a central location is too far away from the initial treatment area.

- A medical treatment location should be set up a safe distance from, but not too far from, each of the damage sites.
- Each treatment location should include physically separated treatment areas for survivors and a morgue.
- Survivors remain under treatment at the location until first responders can transport them to a location for professional medical care.

Centralized Treatment Areas: In an event with few injured survivors at several sites, first responders may need to establish one central medical treatment location. A centralized location may need to be set up even when there are decentralized sites established.

- The location should include physically separated treatment areas and a morgue.
- Move survivors to the treatment area from where they were initially rescued, assessed, and treated. They should remain under treatment there until first responders can transport them to a location for professional medical treatment.
- A central medical treatment area facilitates the effective use of resources since a limited number of medical operation personnel in one location can take care of a greater number of survivors.
- First responders and other medical professionals will generally be able to transport the injured more efficiently from one central location than from multiple decentralized locations.
- Move the deceased to the morgue, which should be separated from the survivor treatment area, in the centralized treatment area.

Whether a treatment area is centralized or is one in several decentralized areas, the location(s) selected should be:

- Accessible by transportation vehicles (ambulances, trucks, helicopters, etc.); and
- Expandable.

Safety for Rescuers and Survivors

CERT volunteers may play a role in light search and rescue operations. Unit 7: Light Search and Rescue will cover this subject more in depth. As survivors are located,

rescued, and assessed, they are moved to a location where medical personnel can treat them. As a reminder, the severity of the damage, number of injuries and casualties, and the safety of the immediate environment determine where the initial treatment area(s) should be located. In all cases, your individual safety is the number one priority.

- In structures with light damage, CERT members assess the survivors as they find them. Further medical treatment is performed in a safe location inside the designated treatment areas.
- In structures with moderate damage, CERT members assess the survivors as they find them; however, survivors are sent to a medical treatment area a safe distance from the incident.
- CERT members are not to enter a building with heavy damage under any circumstances.

CERT volunteers should never declare or attempt to move a patient who has died. If you find a deceased person (or a suspected deceased person), you should document the location and notify medical personnel.

SECTION 5: CONDUCTING HEAD-TO-TOE ASSESSMENTS

Conducting assessments and providing rapid treatment are the first steps CERT volunteers take when working with a patient.

During an assessment, you should look for:

- Severe bleeding;
- Low body temperature; and
- Airway obstruction.

A head-to-toe assessment goes beyond the immediate life-threatening injuries to try to determine the nature of the patient's injury. Perform the entire assessment before initiating treatment.

Do not conduct an assessment if a patient requires immediate care to prevent serious injury or death. In these cases, CERT volunteers should administer the necessary treatment before they follow up with an assessment.

Objectives of Head-to-Toe Assessments

The objectives of a head-to-toe assessment are to:

- Determine, as clearly as possible, the extent of injuries;
- Determine what type of treatment the patient needs; and
- Document injuries.

Remember to wear your PPE when conducting head-to-toe assessments.

What to Look for in Head-to-Toe Assessments

The medical community uses the acronym DCAP-BTLS to remember what to look for when conducting a rapid assessment. DCAP-BTLS stands for the following:

- Deformities;
- Contusions (bruising);
- Abrasions;
- Punctures;
- Burns;
- Tenderness;
- Lacerations; and
- Swelling.

When conducting a head-to-toe assessment, CERT volunteers should look for DCAP-BTLS in all parts of the body.

Remember to provide IMMEDIATE treatment for life-threatening injuries.

Pay careful attention to how people have been hurt (i.e., what caused the harm) because it provides insight to probable injuries suffered.

How to Conduct a Head-to-Toe Assessment

Whenever possible, CERT volunteers should ask the person about any injuries, pain, bleeding, or other symptoms. If the patient is conscious, CERT members should always ask permission to conduct the assessment. The patient has the right to refuse treatment.

Be sure to talk with the conscious patient to reduce anxiety.

Head-to-toe assessments should be:

- Conducted on all survivors, even those who seem all right;
- Verbal (if the patient is able to speak); and
- Hands-on. Do not be afraid to remove clothing to look.

Make sure you conduct each head-to-toe assessment the same way; doing so will make the procedure quicker and more accurate with each assessment. Remember to:

- Pay careful attention;
- Look, listen, and feel for anything unusual;
- Suspect a spinal injury in all unconscious survivors and treat accordingly; and
- Check your own hands for patient bleeding as you perform the head-to-toe assessment.

Check (DCAP-BTLS) body parts from the head to toe for fractured bones and soft tissue injuries in the following order:

1. Head;
2. Neck;
3. Shoulders;
4. Chest;
5. Arms;
6. Abdomen;
7. Pelvis; and
8. Legs.

While conducting a head-to-toe assessment, CERT volunteers should always check for:

- Pulse, Movement, Sensation (PMS) in all extremities; and
- Medical ID emblems on bracelet or necklace.

Closed-Head, Neck, and Spinal Injuries

When conducting head-to-toe assessments, rescuers may find survivors who have or may have suffered closed-head, neck, or spinal injuries.

A closed-head injury is a concussion-type injury as opposed to a laceration, or tear wound, although lacerations can indicate that the survivor has suffered a closed-head injury.

The main objective when CERT members encounter suspected injuries to the head or spine is to do no harm. You should minimize movement of the head and spine while treating any life-threatening conditions.

The signs of a closed-head, neck, or spinal injury most often include:

- Change in consciousness;
- Inability to move one or more body parts;
- Severe pain or pressure in head, neck, or back;
- Tingling or numbness in extremities;
- Difficulty breathing or seeing;
- Heavy bleeding, bruising, or deformity of the head or spine;
- Blood or fluid in the ears or nose;
- Bruising behind the ear;
- “Raccoon” eyes (bruising around eyes);
- “Uneven” pupils;
- Seizures; and
- Nausea or vomiting.

If survivors are exhibiting any of these signs or if the survivor is found under collapsed building material or heavy debris, you should treat them as having a closed-head, neck, or spinal injury.

Stabilizing the Head

During a disaster, ideal equipment is rarely available. CERT members may need to be creative by:

- Looking for materials — a door, desktop, building materials — to use as a backboard; and
- Looking for items — towels, draperies, or clothing — to stabilize the head on the board by tucking them snugly on either side of the head to immobilize it.

Only move survivors to increase the safety of the rescuer and survivor or when professional help will be delayed, and a medical treatment area is established to care for multiple survivors.

- Moving patients with suspected head, neck, or spinal injury requires sufficient patient stabilization. However, if the rescuer or patient is in immediate danger, safety is more important than any potential spinal injury and the rescuer should move the patient from the area as quickly as possible.

Unit 7: Light Search and Rescue will cover techniques for moving survivors.

Exercise 4.1: Conducting Head-to-Toe Assessments

Purpose: This exercise allows you to practice performing head-to-toe assessments on each other.

Complete this exercise as many times as possible with different “patients.”

Instructions:

1. Break down into groups of two. One person will play the rescuer, the other person will be the patient.
2. The patients will lie on the floor on their backs and close their eyes.
3. The rescuers will conduct a head-to-toe assessment on the patients, following the procedure demonstrated earlier. The rescuer will then repeat the head-to-toe assessment.
4. After the rescuer has made at least two observed head-to-toe assessments, the patient and rescuer will change roles.
5. Each new rescuer will perform at least two head-to-toe assessments.

SECTION 6: PUBLIC HEALTH CONSIDERATIONS

When disaster survivors are sheltered together for treatment, public health becomes a concern. CERT members and CERT programs should take measures to avoid the spread of disease.

The primary public health measures include:

- Maintaining proper hygiene;
- Maintaining proper sanitation;
- Purifying water (if necessary); and
- Preventing the spread of disease.

Maintaining Hygiene

The maintenance of proper personal hygiene is critical even under makeshift conditions. Some steps individuals should take to maintain hygiene are listed below.

- Wash hands frequently using soap and water. Hand washing should be thorough (at least 15 to 20 seconds of vigorous rubbing on all surfaces of the hand). Alcohol-based hand sanitizers, which do not require water, are a good alternative to hand washing. The U.S. Centers for Disease Control (CDC) recommends products that are at least 60 percent alcohol. To use an alcohol-based hand sanitizer, apply about ½ teaspoon of the product to the palm of your hand. Rub your hands together, covering all surfaces, until hands are dry.
- Wear non-latex exam gloves at all times. Change or disinfect gloves after examining and/or treating each patient. Under field conditions, individuals can use rubber gloves if sterilized between treating survivors using bleach and water (one-part bleach to 10 parts water).
- Keep dressings sterile. Do not remove the wrapping from dressings until use. After opening, use the entire package of dressing, if possible.
- Wash any areas using soap and water or diluted bleach that come in contact with body fluids.

Practice proper hygiene techniques even during exercises.

Maintaining Sanitation

Poor sanitation is a major cause of infection. CERT medical operations personnel can maintain sanitary conditions by following some simple steps.

- Controlling the disposal of bacterial sources (e.g., soiled exam gloves, dressings).
- Putting waste products in plastic bags, tying off the bags, and marking them as medical waste. Keep medical waste separate from other trash and dispose of it as hazardous waste.
- Burying human waste. Select a burial site away from the operations area and mark the burial site for later cleanup.

Water Purification

Potable water supplies are often in short supply during a disaster. Purify water for drinking, cooking, and medical use by heating it to a rolling boil for 1 minute or by using water purification tablets or non-perfumed liquid bleach.

The bleach to water ratios are:

- 8 drops of bleach per gallon of water; and
- 16 drops per gallon if the water is cloudy or dirty.

Let the bleach and water solution stand for 30 minutes. Note, if the solution does not smell of bleach, add another six drops of bleach and let the solution stand for 15 minutes.

Rescuers should not put anything on wounds other than purified water. The use of other solutions (e.g., hydrogen peroxide) on wounds must be the decision of trained medical personnel.

UNIT 4 SUMMARY

The key points of this unit are:

- During a mass casualty incident, where the number of injured and dead overwhelms local resources, CERT volunteers should:
 - Identify yourself as a CERT volunteer and your local agency affiliation.
 - Assess the situation and provide life-saving interventions if a first responder is not available.
 - Provide responders with detailed information from your size-up when they arrive on scene.
 - Remember that communication is key for supporting first responders.
- Disaster medical operations include these major functions:
 - Triage/Assessment;
 - Treatment;
 - Transport;
 - Morgue; and
 - Supply.
- Treatment areas will take into consideration safety for rescuers and survivors and proximity to resources.
- Depending on the circumstances, a first responder may establish a central medical treatment location and/or treatment locations at multiple incident sites with many injured survivors.
- Head-to-toe assessments should be hands-on and verbal. Always conduct head-to-toe assessments in the same way—beginning with the head and moving toward the feet. If you suspect injuries to the head, neck, or spine, the main objective is to not cause additional injury. Use in-line stabilization and a backboard if you must move the survivor.
- To safeguard public health, take measures to maintain proper hygiene and sanitation, and purify water, if necessary. In advance, plan all public health measures and practice during exercises.

Homework Assignment

Read and become familiar with the unit to be covered in the next session.

Try practicing a rapid head-to-toe assessment on a friend or family member. Do not forget to document!