
UNIT 3: DISASTER MEDICAL OPERATIONS—PART 1

In this unit you will learn about:

- **Life-threatening Conditions:** How to recognize and treat an airway obstruction, bleeding, and shock.
- **Triage:** Principles of triage and how to conduct triage evaluations.

UNIT 3: DISASTER MEDICAL OPERATIONS—PART 1

INTRODUCTION AND UNIT OVERVIEW

The need for disaster medical operations is based on two assumptions:

- The number of victims will exceed the local capacity for treatment.
- Survivors will assist others. They will do whatever they know how to do. They need to know lifesaving or post-disaster survival techniques.

There are three phases of death from trauma:

- Phase 1: Death within minutes as a result of overwhelming and irreversible damage to vital organs
- Phase 2: Death within several hours as a result of excessive bleeding
- Phase 3: Death in several days or weeks as a result of infection or multiple-system failure (i.e., complications from the injury)

Peter Safer's research after earthquakes in Chile, Peru, and Italy indicated that more than 40 percent of disaster victims in the second and third phases of death from trauma could be saved by providing simple medical care.

CERT personnel are trained to provide:

- Treatment for life-threatening conditions—airway obstruction, bleeding, and shock—and for other less urgent conditions.
- The greatest good for the greatest number of victims by conducting simple triage and rapid treatment.

In a disaster, there will be more victims than rescuers and that immediate help will not be available. CERTs must be able to function quickly and efficiently to save lives.

INTRODUCTION AND UNIT OVERVIEW (CONTINUED)

OBJECTIVES

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

- Identify the “killers.”
- Apply techniques for opening the airway, controlling bleeding, and treating for shock.
- Conduct triage under simulated disaster conditions.

The goal of disaster medical operations is to do the greatest good for the greatest number. In a disaster with many victims, time will be critical. CERT members will need to work quickly and efficiently to help as many victims as possible.

This unit will introduce you to the “three killers” and the principles of triage. Throughout the unit, you will have opportunities to practice the treatment techniques and, at the end of the unit, you will have the opportunity to conduct triage evaluations in a simulated disaster.

The first section will deal with treatment for life-threatening conditions: Airway obstruction, excessive bleeding, and shock.

TREATING LIFE-THREATENING CONDITIONS

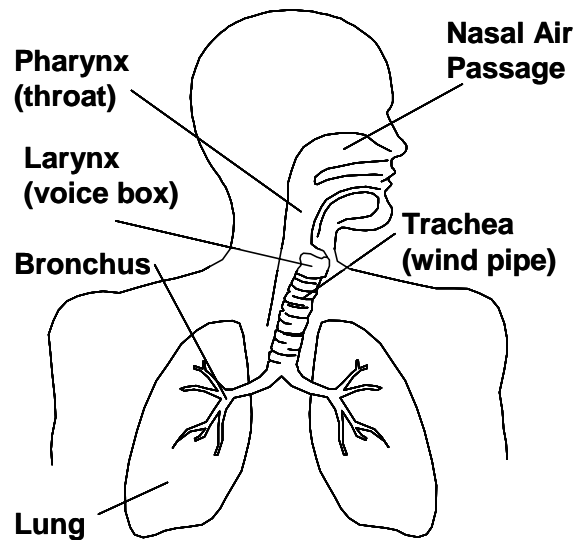
In emergency medicine, airway obstruction, bleeding, and shock are “killers.” The first priority of medical operations is to attend to those potential killers by:

- Opening the airway.
- Controlling excessive bleeding.
- Treating for shock.

This section will train you to recognize the “killers” by recognizing their symptoms and their effects on the body.

Always wear safety equipment: Helmet, goggles, gloves, mask, and boots. A timesaving technique is to wear latex gloves under your work gloves. Then, when you find a victim, you can remove your work gloves and are ready to work with the victim.

OPENING THE AIRWAY

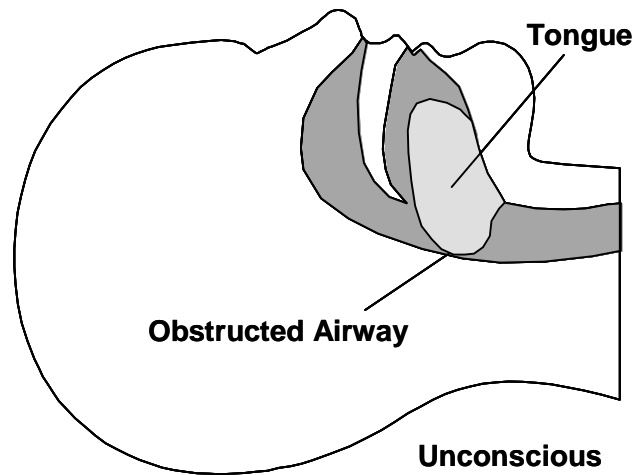


Components Of the Respiratory System

Components Of the Respiratory System, showing the pharynx, nasal air passage, larynx, trachea, bronchus.

The respiratory system includes airways, lungs, and muscles.

TREATING LIFE-THREATENING CONDITIONS (CONTINUED)



Airway Obstructed By The Tongue

The most common airway obstruction is the tongue. In an unconscious or semiconscious victim, especially one positioned on his or her back, the tongue—which is a muscle—may relax and block the airway. A victim with a suspected airway obstruction must be checked immediately for breathing and, if necessary, the airway must be opened.

When an airway obstruction is suspected, CERT members should clear the airway using the Head-Tilt/Chin-Lift method.

Head-Tilt/Chin-Lift Method for Opening an Airway

Step	Action
1	At an arm's distance, shake the victim by touching the shoulder and shout, "Can you hear me?"
2	If the victim does not or cannot respond, place the palm of one hand on the forehead.
3	Place two fingers of the other hand under the chin and tilt the jaw upward while tilting the head back slightly.
4	Place your ear over the victim's mouth, looking toward the victim's feet, and place a hand on the victim's abdomen.
5	<i>Look</i> for chest rise.
6	<i>Listen</i> for air exchange.
7	<i>Feel</i> for abdominal movement.

TREATING LIFE-THREATENING CONDITIONS (CONTINUED)

EXERCISE: OPENING THE AIRWAY

Purpose: This exercise allows you to practice using the Head-Tilt/Chin-Lift method on each other.

Instructions: Follow the steps below to complete this exercise:

1. Work in pairs—one person will be the victim and the other person the rescuer.
2. Victims should lie on the floor on their backs and close their eyes.
3. The rescuer should use the Head-Tilt/Chin-Lift method on the victim to open the airway.
4. After the rescuer has made two or three attempts at using the Head-Tilt/Chin-Lift method, the victim and the rescuer should change roles.

TREATING LIFE-THREATENING CONDITIONS (CONTINUED)

Part of your mission is to do the greatest good for the greatest number of people. For that reason, if breathing is not restored on the first try using the Head-Tilt/Chin-Lift method, CERT members should try again using the same method. If breathing cannot be restored on the second try, CERT members must move on to the next victim.

If breathing has been restored, the airway still must be maintained. One option is to use a volunteer or walking wounded to hold the head in place. The airway also can be maintained by placing soft objects under the victim's shoulders to elevate the shoulders slightly and keeping the airway open.

CONTROLLING BLEEDING

Uncontrolled bleeding initially causes weakness. If bleeding is not controlled, the victim will go into shock within a short period of time, and finally will die. An adult has about five liters of blood. Losing one liter can result in death.

There are three types of bleeding and the type can usually be identified by how fast the blood flows:

- Arterial bleeding. Arteries transport blood under high pressure. Bleeding from an artery is spurting bleeding.
- Venous bleeding. Veins transport blood under low pressure. Bleeding from a vein is flowing bleeding.
- Capillary bleeding. Capillaries also carry blood under low pressure. Bleeding from capillaries is oozing bleeding.

There are three main methods for controlling bleeding:

- Direct pressure
- Elevation
- Pressure points

TREATING LIFE-THREATENING CONDITIONS (CONTINUED)

Procedures For Controlling Bleeding

Method	Procedures
Direct Pressure	<ul style="list-style-type: none">Place direct pressure over the wound by putting a clean dressing over the wound and pressing firmly.Maintain pressure on the dressing over the wound by wrapping the wound <u>firmly</u> with a pressure bandage.
Elevation	<ul style="list-style-type: none">Elevate the wound above the level of the heart.
Pressure Points	<ul style="list-style-type: none">Put pressure on the nearest pressure point to slow the flow of blood to the wound. Use the:<ul style="list-style-type: none">Brachial point for bleeding in the arm.Femoral point for bleeding in the leg. <p>(See the figures on the following page for illustrations of these pressure points.)</p> <p>There are other pressure points that the Instructor may demonstrate.</p>

Direct pressure combined with elevation will address most bleeding. Demonstrate the procedure for controlling bleeding through direct pressure:

- Step 1: Place direct pressure over the wound by putting a clean dressing over the wound and pressing firmly.
- Step 2: Maintain pressure on the dressing over the wound by wrapping firmly with a pressure bandage.

Direct pressure and elevation can take 5 to 7 minutes to stop the bleeding completely. The use of a dressing and pressure bandage allows the rescuer to move on to the next victim.

A pressure bandage should be tied with a bow, so that it can be loosened—rather than cut—to examine the wound, and then retied. This procedure helps to conserve supplies and saves time.

Bleeding can also be controlled through elevation: Elevating the wound above the level of the heart. Elevation is used in combination with direct pressure.

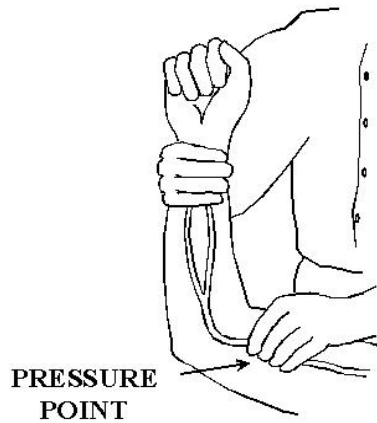
There are also pressure points that can be used to stem the flow of bleeding.

TREATING LIFE-THREATENING CONDITIONS (CONTINUED)

The pressure points most often used are the:

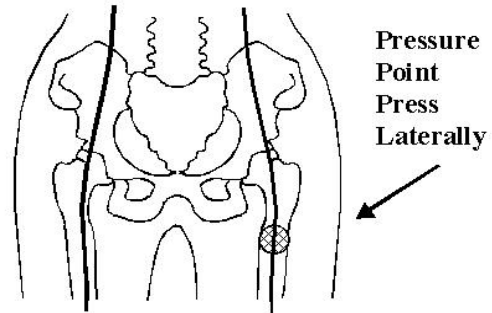
- Brachial point in the arm.
- Femoral point in the leg.

Get victims to help themselves, whenever possible.



Brachial Pressure Point

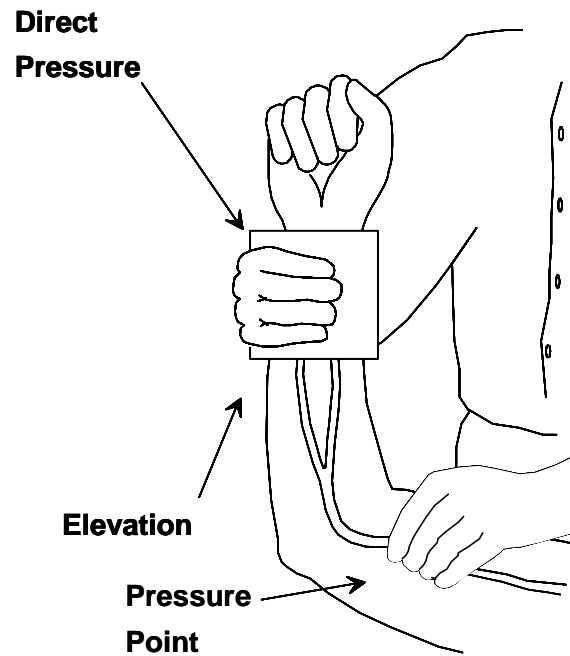
**Brachial Pressure Point,
just above the elbow.**



Femoral Pressure Point

**Femoral Pressure Point, in the
Upper thigh.**

TREATING LIFE-THREATENING CONDITIONS (CONTINUED)



Methods For Controlling Bleeding

Methods For Controlling Bleeding by using direct pressure on wound, elevation, and pressure points.

TREATING LIFE-THREATENING CONDITIONS (CONTINUED)

EXERCISE: CONTROLLING BLEEDING

Purpose: This exercise allows you to practice the techniques for controlling bleeding.

Instructions: Follow the steps below to conduct this exercise:

1. Work in pairs again – one person will be the victim and the other the rescuer.
2. Victims should lie on the floor on their backs and close their eyes.
3. The rescuer should use direct pressure to control bleeding from a simulated wound on the right forearm just below the elbow. The rescuer should:
 - Apply a pressure bandage.
 - Elevate the arm.
 - Repeat these two steps.
 - Repeat the two steps for speed.
4. After the rescuer has made at least three attempts at using each technique, the victim and the rescuer should change roles.

Bleeding must be controlled as quickly as possible so as not to endanger the victim's life from blood loss.

You should always wear your rubber gloves, goggles, and a mask as a protection against blood-borne pathogens, such as hepatitis and HIV.

TREATING LIFE-THREATENING CONDITIONS (CONTINUED)

RECOGNIZING AND TREATING SHOCK

Shock is a disorder resulting from ineffective circulation of blood. Remaining in shock will lead to the death of:

- Cells.
- Tissues.
- Entire organs.

The body will initially compensate for blood loss and mask the symptoms of shock. Therefore, it is important to continually evaluate patients for shock and monitor their condition.

The main signs of shock that CERT members look for are:

- Rapid and shallow breathing.
- Capillary refill of greater than 2 seconds.
- Failure to follow simple commands, such as, “Squeeze my hand.”
- Changes in skin color.

Capillary refill is how long it takes for the color to return. This is called the “blanch test.”

COMMUNITY EMERGENCY RESPONSE TEAM
UNIT 3: DISASTER MEDICAL OPERATIONS—PART 1

TREATING LIFE-THREATENING CONDITIONS (CONTINUED)

Although victims who are suffering from shock may be thirsty, they should not eat or drink anything, because they may also be nauseated.

Procedures For Controlling Shock

Step	Action
1	<ul style="list-style-type: none">▪ Lay the victim on his or her back.▪ Elevate the feet 6-10 inches above the level of the heart.▪ Maintain an open airway.
2	<ul style="list-style-type: none">▪ Control obvious bleeding.
3	<ul style="list-style-type: none">▪ Maintain body temperature (e.g., cover the ground and the victim with a blanket if necessary).
4	<ul style="list-style-type: none">▪ Avoid rough or excessive handling unless the rescuer and victim are in immediate danger.

EXERCISE: TREATING SHOCK

Purpose: This exercise allows you to practice the steps for treating shock.

Instructions: Follow the steps below to complete this exercise:

1. Work in pairs of victim and rescuer.
 2. The victims should lie on the floor on their backs and close their eyes.
 3. The rescuer should treat the victim based on the scenario given by the Instructor.
 4. The victim and the rescuer should then switch roles.
-

TRIAGE

Triage is a French term meaning “to sort.”

During triage, victims are evaluated, sorted by the urgency of the treatment needed, and set up for immediate or delayed treatment.

Triage was, in fact, initiated by the military and experience has shown that triage is an effective strategy in situations where:

- There are many more victims than rescuers.
- There are limited resources.
- Time is critical.

Triage occurs as quickly as possible after a victim is located or rescued.

During triage, victims’ conditions are evaluated and the victims are prioritized and labeled (tagged) into three categories:

- Immediate (I): The victim has life-threatening (airway, bleeding, or shock) injuries that demand immediate attention to save his or her life; rapid, life-saving treatment is urgent.
- Delayed (D): Injuries do not jeopardize the victim’s life. The victim may require professional care, but treatment can be delayed.
- Dead (DEAD): No respiration after two attempts to open the airway. Because CPR is one-on-one care and is labor-intensive, CPR is not performed when there are many more victims than rescuers.

The CERT program goal is to do the greatest good for the greatest number.

From triage, victims are taken to the designated medical treatment area (immediate care, delayed care, or morgue). (Note: If you have labeled your medical treatment areas using “I,” “D,” and “Morgue,” you can tell spontaneous volunteers to take the “I” victims to the “I” treatment area, etc.)

TRIAGE (CONTINUED)

TRIAGE IN A DISASTER ENVIRONMENT

The general procedures for conducting triage are:

- Step 1: Stop, Look, Listen, and Think. Before you start, stop and size up the situation by looking around and listening. THINK about your safety, capability, and limitations, and decide if you will approach the situation and how.
- Step 2: Conduct voice triage. Begin by calling out, “Emergency Response Team. If you can walk, come to the sound of my voice.” If there are survivors who are ambulatory, instruct them to remain at a designated location, and continue with the triage operation. (If rescuers need assistance and there are ambulatory survivors, then these survivors should be asked to provide assistance.) These persons may also provide useful information about the location of the victims.
- Step 3: Start where you stand, and follow a systematic route. Start with the closest victims and work outward in a systematic fashion.
- Step 4: Evaluate each victim and tag them “I” (immediate), “D” (delayed), or “DEAD.” Remember to evaluate the walking wounded.
- Step 5: Treat “I” victims immediately. Initiate airway management, bleeding control, and treatment for shock for “I” victims.
- Step 6: Document triage results for:
 - Effective deployment of resources.
 - Information on the victims’ locations.
 - A quick record of the number of casualties by degree of severity.

The rescuer’s safety is paramount during triage. Wear proper protective equipment so as not to endanger your own health.

TRIAGE (CONTINUED)

PERFORMING A TRIAGE EVALUATION

Triage Procedure

Step	Procedures
1	<p>Check airway/breathing. At an arm's distance, shake the victim and shout. If the victim does not respond:</p> <ul style="list-style-type: none">▪ Position the airway.▪ Look, listen, and feel.▪ Check breathing rate. Abnormally rapid respiration (above 30 per minute) indicates shock. Treat for shock and tag "I."▪ If below 30 per minute, then move to Step 2.▪ If the victim is not breathing after 2 attempts to open airway, then tag "DEAD."
2	<ul style="list-style-type: none">▪ Check circulation/bleeding.▪ Take immediate action to control severe bleeding.▪ Check circulation using the blanch test (for capillary refill).<ul style="list-style-type: none">• Press on an area of skin until normal skin color is gone. A good place to do this is on the palm of the hand. The nailbeds are sometimes used.• Time how long it takes for normal color to return.▪ Treat for shock if normal color takes longer than 2 seconds to return, and tag "I."
3	<p>Check mental status. Give a simple command, such as "Squeeze my hand." Inability to respond indicates that immediate treatment for shock is necessary. Treat for shock and tag "I."</p>

If the victim passes all tests, his or her status is "D." If the victim fails one test, his or her status is "I." Remember that everyone gets a tag. All victims tagged "I" get airway control, bleeding control, and treatment for shock.

COMMUNITY EMERGENCY RESPONSE TEAM
UNIT 3: DISASTER MEDICAL OPERATIONS—PART 1

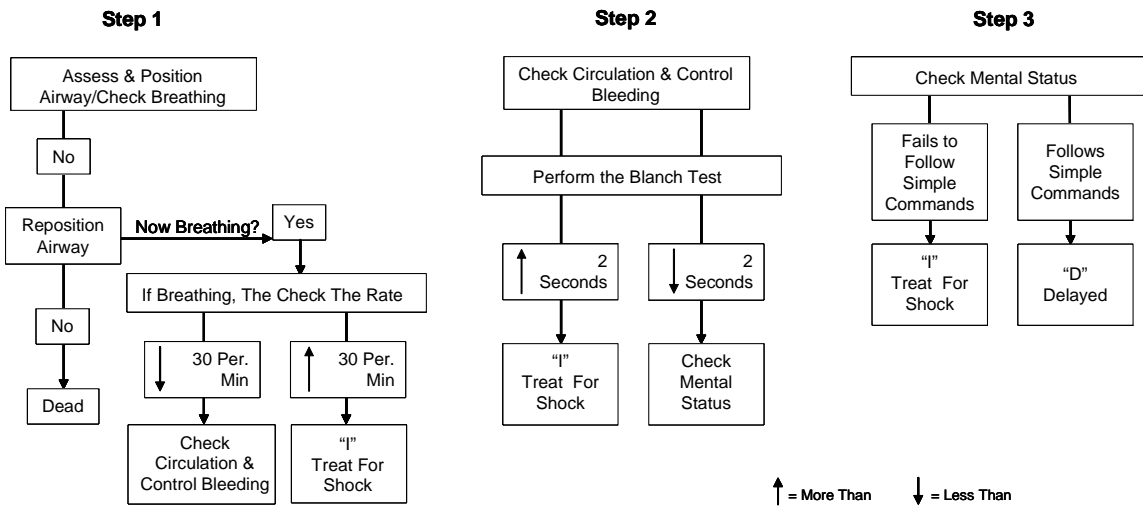
TRIAGE (CONTINUED)

DOCUMENTING TRIAGE

Sample Triage Documentation

Status	Location			
	A	B	C	D
I	1	2	0	1
D	0	2	5	3
Dead	3	7	1	0

TRIAGE (CONTINUED)



Triage Decision Flowchart

Triage Decision Flowchart, showing the three steps in the triage process. Step 1: assess and position the airway and check breathing; Step 2: Check circulation and control bleeding; Step 3: Check mental status.

Time will be critical in a disaster. You will not be able to spend very much time with any single victim.

Take advantage of local exercises as a means of maintaining your triage skills and to avoid the triage pitfalls.

Triage pitfalls include:

- No team plan, organization, or goal.
- Indecisive leadership.
- Too much focus on one injury.
- Treatment (rather than triage) performed.

TRIAGE (CONTINUED)

EXERCISE: CONDUCTING TRIAGE

Purpose: This exercise is intended to allow you to practice conducting triage in a high-pressure situation.

Instructions: Follow the steps below to complete this exercise:

1. Work in 6-person groups. In each group, three participants will act as victims, and three will act as search and rescue team members (two rescuers and one runner).
 2. The “victims” should select a card from the Instructor and tape it to their shirts.
 3. The victims should arrange themselves within the designated “disaster” area.
 4. The three “rescuers” will have 5 minutes to:
 - Conduct triage on each of the victims and determine how each should be tagged and treated.
 - Document the number of victims in each category of triage (immediate, delayed, dead).
-

UNIT SUMMARY

The key points from this unit include:

- CERT members' ability to open airways, control bleeding, and treat shock is critical to saving lives.
 - Use the Head-Tilt/Chin-Lift method for opening airways.
 - Control bleeding using direct pressure, elevation, and/or pressure points.
 - If there is a question about whether a victim is in shock, treat for shock.

- Triage is a system for rapidly evaluating victims' injuries and prioritizing them for treatment. The procedure for conducting triage evaluations involves checking:
 - The airway and breathing rate.
 - Circulation and bleeding.
 - Mental status.

Disaster medical operations require careful planning, teamwork, and practice. Take advantage of participating in community-wide disaster exercises whenever they are scheduled.

HOMEWORK ASSIGNMENT

Read and become familiar with Unit 4: Disaster Medical Operations— Part 2 before the next session.

Bring a blanket, roller gauze, adhesive tape, and cardboard to the next session.
