# Unit 6: Disaster Medical Operations II

## UNIT INSTRUCTORS

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## UNIT INTRODUCTION

Disaster Medical Operations II will continue with the techniques and procedures in providing care for the greatest number of people in the event of a large scale emergency or disaster. Basic first aid will be reviewed and practiced as it relates to bleeding, fractures, sprains, and strains, and the treatment for shock.

## UNIT OBJECTIVES

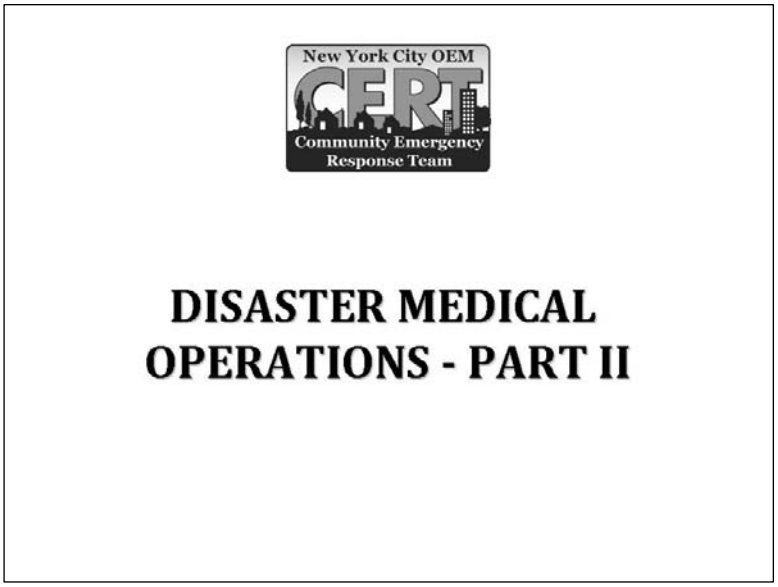
- Learn how to control bleeding and care for various wounds.
- Understand how to provide initial care for fractures, sprains, and strains.
- Identify and treat for shock.
- Understand a NYC CERT's role and how a team works during an incident.

## UNIT REVIEW

Review the rules for triaging regularly. Once you complete your triage, you may be asked to perform some of the techniques you learned tonight.

## LOOKING FORWARD

Next week you will learn the basics of fire safety and the next week, light search and rescue. A large fire may need triage of survivors and to have a resident assistance center set up. A terrorist attack may cause a site to need light search and rescue, and there may be fires within and nearby the site. All the different units in this course each fit into one another to form an overall approach to prepare, respond, and recover from emergencies and disasters in your community.




**Key Points**

- This unit will discuss how NYC CERT members can provide basic first aid during a response.
- This unit will also discuss how NYC CERT members can assist emergency medical personnel during an emergency.

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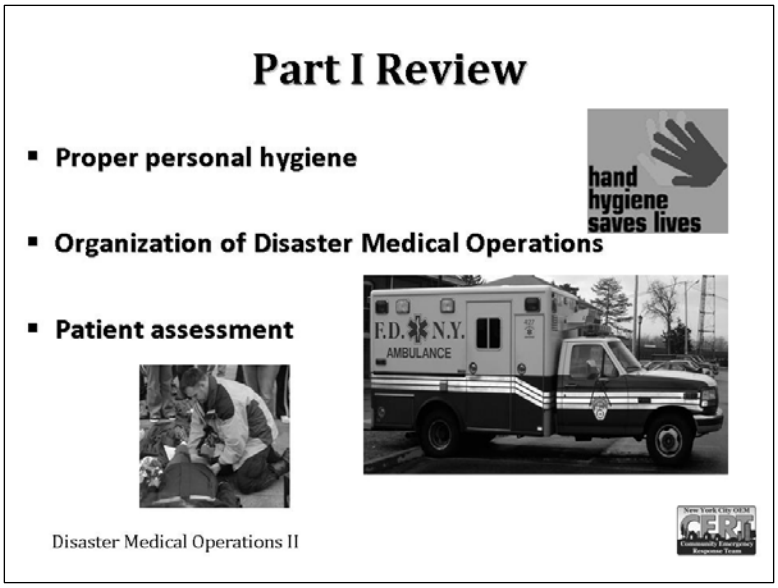


**Key Points**

- The most important method of proper personal hygiene is washing hands frequently.
- Use gloves, masks, goggles and avoid contact with bodily fluid.
- Change gloves between patients.
- During assembly, one member should be placed in charge of the triage group.
- The triage group supervisor should not engage in tactical operations but rather he or she should supervise the members of the group and relay information to the operations section or NYC CERT lead.
- Patient assessment is a head-to-toe examination used to find injuries not discovered during triage.
- Determining the cause of injury can assist in determining the location and extent of the injury.

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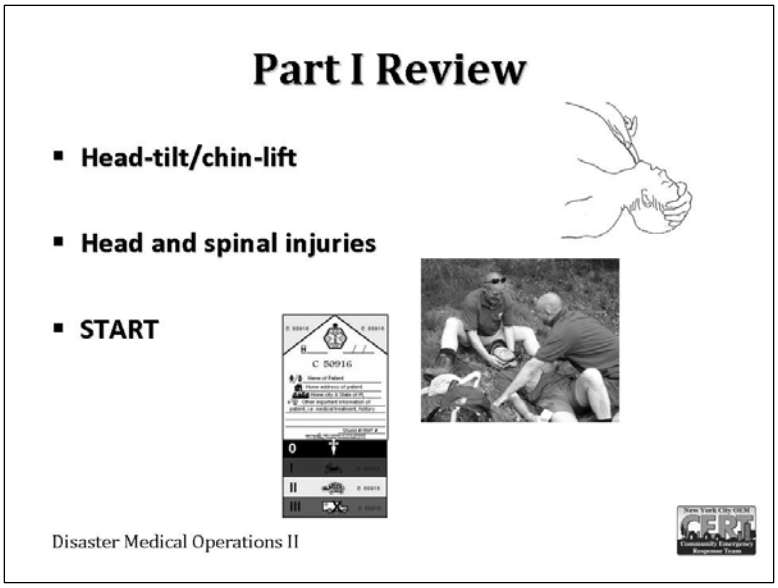


**Key Points**

- The head tilt/chin lift is performed to remove the tongue from the back of the throat when a victim is unconscious.
- Head tilt/chin lift should be performed twice – if the victim does not respond he or she should be black tagged.
- Head and spinal injuries require immediate medical attention and advanced medical care.
- Maintain spinal stabilization in patients with suspected head and/or spinal injuries.
- **START** – is the acronym for simple triage and rapid transportation and is recognized nationally by emergency medical personnel.
- The fastest way to reduce the total number of patients who require triage is to have one member make an announcement requesting that anyone that can hear your voice move to a specified location. This will remove all of the green tagged individuals.

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**Key Points**

The objectives of this unit are:

- To learn effective methods for controlling bleeding and wound care.
- To learn how to assist an emergency medical professional to immobilize an injury.
- To identify the indicators of shock and the methods for treating shock.

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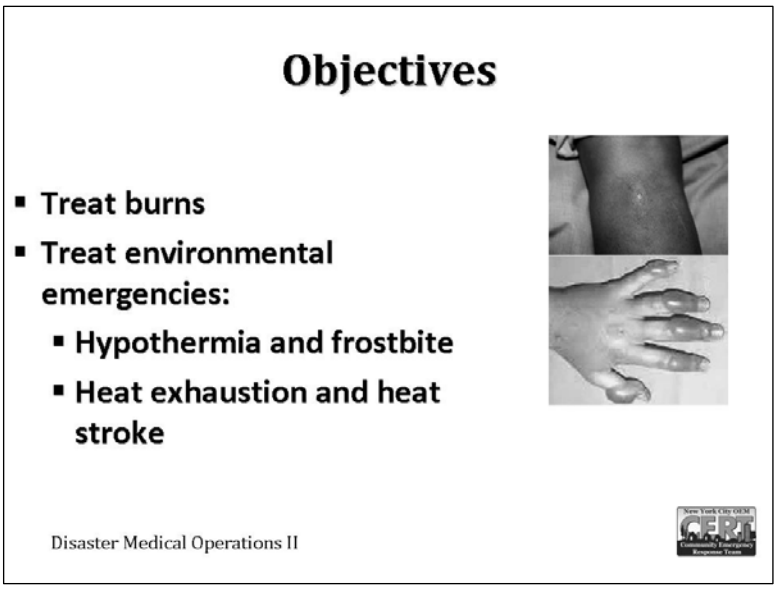


**Key Points**

- We will also discuss the proper treatment of burn injuries.
- NYC CERT members will learn how to treat injuries caused by the environment.

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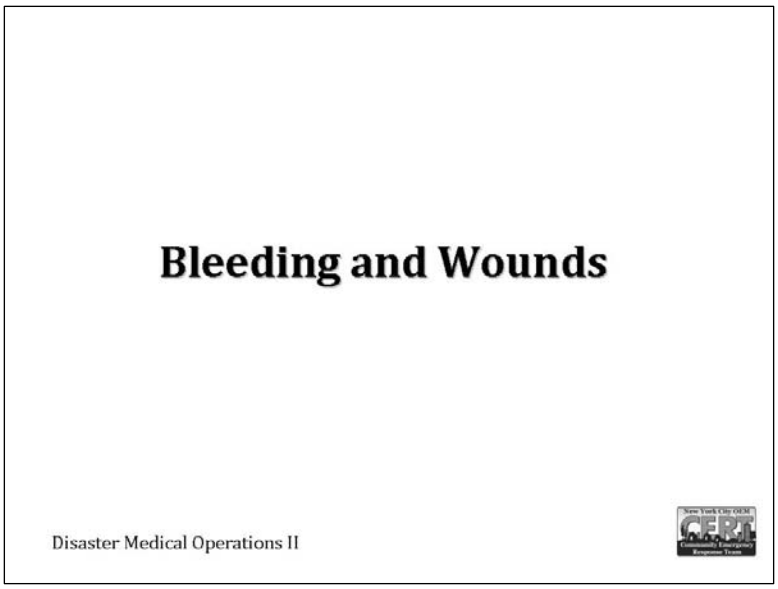


**Key Points**

- This section will discuss methods for controlling bleeding and wound care.
- The objective for first aid treatment for wounds is to control bleeding and prevent secondary infections.

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**Key Points**

- Wound care is usually performed after the completion of triage.
- Proper pre-hospital care will have a dramatic impact on the extent of the injury.
- Clean the wound by irrigating with water, flushing with a mild concentration of soap and water, and then irrigating with water again.
- Check circulation for color, warmth and sensation before and after applying a dressing to ensure bandaging does not interfere with circulation or neurological function. If capillary refill is slow, loosen dressing.
- Constricting circulation in one region can cause toxins to build up in that area causing multi-system failure.

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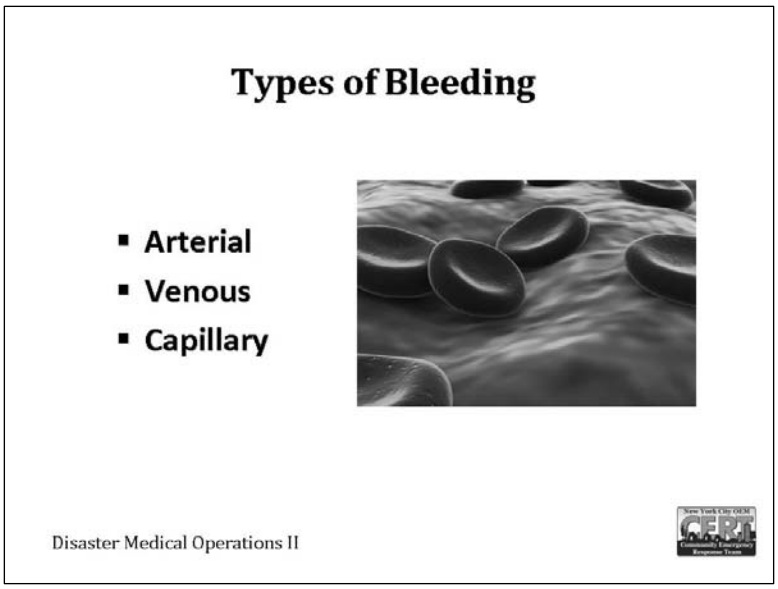


**Key Points**

- Arterial bleeds are under high pressure resulting in bright red blood which spurts as the heart pumps and can be difficult to control.
- Venous bleeds are under low pressure with dark red blood. Large veins can be difficult to control.
- Capillary bleeds are under very low pressure oozing dark blood and frequently stop bleeding on their own.

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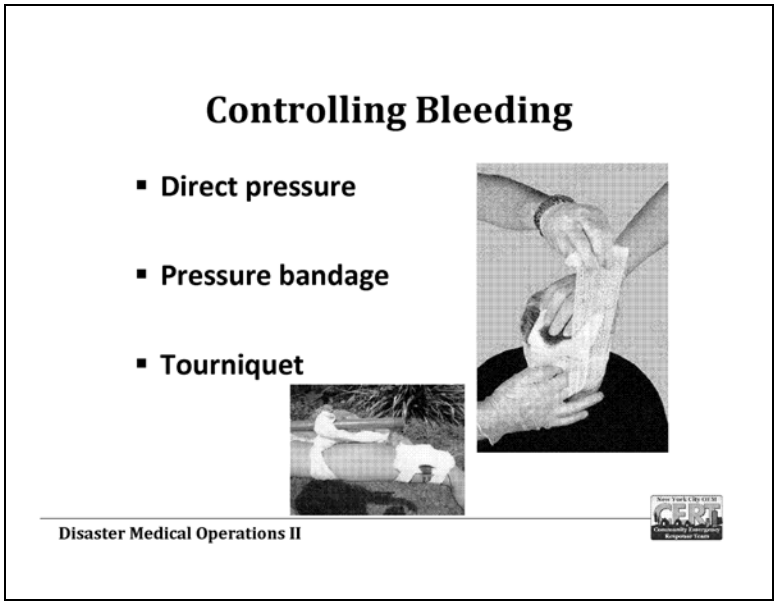


**Key Points**

- Direct pressure should be applied over a sterile dressing. If bleeding soaks through the dressing, add more without removing the previous dressings.
- Pressure bandages can be applied using rolled gauze wrapped around the wound area.
- Tourniquets are considered a last resort to save a life when all other bleeding control has not worked and professional medical care is seriously delayed. Once applied they should not be released.
- A tourniquet should be wide and placed as close to the injury site as possible, preferably below the joint. Record the time of application on the victim's forehead.

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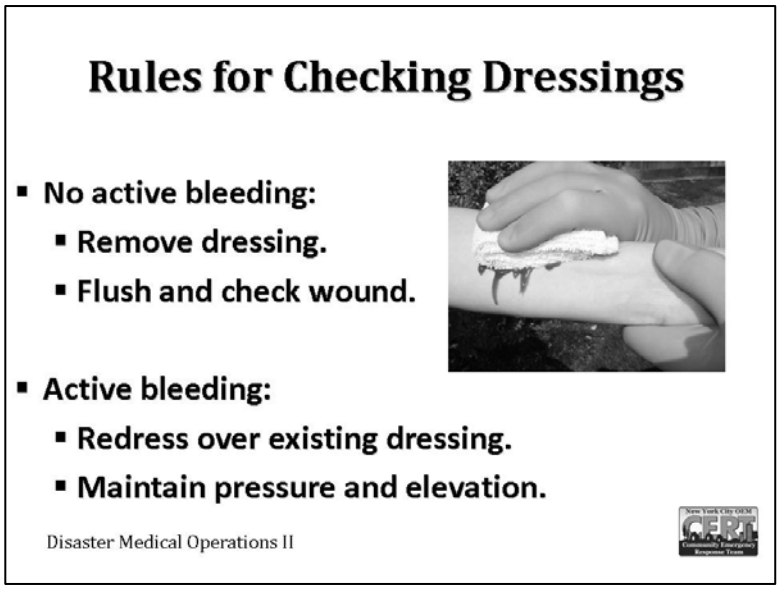


**Key Points**

- In the absence of active bleeding, dressings must be removed and the wound flushed and checked for signs of infection at least every four to six hours. Signs of possible infection include:
  - Swelling around the wound site;
  - Discoloration;
  - Discharge (pus) from the wound; and
  - Red striations from the wound site.
- If bleeding continues to saturate the dressing, apply an additional dressing on to the original dressing and maintain pressure and elevation.

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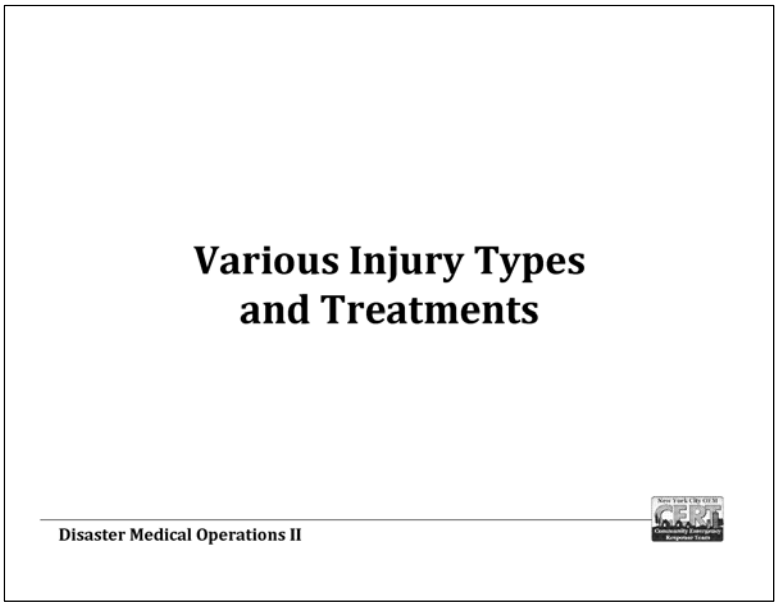


**Key Points**

- This section will discuss the injuries that may be encountered by NYC CERT members during deployment.
- This section will also discuss possible treatments a NYC CERT member may perform during deployment.

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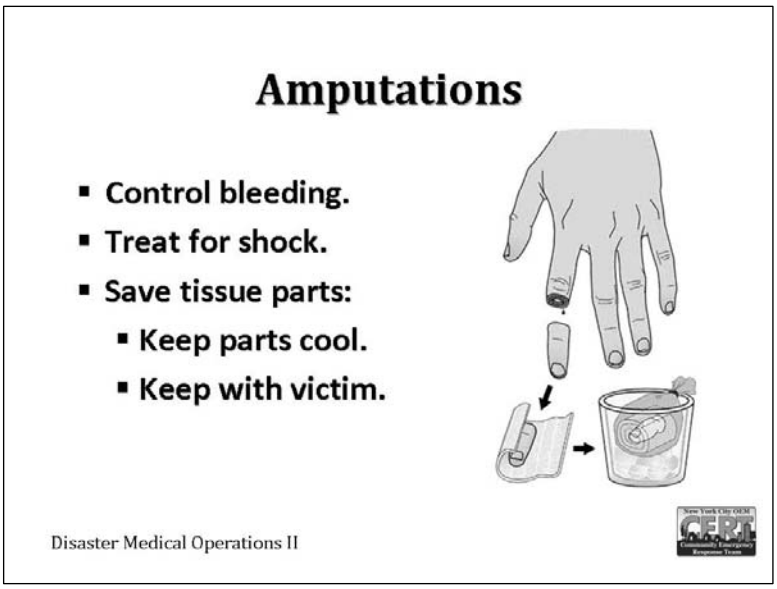


**Key Points**

- The first step in medical treatment for an amputation is to control the bleeding.
- The volume of blood loss associated with an amputation will vary depending on the location of the injury and the manner in which the loss occurred.
- NYC CERT members should watch for signs of shock and treat as necessary.
- NYC CERT members should keep the extremity cold but not frozen.
- Place the extremity in a clean container with a lid and keep it with the victim so medical staff can attempt to reattach it in the hospital.

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**Key Points**

- Immobilize the affected body part.
- Do not remove the impaled object unless it is interfering with the airway or if it is interfering with CPR.
- Control bleeding in the area surrounding the impalement without placing undue pressure on the foreign object.
- Clean and dress the wound.
- Wrap a bulky dressing around the object to keep it from moving.

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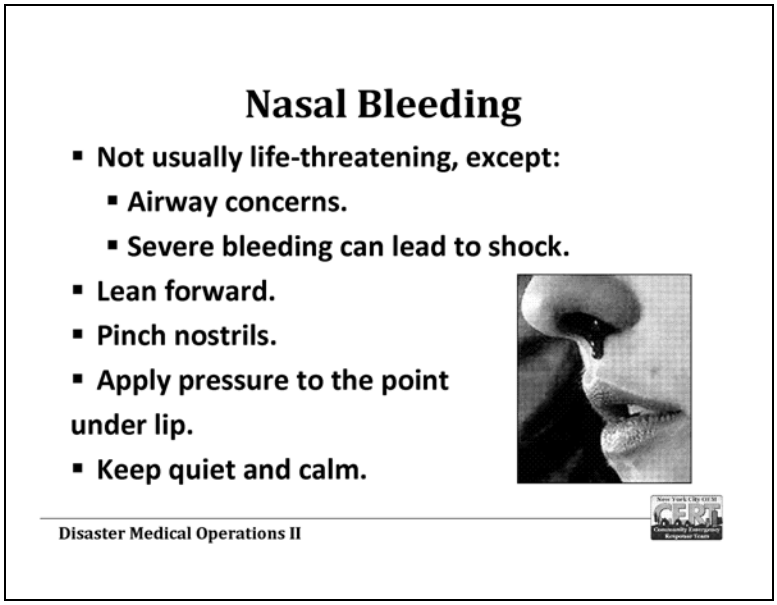


**Key Points**

- Severe nasal bleeding can lead to shock.
- The actual blood loss may not be evident because some blood goes down the throat and is swallowed.
- The head should be leaned forward to prevent blood from entering the throat.
- Blood entering the stomach can cause nausea, potentially leading to vomiting.
- Direct pressure can be applied by pinching the nostrils.
- If bleeding persists pressure can be applied to the pressure point located under the gums of the upper lip.
- Keep the victim quiet; anxiety will increase blood flow.

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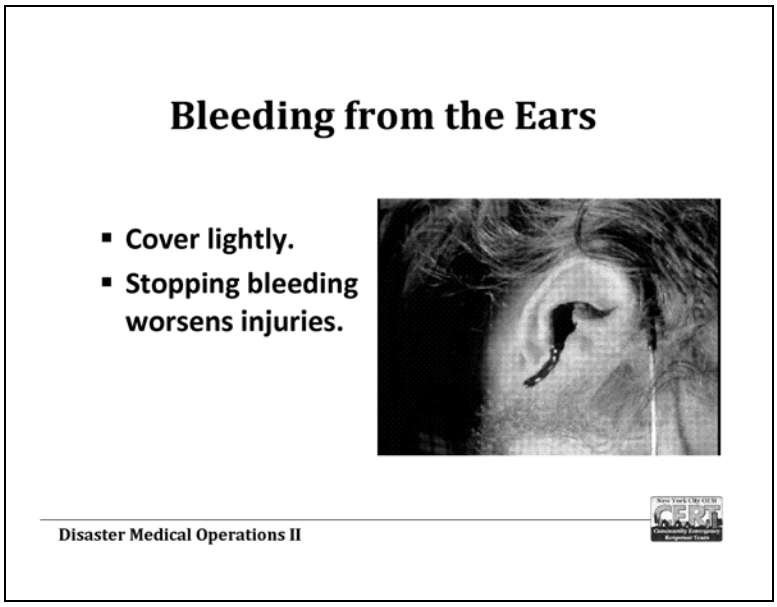


**Key Points**

- NYC CERT members should assess where the bleeding originated.
- Superficial bleeding from the ear is usually not life threatening.
- Bleeding from inside the ears can indicate an open head injury.
- NYC CERT members should not attempt to stop bleeding from inside the ear.
- Since the wound is a route for infection it should be covered lightly.

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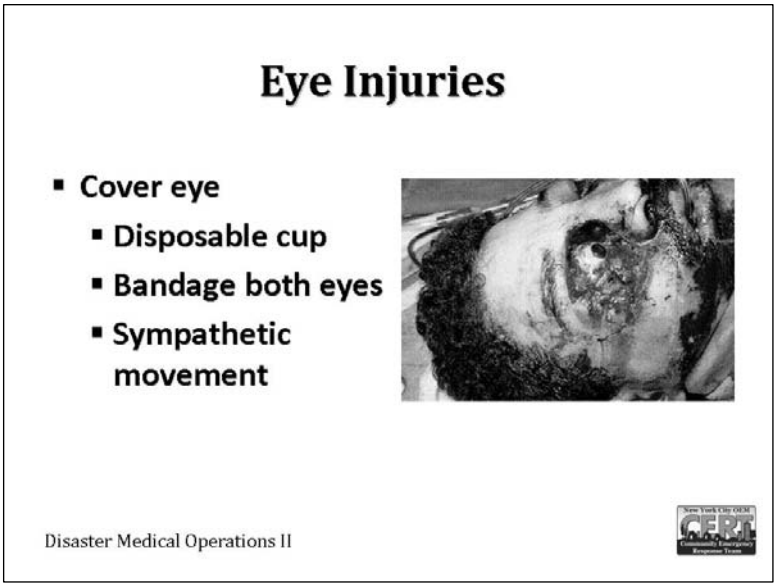


**Key Points**

- If transport is going to be delayed, lightly bandage the eye with a moist, sterile dressing.
- To protect the injured eye, cover it with a disposable cup or similar object.
- Bandage both eyes to prevent further damage caused by sympathetic movement.
- It is important that once a victim's vision is obstructed, a NYC CERT member or green tag victim should be assigned to assist this victim.

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**Key Points**

- Team will break up into groups of partners to practice bleeding control.
- Equipment will be:
  - 1 - roll of gauze
  - 2 - 4x4 bandages
  - 2 – pairs of rubber gloves

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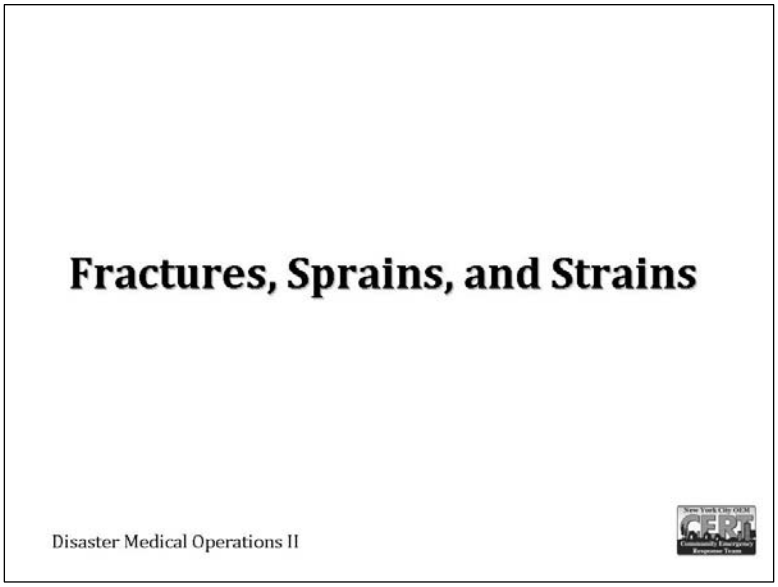


**Key Points**

- In this section we will discuss NYC CERT's roles in treating fractures, sprains and strains.

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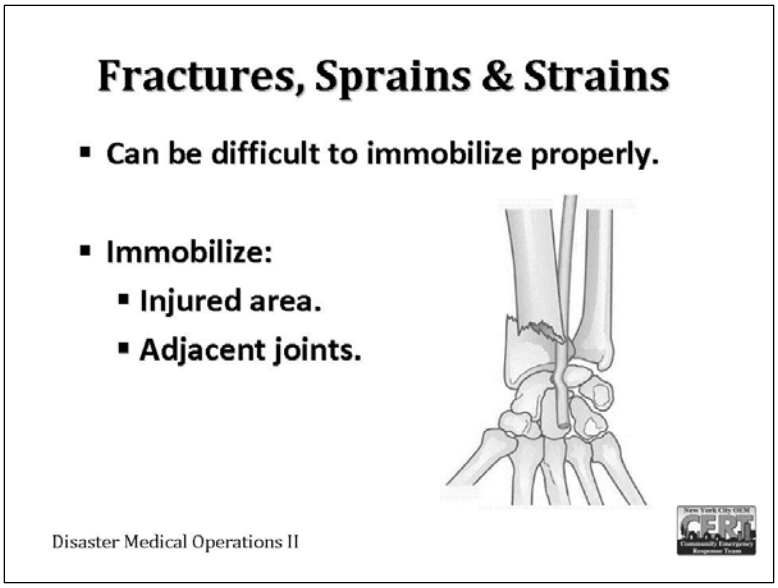


**Key Points**

- The treatment will be the same whether the injury is a fracture, sprain, or strain.
- The objective when treating a suspected fracture, sprain or strain is to immobilize the injury and the joints immediately above and below the injury.
- Immobilization can be very difficult without the proper equipment.
- A NYC CERT member may have to improvise with the material that is available on scene.

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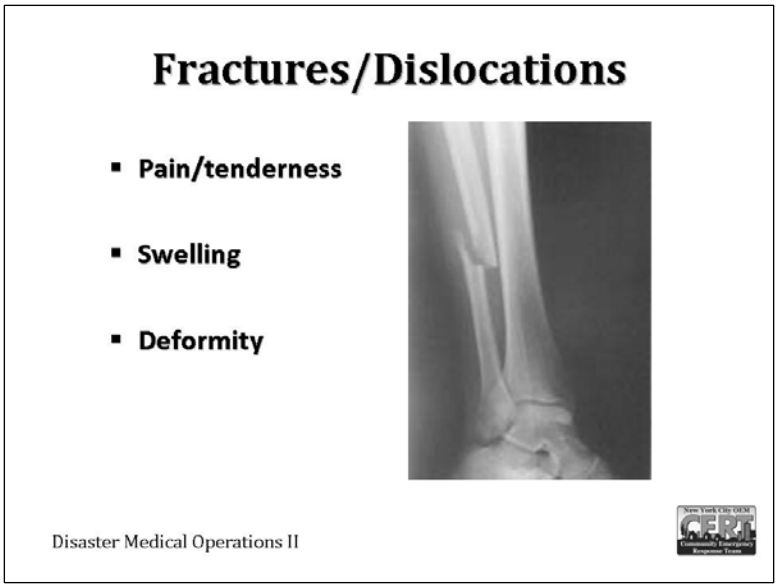


**Key Points**

- A fracture is a complete break, a chip or a crack in a bone.
  - A closed fracture is a broken bone with no associated wound. First aid treatment may require only splinting.
  - An open fracture is a broken bone with some kind of wound that allows contaminants to enter into or around the fracture site. This type of injury is a high priority for treatment due to the risk of severe bleeding and infection.
- When treating an open fracture do not draw the exposed bone ends back into the tissue.
- Do not irrigate the wound. Cover the wound with a sterile dressing.
- Splint the fracture without disturbing the wound.
- A dislocation is a separation of a joint.
- A dislocation will show signs similar to that of a fracture and should be treated as such.
- A NYC CERT member should never try to relocate a suspected dislocation.

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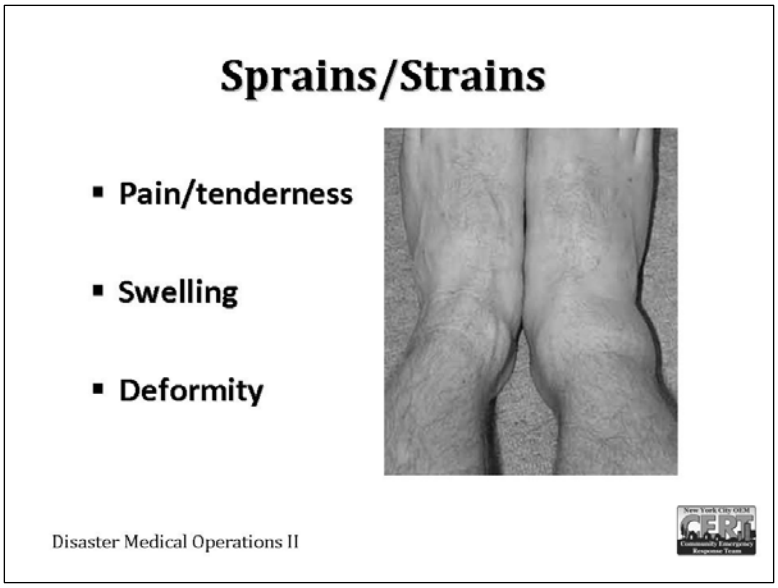


**Key Points**

- A sprain is stretching or tearing of ligaments.
- A sprain is considered a partial dislocation. However, the bone either remains in place or snaps back into place on its own after the injury. A NYC CERT member should not treat the injury other than by immobilization and elevation.
- The most common signs of a *sprain* are:
  - Tenderness at the site of the injury.
  - Swelling and bruising
  - Restricted use or loss of use
- A strain is a muscle injury resulting from overstretching or overexertion of a muscle.
- Strains are difficult to distinguish from sprains and fractures without x-rays, therefore all of these injuries need to be treated by immobilization.

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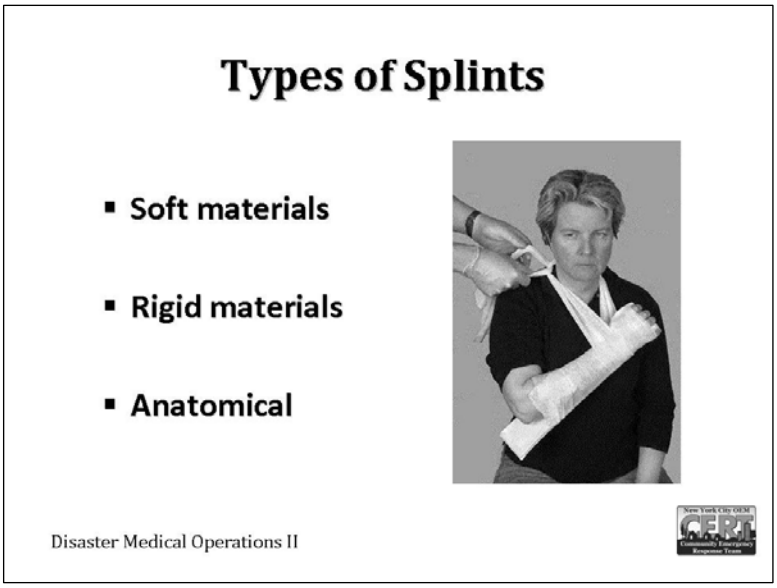


**Key Points**

- Splinting is the most common procedure for immobilizing an injury.
- NYC CERT members may have to be creative in their use of improvised materials for splinting.
- An anatomical splint may be created by securing a fractured bone to a non-injured bone.
- Cardboard is a commonly used material. Others may include:
    - Soft materials: towels, blankets or pillows, tied with bandaging materials or soft clothes. Soft material may be used to fill the gap between the splinting material and the body part.
    - Rigid materials: metal, wood, folded magazines or newspapers and other rigid items.

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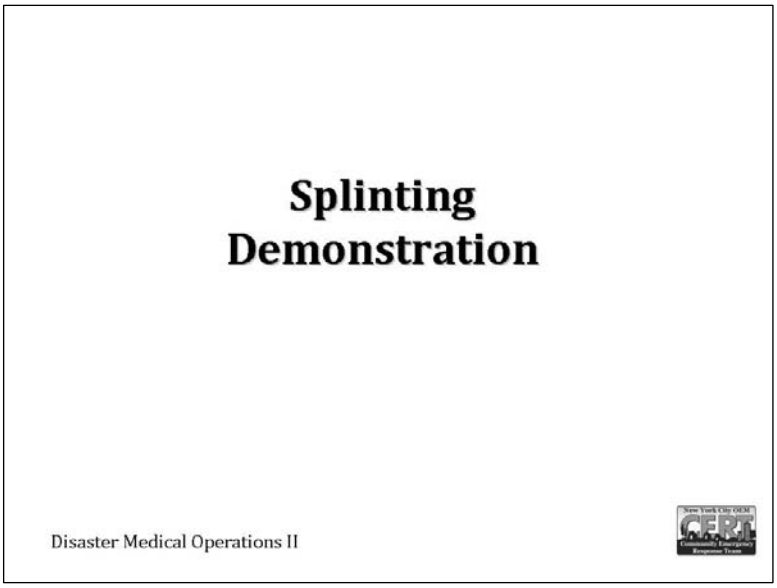


**Key Points**

- Support the injured area above and below the site of the injury.
- If possible, splint the injury in the position that you found it.
- A NYC CERT member should not try to realign the bones or joints.
- After splinting check for proper circulation (warmth, feeling, and color).

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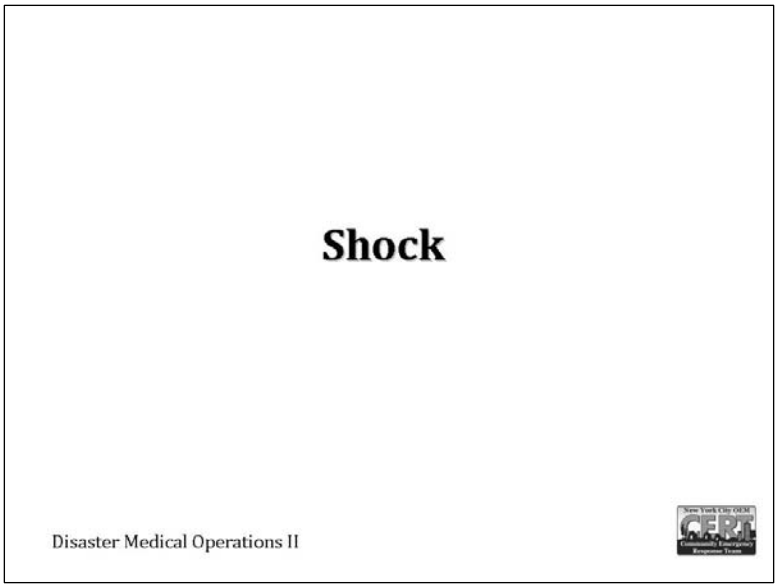


**Key Points**

- This section will discuss the indicators of shock and possible treatment by NYC CERT members.

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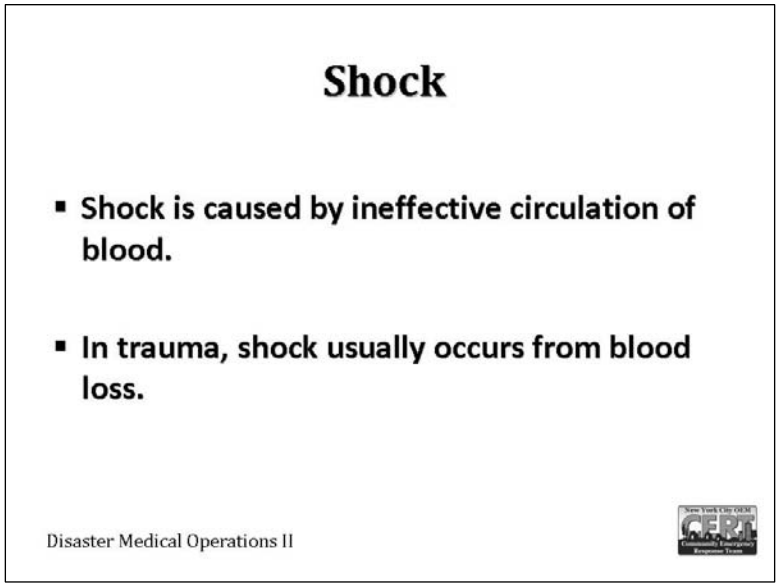


**Key Points**

- Shock is a disorder resulting from an ineffective circulation of blood. Remaining in shock will lead to the death of cells, tissues, and entire organs.
- The body will initially compensate for blood loss and mask the symptoms of shock.
- NYC CERT members should continually monitor and evaluate patients for signs of shock.

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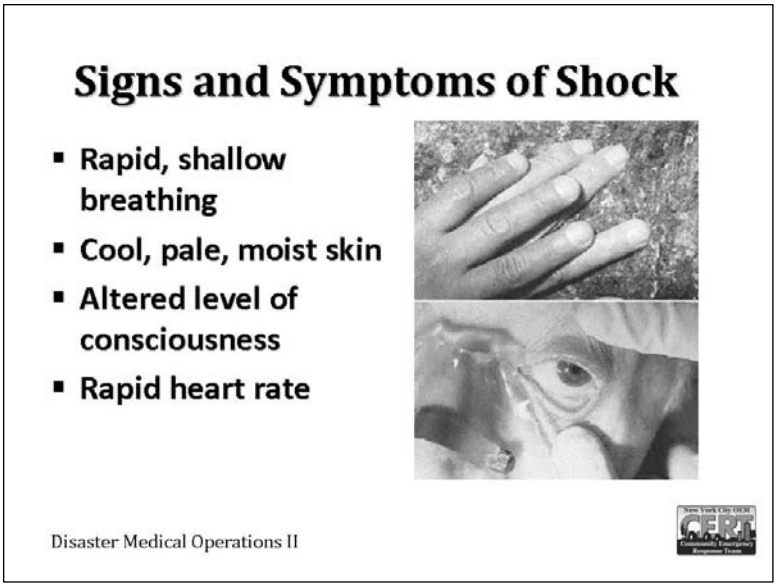


**Key Points**

- NYC CERT members should look for the following signs of shock:
  - Rapid and shallow breathing;
  - Cool, pale, moist skin;
  - An altered level of consciousness (patient may be unable to follow simple commands); and
  - A rapid heart rate.

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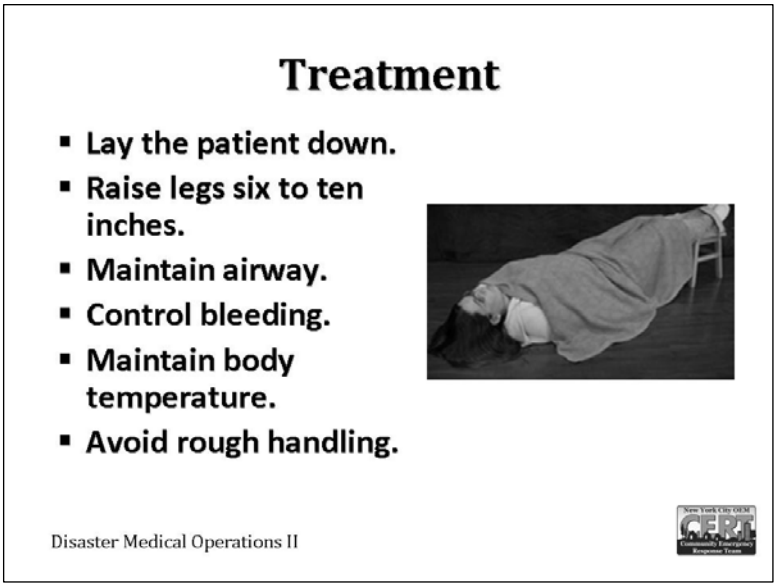


**Key Points**

- To treat for shock, a NYC CERT member should:
  - Lay the patient on his or her back.
  - Elevate the legs.
  - Maintain the patient's airway.
  - Control any obvious bleeding.
  - Maintain the patient's body temperature. A NYC CERT member should place a blanket over the patient and possibly under the patient as well to protect the patient from extreme ground temperatures.
  - Avoid rough or excessive handling of the patient.

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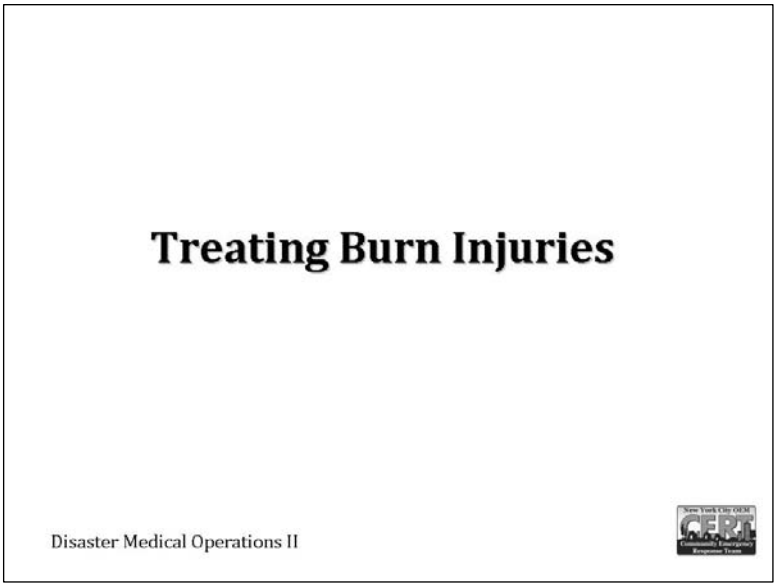


**Key Points**

- This section will discuss classification of burn injuries and associated treatment for each classification.

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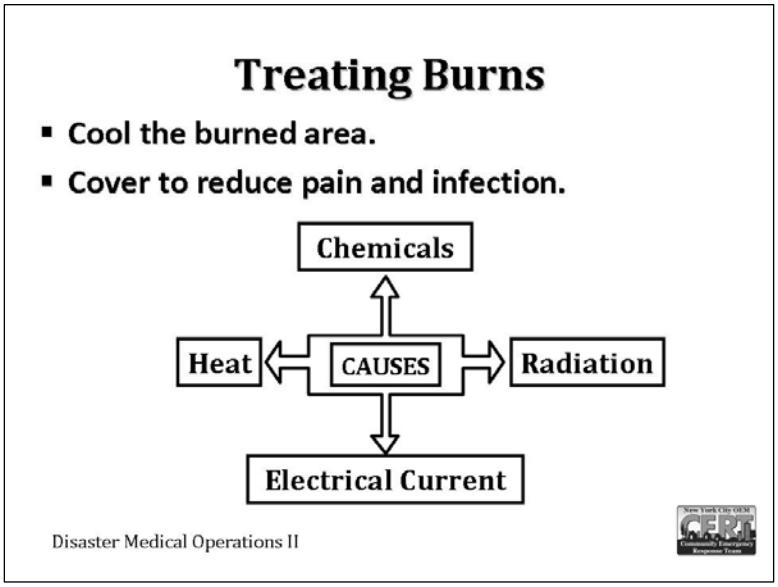


**Key Points**

- Heat, chemicals, electrical current, and radiation may cause burns. The severity of the burn will depend on the:
  - Temperature of the burning agent;
  - Period of time that the patient is exposed;
  - Area of the body that is affected;
  - Size of the burn area; and
  - Depth of the burn.
- The objective of first aid treatment for all burns is to cool the burned area and cover the area to reduce pain and the risk of infection.

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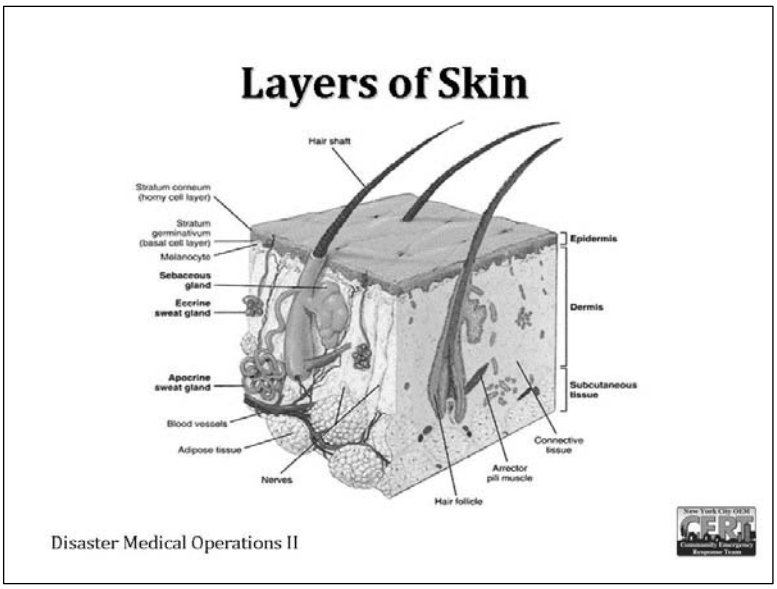


**Key Points**

- Skin has three layers and depending on the severity, burns may affect all three layers.
  - The *epidermis* is the thin outermost layer of the skin containing nerve endings and is penetrated by hairs.
  - The *dermis* is the thick second or middle layer of the skin, which contains blood vessels, oil glands, hair follicles and sweat glands.
  - The *subcutaneous layer* is the third or innermost layer of the skin, which is primarily fat and blood vessels.

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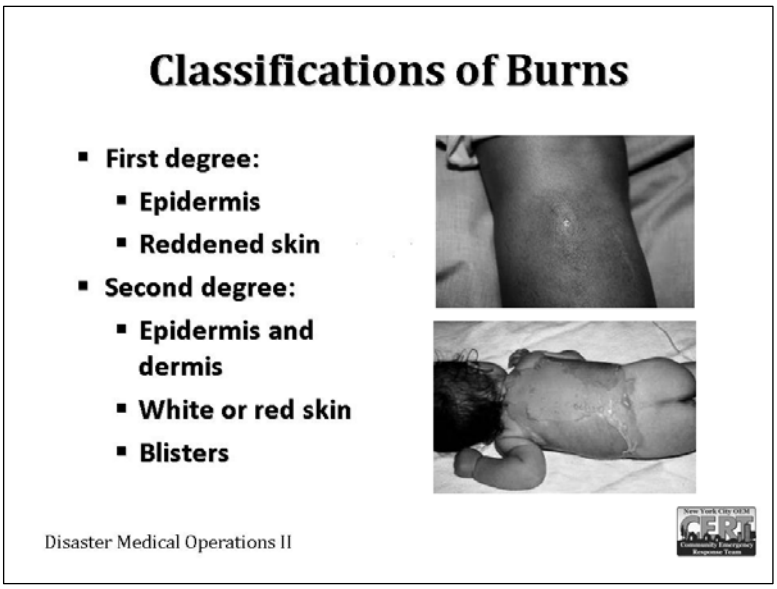


**Key Points**

- First degree:
  - Similar to sunburn
  - Skin function is not compromised.
  - Not very dangerous, although it can be very painful.
- Second degree:
  - Part of the dermis has been burned.
  - Hot water scalds are a common form of second degree burn.
  - Sunburn can be bad enough to result in a second degree burn.
  - The burn will generally heal on its own. However, the skin will not function correctly until it is healed. The surrounding area is usually a first degree burn.

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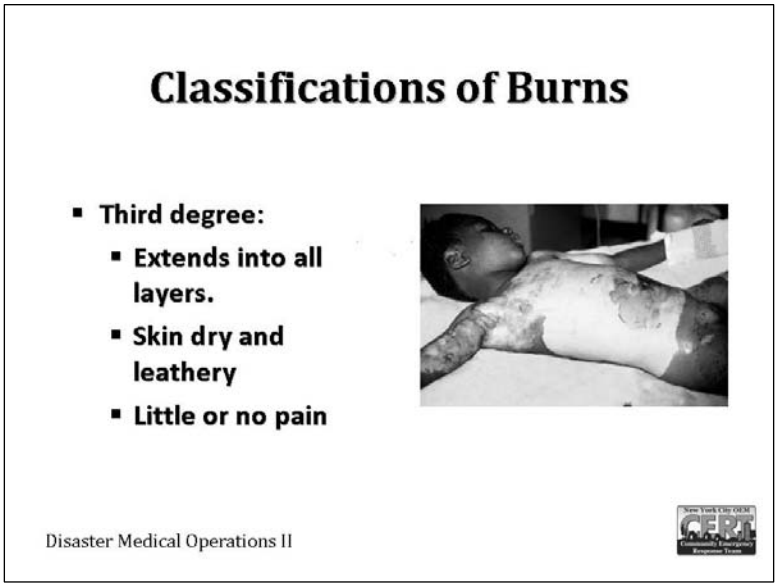


**Key Points**

- Third degree:
  - These burns involve the entire dermis and may extend into the subcutaneous tissue, or even deeper, involving muscle or bone.
  - Since the nerve endings are burned the patient may not experience any pain. However, the surrounding areas of first and second degree burns will feel pain.
  - Patient is at an extremely high risk for infection.
  - Third degree burns will not heal automatically and will require immediate medical treatment.

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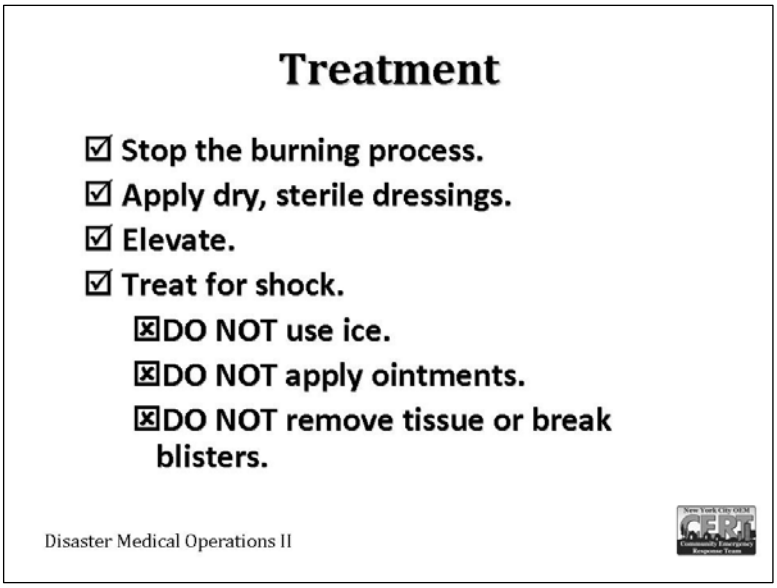


**Key Points**

- A NYC CERT member should:
  - Remove the patient from the source of the burn.
  - Stop the burning process.
  - Cover loosely with a dry sterile dressing to keep out air, reduce pain and prevent infection.
  - Treat all victims of third degree burns for shock.
- A NYC CERT member should **never** apply ice, antiseptics, ointments or any other "home" remedies.
- A NYC CERT member should **never** remove shreds of tissue, break blisters, or adhered particles of clothing. Burned-in clothing may be cut off around the burn.

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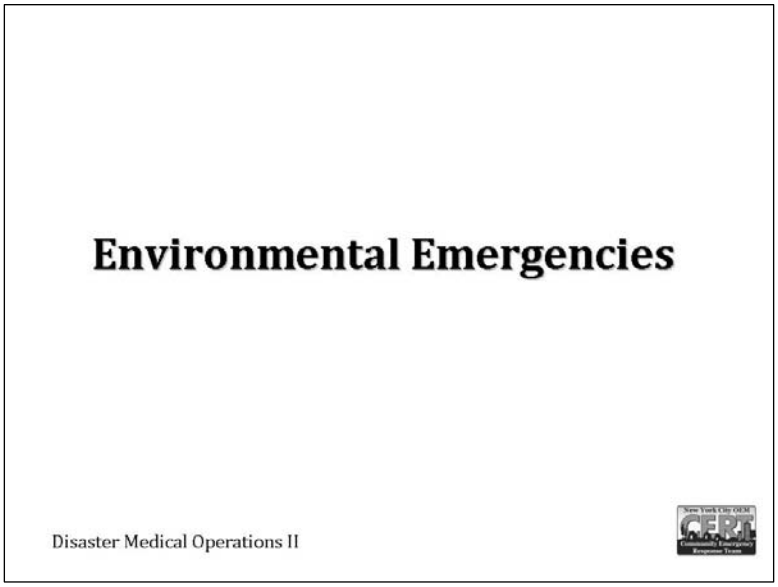


**Key Points**

- This section will cover a variety of environmental emergencies that may be encountered not only in a disaster but also in everyday life.
- We will discuss NYC CERT's roles in diagnosing environmental emergencies and what can be done to minimize the impact of each emergency.

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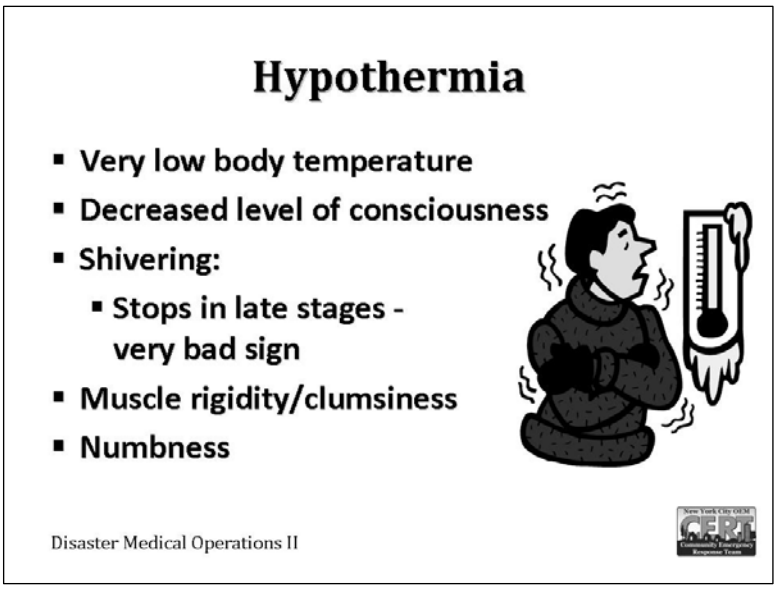


**Key Points**

- Hypothermia is defined as a core body temperature of 95°F or less. A body temperature below 95°F will produce visible shivering and an increase in heart rate, breathing rate and blood pressure.
- As the body temperature continues to drop, the pulse will slow and breathing rate and blood pressure will also decrease. You may notice clumsiness, slurred speech, and confusion.
- In a cold, dry environment, hypothermia can take place over a period of hours. In cold water, it can take place in minutes.
- The homeless, alcoholics, and mentally ill individuals are prone to hypothermia because they may be unable to find adequate shelter or may be unable to recognize when it is time to come in from the cold.
- The elderly, because of their impaired ability to produce and retain heat, may become hypothermic over a period of days while living in normal conditions that other people would find comfortable. Check on your elderly family and neighbors.

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## Treatment

- Remove wet clothing.
- Protect from cold.
- Do not ingest anything.
- Note recovery position.
- If conscious, apply heat packs in groin and/or armpits.
- Be careful not to cause burns.

Disaster Medical Operations II

**Key Points**

- Remove wet clothing and move the person indoors or to a warmer environment.
- Wrap the patient in blankets to warm them and place them in the recovery position: on their side with their knees drawn up towards their chest.
- Heat packs in the groin and/or armpits can help warm the blood.

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**Key Points**

- Note that many people with frostbite may be experiencing hypothermia. Saving their lives is more important than preserving a finger or foot.
- Frostbite affects the extremities because blood flow to the extremities is reduced so the body can preserve the function of vital organs.

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## Treatment

- Remove all clothing and jewelry from the affected area.
- Protect from cold.
- Warm up using skin-to-skin or mouth.
- DO NOT massage.
- DO NOT place in front of heat source.
- DO NOT break blisters.

Disaster Medical Operations II

**Key Points**

- Remove all constrictive jewelry and clothes because they may further block blood flow.
- Move to a warm area to prevent further heat loss. Keep the affected part elevated to reduce swelling.
- Apply a dry, sterile bandage, place cotton between any involved fingers or toes (to prevent rubbing), and take the person to a medical facility as soon as possible.

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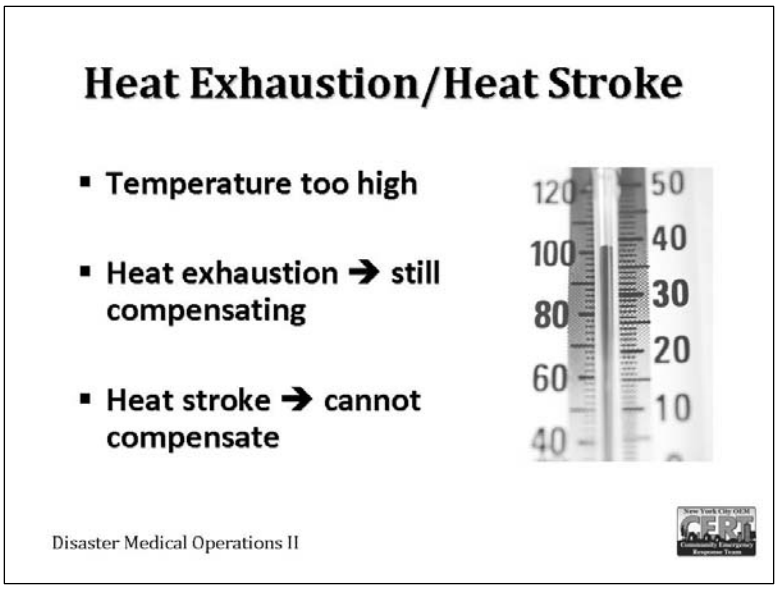


**Key Points**

- Heat exhaustion occurs when people exercise, work or play in a hot, humid place and body fluids are lost through sweating, causing the body to overheat.
- Heat stroke is life-threatening. The person's cooling system, which is controlled by the brain, stops working and the internal body temperature rises to the point where brain damage or damage to other internal organs may result (temperature may reach 105°F or more).
- Infants and the elderly are more likely to have this problem, as are those who are taking antihistamines and certain types of medication for high blood pressure and depression.

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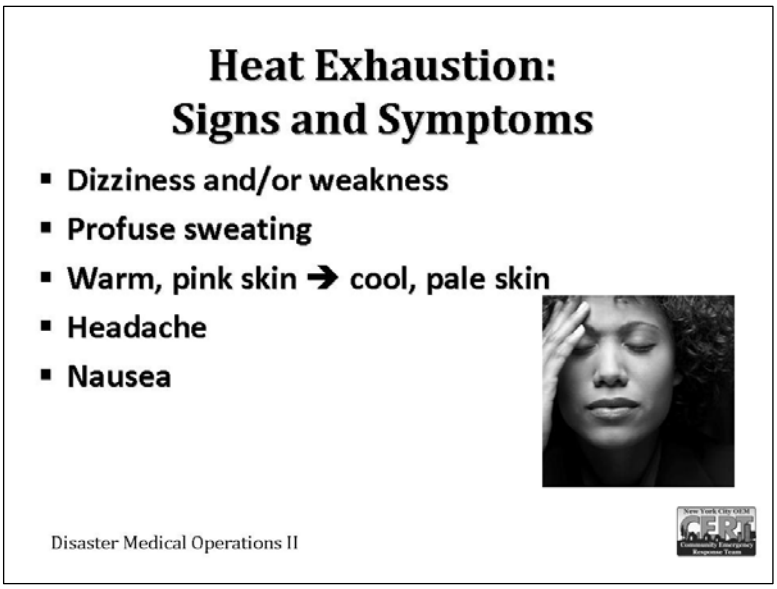


**Key Points**

- Heat exhaustion symptoms consist of paleness with cool, moist skin, sweating profusely, muscle cramps or pain, feeling faint or dizzy. Victims may complain of headache, weakness, thirst, and nausea.
- In cases of heat exhaustion, core temperature is elevated usually more than 100°F and the pulse rate is increased.
- Heat exhaustion can affect both victims and responders. Like with first responders, NYC CERT members should be rotated to minimize the effects of the heat on them.

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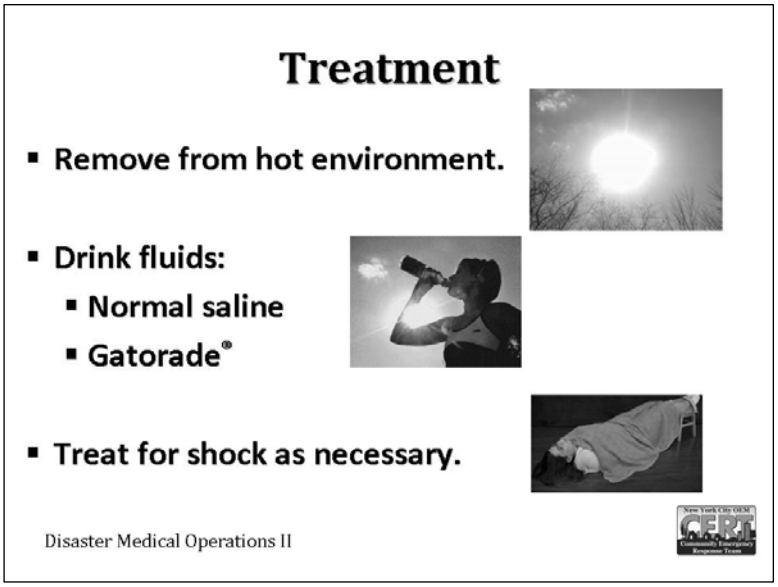


**Key Points**

- Treatment for heat exhaustion:
  - Rest in a cool, shaded area.
  - Provide cool fluids such as water or sports drink, which will replace the salt that has been lost.
  - Loosen or remove clothing.
  - Apply cool water to skin.
  - Treat for shock as necessary.
  - **Do not** use an alcohol rub.

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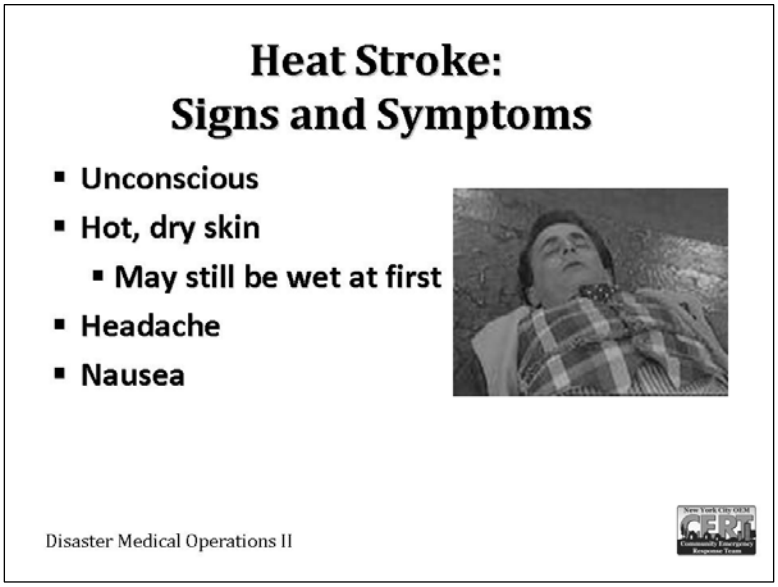


**Key Points**

- Heat stroke symptoms may include:
  - Loss of consciousness or a markedly abnormal mental status including dizziness, confusion, hallucinations, or coma;
  - Flushed, hot, and dry skin although it may be moist initially from previous sweating or from attempts to cool the person with water;
  - Initially, slightly elevated blood pressure that falls later;
  - Hyperventilating; and
  - A body temperature of 105°F or more.

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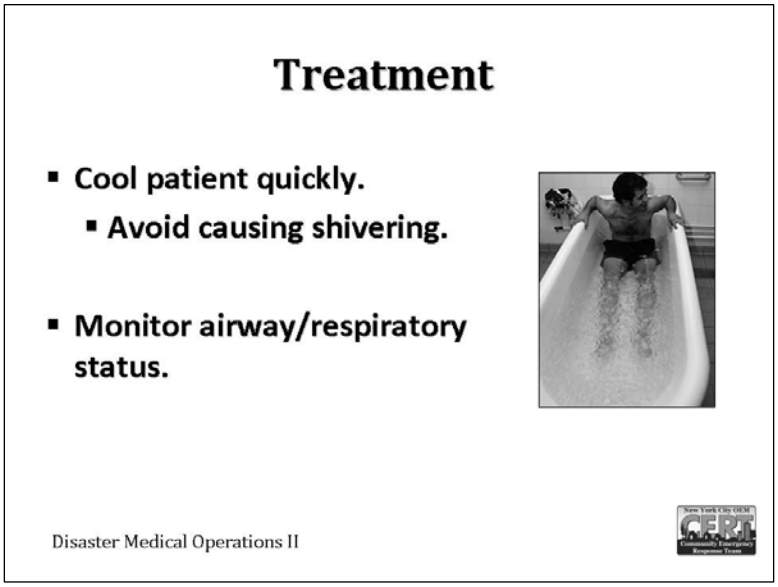


**Key Points**

- Treatment for heat stroke:
  - **Call 911 immediately.**
  - Move the person to a cooler environment, or place him or her in a cool water bath (as long as he or she is conscious and can be attended to continuously).
  - Alternatively, moisten the skin with lukewarm water and use a fan to blow cool air across the skin.
  - Give cool beverages by mouth only if the person has a normal mental state and can tolerate them.

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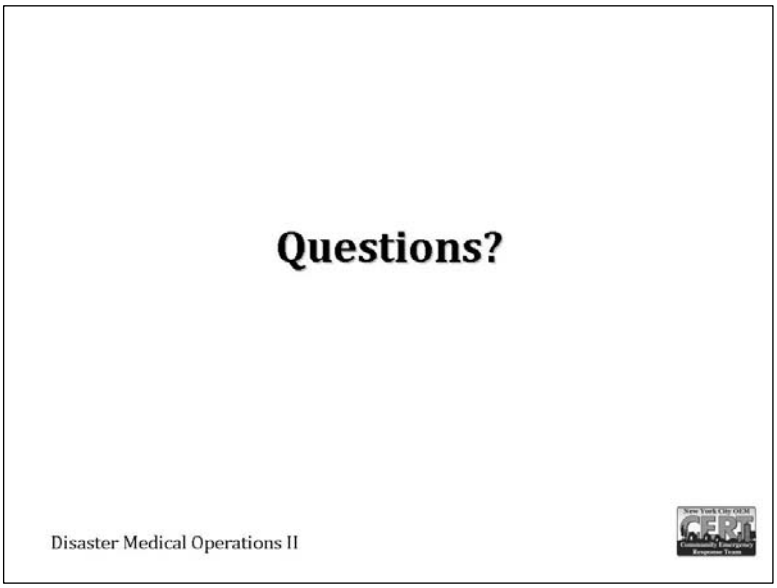


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# Disaster Medical Operations Review

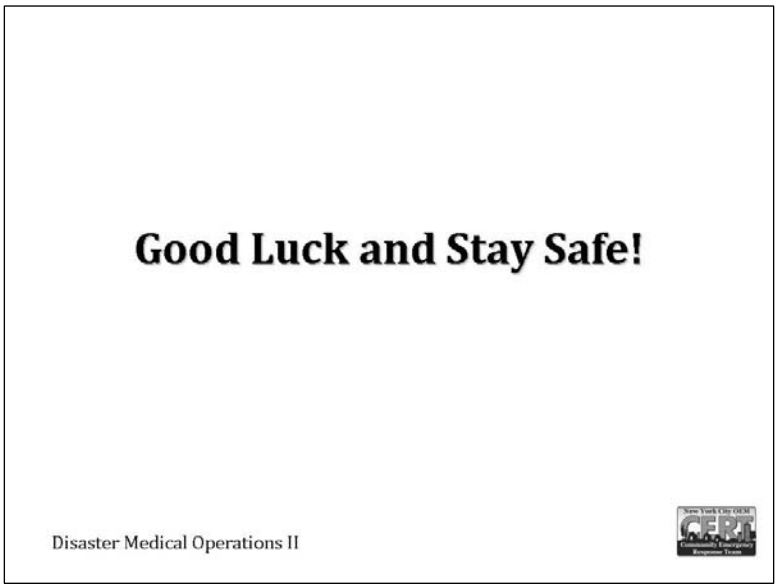
- First, do no harm
- Greatest good for the greatest number
- Responder, protect thyself!
- Organization of operations
- Triage
- Patient assessment
- Head and spinal injuries

Disaster Medical Operations II

# Disaster Medical Operations Review

- Burns
- Bleeding control and wound care
- Fractures, sprains, and strains
- Shock
- Environmental emergencies
  - Danger to responder

Disaster Medical Operations II

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## LESSONS LEARNED

- Learn how to control bleeding and care for various wounds.
- Understand how to provide initial care for fractures, sprains, and strains.
- Identity and treat for shock.
- Understand NYC CERT's role and how the teams work during an incident.

## COMMUNITY AWARENESS

- What lessons were learned in this unit that you might bring to your community?

- What is a message your might stress, learned this week, during a Ready NY presentation?

## PREPARING FOR YOUR FINAL WEEK

The disaster simulation will have multiple parts for which you and your classmates will need to respond. Providing disaster medical operations will most likely be a big part of the disaster simulation, so it is important to understand the concepts and techniques. It is also important for you to understand how disaster medical operations fit into the Incident Command System structure. Practice, practice, practice.

## EVALUATION

Please fill out the evaluation for Unit 6 in the back of the binder. When completed, please hand in to your OEM liaison.

## UNIT RESOURCES

NYC OEM Website: www.nyc.gov/oem
FEMA CERT Curriculum: http://www.citizencorps.gov/programs/cert_detailed.shtm