

First Aid Reference

The American Red Cross defines first aid as the “immediate and temporary care given the victim of an accident or sudden illness until the services of a physician can be obtained.” Effective first aid consists primarily of common sense and a few simple rules.

The following conditions require that basic life support procedures be used immediately:

- a. Severe bleeding – If a large blood vessel is severed, enough blood can be lost in one or two minutes to cause death.
- b. No breathing/circulation – Death or brain damage can occur in four to six minutes if breathing or circulation is not restored.
- c. Poisoning – Every second counts in preventing further injury.

General

The primary objective in first aid is to sustain life by utilizing basic life support techniques to:

- a. Maintain an airway
- b. Maintain breathing
- c. Maintain circulation
- d. Control bleeding
- e. Treat for shock
- f. Get medical care for the victim

The first aid provider **MUST** avoid panic, offer reassurance, inspire confidence, and do no more than necessary until proper medical help can be provided.

Severe Bleeding

Severe bleeding results from wounds to large blood vessels. Bleeding **MUST** be controlled quickly. Don't waste time – apply direct pressure over the wound. The following procedures should be used in the event of severe bleeding:

- a. Place a clean pad, handkerchief or cloth over the wound and press firmly with your hands. If you do not have a pad or bandages, close the wound with your hand or fingers.
- b. Apply pressure directly over the wound.
- c. Hold the pad firmly in place with a bandage, necktie, cloth strip, etc.
- d. Raise the bleeding part higher than the rest of the body unless bones have been broken.
- e. Keep the victim lying down.
- f. Keep the victim warm. Cover the victim with blankets or coats and put something under the victim when found lying on a cold or damp surface.

- g. If the victim is conscious and can swallow, and if abdominal injury is not suspected, give plenty of liquids (such as water, tea or coffee).
- h. Get medical help.

A tourniquet should only be used to treat severe, life-threatening bleeding that cannot be controlled by other means (usually an amputated, mangled or crushed arm or leg or when bleeding involves several arteries). The procedure for applying a tourniquet follows:

- a. Use only a strong, wide piece of cloth. NEVER use wire, rope, twine or other narrow materials.
- b. Place the tourniquet immediately above the wound, between the body and the edge of the wound. Some normal skin should be left between the tourniquet and the wound. If the wound is near a joint, place the tourniquet at the closest practical point above the joint.
- c. Make sure the tourniquet is just tight enough to stop bleeding. If possible, attach a card to the victim showing the time and place the tourniquet was applied.
- d. Once the tourniquet has been applied, the victim should be taken to a medical facility immediately. The tourniquet should only be removed by a physician or medical personnel prepared to control bleeding.
- e. Experience has shown that a properly applied tourniquet can be left in place for one to two hours without causing further damage to the extremity.

No Breathing or Circulation

A person whose breathing and circulation have stopped will die or suffer brain damage if these functions are not restored in four to six minutes. The initial evaluation of a victim should follow the procedures developed by the American Red Cross for basic life support, called "ABC Evaluation."

- a. Airway – After assuring yourself that the victim is unconscious, open the airway by tilting the head back. Look into the mouth and remove anything that is blocking or could potentially block the airway. This includes gum, partial plates and chewing tobacco.
- b. Breathing – Determine whether the victim has stopped breathing or not. Do this by placing your cheek next to the victim's nose and mouth to feel an exchange of air. At the same time, watch for any chest movement.
- c. Circulation – Initially place the tips of two fingers on the larynx (voice box) and slide them gently into the groove between the voice box and the large muscle of the neck. This is the location of the cardio-pulmonary resuscitation (CPR). To be performed effectively, they MUST be learned in a certified course.

Although the procedures will be briefly discussed in this section, the discussion is not intended to replace an official course.

The following CPR procedure should be performed by a single rescuer after evaluation indicates that breathing and circulation have stopped:

- a. Deliver four quick breaths using mouth-to-nose breathing. Do this in such a way that the victim does not have a chance to completely exhale.
- b. Place the heel of one hand over the lower half of the sternum (breastbone) and place the other hand on top of the first hand. Keeping the arms straight, deliver a quick, downward, piston-like thrust to compress the victim's chest 1- ½ to 2 inches. This procedure compresses the heart between the sternum and the backbone, forcing it to circulate blood. Deliver this thrust 15 times at the rate of approximately 80 times per minute.
- c. After 15 compressions, immediately tilt the victim's head back and deliver two quick breaths mouth-to-mouth.
- d. Repeat the cycle of delivering 15 compressions and two breaths until medical help arrives.
- e. Once a minute, check the carotid artery for a pulse. Do this between compressions and the two breaths.
- f. If you feel a pulse, deliver one breath every five seconds while ensuring that circulation is still present. If breathing and circulation return, keep close watch over the victim in case these processes stop again.

The following CPR procedure is used if a situation involves two rescuers:

- g. One person does the ABC evaluation while the other rescuer prepares to deliver external cardiac massage.
 - h. The rescuer who has done the evaluation and found no breathing or circulation delivers four quick breaths by mouth-to-mouth resuscitation.
 - i. When the four breaths are completed, the other rescuer starts delivering compressions at the rate of 60 times per minute.
 - j. After every fifth compression, the first rescuer delivers one breath mouth-to-mouth. The ratio then becomes five compressions to one breath until help arrives or a pulse is restored.
8. NEVER practice CPR procedures on real people. These are violent maneuvers that can injure a person if improperly executed. These procedures are learned in a formal CPR course in which life-size mannequins are used for practice.
9. The following conditions can cause breathing and/or circulation to stop: electric shock, inhalation of gas such as H₂S, inhalation of smoke, lack of oxygen, heart attack, drowning, or a hard blow to the chest. For victims of any of these

conditions, do the ABC evaluation and support the life process that has ceased by using CPR procedures.

Heart Attack

For heart attack victims, use the following procedures:

- a. Do ABC evaluation. Begin CPR if breathing and circulation have ceased. Continue CPR until the vital signs have been restored.
- b. If breathing and circulation are present, keep calm and reassure the victim.
- c. Loosen the clothing and help the victim get into a comfortable position (usually halfway between lying and sitting). DO NOT carry or lift the victim more than necessary. Have someone call for medical help.
- d. DO NOT give the victim any liquids without a doctor's advice.

Choking

Do not interfere with a choking victim who can speak, cough or breathe. However, if the choking continues without breathing, call for medical help.

If the victim cannot speak, cough or breathe, take the following action until medical help arrives:

For a Conscious Victim:

- 1) Stand just behind and to the side of the victim, who can be standing or sitting. Support the victim with one hand on the chest. The victim's head should be lowered. Deliver four sharp blows between the shoulder blades. If this technique does not lessen choking.
- 2) Stand behind the victim, who can be standing or sitting. Wrap your arms around the victim's middle just above the navel. Clasp your hands together in a doubled fist and press in and up in quick thrusts. Repeat this maneuver several times. If choking continues, repeat a cycle of four back blows and four quick thrusts until the victim is no longer choking or becomes unconscious.

For an Unconscious Victim:

- 3) Place the victim on the ground and deliver rescue breathing: If the victim does not start breathing and if it appears that your air is not going into the victim's lungs.
- 4) Roll the victim onto one side, facing you, with the chest against your knee. Then deliver four sharp blows between the shoulder blades. If the victim still does not start breathing.
- 5) Roll the victim face-up and deliver one or more manual thrusts. To deliver the thrusts, place one hand on top of the other, with the heel of

the bottom hand in the middle of the abdomen, slightly above the navel and below the rib cage. Press into the victim's abdomen with a quick upward thrust. DO NOT press to either side. Repeat four times if the victim does not start breathing. Even if breathing begins.

- 4) Clear the airway:
 - a) Hold the victim's mouth open with one hand, using your thumb to depress the tongue.
 - b) Make a hook with the middle finger of your other hand and, in a gentle sweeping motion, reach into the victim's throat and feel for a foreign object that may be blocking the air passage. Repeat the following procedure until the air passage is clear: administer four back blows, four abdominal thrusts, probe in the mouth, and try to inflate the lungs.
- 5) If the object has not been retrieved, but the victim suddenly seems all right, take the victim to the hospital anyway. This is particularly important if the swallowed object is a fish bone, chicken bone or other jagged object that could cause internal damage if it passes through the victim's digestive system.

Inhalation of Toxic Gas or Smoke

Remove the victim from the contaminated area. DO NOT enter the contaminated area without respiratory protection. NEVER try to rescue a person by holding your breath and entering the contaminated area.

- o Even with proper respiratory protection, it is dangerous to enter a contaminated area alone or without standby help. DO NOT try to rescue \ someone by yourself if you can find help quickly.

As soon as you have the victim in a safe area, perform the following procedure:

- a. Perform the ABC evaluation. If breathing and/or circulation have stopped, begin CPR.
- b. If breathing and circulation are present, keep the victim lying down until medical help arrives.

Electric Shock

For a victim of electric shock, perform the following procedure:

- a. Throw the switch to turn off the current, or use a dry board or stick to remove the electric contact from the victim.
- b. Do the ABC evaluation and begin CPR if breathing and/or circulation have ceased.
- c. If breathing and circulation are present, remain with the victim until medical help arrives. It is important that an individual who has

suffered an electric shock be evaluated by a physician, as electric shock can severely injure many parts of the body.

Burns

Burns can result from extreme temperatures (thermal burn) or from chemicals (chemical burn). Burns are very painful and can be complicated by shock, contamination and dehydration.

Extensive Thermal Burns

For victims of extensive thermal burns, use the following procedures:

- a. Wet the victim's remaining clothing with cool or cold water as quickly as possible to reduce burning.
- b. Place the cleanest available cloth over all burned areas to keep air away from the burn. Wet the burn with cool or cold water to reduce heat.
- c. Make the victim lie down.
- d. Place the victim's head and chest a little lower than the rest of the body and raise the legs if possible.
- e. If the victim is conscious and can swallow, give plenty of nonalcoholic liquids to drink (water, tea, soft drink, etc.)
- f. Obtain the services of a physician as soon as possible.

Small Thermal Burns

Use the following procedure on victims of small thermal burns:

- g. Soak a sterile gauze pad or clean cloth in cool or cold water, preferably water with ice in it. Place the cold pad over the burn.
- h. DO NOT disturb or open blisters.
- i. If the skin is not broken, immerse the skin in clean, cold water, or apply clean ice to relieve the pain.

Liquefied Petroleum Gas (LPG) or Cold Burn

Liquefied Petroleum Gas (LPG) is composed of ethane, propane, butane and their isomers. These gases are colorless and flammable. When they are handled or shipped as liquids, they have a vapor pressure of 16 psig or 550 psig at 70°F. They are low in toxicity, slightly anesthetic and have a mild odor ranging from aromatic to slightly disagreeable.

- LPG produces injury by freezing, as does dry ice. Simple burns on the skin should be treated by flushing the skin with water. The burn may be either bandaged or left open. Extensive burns should be examined by a doctor.
- LPG is most destructive when it gets into the eye. Therefore, safety or chemical goggles should be worn when handling the liquid gas. If liquid LPG hits the eye,

flush the eye with large amounts of water and refer the victim to a physician as soon as possible.

Chemical Burns of the Skin

Use the following procedure for victims of chemical burns:

- a. Immediately flush the burn with water. Speed helps reduce the extent of the injury.
- b. Apply a stream of water to the burn while removing the victim's clothes.
- c. Place the cleanest available material over the burned area.
- d. If the burned area is extensive, make the victim lie down. Place the head and chest a little lower than the rest of the body and raise the legs if possible. Extensive burns should be examined by a doctor.

Chemical Burns of the Eyes

Check the victim's eyes for contact lenses. Remove them if they are present. Wash the eyes by plunging the head into a vessel of clean water and having the victim blink rapidly or by allowing water from a drinking fountain or hose to flow into and flush the eyes. If neither of these procedures can be done immediately, pour clean water into the victim's eyes from a drinking cup. It is a good practice to keep an eyewash bottle filled with clean water available for emergency use. If the victim's eyelids will not remain open, get another person to hold the lids open and wash the eyes for 15 minutes. Use only water to wash chemical burns. NEVER use another chemical to flush the burns because this can increase the extent of the injury.

Exposure to Crude Products (Oil, Gas, Condensate):

An individual overcome by vapors MUST be removed from exposure immediately. If it is safe for a rescue to do so. A physician should be consulted. If breathing is irregular or stopped, administer artificial respiration.

If a liquid petroleum product is swallowed, DO NOT induce vomiting. Get medical help immediately then contact office.

For skin contact, remove contaminated clothing and wash the skin with soap and water. If the petroleum liquids splash into eyes, wash the eyes with clear water for 15 minutes or until irritation subsides.

Shock

Whenever someone suffers from trauma or emotional upset, shock may be present. Shock MUST be considered as a possible complication of every injury and severe illness. Shock

occurs when the circulation to vital organs of the body, especially the brain, slows down. This condition is severe and can be life threatening if it is not corrected.

The symptoms of shock include the following:

- a. Cold, clammy skin
- b. Shallow breathing
- c. Rapid pulse
- d. Victim feels cold; may even be shaking
- e. Weakness
- f. Confusion or disorientation

Shock should be treated as follows:

- g. Make the victim lie down.
- h. Keep the airway open. If the victim vomits, turn the head to the side so the neck is arched with the chin pointing down.
- i. If the victim complains of being cold, use a blanket or coat for a cover.
- j. Increase circulation to the brain by elevating the victim's legs so that the head is lower than the body.
- k. Reassure the victim.
- l. If the victim is conscious and can swallow, administer fluids (water, tea, soft drink, etc.)
- m. NEVER give the victim alcoholic beverages.
- n. DO NOT give the victim fluids if you think the abdomen may be injured.

Heat Exhaustion

The symptoms of heat exhaustion include the following:

- o. Pale, cold, clammy skin
- p. Rapid, weak pulse
- q. Weakness, headache or nausea
- r. Cramps in abdomen or limbs
- s. Excessive perspiration

Heat exhaustion should be treated as follows:

- t. Move the victim to a cool place in the shade.
- u. Make the victim lie down so the head is lower than the rest of the body
- v. Give the victim water to drink and, if available, stir one-quarter teaspoon of salt into the water.
- w. Get medical help.

Heat Stroke

Heat stroke is life threatening and immediate measures MUST be taken to cool down the victim and get medical care.

The symptoms of heat stroke include the following:

1. Flushed, dry, hot skin
2. Rapid, strong pulse
3. Temperature is well above normal and skin feels hot to the touch.
4. Headache, dizziness, nausea

Often the victim is unconscious.

Heat stroke should be treated as follows:

1. Move the victim to a cool place.
2. Treat for shock.
3. Cover the entire body with cold water, using either a sponge or a hose. Cover the victim with ice if it is available. Obtain medical help immediately.
4. If the victim is fully conscious and can swallow, administer water or, if available, one-quarter teaspoon of salt stirred into a glass of water.
5. DO NOT give the victim alcoholic beverages.

Frostbite

The symptoms of frostbite include the following:

1. The affected area is white to grayish-yellow in appearance.
2. The victim initially feels pain that quickly subsides.
3. Victim feels cold and numb and may not have feeling in frostbite areas.

Frostbite should be treated as follows:

- a. Cover the frostbite area with a warm hand or woolen material. DO NOT rub the area.
- b. Have the victim hold the affected hand in the armpit if fingers and hands are frostbite.
- c. If possible, move the victim inside and place the frostbitten area in lukewarm water.
- d. If lukewarm water is not available, gently wrap the frostbitten area in blankets.
- e. Let circulation reestablish itself naturally. When the frostbitten area has warmed up, encourage the victim to exercise it gently.
- f. Give the victim a warm, nonalcoholic beverage.
- g. NEVER rub the injured area with snow or ice. This causes further damage to the tissue and increases the risk of gangrene.
- h. NEVER use hot water, hot water bottles, heat lamps or campfires to thaw frostbite.

Hypothermia:

Hypothermia is a reduction in body temperature caused by the insufficient generation of heat. Hypothermia may occur at temperatures both above and below freezing and it is especially common in wet environments. Also, wind combined with cold weather makes the body temperature drop faster than calm, cold weather does. Wind chill increases the risk of hypothermia. If hypothermia is not recognized and treated quickly, it may result in death.

The following **precautions** help prevent hypothermia:

- Before going outside, rest and eat properly.
- Continue food intake once outside.
- Make sure clothing and outerwear is windproof and waterproof.
- Carry emergency survival equipment.
- Before beginning an outdoor task, think about what you will do if you must remain at the location. Make sure you have the shelter to carry out that encampment.
- When working in a cold environment, reduce sweating by removing clothing layers and then putting them back on when you rest.
- Exercise (isometric) to help the body produce heat.

The **symptoms** of hypothermia include the following:

- The signs observed by others are poor coordination, slowness, stumbling, thickness of speech amnesia, irrationality, poor judgment, hallucinations, bluish or puffy skin, dilated pupils, decreased heart and respiratory rates, weak or irregular pulse and stupor.
- The symptoms noticed by the victim include intense shivering, muscle tenseness, fatigue, numbness or coldness, poor coordination, stumbling, poor articulation, disorientation, a decrease in shivering followed by muscles going rigid, bluish or puffy skin and slow, irregular or weak pulse.

Hypothermia **should be treated** as follows:

1. Reduce heat loss by sheltering the victim from wind and weather.
2. Isolate the victim from the ground. Replace wet clothing with windproof, waterproof clothing and have the victim increase exercise level if possible.
3. Administer heat by giving the victim hot drinks. **DO NOT** give the victim alcoholic beverages.
4. Place the victim in a sleeping bag with another person.
5. Make the victim huddle with others for body heat. If you are in a permanent location, immerse the victim in water heated 100-108°F.

Immersion Hypothermia:

Immersion in near-freezing water for only a few minutes while inadequately dressed causes rapid and total body cooling. If immediate action is not taken, death may result.

The following **precautions** help prevent immersion hypothermia:

- a. Wear an insulated life vest or, preferably, a float coat. The device **MUST** be zipped and hooked properly in order to insulate and keep you afloat.
- b. Stay alert and out of the water.
- c. If you should fall into cold water, move as little as possible. Keep your head out of the water, your legs drawn up to your chest and your arms crossed over your chest. This position conserves body heat and improves your chance of survival.

The symptoms of immersion hypothermia are identical to those of hypothermia.

Victims of immersion hypothermia should be treated gently and warmed

Immediately:

- a. Gently remove wet clothing and place the victim in a warm sleeping bag. If the victim is very cold, it may be necessary for one or two other people to remove their clothing and climb into the bag, using body heat to rewarm the victim.
- b. **DO NOT** allow the victim to exercise or move, because activity increases the flow of cold blood from the extremities to the heart.
- c. Warm liquids are only appropriate for immersion victims with body temperatures above 90°F.

Immersion Foot (Trench Foot)

To prevent immersion foot, put on dry socks and rewarm your feet every six or eight hours. The symptoms of immersion foot are similar to those of frostbite: a sense of cold to numbness to false warmth, dead skin turning white and impaired motion of the toes. To treat immersion foot, rewarm and dry the feet, using the treatment for frostbite.

