First Aid

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Purpose The purpose of this course is to review principles of first aid and basic aid for common injuries: allergies/anaphylaxis, bleeding, fractures, strains and sprains, and burns.

Goals Upon completion of this course, the healthcare providers should be able to:

- Discuss requirements of Good Samaritan laws.
- Describe initial assessment.
- List at least 10 findings that should trigger a call to 9-1-1.
- Describe the recovery position.
- Describe treatment for allergic dermatitis and anaphylaxis.
- Describe treatment for mild and severe bleeding and nosebleeds.
- Describe treatment for fractures.
- List at least 5 findings related to fractures that should trigger a call to 9-1-1.
- Describe the 4 elements of RICE therapy for strains and sprains.
- Differentiate among first, second, third and fourth degree burns and describe treatment for minor and major burns.

Introduction

Most injuries that people encounter are not serious or life threatening, but everyone should have an understanding of basic first aid in order to provide temporary care while injuries are assessed and the need for further medical care determined.

People who do not have a legal responsibility to provide aid are not required by law to do so, but all people have a moral obligation to help others in need. Some groups, such as police officers, lifeguards, and medical personnel have a responsibility to provide care when on duty. In other cases, a pre-existing responsibility, such as with a parent and child, means a person is responsible to attempt to render aid to another.

Recuers who provide aid in good faith and provide care within their level of knowledge and training are covered by Good Samaritan laws in all states. Good Samaritan laws vary slightly from one state to another, but generally require the following:

- An emergency situation exists.
- The person rendering first aid is acting in good faith with intent to help.
- The person rendering first aid is doing so without compensation or reward.
- The person rendering first aid does not provide care that is grossly negligent or at odds with established standard first aid guidelines.

However, if victims are cognizant and responsive, the rescuer rendering first aid must ask for consent. Consent may be verbal or expressed non-verbally, such as by nodding the head. If the person is not able to give consent because of age (young child), confusion, or lack of consciousness, consent is considered implied.

Initial assessment

The initial assessment is very important to determine what has happened. The person rendering aid should stop and look around, assessing the area for any hazards or dangerous circumstances. The first rule is that the person rendering aid should not be in danger.

The rescuer should briefly assess the injured party to determine whether the injury is mild and can be easily attended to or whether there is a need to call 9-1-1 for further medical care. If in doubt, the person should call 9-1-1 immediately. Findings that should trigger a call to 9-1-1 include:

- Open wounds (other than minor cuts).
- Traumatic head injuries.
- Major fractures.
- Loss of consciousness.
- Confusion, stupor.

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- Unequal pupils.
- Severe falls.
- Impact injuries (such as car accidents).
- Excessive bleeding.
- Chest pain/pressure.
- Decreased sensation or inability to move.
- Drug overdose.
- Severe burns.
- Severe persistent vomiting.

The rescuer should also check for Medic Alert® bracelets, sports bands, dog tags, watches, shoe tags, or necklaces, especially in unconscious victims as this may provide an indication of the type of emergency.

Additionally, the rescuer should look about the scene to determine if there are other victims or people in need of help. For example, in an auto accident, some people may be thrown from the car.

The rescuer should also assess environmental dangers, which may include downed power lines, high winds, flooding, encroaching fire, gunfire, gang activity, traffic, high surf, lightning, unstable ground, or other factors. If the environment is not safe, then the person should call 9-1-1 and wait for trained professionals to provide aid.

Recovery position

If the victim has lost consciousness but does not appear at risk for spinal cord injury or severe head injury, then the victim should be placed in the recovery position rather than lying supine, which increases the danger of aspiration.

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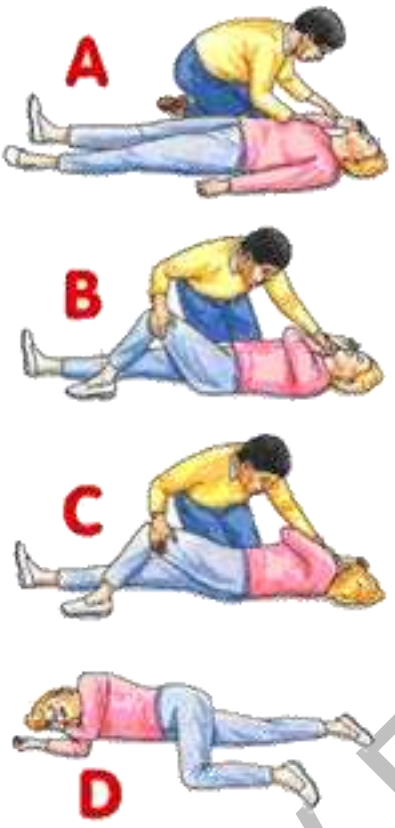
In the recovery position, the victim is turned to the side, the chin is raised to keep the epiglottis open, and the mouth is angled downward, to allow drainage of secretions.



While various recovery positions have been advocated, the most common is to raise the arm on the side to which the victim is to be turned, lay the opposite arm across the chest, raise and grasp the opposite knee, grasp the opposite shoulder, and turn in a smooth movement.

The victim must be carefully observed while in the recovery position, ensuring that ventilation is occurring.

If the victim vomits, the mouth should be wiped clean to prevent obstruction of the airway.

Note: Victims with head injuries should be positioned with the head elevated whenever possible.

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Allergic reactions/Anaphylaxis

Allergic reactions may result in contact dermatitis or severe systemic reactions, such as anaphylaxis.

Contact dermatitis may result from touching plants, such as poison ivy or poison oak, or other chemical irritants. In some cases, itching and redness may occur almost immediately, followed by blistering.

The first step is to remove the irritant if possible, and this may include removing

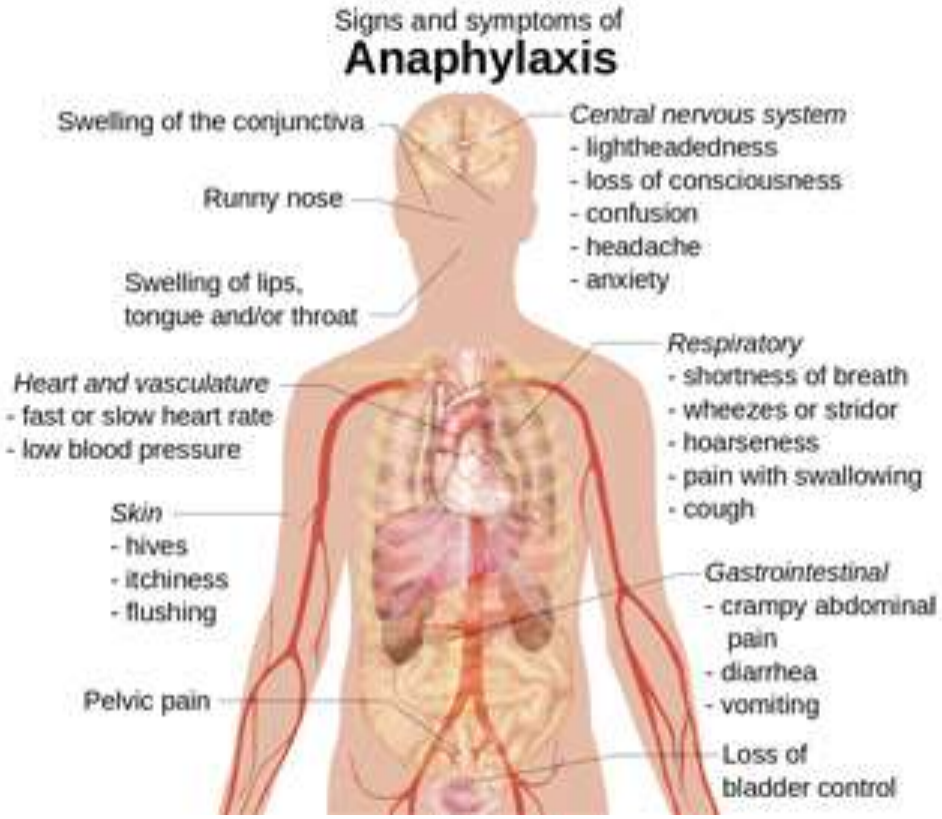
clothing that has had contact with the irritant. The affected skin should be thoroughly irrigated with water and washed with soap and water to remove residue if possible.

Topical cortisone cream, available OTC, may be applied to skin to relieve itching and decrease spread, but application on the face should be avoided. Topical Benadryl or calamine lotion may also reduce itching.

If a rash covers more than 25% of the body or involves the genitals or face, blistering is extensive, drainage appears purulent, or the person develops severe swelling or dyspnea, then the person should be seek further medical care.

Anaphylaxis

If a person begins to show signs of a systemic reaction, often the first indications may be marked generalized or facial edema, increased salivation, and increasing shortness of breath. The person administering aid should immediately call 9-1-1 because the patient is at risk of respiratory and/or cardiac arrest.



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Often people with severe allergies carry Epi-pens. If the patient is responsive, the rescuer should ask if the patient has an Epi-pen or antihistamine and administer the drug, following directions on the package. If the patient loses consciousness, the rescuer should briefly check pockets and bags for an Epi-pen.

If the patient is short of breath, he or she should be positioned with the head elevated until EMTs arrive. If the patient goes into cardiac and/or respiratory arrest, then cardiopulmonary resuscitation with rescue breathing should begin [**See CE course *Cardiopulmonary Resuscitation (CPR)*].**

Please note that compression only CPR is not adequate with respiratory arrest, which may occur if severe edema of the airways occurs. Two rescue breaths should be administered if possible followed by compressions and breathing at a 30:2 rate with compressions at 100/minute.

Bleeding

If there is any indication of internal bleeding, such as vomiting of bright red blood, or if there is severe external bleeding, then the rescuer should immediately call 9-1-1.

In some cases, such as a facial laceration, even a small injury may result in copious bleeding, so the first step is to assess the site of bleeding and the extent of injury.

When caring for any injury that involves bleeding, rescuers should make every attempt to protect themselves from contamination with blood by wearing disposable gloves or applying plastic bags over the hands. If protection is not available, then the rescuer should use a thick pad or cloth to apply pressure to minimize risk.

Minor bleeding

Most minor lacerations and abrasions will stop bleeding spontaneously, but if an injury is bleeding, then the rescuer should elevate the

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wound if possible and apply pressure with a dry sterile pad or clean cloth, holding it firmly in place for 20 to 30 minutes or until bleeding stops.

After bleeding stops, the wound should be washed with clean water, avoiding soap as it may irritate the tissue and removing any debris. This can be followed by application of a thin layer of topical antibiotic, such as Neosporin® and a protective bandage. If the wound edges cannot be easily closed or if the laceration is more than one-quarter inch deep, then the victim should seek medical attention for possible suturing.

The victim should be advised that any laceration poses a danger of tetanus, especially if it is deep or dirty. Tetanus shots are advised every 10 years, but a booster may be advised for injuries if the last tetanus shot was more than 5 years before the injury.

Severe bleeding

Severe bleeding poses the risk of shock, especially if bleeding is arterial, so the rescuer should immediately call 9-1-1. If possible, the site of bleeding should be elevated and the head positioned lower than the trunk.

The rescuer should apply pressure to the site of bleeding using a dry sterile pad or clean cloth for 20 to 30 minutes and should avoid releasing pressure. If the bleeding saturates the pad or cloth, then it should be left in place and additional padding added.

If necessary, the pads can be tightly secured with binding or tape. If there is arterial bleeding or if bleeding cannot be controlled by direct pressure, then pressure must be applied to the artery that supplies the area of the bleeding. One hand should continue to apply direct pressure while the other applies pressure to the arterial pressure point.

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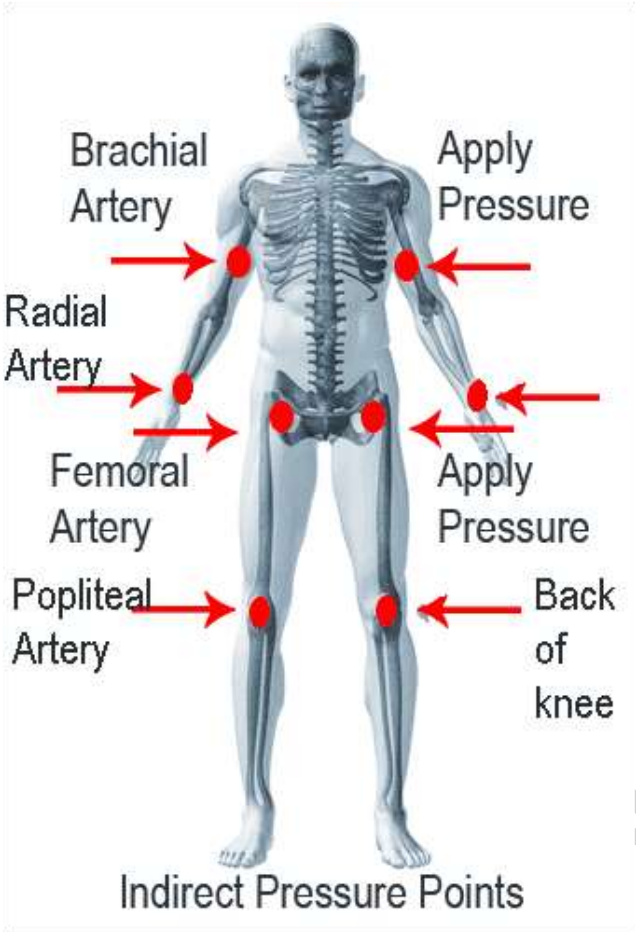

Tourniquets are no longer recommended because of the potential for damage to tissues; however, in rare cases where bleeding is profound and cannot be slowed, then a wide (1 to 2-inch) band may be utilized, but these should be utilized only by trained personnel because, if the tourniquet is applied to tightly, it can result in gangrene, and if it is too loose, it may stem only venous bleeding and worsen arterial bleeding below the tourniquet.

Once bleeding is controlled, the bandages should be left in place and the site immobilized for transportation to an emergency department.

Nosebleed

In most cases, nosebleeds can be treated by first aid, but if victims experience severe uncontrolled bleeding or bleeding is associated with anticoagulants, then the victim will need referral to an emergency department. If the nosebleed occurs as the result of a head or facial injury, then the nasal bone may be fractured.

The first step in controlling a nosebleed is to have the victim sit upright, leaning slightly forward. The rescuer, or the victim, should then pinch the nose tightly, just below the bony ridge, applying pressure toward the face.

Pressure should be applied for 5 minutes (check timing) and then released. If bleeding recurs, the procedure should be repeated.

If bleeding has not subsided within 20 minutes, then pressure should continue to be applied in 5-minute intervals during transit to an emergency department.

Fractures

If fractures result from major trauma, such as a motor vehicle accident, then the rescuer should immediately call 9-1-1, as there may be multiple injuries. Other indications for calling 9-1-1 include:

- Unconscious victim.
- Severe bleeding associated with fracture.
- Severe pain on any movement.
- Obvious deformity of joint.
- Open fracture with bone protruding through skin.
- Cyanosis of limb.
- Possible fracture of head, neck, spine, pelvis, or femur.

In all cases, victims with fractures should be transported to an emergency department for further treatment although they may not require transportation by ambulance. It's important to avoid any unnecessary movement, which may further dislodge a bone or increase tissue damage and internal bleeding. As with other causes of bleeding, the first step is to apply pressure to control blood loss.

The area of the fracture should be immobilized in the position found without any attempt to straighten a limb or realign bones. Unless trained to do so, the rescuer should not attempt to apply a splint but should wait for emergency medical personnel.

If available, ice packs can be applied to the area of the fracture to reduce swelling, avoiding direct application of ice to skin by placing a cloth over the area under the ice pack.

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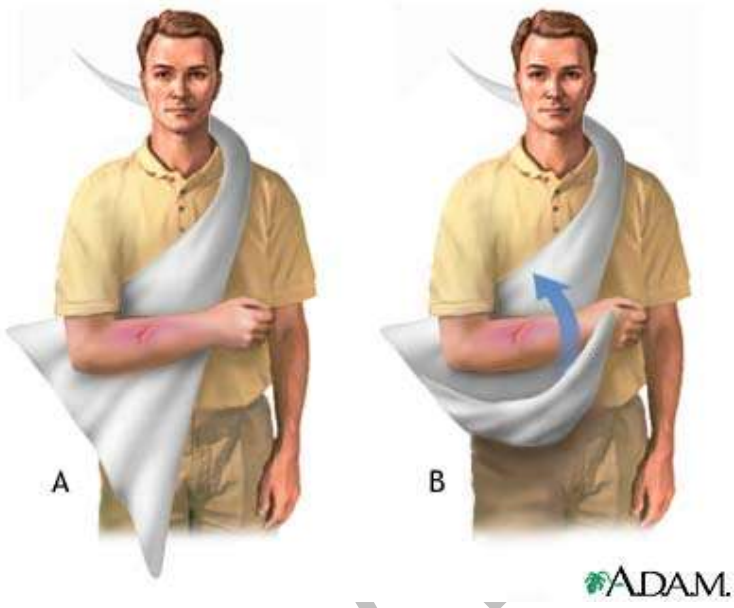
For fractures of the shoulder, clavicle, arm, elbow, or hand, a simple sling from a square or triangle of cloth may be applied for transportation to an emergency department.



Sprains and strains

Strains and sprains are treated similarly with RICE therapy. While both may require medical attention, calling 9-1-1 is not usually indicated.

- **Strain** ("Pulled muscle): May result from overstretching or blunt injury, resulting in tears in the muscle or tendon. Strains are classified as 1st, 2nd, or 3rd degree according to severity, but initial treatment is the same. Pain onset is rapid with local tenderness felt on movement of the muscle. Edema is usually present with 2nd and 3rd degree injuries.

- **Sprain** (Joint damage): May result from twisting or wrenching a joint, causing damage to the joint itself and supporting ligaments. The wrenching often tears vessels, so sprains are characterized by edema, tenderness at site of injury, and pain on movement or inability to bear weight on affected limb. Pain tends to increase

over 2 to 3 hours. Severe sprains may be associated with fractures, so victims should seek medical care for further treatment and x-ray.

RICE Therapy
Rest: Stop doing the activity that caused the problem and avoid any more damage to injured area.
Ice: Apply ice or cold compresses for 15-20 minutes an hour for the first 24-48 hours to reduce swelling.
Compression: Apply an Ace bandage or similar dressing to apply gentle pressure and prevent swelling.
Elevate: Keep the injured area above the level of the heart to promote drainage.

Like strains, sprains are classified as 1st, 2nd, or 3rd degree according to severity, but initial treatment is also the same although 2nd and 3rd degree injuries may require splinting to support the joint.

If an injury occurs where no ice or dressings are available, then the affected limb should be elevated and supported for transport to medical care.

Burns

Burns are classified as first, second, or third degree, depending on the extent of the tissue damage. A general knowledge of burns helps to assess the need for treatment.

First-degree burn

A first-degree burn affects only the epidermis (outer skin layer) and is characterized by redness and pain, such as may occur with sunburn or spilling a hot drink on the skin.

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With a first-degree burn, the skin is dry and intact, and the burn will usually heal within a week without treatment.

Note that a burn may appear to be first degree on initial examination, but if the skin feels rough to the touch, blisters may be forming, indicating second degree burns.

Treatment: Initial treatment includes holding the burn area under cool running water for 10 to 15 minutes (or immersing in cool water) to reduce swelling and pain. Note: Do not use ice water! Then, for large areas of skin (such as with sunburn) leave the area open to the air or apply a loose soft garment, such as a t-shirt. For smaller areas of skin, such as a burn on the arm, apply a loose sterile gauze bandage if one is available to help reduce pain from air and friction of clothing.

Second-degree burn

A second-degree burn extends through the epidermis and into the superficial or deep dermis and is characterized by blistering and sloughing of skin, and this begins almost immediately. The lesion is moist and usually requires two to three weeks to heal or even longer, depending on the depth into the dermis. Second-degree burns are very painful.

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There is a risk of infection with second-degree burns because of the exposed tissue.

Treatment: If the second-degree burn is less than 3 inches in diameter and in a non-critical area, it may be treated as a first-degree burn. However, if it involves a larger area or is located on the hands, feet, genital areas, buttocks, or over a joint, it is treated as for major third and fourth-degree burns (see below) and requires immediate medical attention. This may involve calling 9-1-1 if the burns are extensive or severe or providing other transport to an emergency department.

Second-degree burns require assessment and a judgment call to determine the type of first aid. For example, second-degree burns on the hand are considered major, but pain may be relieved by immersing the hands in cool water while waiting for emergency personnel.

Third-degree and fourth-degree burns

A **third-degree burn** extends through the entire dermis and may appear stiff and white/brown initially but is painless because of damage to nerve endings.

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However, most burns are not completely third degree but have some combination of first, second, and third-degree burns, so even those with third-degree burns may have severe pain.

A fourth-degree burn extends into underlying tissue and bone and appears charred and black. Because of damage to the nerves, the area of fourth-degree burns is painless, but as with other burns, there is often a combination of other degrees of burns, so pain may be present.

Treatment: For all major burns, the rescuer should call 9-1-1 and provide supportive care until emergency personnel arrive. Flooding the burns with water or immersing the burns may result in increased loss of body fluids and hypothermia, especially if large areas of the body are involved.

The victim's clothing should be left in place although smoldering materials should be removed and flames smothered or water applied to stop burning as necessary. Clothing may have adhered to burns and attempting to remove them may cause more tissue damage.

The victim should be assessed for breathing and circulation and may require CPR.

If possible, burned areas should be elevated above the level of the heart and may be covered with moist, sterile bandages or moist clean cloths if available.

Conclusion

There are two issues of concern when administering first aid:

- **Abandonment:** Once initiated, first aid must be continued and the victim attended until the person administering aid is relieved by someone with the same level of training or more advanced training.

- **Negligence:** If aid rendered results in more severe injury because the person administering aid provided substandard care, then that person may be liable for negligence.

References

- First Aid and Emergencies: Index. (2012). *WebMD*. Retrieved from http://firstaid.webmd.com
- First Aid: Index. (2012, August 10). *Mayo Clinic.* Retrieved from http://www.mayoclinic.com/health/FirstAidIndex/FirstAidIndex
- Flegel, M.J. (2008). *Sports First Aid*, 4th ed. Champaign, IL: Human Kinetics Publishers, Inc.
- Nosebleeds. (2010, December). *FamilyDoctor.org.* Retrieved from http://familydoctor.org/familydoctor/en/diseases-conditions/nosebleeds.printerview.all.html
- Thygerson, A.L, & Thygerson, S.M. (2011). *First* Aid, 6th ed. Sudsbury, MA: James & Bartlett Learning.

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