

Chapter 1

First Aid Basics

Objectives

- Identify the Rescuer Duties
- Assess the injured person and Rescuer Safety
- Phoning for Help
- Finding the Problem
- Applying care after the emergency

1- Identify the Rescuer Duties

In this section we'll cover

- Deciding to Provide First Aid
- Asking to Provide First Aid
- Supplying the First Aid Kit
- **Deciding to Provide First Aid**

Some people may be required to perform first aid while working. For example, law enforcement officers, firefighters, flight attendants, lifeguards, and park rangers may have a duty to give first aid when they are working. If they are off-duty, they can choose whether or not to provide first aid.

Action: Deciding to Provide First Aid

Providing first aid may be part of your job description. If so, you must help while you're working. However, when you're off-duty, you can choose whether or not to provide first aid.

- **Asking to Give First Aid**

Before you provide first aid, it's important to ask the ill or injured person if you may help.

Action

| Step | Action |
|------|--|
| 1 | If the person responds, introduce yourself as a first aid provider before you touch him. Ask if you may help him. |
| 2 | If the person agrees, you may give first aid. |
| 3 | If the person refuses your help, phone your emergency response number (or 123) and stay with him until someone with more Advanced training arrives and takes over. |
| 4 | If the person is confused or cannot answer, assume that he would want you to help. |

• **Supplying the First Aid Kit**

The first aid kit contains supplies that you might need in an emergency. Not all first aid kits contain the same supplies. Your institutions will decide what the first aid kit should have in it. At the end of this section, you'll find a sample list of supplies for a first aid kit. This list is from the American National Standards Institute (ANSI), but it is only 1 example of what a institution might decide to include in a kit.

Action: Supplying the First Aid Kit

- ✓ Keep the supplies in a sturdy, watertight container that is clearly labeled.
- ✓ Know where the first aid kit is.
- ✓ Replace what you use so the kit will be ready for the next emergency.
- ✓ Check the kit at the beginning of each work period for expired supplies and to make sure it is complete and ready for an emergency.

2. Injured person and Rescuer Safety

In this section we'll cover

- Assessing the Scene
- Washing Hands
- Universal Precautions
- Exposure to Blood
- Taking Off Gloves ("Skill You Will Demonstrate")

• **Assessing the Scene**

You may have to give first aid in dangerous places. The ill or injured person may be in a room with poisonous fumes, on a busy street, or in a parking lot. Before doing anything else, make sure the scene is safe for you and the injured person. Keep looking around to make sure that the scene stays safe. You can't help anyone if you're injured yourself.

Action: Assess the Scene

Danger: Look out for danger to you and danger to the injured person. Move the injured person only if she's in danger or if you need to move her to provide first aid or CPR if you know how. Move her if you can do so safely.

Help: Look for people who can help you and look for telephones. Have someone phone your emergency response number (or 123). Phone for help yourself if no one else is around.

Who: Who's injured? Figure out how many people are hurt and see if you can tell what happened.

Where: Where are you? Be specific. The emergency response team (or 123) dispatcher will want to know your address, floor, or location in the building or on the property. When you give first aid, know your limits. Don't become another injured person. Sometimes you wish to help can put you in danger. For example, if you are not a good swimmer, be very careful when trying to save someone who's drowning.

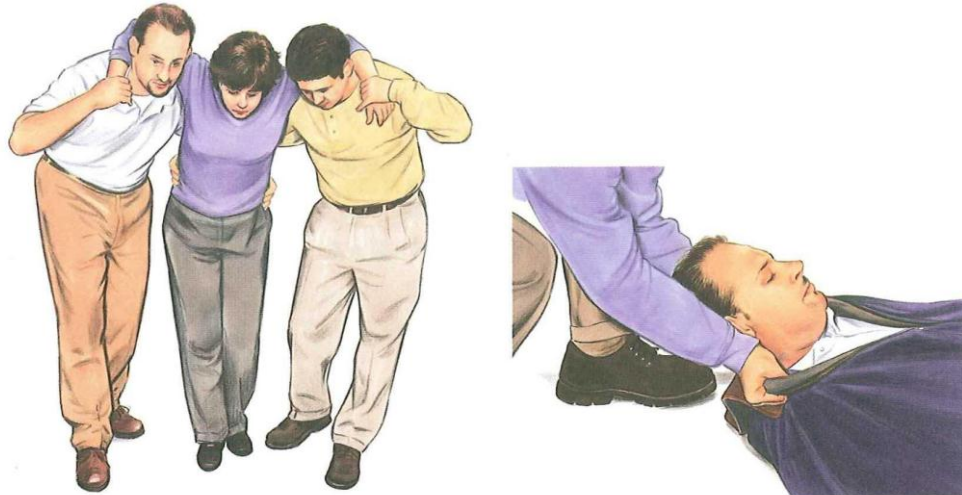


Figure 1. Here are examples of ways to move an Ill or injured person.

• **Washing Hands**

Washing your hands well is one of the most important protections you have. Always use soap and water if your hands are visibly dirty and after taking off gloves.

Actions for Washing Hands Well

| Step | Action |
|------|--|
| 1 | Wet your hands with clean running water (warm if available) and apply soap. |
| 2 | Rub hands together and rub all surfaces of hands and fingers for at least 20 seconds. |
| 3 | Rinse hands with lots of running water. |
| 4 | Dry your hands using a paper towel or air dryer. If possible, use your paper towel to turn off the faucet. |

Important: Use a hand sanitizer if you can't wash your hands with soap and water. Rub your hands well to loosen germs and then allow the sanitizer to air dry.

Figure 2. Wash your hands well with soap and lots of water after taking off your gloves.



• **Universal Precautions**

This section is based on recommendations of the Centers for Disease Control and Prevention (CDC). Universal precautions are intended to protect you and your

coworkers. For best protection, you should treat everyone's blood as if it were infected. Body fluids, such as blood, saliva, and urine, can sometimes carry germs that cause diseases. Personal protective equipment (PPE) protects you. PPE includes

- ✓ Gloves to protect your hands from blood and other body fluids
- ✓ Eye protection, if the injured person is bleeding, to protect your eyes from blood and other body fluids
- ✓ Mask to protect you when you give breaths

Actions for Universal Precautions

| Step | Action |
|------|--|
| 1 | Wear personal protective equipment whenever necessary. |
| 2 | Place all disposable equipment that has touched blood or body fluids containing blood in a biohazard waste bag (or as required by your workplace). |
| 3 | To dispose of the biohazard waste bag, follow your institution's plan for disposing of hazardous waste. |
| 4 | Wash your hands well with soap and lots of water after properly taking off your gloves. |

Figure 3. Wear protective gloves whenever you give first aid and wear eye protection if the ill or injured person is bleeding.

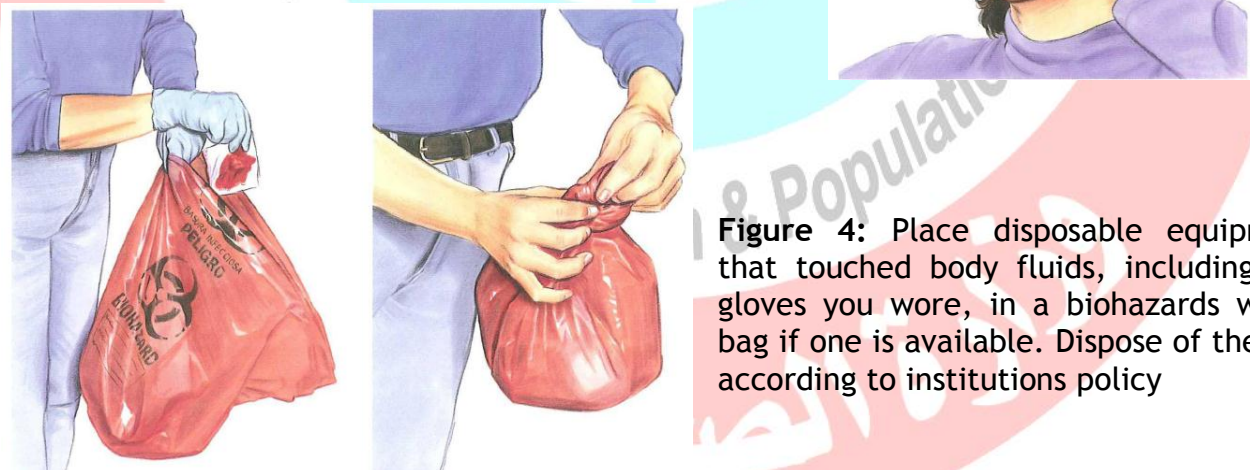


Figure 4: Place disposable equipment that touched body fluids, including the gloves you wore, in a biohazards waste bag if one is available. Dispose of the bag according to institutions policy

Important: Latex allergies are common and can be serious. Some rescuers and ill or injured people may be allergic to latex. Use protective gloves that don't contain latex, such as vinyl gloves, whenever possible. If you or the ill or injured person has a latex allergy, do not use gloves that contain latex.

• **Exposure to Blood**

Blood borne diseases are caused by germs. A rescuer may catch a disease if germs in someone else's blood or body fluids enter the rescuer's body, often through the rescuer's mouth or eye or a cut on the skin. To be safe, rescuers should wear personal protective equipment-gloves and eye shields (goggles) - to keep from touching the injured person's blood or body fluids.

Three examples of blood borne diseases are

- ✓ Human immunodeficiency virus (HIV), the virus that causes AIDS
- ✓ Hepatitis B
- ✓ Hepatitis C

Actions: Exposure to Blood

| Step | Action |
|------|--|
| 1 | If you are wearing gloves, take them off. |
| 2 | Immediately wash your hands and the contact area with soap and lots of water. |
| 3 | If body fluids have splattered in your eyes, nose, or the inside of your mouth, rinse these areas with lots of water. |
| 4 | Tell your institutions' emergency response program supervisor what happened as soon as possible. Then contact a healthcare professional. |

• Taking Off Gloves (*Skill You Will Demonstrate)

When you give first aid, the outside of your gloves may touch blood or other body fluids. Take your gloves off without touching the outside of the gloves with your bare hands.

Action: Taking Off Gloves

| Step | Action |
|------|--|
| 1 | Grip 1 glove on the outside of the glove near the cuff and peel it down until it comes off inside out. |
| 2 | Cup it with your other (gloved) hand. |
| 3 | Place 2 fingers of your bare hand inside the cuff of the glove that is still on your hand. |
| 4 | Peel that glove off so that it comes off inside out, with the first glove inside it. |
| 5 | If there is blood on the gloves, dispose of the gloves properly. <ul style="list-style-type: none"> • Put them in a biohazard waste bag or as required by your workplace. • If you do not have a biohazard waste bag, put the gloves in a plastic bag that can be sealed before you dispose of it. |
| 6 | Wash your hands after you give first aid so that you don't spread germs. |

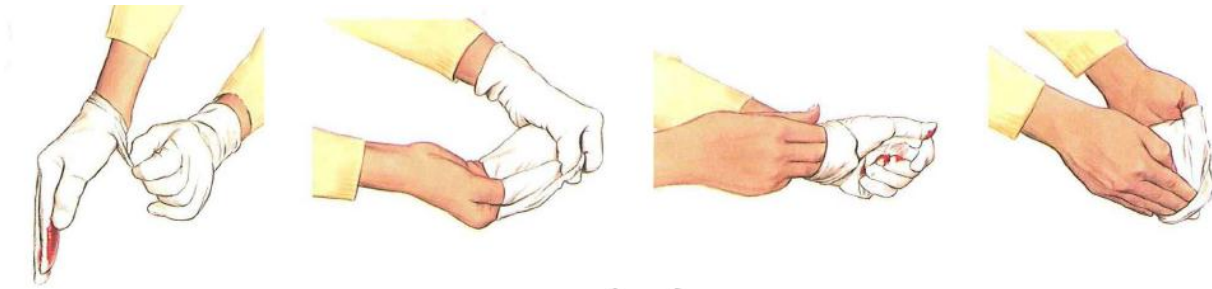


Figure 5. Proper removal of protective gloves—without touching the outside of the gloves.

Use waterless hand sanitizers only if you do not have immediate access to soap and water. Wash your hands with soap and lots of water as soon as you can.

3- Phoning for Help

In this section we'll cover

- When to Phone for Help
- How to Phone for Help

The American Heart Association adult Chain of Survival shows the most important actions needed to treat life-threatening emergencies in adults. The first link in this adult Chain of Survival is to recognize the emergency and phone an emergency number to get help. This section will teach you how and when to phone.

- When to Phone for Help

Your institutions may have some instructions about when you should phone the emergency response number (or 123). In this Student Workbook you'll learn when to phone for help in specific emergencies.

Action: Assess When to Phone for Help

As a general rule, you should phone the emergency response number (or 123) and ask for help whenever

- ✓ Someone is seriously ill or injured
- ✓ You are not sure what to do in an emergency

Here are some examples of someone who is seriously ill or injured. The person

- ✓ Does not respond to voice or touch
- ✓ Has chest discomfort
- ✓ Has signs of stroke
- ✓ Has a problem breathing
- ✓ Has a severe injury or burn
- ✓ Has a seizure
- ✓ Suddenly can't move a part of the body
- ✓ Has received an electric shock
- ✓ Has been exposed to poison

If someone tries to commit suicide or is assaulted, phone the emergency response number (or 123) regardless of the person's condition.

- How to Phone for Help

Write the emergency response number on your Quick Reference Guide, in the first aid kit, and near the telephone. You should also write it here.

Action: How to Phone for Help

| If you are | Then you should |
|--------------------|---|
| Alone | <ol style="list-style-type: none"> 1. Yell for help while you start to check the ill or injured person. 2. If no one answers your yell and immediate care isn't needed <ol style="list-style-type: none"> a. Leave for a moment while you phone your emergency response number (or 123) b. Get the first aid kit and automated external defibrillator (AED), if available 3. Return to the ill or injured person. |
| With others | <ol style="list-style-type: none"> 1. Stay with the ill or injured person and be prepared to give first aid or CPR if you know how. 2. Send someone else to phone your emergency response number (or 123) and get the first aid kit and AED if available. |

Important: Answering all of a dispatcher's questions is important to getting help to you as fast as possible. Do not hang up until the dispatcher tells you to. Answering the dispatcher's questions won't delay the arrival of help.

When you phone for help, the emergency dispatcher may be able to tell you how to do CPR, use an AED, or give first aid.

4. Finding the Problem (*Skill You Will Demonstrate)

In this section we'll cover the steps of finding the problem.

After you check the scene to be sure it is safe, you must find out what the problem is before you give first aid. Learn to look for problems in order of importance. First look for problems that may be life threatening. Then look for other problems.

Someone who "responds" moves, speaks, blinks, or otherwise reacts to you when you tap him and ask, "Are you OK?" Someone who doesn't "respond" does nothing when you tap him and ask if he's OK.

A person who gasps usually appears to be drawing air in very quickly. He may open his mouth and move the jaw, head, or neck. Gasps may appear forceful or weak, and some time may pass between gasps since they usually happen at a slow rate. The gasp may sound like a snort, snore, or groan. Gasping is not regular or normal breathing. It is a sign of cardiac arrest in someone who doesn't respond.

Action: Find the Problem

The following steps will help you find out what the problem is. They are listed in order of importance, with the most important step listed first.

1. When you arrive at the scene, check the scene to be sure it is safe. As you walk toward the ill or injured person, try to look for signs of the cause of the problem.

2. Check whether the person responds. Tap the person and shout, "Are you OK?"

- ✓ A person who responds and is awake may be able to answer your questions. Tell the person you're there to help, ask permission to help, and ask what the problem is.
- ✓ A person may only be able to move, moan, or groan when you tap him and shout. If so phone or send someone to phone your emergency response number (or 123) and get the first aid kit and AED.

3. Next, check if the person is breathing. If the person isn't breathing or is only gasping, begin CPR and use an AED if you know how. If you don't know CPR and you aren't learning it today, give Hands-Only™ CPR. To learn about Hands-Only CPR, go to handsonlycpr.org.

4. Next, look for any obvious signs of injury, such as bleeding, broken bones, burns, or bites. (You will learn about each of these problems later.)

5. Finally, look for medical information jewelry. This tells you if the person has a serious medical condition.

The muscles at the back of the throat relax in a person who does not respond. When the muscles relax, the tongue may fall back and block the airway. A person with a blocked airway cannot breathe.

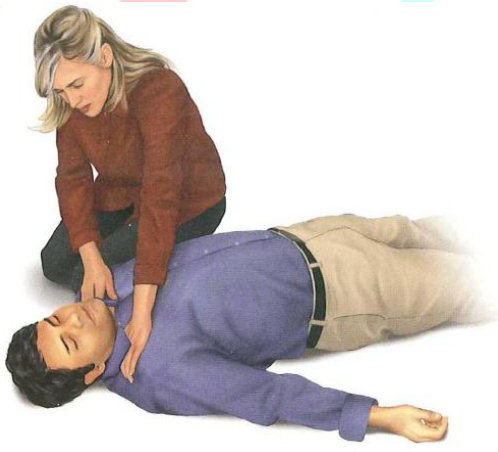


Figure 6. Check if the person responds.
Tap him and shout, "Are you OK?"



Figure 7. Look for medical information jewelry

5. After the Emergency

In this section we'll cover privacy and what you should do after the emergency.

As a first aid rescuer you will learn private things about your coworkers, such as their medical condition. Give all information about an ill or injured person to EMS rescuers and your institution's emergency response program supervisor. You may also need to fill out a report for your institutions.

Actions: Privacy

- ✓ Give all information about an ill or injured person to EMS rescuers.
- ✓ Fill out the institution's report or forms.
- ✓ Protect the ill or injured person's privacy.

Sample First Aid Kit

The following table lists sample first aid kit contents. This is a kit that follows ANSI standards. Different workplaces may have different requirements.

| Item | Minimum Size or Volume | Quantity per Package | Unit Package Size |
|---|--------------------------|----------------------|-------------------|
| List of important local emergency telephone numbers, including police, fire department, EMS, and poison control center* | | | |
| Absorbent compress | 32 sq. in. | 1 | 1 |
| Adhesive bandage | 1 in. x 3 in. | 16 | 1 |
| Adhesive tape | 2.5 yd. (total) | 1 or 2 | 1 or 2 |
| Antibiotic treatment | 0.14 fl. oz. | 6 | 1 |
| Antiseptic swab | 0.14 fl. oz. | 10 | 1 |
| Antiseptic wipe | 1 in. x 1 in. | 10 | 1 |
| Antiseptic towelette | 24 sq. in. | 10 | 1 |
| Bandage compress (2 in.) | 2 in. x 36 in. | 4 | 1 |
| Bandage compress (3 in.) | 3 in. x 60 in. | 2 | 1 |
| Bandage compress (4 in.) | 4 in. x 72 in. | 1 | 1 |
| Burn dressing | 4 in. x 4 in. | 1 | 1 or 2 |
| Burn treatment | 1/32 oz. | 6 | 1 |
| CPR barrier | | 1 | 1 or 2 |
| Cold pack | 4 in. x 5 in. | 1 | 2 |
| Eye covering, with means of attachment | 2.9 sq. in. | 2 | 1 |
| Eye/skin wash | 4 fl. oz. total | 1 | 2 |
| Gloves | | 2 pairs | 1 or 2 |
| Roller bandage (4 in.) | 4 in. x 4 yd. | 1 | 1 |
| Roller bandage (2 in.) | 2 in. x 4 yd. | 2 | 1 |
| Sterile pad | 3 in. x 3 in. | 4 | 1 |
| Triangular bandage | 40 in. x 40 in. x 56 in. | 1 | 1 |
| Heartsaver First Aid Quick Reference Guide* | | | |

*Items meet the ANSI Z308.1-2009 standard, except those marked with an asterisk.

Chapter 2

Principles of rescuing and Moving Injured persons.

Objectives

- Taking Action
- Checking a Conscious Person
- Moving an Injured or Ill Person

Taking Action & Emergency action steps

In any emergency situation, follow the emergency action steps:

- ✓ **CHECK** the scene and the person.
- ✓ **CALL** 1-2-3 or the local emergency number.
- ✓ **CARE** for the person.
- **CHECK**

Before you can help an injured or ill person, make sure that the scene is safe for you and any bystanders. Look the scene over and try to answer these questions:

- ✓ Is it safe?
- ✓ Is immediate danger involved?
- ✓ What happened?
- ✓ How many people are involved?
- ✓ Is anyone else available to help?
- ✓ What is wrong?

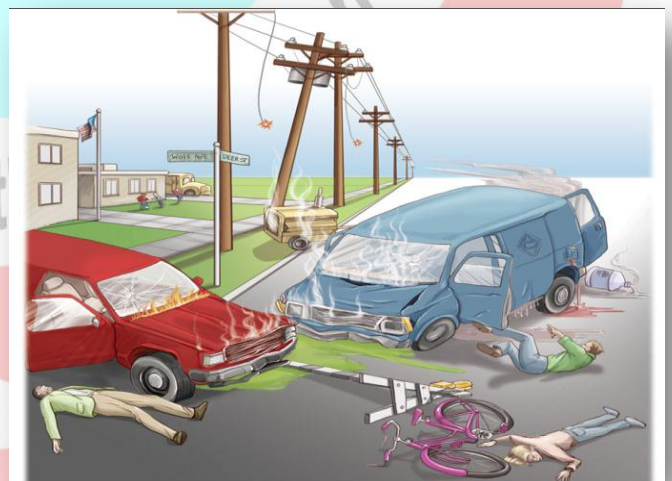


Figure 8:: Check the scene for anything that may threaten the safety of you, the injured persons and bystanders.

- **CALL**

Calling 1-2-3 or the local emergency number for help often is the most important action you can take to help an injured or ill person. It will send emergency medical help on its way as fast as possible. Make the call quickly and return to the person. If possible, ask someone else to make the call. As a general rule, call 1-2-3 or the local emergency number if the person has any of the following conditions:

- ✓ Unconsciousness or an altered level of consciousness (LOC), such as drowsiness or confusion
- ✓ Breathing problems (trouble breathing or no breathing)
- ✓ Chest pain, discomfort or pressure lasting more than a few minutes that goes away and comes back or that radiates to the shoulder, arm, neck, jaw, stomach or back
- ✓ Persistent abdominal pain or pressure
- ✓ Severe external bleeding (bleeding that spurts or gushes steadily from a wound)
- ✓ Vomiting blood or passing blood
- ✓ Severe (critical) burns
- ✓ Suspected poisoning
- ✓ Seizures
- ✓ Stroke (sudden weakness on one side of the face/ facial droop, sudden weakness on one side of the body, sudden slurred speech or trouble getting words out or a sudden, severe headache)
- ✓ Suspected or obvious injuries to the head, neck or spine
- ✓ Painful, swollen, deformed areas (suspected broken bone) or an open fracture
- ✓ Fire or explosion
- ✓ Downed electrical wires
- ✓ Swiftly moving or rapidly rising water
- ✓ Presence of poisonous gas
- ✓ Serious motor-vehicle collisions
- ✓ Injured or ill persons who cannot be moved easily

- **CARE**

Once you have checked the scene and the person and have made a decision about calling the local emergency number, you may need to give care until EMS personnel take over. After making the 1-2-3 call, immediately go back to the injured or ill person. Check the person for life-threatening conditions and give the necessary care (To do so, follow these general guidelines:

- ✓ Do no further harm.

- ✓ Monitor the person's breathing and consciousness.
- ✓ Help the person rest in the most comfortable position.
- ✓ Keep the person from getting chilled or overheated.
- ✓ Reassure the person.
- ✓ Give any specific care as needed.

Checking a Conscious Person

If you determine that an injured or ill person is conscious and has no immediate life-threatening conditions, you can begin to check for other conditions that may need care. Checking a conscious person with no immediate life-threatening conditions involves two basic steps:

- ✓ Interview the person and bystanders.
- ✓ Check the person from head to toe.

• **Conducting Interviews**

Ask the person and bystanders simple questions to learn more about what happened. Keep these interviews brief. Remember to first identify yourself and to get the person's consent to give care. Begin by asking the person's name. This will make him or her feel more comfortable. Gather additional information by asking the person the following questions:

- ✓ What happened?
- ✓ Do you feel pain or discomfort anywhere?
- ✓ Do you have any allergies?
- ✓ Do you have any medical conditions or are you taking any medication?

• **Checking from Head to Toe**

Next you will need to thoroughly check the injured or ill person so that you do not overlook any problems. Visually check from head to toe. When checking a conscious person:

- ✓ Do not move any areas where there is pain or discomfort, or if you suspect a head, neck or spinal injury.
- ✓ Check the person's head by examining the scalp, face, ears, mouth and nose.
- ✓ Look for cuts, bruises, bumps or depressions. Think of how the body usually looks. If you are unsure if a body part or limb looks injured, check it against the opposite limb or the other side of the body.
- ✓ Watch for changes in consciousness. Notice if the person is drowsy, confused or is not alert.
- ✓ Look for changes in the person's breathing. A healthy person breathes easily, quietly, regularly and without discomfort or pain.
- ✓ Notice how the skin looks and feels. Skin can provide clues that a person is injured or ill. Feel the person's forehead with the back of your hand to

determine if the skin feels unusually damp, dry, cool or hot. Note if it is red, pale or ashen.

- ✓ Look over the body. Ask again about any areas that hurt. Ask the person to move each part of the body that does not hurt.
- ✓ Look for a medical identification (ID) tag, bracelet or necklace on the person's wrist, neck or ankle. A tag will provide medical information about the person; explain how to care for certain conditions.

Moving an Injured or Ill Person

One of the most dangerous threats to a seriously injured or ill person is unnecessary movement. Moving an injured person can cause additional injury and pain and may complicate his or her recovery. Generally, you should not move an injured or ill person while giving care. However, it would be appropriate in the following three situations:

- ✓ When you are faced with immediate danger, such as fire, lack of oxygen, risk of explosion or a collapsing structure.
- ✓ When you have to get to another person who may have a more serious problem. In this case, you may have to move a person with minor injuries to reach someone needing immediate care.
- ✓ When it is necessary to give proper care. For example, if someone needed CPR, he or she might have to be moved from a bed because CPR needs to be performed on a firm, flat surface. If the surface or space is not adequate to give care, the person should be moved.

• **Techniques for Moving an Injured or Ill Person**

✓ **Walking Assist**

The most basic emergency move is the walking assist. Either one or two responders can use this method with a conscious person. To perform a walking assist, place the injured or ill person's arm across your shoulders and hold it in place with one hand. Support the person with your other hand around the person's waist.

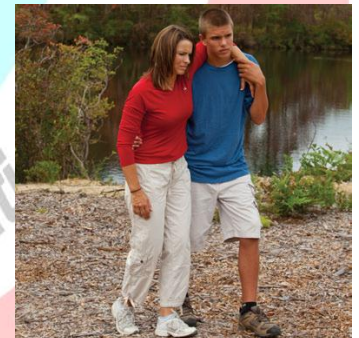


Figure 9: In a walking assist, your body acts as a crutch, supporting the person's weight while you both walk.

✓ **Two-Person Seat Carry**

The two-person seat carry requires a second responder. This carry can be used for any person who is conscious and not seriously injured. Put one arm behind the person's thighs and the other across the person's back. Interlock your arms with those of a second responder behind the person's legs and across his or her back. Lift the person in the "seat" formed by the responders' arms.



Figure 10: The two-person seat carry

✓ Pack-Strap Carry

The pack-strap carry can be used with conscious and unconscious persons. Using it with an unconscious person requires a second responder to help position the injured or ill person on your back. To perform the pack-strap carry, have the person stand or have a second responder support the person. Position yourself with your back to the person, back straight, knees bent, so that your shoulders fit into the person's armpits.

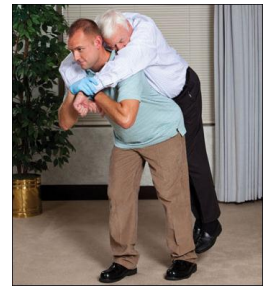


Figure 11: The pack-strap carry

✓ Clothes Drag

The clothes drag can be used to move a conscious or unconscious person with a suspected head, neck or spinal injury. This move helps keep the person's head, neck and back stabilized. Grasp the person's clothing behind the neck, gathering enough to secure a firm grip. Using the clothing and pull the person (headfirst) to safety.



Figure 12: The clothes drag

✓ Blanket Drag

The blanket drag can be used to move a person in an emergency situation when equipment is limited. Keep the person between you and the blanket. Gather half of the blanket and place it against the person's side. Roll the person as a unit toward you. Reach over and place the blanket so that it is positioned under the person, then roll the person onto the blanket. Gather the blanket at the head and move the person.



Figure 13: The blanket drag

✓ Ankle Drag

Use the ankle drag (also known as the foot drag) to move a person who is too large to carry or move in any other way. Firmly grasp the person's ankles and move backward. The person's arms should be crossed on his or her chest. Pull the person in a straight line, being careful not to bump the person's head.



Figure 14: The ankle drag

Chapter 3

Medical Emergencies

Objectives

- Provide appropriate first aid care for, the following medical emergencies
 1. Breathing Problems
 2. Choking in an Adult
 3. Heart Attack
 4. Fainting
 5. Allergic Reactions
 6. Diabetes and diabetic coma
 7. Stroke
 8. Shock

1- Breathing Problems

In this section we'll cover

- General Breathing Problems
- Assembling and Using an Inhaler
- How to Help Someone With Breathing Problems

• **General Breathing Problems**

Someone may develop mild or severe blockage of the air passages. Someone having a heart attack, having a stroke, or experiencing certain injuries may also have breathing problems.

Signs: You can tell if someone is having trouble breathing if the person

- ✓ Is breathing very fast or very slowly
- ✓ Is having trouble with every breath
- ✓ Has noisy breathing—you hear a sound or whistle as the air enters or leaves the lungs
- ✓ Can only make sounds or speak no more than a few words at a time in between breaths, although the person is trying to say more.

Many people with medical conditions, such as asthma, know about their conditions and carry inhaler medicine that can make them feel better within minutes of using it.

Sometimes people have so much trouble breathing they need help using their inhalers. You may need to help them.

- **Assembling and Using an Inhaler**

Inhalers are made up of 2 parts: the medicine chamber and the mouthpiece. A spacer can be attached that makes it easier for the person with the breathing problem to inhale all the medicine.

When someone has trouble breathing, she may panic. For this reason, you should be ready to assemble the inhaler and help her use it.

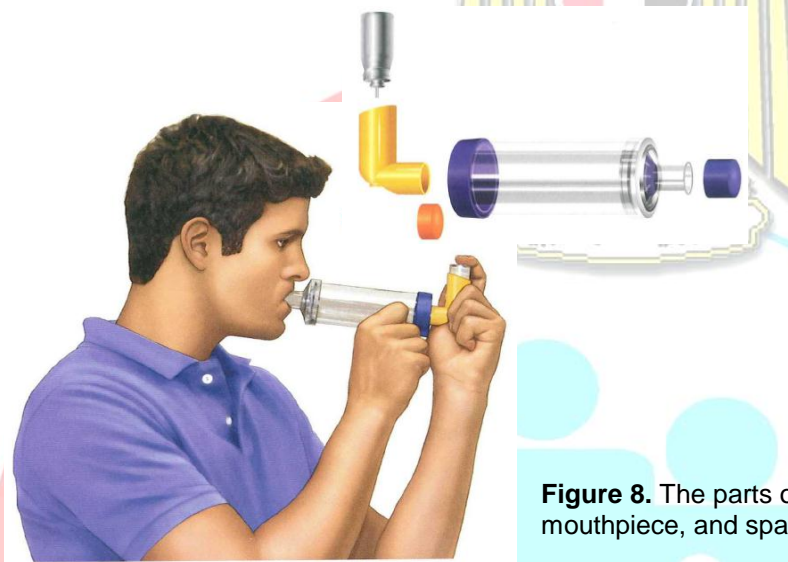


Figure 8. The parts of an inhaler: medicine canister, mouthpiece, and spacer.

- **How to Help Someone with Breathing Problems**

Action

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. |
| 2 | Ask the person if she has medicine. If she needs her medicine but is too sick to get it herself, get it for her. |
| 3 | Ask the person if you have the right medicine. |
| 4 | Assemble and use the inhaler. |
| 5 | Phone the your emergency response number (or 123) if <ul style="list-style-type: none"> • The person has no medicine • The person does not get better after using her medicine • The person's breathing gets worse, the person has trouble speaking, or the person stops responding |
| 6 | Stay with the person until someone with more advanced training arrives and takes over. |
| 7 | See if the person needs CPR. If he does, give CPR. If you don't know how, give Hands-Only CPR. |

2- choking in an Adult

In this section we'll cover

- Mild vs Severe Choking
- How to Help a Choking Adult
- How to Help a Choking Adult Who Stops Responding

Choking is when food or another object gets stuck in the airway in the throat. The object stops air from getting to the lungs.

Some choking is mild and some is severe. If it's severe, act fast. Get the object out so the person can breathe.

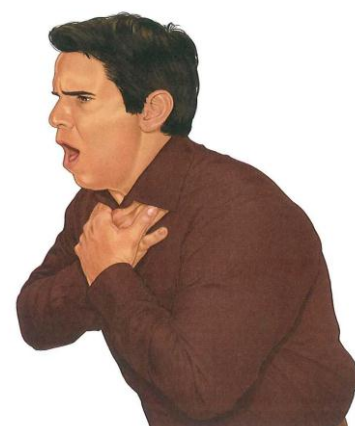
- **Mild vs Severe Choking**

Use the following table to figure out if someone has mild or severe choking and what you should do:

| If someone | The block in the | airway is |
|--|------------------|--|
| <ul style="list-style-type: none">• Can make sounds• Can cough loudly | Mild | <ul style="list-style-type: none">• Stand by and let her cough• If worried about her breathing, phone your emergency response number (or 123) |
| <ul style="list-style-type: none">• Cannot breathe or• Has a cough that has no sound or• Cannot talk or make a sound or• Makes the choking sign | Severe | <ul style="list-style-type: none">• Act quickly• Follow the steps to help a choking adult |

The Choking Sign: If someone is choking, he might use the choking sign (holding the neck with one or both hands).

Figure 15: The choking sign: holding the neck with one or both hands.



- **How to Help a Choking Adult**

When someone has severe choking, give thrusts slightly above the belly button. These thrusts are sometimes called the Heimlich maneuver. Like a cough, each thrust pushes air from the lungs. This can help remove an object that is blocking the airway.

Action Help to a Choking Adult: Follow these steps:

| Step | Action |
|------|---|
| 1 | If you think someone is choking, ask, "Are you choking?" If he nods yes, tell him you are going to help. |
| 2 | Get behind him. Wrap your arms around him so that your hands are in front. |
| 3 | Make a fist with 1 hand. |
| 4 | Put the thumb side of your fist slightly above his belly button and well below the breastbone. |
| 5 | Grasp the fist with your other hand and give quick upward thrusts into his abdomen. |
| 6 | Give thrusts until the object is forced out and he can breathe, cough, or talk, or until he stops responding. |

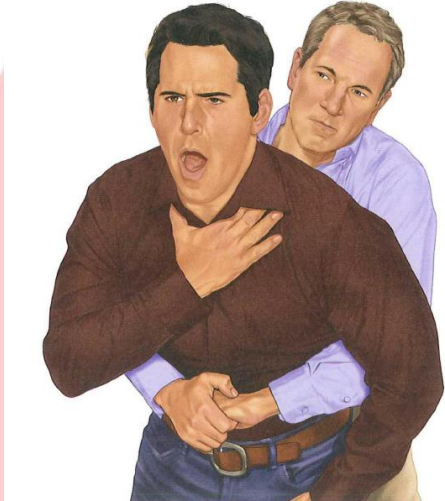


Figure 16: Helping someone who is choking



Figure 17: Chest thrusts on a choking large person or pregnant woman.

- How to Help a Choking Adult Who Stops Responding**

If you give someone thrusts but can't remove the object blocking the airway, the person will stop responding.

If the person stops responding, follow these steps:

| Step | Action |
|------|---|
| 1 | Check if he needs CPR. Give it if needed and if you know how. If you don't know how, give Hands-Only CPR. |
| 2 | Continue CPR until he speaks, moves, or breathes or until someone with more advanced training arrives and takes over. |

3- Heart Attack

In this section we'll cover how to recognize and provide first aid for heart attacks.

Heart disease is the single biggest cause of death in the United States. The first minutes of a heart attack are the most important. This is when the person is likely to get worse and may die. Also many of the treatments for heart attack will be most successful if they are given quickly.

Signs of a heart attack:

- ✓ **Chest discomfort.** Most heart attacks involve discomfort in the center of the chest that lasts more than a few minutes or that goes away and comes back. It can feel like uncomfortable pressure, squeezing, fullness, or pain. If someone has an uncomfortable feeling in the chest, think heart attack.
- ✓ **Discomfort in other areas of the upper body:** Symptoms can include pain or discomfort in one or both arms, the back, neck, jaw, or abdomen.
- ✓ **Shortness of breath:** This may occur with or without chest discomfort.
- ✓ **Other signs:** This may include cold sweat, nausea, or light-headedness.

Signs in Women, the Elderly, and Diabetics:

Women, the elderly, and people with diabetes are more likely to have the less typical signs of a heart attack, such as an ache in the chest, heartburn, or indigestion. They may have an uncomfortable feeling in the back, jaw, neck, or shoulder. They may also complain of shortness of breath or have nausea or vomiting.

Actions: Follow these steps if someone has any of the signs of a possible heart attack:

| Step | Action |
|------|---|
| 1 | Make sure the person stays calm and rests. |
| 2 | Phone or have someone phone your emergency response number (or 123). |
| 3 | Ask someone to get the first aid kit and AED if available. |
| 4 | If the person has no allergy to aspirin, no serious bleeding, and no signs of a stroke, give him an aspirin (either 2 low-dose aspirin or 1 regular). |
| 5 | See if the person needs CPR. If he does, give CPR. If you don't know how, give Hands-Only CPR. |

4- Fainting

In this section we'll cover what fainting is and how to provide first aid for it.

Fainting is a short period when a person stops responding for less than a minute and then seems fine. This is usually caused by not enough blood going to the brain. Seconds before fainting, he may feel dizzy.

Fainting often occurs when the person

- ✓ Stands without moving for a long time, especially if the weather is hot
- ✓ Has a heart condition
- ✓ Suddenly stands after squatting or bending down
- ✓ Receives bad news

Actions: Follow these steps

(A)- if a person is dizzy but still responds:

| Step | Action |
|------|---|
| 1 | Make sure the scene is safe. |
| 2 | Help the person lie flat on the floor. |
| 3 | If the person doesn't improve or stops responding, phone your emergency response number (or 123). |

(B)- If a person faints and then starts to respond:

| Step | Action |
|------|---|
| 1 | Ask the person to continue to lie flat on the floor until he can sit up and feels normal. |
| 2 | If the person fell, look for injuries caused by the fall. |
| 3 | Phone your emergency response number (or 123). |

5- Allergic Reinting

In this section we'll cover

- ✓ Using Epinephrine Pens
- ✓ Mild vs Severe Allergic Reactions

Many allergic reactions are mild. Some reactions that seem mild can become severe within minutes.

People can be allergic to many things, including:

- ✓ Many foods, such as eggs, nuts, chocolate
- ✓ Insect stings or bites, especially bee or wasp stings

• **Using Epinephrine Pens (*Skill You Will Demonstrate)**

An epinephrine pen will help someone with a severe allergic reaction breathe more easily. It contains a small amount of medicine that can be injected through clothing. It usually takes several minutes before the medicine starts to work.

The epinephrine injection is given in the side of the thigh.

Actions for an Epinephrine Pen

| Step | Action |
|------|---|
| 1 | Get the prescribed epinephrine pen. |
| 2 | Take off the safety cap. Follow the instructions on the pen. |
| 3 | Hold the epinephrine pen in your fist without touching either end because the needle comes out of one end. |
| 4 | Push the end with the needle hard against the side of the person's thigh, about halfway between the hip and knee. Give the injection through clothes or on bare skin. |
| 5 | Hold the pen in place for about 10 seconds. |
| 6 | Remove the needle by pulling the pen straight out. |

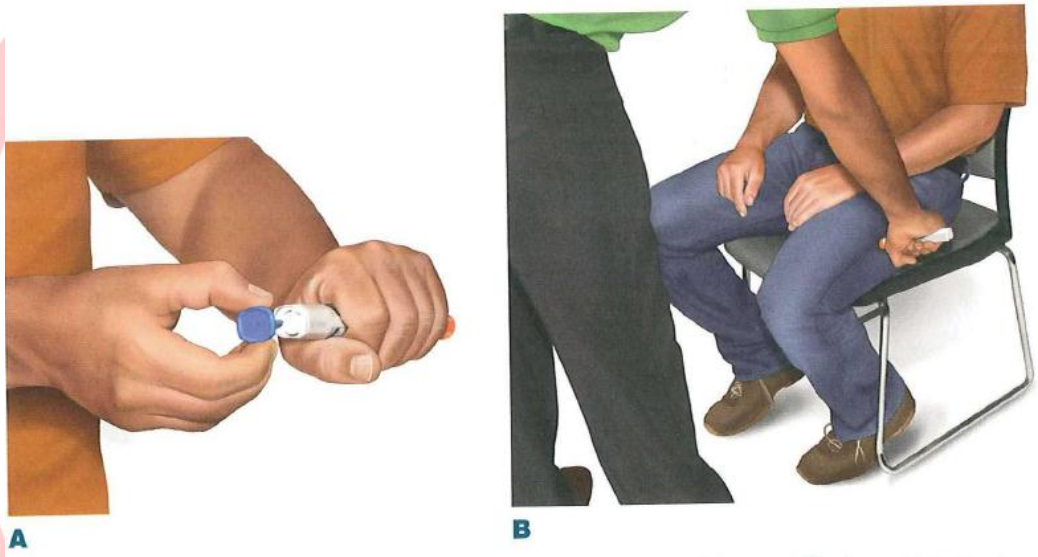


Figure 18: Using an epinephrine pen. **A,** Taking off the safety cap. **B,** A rescuer uses the pen.

• **Mild vs Severe Allergic Reactions**

Many allergic reactions are mild. Some reactions that seem mild can become severe within minutes.

Signs: The following table shows signs of mild and severe allergic reactions:

| Mild Allergic Reaction | Severe Allergic Reaction |
|---|--|
| <ul style="list-style-type: none"> • A stuffy nose, sneezing, and itching around the eyes • Itching of the skin • Raised, red rash on the skin (hives) | <ul style="list-style-type: none"> • Trouble breathing • Swelling of the tongue and face • Signs of shock |

Actions for Severe Allergic Reactions: A severe allergic reaction can be life threatening. Follow these steps if you see signs of a severe allergic reaction:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. |
| 2 | Phone or send someone to phone your emergency response number |
| 3 | If the person responds and has an epinephrine pen, help him get it. Ask him to use it. |
| 4 | If he can't use it himself, and if you're allowed, use the epinephrine pen to give him an injection. |
| 5 | Rub the injection spot for about 10 seconds. |
| 6 | After using the epinephrine pen, dispose of it properly. |
| 7 | Note the time of the injection. |
| 8 | See if the person needs CPR. If he does, give CPR. If you don't know how, give Hands-Only CPR. |

Important: It's important to dispose of needles correctly so that no one gets stuck. Follow your institution's sharps disposal policy. If you don't know what to do, give the needle to someone with more advanced training than you have.

6- diabetic and Low Blood Sugar

In this section we'll cover how to recognize and provide first aid for low blood sugar in a person with diabetes.

Diabetes is a disease that affects levels of sugar in the blood. Too much or too little sugar causes problems. In this course, we're going to address low blood sugar, which can cause someone's behavior to change. Some diabetics take insulin. Too much insulin can also cause low blood sugar.

Low blood sugar can occur if a person with diabetes has

- ✓ Not eaten or is vomiting
- ✓ Not eaten enough food for the level of activity
- ✓ Injected too much insulin

Signs of low blood sugar can appear quickly and may include

- ✓ A change in behavior, such as confusion or irritability
- ✓ Sleepiness or not responding
- ✓ Hunger, thirst, or weakness
- ✓ Sweating, pale skin color
- ✓ A seizure (see the section on seizures)

Action: Follow these steps if someone is responding and shows signs of low blood sugar:

| Step | Action |
|------|---|
| 1 | If the person can sit up and swallow, give him something that contains sugar to eat or drink. |
| 2 | Have him sit quietly or lie down |
| 3 | Phone or have someone phone your emergency response number (or123). |

The following list shows what to give a person with diabetes who has low blood sugar. Give foods that contain sugar, such as

- ✓ Fruit juice
- ✓ Milk
- ✓ Sugar
- ✓ Honey
- ✓ A regular soft drink

It's important to make sure that whatever you give has sugar in it. Diet foods and drinks don't have sugar; chocolate doesn't have enough sugar.

Important: If someone with low blood sugar is unable to sit up and swallow, don't give him anything to eat or drink.

7- Stroke

Definitions: Strokes occur when blood stops flowing to a part of the brain. This can happen if there is bleeding or a blocked blood vessel in the brain. The signs of a stroke are usually very sudden.

New treatments can reduce the damage from a stroke and improve recovery. However, they must be given within the first hours after the first signs of stroke appear. As a result, it's important to recognize the signs of a stroke quickly and get medical care fast.

Signs: The warning signs of stroke are

- ✓ Sudden numbness or weakness of the face, arm, or leg, especially on one
- ✓ side of the body
- ✓ Sudden confusion, trouble speaking, or trouble understanding
- ✓ Sudden trouble seeing in one or both eyes
- ✓ Sudden trouble walking, dizziness, loss of balance or coordination
- ✓ Sudden, severe headache with no known cause

Actions: Follow these steps if you think someone is having a stroke:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. |
| 2 | Phone or ask someone to phone your emergency response number (or 123) and get the first aid kit and an AED if available. |
| 3 | Note the time when the signs of stroke first appeared. |
| 4 | See if the person needs CPR. If he does, give CPR. If you don't know how, give Hands-Only CPR. |

7- Shock

Definitions: Shock develops when there is not enough blood flowing to the cells of the body. Someone with shock may stop responding. In adults shock is most often present if someone

- ✓ Loses a lot of blood that you may or may not be able to see
- ✓ Has a severe heart attack
- ✓ Has a severe allergic reaction

Signs: A person in shock may

- ✓ Feel weak, faint, or dizzy
- ✓ Feel nauseous or thirsty
- ✓ Have pale or grayish skin
- ✓ Act restless, agitated, or confused
- ✓ Be cold and clammy to the touch

Actions:

| Step | Action |
|------|---|
| 1 | Make sure the scene is safe. |
| 2 | Phone or send someone to phone your institution's emergency response number (or 123) and get the first aid kit and AED. |
| 3 | Help the person lie on her back. |
| 4 | Cover the person in shock to keep her warm. |
| 5 | See if the person needs CPR. If she does, give CPR. If you don't know how, give Hands-Only CPR. |



Figure 19: Cover a person in shock.

Chapter 4

Injury Emergencies

Objectives

Apply appropriate first aid care for, the following Injury Emergencies

- Internal Bleeding
- Wounds
- External Bleeding
- Head, Neck, and Spine Injuries
- Broken Bones and Sprains
- Burns and Electrical Injuries

1- Internal Bleeding

Definition: An injury inside the body may be minor or severe. Being hit hard in the chest or abdomen or falling can cause bleeding inside the body. You may not see physical signs of this bleeding, or you may see a bruise.

Signs: Suspect bleeding you can't see if a person has

- ✓ An injury from a car crash, from being hit by a car, or after a fall from a height
- ✓ An injury to the abdomen or chest (including bruises such as seat belt marks)
- ✓ Sports injuries such as slamming into other people or being hit with a ball
- ✓ Pain in the chest or abdomen after an injury
- ✓ Shortness of breath after an injury
- ✓ Coughed-up or vomited blood after an injury
- ✓ Signs of shock without bleeding that you can see
- ✓ A knife or gunshot wound

Actions Follow these steps when giving first aid to a person who may have internal bleeding:

| Step | Action |
|------|--|
| 1 | Make sure that the scene is safe. Get the first kit and AED. Wear PPE. |
| 2 | Phone or ask someone to phone your emergency response number (or123) |
| 3 | Have the person lie down and keep still. |
| 4 | Check for signs of shock. |
| 5 | See if the person needs CPR. If he does, give CPR. If you don't know how, give Hands-Only CPR. |

2- Wounds

In this section we'll cover

- ✓ Bleeding From the Nose
- ✓ Bleeding From the Mouth
- ✓ Tooth Injuries
- ✓ Eye Injuries
- ✓ Penetrating and Puncturing Objects
- ✓ Amputation

• **Bleeding From the Nose**

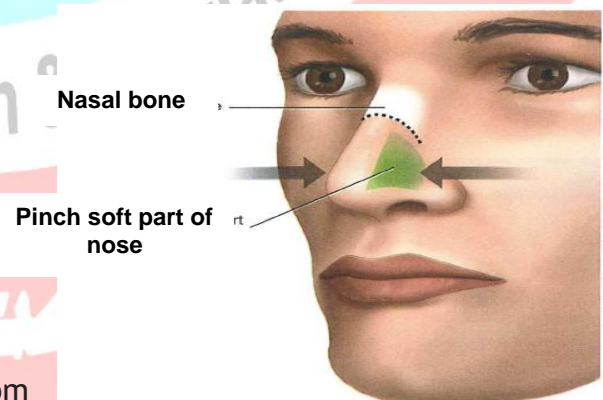
Definitions: With nosebleeds it's sometimes hard to tell how much bleeding there is because the injured person often swallows some of the blood. This may cause the person to vomit.

Actions: Follow these steps when giving first aid to a person with a nosebleed:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | Press both sides of the nostrils while the person sits and leans forward. |
| 3 | Place constant pressure on both sides of the nostrils for a few minutes until the bleeding stops. |
| 4 | If bleeding continues, press harder. |
| 5 | Phone your emergency response number (or 123) if <ul style="list-style-type: none"> • You can't stop the bleeding in about 15 minutes • The bleeding is heavy, such as gushing blood • The person has trouble breathing |

Important: People are sometimes misinformed about the best way to stop a nosebleed. The correct way to help someone with a nosebleed is to follow the steps outlined in the table.

Figure 20: Press on both sides of the nostrils.



• **Bleeding From the Mouth**

Definitions: You can usually stop bleeding from the mouth with pressure.

Bleeding from the mouth can be serious if blood or broken teeth block the airway and cause breathing problems or if you can't reach the bleeding area.

Actions: Follow these steps when giving first aid to a person with bleeding from the mouth:

| Step | Action |
|------|---|
| 1 | Make sure that the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | If you can easily reach the bleeding, apply pressure to the area with dressings. |
| 3 | Phone or ask someone to phone your emergency response number (or123) if <ul style="list-style-type: none"> You can't stop the bleeding The person has trouble breathing |



Figure 21: If the bleeding is from the tongue, lip, or cheek, press the bleeding area with sterile gauze or a clean cloth.

• **Tooth Injuries**

Definitions: A person with a mouth injury may have broken, loose, or knocked-out teeth. This can be a choking hazard.

Actions: Follow these steps when giving first aid to a person with a tooth injury:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | Check the mouth for any missing teeth, loose teeth, or parts of teeth. |
| 3 | Clean the wound with saline or clean water. |
| 4 | If a tooth is loose, have the person bite down on a piece of gauze to keep the tooth in place and call a dentist. |
| 5 | If a tooth is chipped, gently clean the injured area and call a dentist. |
| 6 | Apply pressure with gauze to stop any bleeding at the empty tooth socket. |
| 7 | If a tooth has come out, put the tooth in a cup of milk or clean water and immediately take the injured person and tooth to a dentist or emergency department. |
| 8 | Tell the person to talk with a dentist if a tooth changes color after an injury. |

• Eye Injuries

Eye injuries may happen

- ✓ With a direct hit or punch to the eye or the side of the head
- ✓ When a ball or other object directly hits the eye
- ✓ When a high-speed object, such as a BB gun pellet, hits the eye
- ✓ When a stick or other sharp object punctures the eye
- ✓ When a small object, such as a piece of dirt, gets in the eye

Signs of an eye injury include

- ✓ Pain
- ✓ Trouble seeing
- ✓ Bruising
- ✓ Bleeding
- ✓ Redness, swelling

Actions: Follow these steps for eye injuries:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | Phone or ask someone to phone your emergency response number (or 123) if the eye is hit hard or punctured. Tell the person to keep her eyes closed. |
| 3 | If there is an irritant, such as sand, in the eye, use water to rinse the eye. |
| 4 | If the irritant does not come out or if the person is in extreme pain, phone or ask someone to phone your emergency response number (or 123). Tell the person to keep her eyes closed. |

• Penetrating and Puncturing Objects

Definitions: An object such as a knife or sharp stick can wound a person by penetrating the body or puncturing the skin. Leave the object in place until a healthcare provider can treat the injury.

Actions Follow these steps when giving first aid to a person with an injury from a puncturing or penetrating object:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | Phone or ask someone to phone your emergency response number (or 123). |
| 3 | Stop any bleeding you can see. |
| 4 | Try to keep the injured person from moving. |

Important: Leave penetrating objects in. If a person is injured and a sharp object, such as a nail or a knife, remains partly stuck in the body, leave it in the body. Taking it out may cause more damage.

- **Amputation**

Definitions: If a part of the body, such as a finger, toe, hand, or foot is cut off (amputated), save the body part because doctors may be able to reattach it. You can preserve a detached body part at room temperature, but it will be in a better condition to be reattached if you keep it cool.

Actions: Follow these steps to protect an amputated part:

| Step | Action |
|------|---|
| 1 | Rinse the amputated part with clean water. |
| 2 | Cover or wrap the amputated part with a clean dressing. |
| 3 | If it will fit, place the amputated part in a watertight plastic bag. |
| 4 | Place that bag in another container with ice or ice and water; label it with the injured person's name, date, and time. |
| 5 | Make sure it is sent to the hospital with the injured person. |



Figure 22: **A,** If you can find the amputated part, rinse it with clean water. **B,** If it will fit, place the wrapped part in a watertight plastic bag. **C,** Place that bag in another labeled bag.

Important: Never place the amputated body part directly on ice or in water because the ice or water may damage it.

Actions: Follow these steps when giving first aid to a person with an amputation:

| Step | Action |
|------|---|
| 1 | Make sure the scene is safe. Get the first aid kit and AED. Wear PPE. |
| 2 | Phone or ask someone to phone your emergency response number (or 123). |
| 3 | Stop the bleeding from the injured area with pressure. You will have to press for a long time with very firm pressure to stop the bleeding. |
| 4 | If you find the amputated part, protect it. |
| 5 | Stay with the injured person until someone with more advanced training arrives and takes over. |

3- External bleeding

In this section we'll cover

- ✓ How to Stop Bleeding ("Skill You Will Demonstrate")
- ✓ Bandaging ("Skill You Will Demonstrate")
- ✓ Using Tourniquets

- **How to Stop Bleeding ("Skill You Will Demonstrate")**

Definitions: Bleeding often looks worse than it is. When a large blood vessel is cut or torn, the person can lose a lot of blood within minutes.

However, you can stop most bleeding with pressure. If the injured person can help you, ask him to put direct pressure on the wound while you put on your personal protective equipment (PPE).

A dressing is wound covering used to stop bleeding. It helps prevent infection. A dressing can be a gauze pad or any other clean piece of cloth or even a gloved hand.

Phone or ask someone to phone your emergency response number (or 123) if

- ✓ There is a lot of bleeding
- ✓ You cannot stop the bleeding
- ✓ You see signs of shock
- ✓ You suspect a head, neck, or spine injury
- ✓ You are not sure what to do

Actions for external Bleeding: Take the following actions to stop bleeding that you can see:

| Step | Action |
|------|---|
| 1 | Make sure the scene is safe. Get the first aid kit and AED. Wear PPE. |
| 2 | Put a dressing on the wound. Apply direct pressure on the dressing. Use the flat part of your fingers or the palm of your hand. |
| 3 | If the bleeding does not stop, add more dressings on top of the first and press harder. |
| 4 | Keep pressure on the wound until it stops bleeding. |
| 5 | If you can't keep pressure on the wound, wrap a bandage firmly over the dressing to hold the dressing in place. |

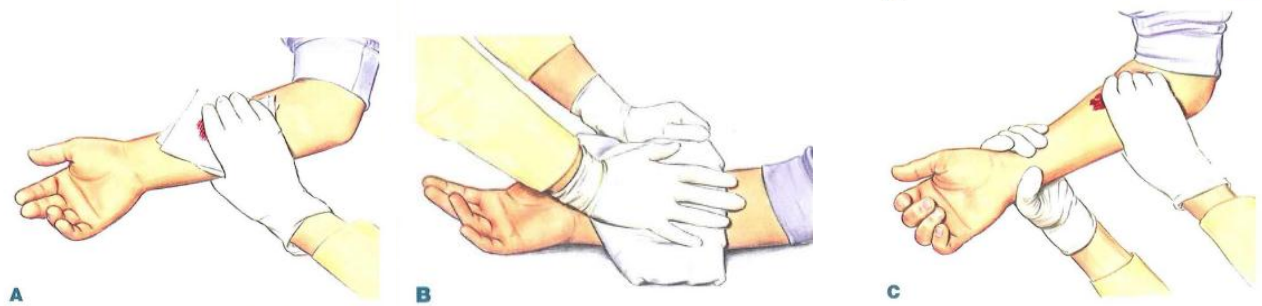


Figure 23: A dressing can be a gauze pad or pads **(A)** or any other clean piece of cloth **(B)**. If you do not have a dressing, use your gloved hand **(C)**.

Important: If the cut or scrape is minor, wash the area with lots of clean water to get the wound clean before applying the dressings. You'll use less direct pressure to stop the bleeding for a minor cut or scrape than for a major cut or scrape.

- **Bandaging (*Skill You Will Demonstrate)**

Definitions: A bandage is material used to protect or cover an injured body part. A bandage may also help keep pressure on the wound.

Action

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. Get the first aid kit and AED. Wear PPE. |
| 2 | Use direct pressure, with gauze pads/dressings if available, to stop any bleeding. |
| 3 | Apply the bandage over the dressings. |

Figure 24: Placing a bandage over dressing



• Using Tourniquets

Definitions: If an arm or leg has severe bleeding and you can't stop the bleeding with direct pressure, you can use a tourniquet.

The best tourniquets are premade, or manufactured, ones. If you don't have one, you can make a tourniquet out of a piece of cloth and a windlass, essentially a stick-like object used to tighten the tourniquet. If you apply the tourniquet correctly, it will cause pain as it stops the bleeding.

Action: Use A Premade Tourniquet: The following steps apply to a premade tourniquet:

| Step | Action |
|------|---|
| 1 | Make sure the scene is safe. Get the first aid kit and AED. Wear PPE. |
| 2 | Place the tourniquet 2 inches above the injury, if possible. |
| 3 | Tighten the tourniquet until the bleeding stops. |
| 4 | Note what time you put the tourniquet on. |
| 5 | Get medical help as soon as possible. |
| 6 | Leave the tourniquet on until someone with more advanced training takes over. |

Important Once you have the tourniquet in place, leave it alone until someone with more advanced training arrives and takes over.

Action: If you need to make a tourniquet, follow the steps in this table. Then apply the If you need to make a tourniquet, follow the steps in this table. Then apply the

| Step | Action |
|------|---|
| 1 | Make sure the scene is safe. Wear PPE. |
| 2 | Fold a cloth or bandage so that it's long and at least 1 inch wide. |
| 3 | Wrap the bandage 2 inches above the injury, if possible. |
| 4 | Tie the ends of the bandage around a stick (or something similar to a stick). |
| 5 | Turn the stick to tighten the tourniquet. |
| 6 | Continue tightening until the bleeding stops. |
| 7 | Secure the stick so the tourniquet stays tight. |
| 8 | Note what time the tourniquet was placed. |
| 9 | Get medical help as soon as possible. |

Figure 25: A tourniquet applied to a leg.



4- Head, Neck, and spine Injuries

In this section we'll cover how to recognize and provide first aid for head, neck, and spine injuries.

Definitions for Head Injury: Suspect a head injury if the person

- ✓ Fell from a height
- ✓ Was hit in the head
- ✓ Was injured while diving
- ✓ Suffered an electrical injury
- ✓ Was involved in a car crash
- ✓ Was riding a bicycle or motorbike involved in a crash, and has no helmet or a broken helmet

Signs of Head Injury: Suspect a head injury if an injured person

- ✓ Does not respond or only moans or moves
- ✓ Acts sleepy or confused
- ✓ Vomits
- ✓ Complains of a headache
- ✓ Has trouble seeing
- ✓ Has trouble walking or moving any part of the body
- ✓ Has a seizure

Definitions for Spine and Neck: The bones of the spine protect the spinal cord. The spinal cord carries messages between the brain and the body,

If the spine is damaged, the spinal cord may be injured. The person may not be able to move her legs or arms and may lose feeling in parts of the body. Some people call this a "broken back."

Important: You may cause further injury to the spinal cord if you bend, twist, or turn the person's head or neck. When you give first aid to someone with a possible spine injury, you must not bend, twist, or turn the head or neck unless it's necessary to provide CPR or if you need to move the person out of danger.

If she is vomiting or has fluids in her mouth, wear PPE and roll her to the side.

Signs of a Neck or Spine Injury: Suspect that the spine bones are broken if an injured person

- ✓ Was in a car or bicycle crash
- ✓ Has fallen from a height

- ✓ Has tingling or weakness in the extremities
- ✓ Has pain or tenderness in the neck or back
- ✓ Appears to be intoxicated or not fully alert
- ✓ Has other painful injuries, especially of the head and neck

Actions for Head, Neck, and Supine Injuries: Follow these steps when giving first aid to a person with a possible head, neck, or spine injury:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. |
| 2 | Phone or ask someone to phone your emergency response number (or 123) and get the first aid kit. |
| 3 | Minimize movement of the head and neck. |



Figure 26: Hold the head and neck to minimize movement.

5- Broken Bones and Sprains

In this section we'll cover how to recognize and provide first aid for broken bones and sprains.

Definition: Joint sprains happen when joints move in directions they're not supposed to go. Without an x-ray, it may be impossible to tell whether a bone is broken. But you will perform the same actions even if you don't know whether the bone is broken.

Signs: There may be swelling and the joint may turn slightly blue if it is sprained.

Actions: Follow these steps when giving first aid for a person with a possible broken bone or sprain:

| Step | Action |
|------|---|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | Cover any open wound with a clean dressing. |
| 3 | Put a plastic bag filled with ice and water on the injured area with a towel between the ice bag and the skin for up to 20 minutes. |
| 4 | Phone or ask someone to phone your emergency response number (or 123) if <ul style="list-style-type: none"> • There is a large open wound • The injured part is abnormally bent • You're not sure what to do |
| 5 | If an injured body part hurts, the person should avoid using it until checked by a healthcare provider. |

Figure 27: Put a plastic bag filled with ice and water on the injured area with a towel between the bag and the



You may use a cold pack, but it is not as cold and may not work as well as ice and water. Don't straighten any body part that's bent or deformed. Don't move a broken bone that has come through the skin.

- **Splinting (*Skill You May Demonstrate; Optional Practice)**

Definitions: A splint keeps an injured body part from moving. In general, healthcare providers apply splints.

At times, you may need to splint an arm or a leg. For example, if you are hiking in the wilderness, you may need to splint an injured arm.

Rolled-up towels, magazines, and pieces of wood can be used as splints.

Actions: Splinting To splint, follow the actions in the table:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | To make the splint, use something (such as a magazine) that will keep the arm or leg from moving. |
| 3 | Ideally, place the splint so that it extends beyond the injured area and supports the joints above and below the injury. |
| 4 | Tie the splint to the injured body part so that it supports the injured area. Use tape, gauze, or cloth to secure it. |
| 5 | Make sure that the injured person is checked by a healthcare provider. |



Figure 28: Use stiff materials, such as a rolled-up magazine, to splint injured body parts.

You should be able to put a few fingers between the splint and the injured body part. Do not tie the splint too tightly. This might cause further pain. If you use something hard for the splint, pad the inside of the splint with cloths or dressings, if possible, to keep the person comfortable.

Important: If the injured part is bleeding, apply direct pressure to stop the bleeding and apply a dressing to the wound before applying the splint.

Actions Self-Splinting an Arm: If you don't have anything to use as a splint, a person can use his other arm to hold the injured one in place. Follow these steps to self-splint an arm:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. |
| 2 | Have the injured person place his hand across his chest and hold it in place with his other arm. |

Important: Leave bent and deformed body parts in their bent or deformed positions as you apply the splint. If a broken bone has come through the skin, cover the wound with a clean dressing, and splint as needed.

6- Burns and Electrical Injuries

In this section we'll cover how to provide first aid for burns and electrical injuries.

- **Burns**

Definitions: Burns are injuries that can be caused by contact with heat, electricity, or chemicals. Heat burns can be caused by contact with fire, a hot surface, a hot liquid, or steam.

Use cool water on burns. Ice can damage burned areas. If someone with a burn gets too cold, she can get hypothermia (low body temperature).

Actions for Small Burns: Follow these steps to give first aid to a person with a small burn:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | If the burn area is small, cool it immediately with cold, but not ice cold, water. Run cold water on the burn until it doesn't hurt. |
| 3 | You may cover the burn with a dry, nonstick sterile or clean dressing. |



Figure 29: If possible, hold the burned area under cold running water.

Important: Phone or send someone to phone your emergency response number (or 123) if

- ✓ There is a fire
- ✓ The person has a large burn
- ✓ You are not sure what to do
- ✓ If someone is on fire, put the fire out: Have that person stop, drop, and roll; then cover the person with a wet blanket to put the fire out. Once the fire is out, remove the wet blanket.

Actions for Large Burns: Follow these steps to give first aid to a person with a large burn:

| Step | Action |
|------|---|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | If the person is on fire, put the fire out. |
| 3 | Remove jewelry and clothing that is not stuck to the skin. |
| 4 | Cover the person with a dry blanket. |
| 5 | Check for signs of shock. |

Cover the person with a dry blanket to keep the person warm because once the skin has burned, the person can no longer control body temperature well and often gets cold.

- **Electrical Injuries**

Definitions: Electricity can burn the body on the inside and outside. Electricity can stop breathing or cause a deadly abnormal heart rhythm.

Signs: Electricity may leave only small marks on the body. No one can tell how much damage there is inside the body based on the marks on the outside.

Actions: Follow these steps for giving first aid for an electrical injury:

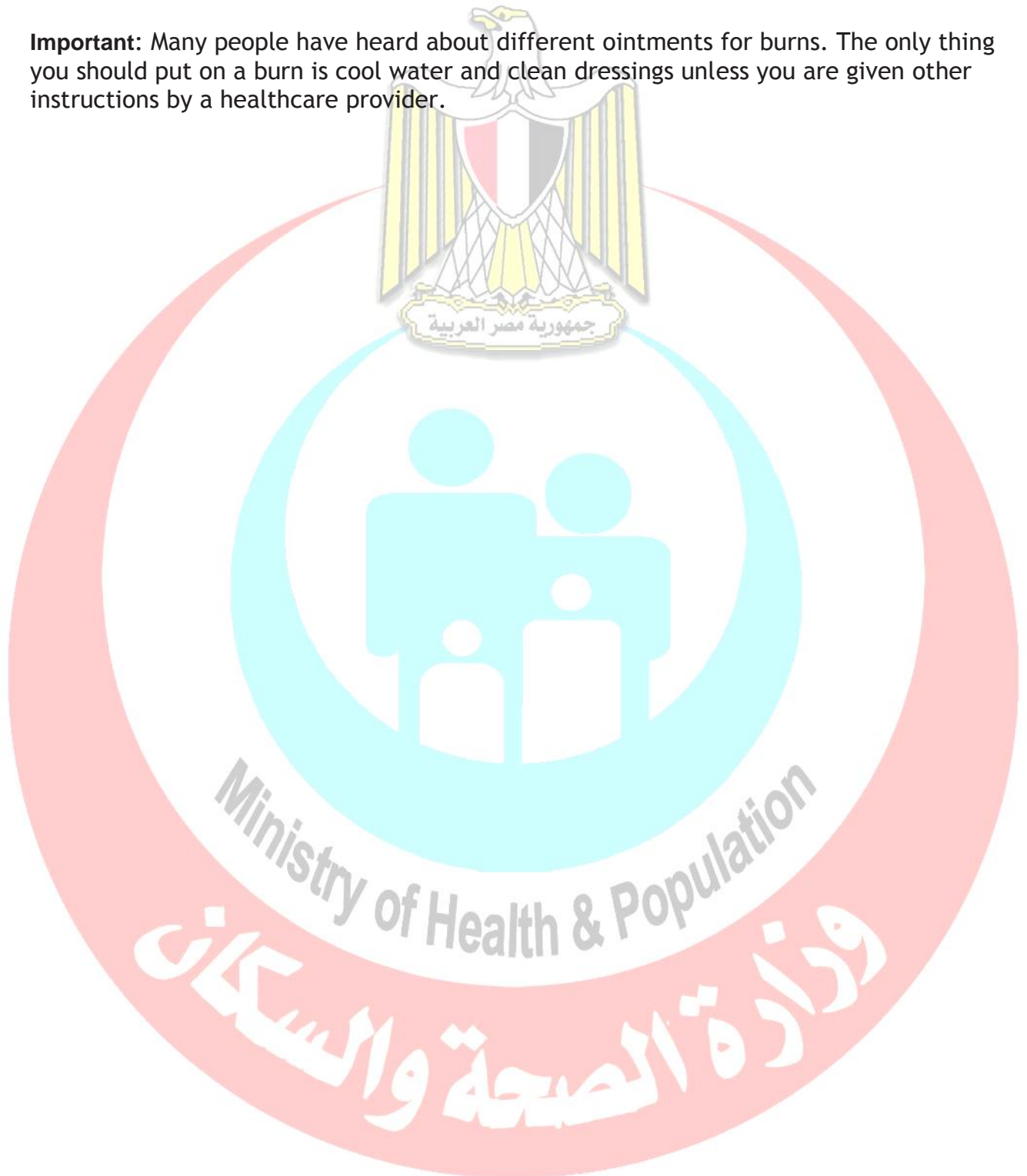
| Step | Action |
|------|---|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | Phone or send someone to phone your emergency response number (or 123). |
| 3 | When it is safe to touch the injured person, see if he needs CPR. If he does, give CPR. If you don't know how, give Hands-Only CPR. |
| 4 | A healthcare provider should check everyone who has an electrical injury. |

Touching someone With an Electrical Injury: Stay clear of the injured person as long as he's in contact with a power source that is on. Electricity can travel from the source through the injured person to you: Turn off the main power switch only if you know how and can safely do so. Once the power is off, you may touch the injured person.

High Voltage

If the electrical injury is caused by high voltage, such as a fallen power line, electricity can travel through everything that touches the power line or source (even a wooden stick). Wait until the power has been turned off to enter the area and provide help.

Important: Many people have heard about different ointments for burns. The only thing you should put on a burn is cool water and clean dressings unless you are given other instructions by a healthcare provider.



Chapter 5

Environmental Emergencies

Objectives

Provide first aid for environmental emergencies.

- Heat-Related Emergencies
- Cold-Related Emergencies
- Bites and Stings
- Poison Emergencies

1- Heat-Related Emergencies

In this section we'll cover

- ✓ Heat Cramps
- ✓ Heat Exhaustion
- ✓ Heat Stroke

- **Heat Cramps**

Definitions: Most heat-related emergencies are caused by vigorous exercise. Heat cramps are painful muscle spasms, most often in the calves, arms, stomach muscles, and back.

Signs: Signs of heat cramps include muscle cramps, sweating, and headache.

Actions: Follow these steps for giving first aid for a heat cramps:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | Have the person with heat cramps rest and cool off. |
| 3 | Have the person drink something that contains sugar and electrolytes, such as juice or a sports drink, or water if the others aren't |

Once heat cramp symptoms stop, the person can exercise again. Stretching, icing, and massaging painful muscles may be helpful.

A bag with ice and water and wrapped in a towel may be applied to the sore muscle for up to 20 minutes if the person can tolerate it.

Important: Mild heat-related signs are a warning that the person's condition may get worse unless you take action. Symptoms of heat-related emergencies often increase if left untreated.

- **Heat Exhaustion**

Definitions: Heat exhaustion is a serious condition that often turns into heat stroke. It often occurs when someone exercises in the heat and sweats a lot.

Signs: Signs of heat exhaustion include sweating, nausea, dizziness, vomiting, muscle cramps, feeling faint, and fatigue.

Actions: Follow these steps for heat exhaustion:

| Step | Action |
|------|---|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | Phone or ask someone to phone your emergency response number (or 123). |
| 3 | Have the person lie down in a cool place. |
| 4 | Remove as much of the person's clothing as possible. |
| 5 | Cool the person with a cool water spray. |
| 6 | If cool water spray is not available, place cool damp cloths on the neck, armpit, and groin area. |
| 7 | Have the person drink something that contains sugar and electrolytes, such as juice or a sports drink, or water if the others aren't available. |

- **Heat Stroke**

Definitions: Heat stroke is a very serious condition. It looks similar to heat exhaustion but it is life threatening. You need to act quickly.

Signs: The key signs of heat stroke are confusion, passing out, dizziness, and seizures. Other signs of heat stroke include nausea, vomiting, muscle cramps, feeling faint, and fatigue.

Actions for Heat Stroke

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | Phone or ask someone to phone your emergency response number (or 123). |
| 3 | Put the person in cool water |
| 4 | See if the person needs CPR. If he does know how |

Important:

- ✓ Begin cooling the person immediately. Every minute counts.
- ✓ If you can't put the person in cool water up to her neck, cool her with a cool water spray.

- ✓ Stop cooling the person once her behavior is normal again. Continued cooling could lead to low body temperature (hypothermia).
- ✓ Only put water on the person's skin.
- ✓ If the person can drink, give her something to drink. Sports drinks are the best.
- ✓ If the person can't drink, wait for someone with more advanced training to arrive and take over.

2- Cold- Related Emergencies

In this section we'll cover

- ✓ Frostbite
- ✓ Low Body Temperature (Hypothermia)

• **Frostbite**

Definition: A cold injury to part of the body is called frostbite. Frostbite affects parts of the body that are exposed to the cold, such as the fingers, toes, nose, and ears. Frostbite typically occurs outside in cold weather. But it can also occur inside if workers don't have gloves on and handle cold materials, such as gases under pressure.

Signs:

- ✓ The skin over the frostbitten area is white, waxy, or grayish-yellow.
- ✓ The frostbitten area is cold and numb.
- ✓ The frostbitten area is hard, and the skin doesn't move when you push it.

Actions for Frostbite

| Step | Action |
|------|--|
| 1 | Move the person to a warm place. |
| 2 | Remove tight clothing and jewelry from the frostbitten part. |
| 3 | Remove wet clothing and pat the body dry. Put dry clothes on the person and cover the person with a blanket. |
| 4 | Do not try to thaw the frozen part if you think there may be a chance of refreezing. |

Important: If you need to touch the frostbitten area, do so gently. Rubbing it may cause damage.

• **Low Body Temperature (Hypothermia)**

Definitions: and Hypothermia occurs when body temperature falls. Hypothermia is a serious condition that can cause death. A person can develop hypothermia even when the temperature is above freezing.

Shivering protects the body by producing heat. Shivering stops when the body becomes very cold.

Signs:

- ✓ The skin is cool to the touch.
- ✓ Shivering (shivering stops when the body temperature is very low).
- ✓ The person may become confused or drowsy.
- ✓ Personality may change or the person may behave as if unconcerned about the condition.
- ✓ Muscles become stiff and rigid and the skin becomes ice cold and blue.

As the body temperature continues to drop

- ✓ The person stops responding
- ✓ The person's breathing slows
- ✓ It may be hard to tell whether the person is breathing
- ✓ The person may appear to be dead

Actions:

| Step | Action |
|------|--|
| 1 | Get the person out of the cold. |
| 2 | Remove wet clothing and pat the body dry. Put dry clothes on the person and cover the person with a blanket. |
| 3 | Phone or ask someone to phone your emergency response number (or 123) and get the first aid kit and AED, if available. |
| 4 | Wrap the person up with anything you have—clothing, towels, newspapers, etc. Cover the head but not the face. |
| 5 | See if the person needs CPR. If so, give CPR. If you don't know how, give Hands-Only CPR. |

Place a person with low body temperature near a heat source and place containers of warm, but not hot, water in contact with the skin. It is important to get the person to medical care as soon as possible.

3- Bites and Stings

This section we'll cover

- ✓ Animal and Human Bites
- ✓ Snakebites
- ✓ Insect, Bee, and Spider Bites and Stings
- ✓ Poisonous Spider and Scorpion Bites and Stings
- ✓ Ticks
- **Animal and Human Bites**

Definitions: Although many bites are minor, some may break the skin. When a bite breaks the skin, the wound can bleed and may become infected from the germs in the biter's

mouth. Bites that do not break the skin are not usually serious. Be sure to stay away from an animal that is acting strangely.

Action: Follow these steps to give first aid to a person with an animal or human bite:

| Step | Action |
|------|---|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | For animal bites, phone or send someone to phone your emergency response number (or 123). |
| 3 | Clean the wound with a lot of running water (and soap, if available). |
| 4 | Stop any bleeding with pressure and dressings. |
| 5 | For all bites that break the skin, call a healthcare provider. |
| 6 | If there is a bruise or swelling, place a bag of ice and water wrapped in a towel on the bite for up to 20 minutes. |

Important: These animals may carry rabies: cat, dog, skunk, raccoon, fox, bat, or other wild animal.

If a person is in a room with a bat, contact a healthcare provider.

- **Snakebites**

Definitions: and If a snake bites someone, it is helpful to be able to identify the kind of snake. Sometimes you can identify the snake from its bite mark. If you aren't sure whether a snake is poisonous, assume that it is.

Signs:

- ✓ Pain in the bite area that keeps getting worse
- ✓ Swelling of the bite area
- ✓ Nausea, vomiting, sweating, and weakness
- ✓ Actions Follow these steps to give first aid to someone who has been bitten:

Actions: Follow these steps to give first aid to someone who has been bitten:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | For animal bites, phone or send someone to phone your emergency response number (or 123). |
| 3 | Ask the bitten person to be still and calm. Tell him to avoid moving the part of the body that was bitten. |
| 4 | Remove any tight clothing and jewelry. |
| 5 | Gently wash the bite area with running water (and soap if available). |

Important: Some people have heard about other ways to treat a snake bite, such as sucking out the poison. The correct steps for treating a snake bite are in the table.

Important Scene Safety and Snakes:

- ✓ When making sure the scene is safe, be very careful around a wounded snake.
- ✓ Back away and go around the snake.
- ✓ If a snake has been killed or hurt by accident, leave it alone. A snake might bite even when severely hurt or close to death.
- ✓ If the snake needs to be moved, use a long-handled shovel. If you don't need to move it, leave it alone.

- ***Insect, Bee, and Spider Bites and Stings***

Definitions: Usually insect and spider bites and stings cause only mild pain, itching, and swelling at the bite. Some insect bites can be serious and even fatal if

- ✓ The person bitten has a severe allergic reaction to the bite or sting
- ✓ Poison (venom) is injected into the person (for example, from a black widow spider or brown recluse spider)

Actions: Follow these steps to give first aid to someone with a bite or sting:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | Phone or send someone to phone your emergency response number (or 123) and get the first aid kit if <ul style="list-style-type: none"> • The person has signs of a severe allergic reaction • The person tells you that she has a severe allergic reaction to insect bites or stings. Get the person's epinephrine pen if she has one. |
| 3 | If a bee stung the person <ul style="list-style-type: none"> • Look for the stinger. Bees are the only insects that may leave their stingers behind. • Scrape away the stinger and venom sac by using something with a dull edge, such as a credit card. |
| 4 | Wash the bite or sting area with a lot of running water (and soap, if possible). |
| 5 | Put a bag of ice and water wrapped in a towel or cloth over the bite or sting area for up to 20 minutes. |
| 6 | Watch the person for at least 30 minutes for signs of an allergic reaction. |

Important: Make sure you remove the stinger with something flat and dull that won't squeeze the stinger. Squeezing the venom sac can release more venom (poison).

- ***Poisonous Spider and Scorpion Bites and Stings***

Signs: The following are the signs of poisonous spider and scorpion bites and stings. Some of the signs may vary depending on the type of bite or sting.

- ✓ Severe pain at the site of the bite or sting
- ✓ Muscle cramps
- ✓ Headache

- ✓ Fever
- ✓ Vomiting
- ✓ Breathing problems
- ✓ Seizures
- ✓ Lack of response

Actions: Follow these steps for a spider or scorpion bite or sting:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | Phone your emergency response number (or 123). |
| 3 | Wash the bite with a lot of running water (and soap, if available). |
| 4 | Put a bag of ice and water wrapped in a towel or cloth on the bite. |
| 5 | See if the person needs CPR. If he does, give CPR. If you don't know how, give Hands-Only CPR. |

- **Tick**

Definitions: Ticks are found on animals and in wooded areas. They attach themselves to exposed body parts. Many ticks are harmless. Some carry serious disease attached to a person, the greater the person's chance of catching a disease.

Actions for Tick Bites:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | Grab the tick by its mouth or head as close to the skin as possible with tweezers or a tick-removing device. |
| 3 | Lift the tick straight out without twisting or squeezing its body. If you lift the tick until the person's skin tents and wait for several seconds, the tick may let go. |
| 4 | Wash the bite with running water (and soap, if available). |
| 5 | See a healthcare provider if you are in an area where tick-borne diseases occur. If possible, place the tick in a plastic bag and give it to the healthcare provider. |

Important: Some people have heard about other ways to remove a tick. The correct way to remove a tick is to follow the actions in the table.

4- Poison Emergencies

In this section we'll cover the following:

- Scene Safety for Poison Emergencies
- Removing Poisons
- Complete First Aid for Poison Emergencies

Definitions: and A poison is anything someone swallows, breathes, or gets in the eyes or on the skin that causes sickness or death. Many products can poison people. This section will cover general principles of first aid for an injured person of poisoning.

- **Scene Safety for Poison Emergencies**

Definitions: If you think someone may have been exposed to a poison, make sure the scene safe before giving first aid. This takes a few more steps than in other first aid situations.

Actions

| Step | Action |
|------|---|
| 1 | Make sure the scene is safe before you approach. |
| 2 | If the scene seems unsafe, do not approach. Tell everyone to move away. |
| 3 | Look for signs that warn you that poisons are nearby. |
| 4 | Look for spilled or leaking containers. |
| 5 | Stay out of the area with the poison if you see more than 1 injured person. |
| 6 | If you approach the scene, wear appropriate protective equipment. |

- **Removing Poisons**

Definitions: Get the poison off the person as quickly as you safely can. Use lots of water to rinse the poisons off.

Actions:

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | Help the person take off contaminated clothing and jewelry. |
| 3 | Quickly help the person to a safety shower or eyewash station if he responds and can move. |
| 4 | Brush off any dry powder or solid substances from the skin with your gloved hand. |
| 5 | Rinse the contaminated areas with a lot of water for at least 20 minutes or until someone with more training arrives and takes over. |

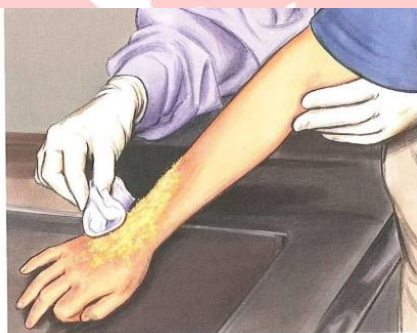


Figure 30: Brush off any dry powder or solid substances



Figure 31: Help the person wash his eyes and face under water flowing from a faucet or hose.

Important: If only one eye is affected make sure the eye with the poison in it is the lower eye as you rinse. Make sure you do not rinse the poison into the unaffected eye.

- **Other First Aid for Poison Emergencies**

Definitions: Worksites should have an MSDS (Material Safety Data Sheet) for each chemical at the worksite. You should know where the MSDS is at your worksite. The MSDS provides a description of how a specific poison can be harmful.

Unfortunately the MSDS usually provides little information about first aid actions. Some of the first aid actions listed in the MSDS or on the label of the poison may be outdated.

You will probably receive additional training on the MSDS during the "Right to Know" training your workplace provides.

Actions

| Step | Action |
|------|--|
| 1 | Make sure the scene is safe. Get the first aid kit. Wear PPE. |
| 2 | Send someone to phone your emergency response number (or 123). |
| 3 | Tell the dispatcher the name of the poison, if possible. |
| 4 | Remove the poison, if possible. |
| 5 | Move the person from the scene of the poison if you can. |
| 6 | Help the person move to an area with fresh air, if possible. |
| 7 | Send someone to get the Material Safety Data Sheet (MSDS), if available. |

Important: If you give CPR to a poisoning injured person, use a mask for giving breaths if possible. This precaution is especially important if the poison is on the lips or mouth. Some dispatchers may connect you to a poison control center. Give only those antidotes that the poison controls center or dispatcher tells you to. The first aid instructions on the poison itself can be helpful but may be incomplete.

Chapter 6

Choking and foreign bodies

Objectives

- Provide First Aid care to Help Infant and Child with Choking and foreign bodies

1-Choking and foreign bodies for child

Definition: Choking is a common breathing emergency. It occurs when the person's airway is partially or completely blocked. If a conscious person is choking, his or her airway has been blocked by a foreign object, such as a piece of food or a small toy; by swelling in the mouth or throat; or by fluids, such as vomit or blood. With a partially blocked airway, the person usually can breathe with some trouble. A person with a partially blocked airway may be able to get enough air in and out of the lungs to cough or to make wheezing sounds. The person also may get enough air to speak. A person whose airway is completely blocked cannot cough, speak, cry or breathe at all.

Causes of Choking in Children and Infants

Choking is a common cause of injury and death in children younger than 5 years. Because young children




- ✓ Children eat while playing or running.
- ✓ Children to chew and swallow food during talking or laughing.
- ✓ Chewing gum to young children.
- ✓ Swallowing children of smooth, hard food such as peanuts and raw vegetables.
- ✓ Swallowing young children round, firm foods such as hot dogs and carrot sticks as any pieces larger than ½ inch.
- ✓ Play young children with uninflated balloons.
- ✓ Playing with small objects such as safety pins, small parts from toys and coins

Signs of choking include:

- ✓ Coughing, either forcefully or weakly.
- ✓ Clutching the throat with one or both hands.
- ✓ Inabilities to cough, speak, cry or breathe.
- ✓ Making high-pitched noises while inhaling or noisy breathing.
- ✓ Panic.




- ✓ Bluish skin color.
- ✓ Losing consciousness if blockage is not removed.


Actions for help conscious choking child:

| Step | Action |
|------|---|
| 1 | checking the scene and the injured or ill child also call 123) |
| 2 | <p>Bend the child forward at the waist and give 5 back blows between the shoulder blades with the heel of one hand.</p>  <p>Figure 50: Bend the child forward at the waist.</p> |
| 3 | <ul style="list-style-type: none"> Place a fist with the thumb side against the middle of the child's abdomen, just above the navel. Cover your fist with your other hand. Give 5 quick, upward abdominal thrusts.  <p>Figure 51: Give 5 quick, upward abdominal thrusts</p> |
| 4 | <p>Continue sets of 5 back blows and 5 abdominal thrusts until the:</p> <ul style="list-style-type: none"> Object is forced out. Child can cough forcefully or breathe. Child becomes unconscious.  <p>Figure 52: Object is forced out..</p> |
| 5 | <p>If child become unconscious call 123, if not already done. Carefully lower the child to the ground and begin CPR,</p> |

2-Choking and foreign bodies for infant

Action for help a Conscious Choking Infant:

| Step | Action | |
|------|---|--|
| 1 | If you determine that a conscious infant cannot cough, cry or breathe, you will need to give a combination of 5 back blows followed by 5 chest thrusts. | |
| 2 | <p>To give back blows:</p> <ul style="list-style-type: none"> Position the infant face-up on your forearm. Place one hand and forearm on the child's back, cradling the back of the head, and one hand and forearm on the front of the infant. Use your thumb and fingers to hold the infant's jaw while sandwiching the infant between your forearms. Turn the infant over so that he or she is face-down along your forearm. |  <p>Figure 53: give back blows for infant.</p> |
| 3 | <p>Lower your arm onto your thigh so that the infant's head is lower than his or her chest. Then give 5 firm back blows with the heel of your hand between the shoulder blades. Each back blow should be a separate and distinct attempt to dislodge the object.</p> |  <p>Figure 54: Give 5 firm back blows with the heel of your hand while supporting the arm that is holding the infant on your thigh.</p> |
| 4 | Maintain support of the infant's head and neck by firmly holding the jaw between your thumb and forefinger. | |
| 5 | <p>To give chest thrusts:</p> <ul style="list-style-type: none"> Place the infant in a face-up position. Place one hand and forearm on the child's back, cradling the back of the head, while keeping your other hand and forearm on the front of the infant. Use your thumb and fingers to hold the infant's jaw while sandwiching |  <p>Figure 55: To give chest thrusts, sandwich the infant between your forearms. Continue to support</p> |

| | | |
|---|--|---|
| | <p>the infant between your forearms</p> <ul style="list-style-type: none"> • Turn the infant onto his or her back. • Lower your arm that is supporting the infant's back onto your opposite thigh. The infant's head should be lower than his or her chest, which will assist in dislodging the object. • Place the pads of two or three fingers in the center of the infant's chest just below the nipple line (toward the infant's feet). | <p>the infant's head.</p> |
| 6 | <p>Use the pads of these fingers to compress the breastbone. Compress the breastbone 5 times about 1 1/2 inches and then let the breastbone return to its normal position. Keep your fingers in contact with the infant's breastbone.</p> |  <p>Figure 56: Turn the infant onto his or her back keeping the infant's head lower than the chest. Give 5 chest thrusts.</p> |
| 7 | <p>Continue giving sets of 5 back blows and 5 chest thrusts until the object is forced out; the infant begins to cough forcefully, cry or breathe on his or her own; or the infant becomes unconscious.</p> | |

Chapter 7

CPR and AED

Objectives

- Apply CPR and AED for Adults
- Apply CPR and AED for Children
- Apply CPR for Infants

1-Apply CPR and AED for Adults

- **CPR for Adult**

Definition of CPR:

CPR is the abbreviation for Cardio Pulmonary Resuscitation. CPR is the process of delivering chest compressions and breaths to someone who is not breathing. If someone is not breathing, you can assume that they are in cardiac arrest, which means that their heart is not pumping blood around their body and therefore not delivering oxygen to the cells within their body. CPR is a technique that is used to manually pump blood around a person's body by performing chest compressions and increasing the amount of oxygen within their body by performing breaths. CPR is vitally important as it can increase someone's chances of survival once the ambulance service arrives.

Important: To determine if an unconscious adult needs CPR, follow the emergency action steps (CHECK—CALL—CARE).

- ✓ CHECK the scene and the injured or ill person.
- ✓ CALL 123 or the local emergency number.
- ✓ CHECK for breathing for no more than 10 seconds.
- ✓ Quickly CHECK for severe bleeding.
- ✓ If the person is not breathing, give CARE by beginning CPR.

- **To perform CPR on an adult:**

Action:

| Step | Action |
|------|--|
| 1 | The person should be on his or her back on a firm, flat surface. If the person is on a soft surface like a sofa or bed, quickly move him or her to a firm, flat surface before you begin. |
| 2 | Position your body correctly by kneeling beside the person's upper chest, placing your hands in the correct position, and keeping your arms and elbows as straight as possible so that your shoulders are directly over your hands |
| 3 | Locate the correct hand position by placing the heel of one hand on the person's sternum (breastbone) at the center of his or her chest (Figure 27) |
| 4 | Put your other hand directly on top of the first hand and try to keep your fingers off of the chest by interlacing them or holding them upward |
| 5 | <ul style="list-style-type: none"> • If you feel the notch at the end of the sternum, move your hands slightly toward the person's head. • If you have arthritis in your hands, you can give compressions by grasping the wrist of the hand positioned on the chest with your other hand |
| 6 | As you give compressions, count out loud, "One and two and three and four and five and six and..." up to 30. Push down as you say the number and come up as you say "and." This will help you to keep a steady, even rhythm. |



Figure 32: Position yourself so that your shoulders are directly over your hands.



Figure 33: Locate the correct hand position

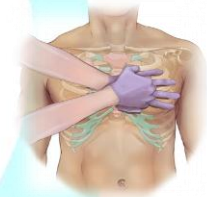


Figure 34 Place your other hand directly on top of the first hand.

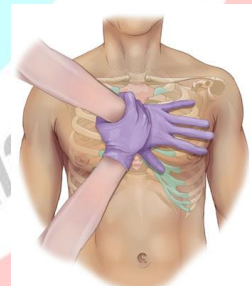


Figure 35: If you have arthritis in your hands, you

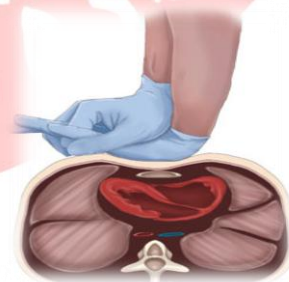
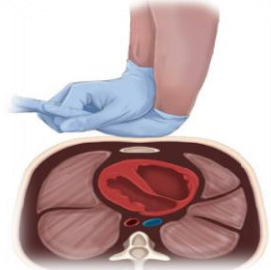
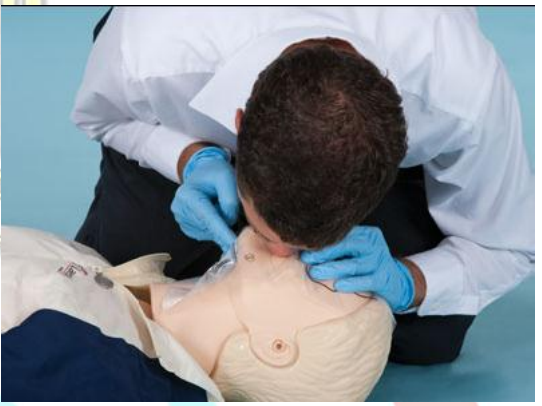


Figure 36: Push straight down with the weight of your body..

| | | |
|---|--|---|
| 7 | <p>After each compression, release the pressure on the chest without removing your hands or changing hand position. Allow the chest to return to its normal position before starting the next compression.</p> |  <p>Figure 37: Release, allowing the chest to return to its normal position</p> |
| 8 | <p>Once you have given 30 compressions, open the airway using the head-tilt/chin-lift technique and give 2 rescue breaths. Each rescue breath should last about 1 second and make the chest clearly rise.</p> <ul style="list-style-type: none"> – Open the airway and give rescue breaths, one after the other. – Tilt the head back and lift the chin up. – Pinch the nose shut then makes a complete seal over the person's mouth. – Blow in for about 1 second to make the chest clearly rise. |  <p>Figure 38: Monitor breathing until help arrives.</p> |
| 9 | <p>Continue cycles of chest compressions and rescue breaths. Each cycle of chest compressions and rescue breaths should take about 24 seconds. Minimize the interruption of chest compressions.</p> | |

- **If Two Responders Are Available**

If two responders trained in CPR are at the scene, both should identify them as being trained. One should call 123 or the local emergency number for help while the other performs CPR. If the first responder is tired and needs help:

- ✓ The first responder should tell the second responder to take over.
- ✓ The second responder should immediately take over CPR, beginning with chest compressions.

- **When to Stop CPR**

Once you begin CPR, do not stop except in one of these situations:

- ✓ You notice an obvious sign of life, such as breathing.
- ✓ An AED is available and ready to use.
- ✓ Another trained responder or EMS personnel take over
- ✓ You are too exhausted to continue.
- ✓ The scene becomes unsafe.

- **Using an AED**

Definition: AEDs are portable electronic devices that analyze the heart's rhythm and deliver an electrical shock, known as defibrillation, which helps the heart to re-establish an effective rhythm (Fig. 39). For each minute that CPR and defibrillation are delayed, the person's chance for survival is reduced by about 10 percent. However, by learning how to perform CPR and use an AED, you can make a difference before EMS personnel take over.



Figure 39: There are several types of AEDs.

- **AED Precautions**

When operating an AED, follow these general precautions:

- ✓ Do not use alcohol to wipe the person's chest dry. Alcohol is flammable.
- ✓ Do not use an AED and/or pads designed for adults on a child younger than 8 years or weighing less than 55 pounds unless pediatric AED pads specific to the device are not available.
- ✓ Do not use pediatric AED pads on an adult or on a child older than 8 years, or on a person weighing more than 55 pounds. AEDs equipped with pediatric AED pads deliver lower levels of energy that are considered appropriate only for children and infants up to 8 years old or weighing less than 55 pounds.
- ✓ Do not touch the person while the AED is analyzing. Touching or moving the person may affect analysis.
- ✓ Before shocking a person with an AED, make sure that no one is touching or is in contact with the person or any resuscitation equipment.
- ✓ Do not touch the person while the device is defibrillating. You or someone else could be shocked.
- ✓ Do not defibrillate someone when around flammable or combustible materials, such as gasoline or free-flowing oxygen.
- ✓ Do not use an AED in a moving vehicle. Movement may affect the analysis.
- ✓ The person should not be in a pool or puddle of water when the responder is operating an AED.
- ✓ Do not use an AED on a person wearing a nitroglycerin patch or other medical patch on the chest. With a gloved hand, remove any patches from the chest before attaching the device.
- ✓ Do not use a mobile phone or radio within 6 feet of the AED. Radiofrequency interference (RFI) and electromagnetic interference (EMI), as well as infrared interference, generated by radio signals can disrupt analysis.

Actions of How to use AED for Adults:

| Step | Action |
|------|--|
| 1 | Turn on the AED. |
| 2 | Expose the person's chest and wipe the bare chest dry with a small towel or gauze pads. This ensures that the AED pads will stick to the chest properly. |
| 3 | Apply the AED pads to the person's bare, dry chest. (Make sure to peel the backing off each pad, one at a time, to expose the adhesive surface of the pad before applying it to the person's bare chest.) Place one pad on the upper right chest and the other pad on the left side of the chest |
| 4 | Plug the connector into the AED, if necessary. |
| 5 | Let the AED analyze the heart rhythm (or push the button marked "analyze," if indicated and prompted by the AED). Advise all responders and bystanders to "stand clear". No one should touch the person while the AED is analyzing because this could result in faulty readings. |
| 6 | <p>If the AED advises that a shock is needed:</p> <ul style="list-style-type: none"> ✓ Make sure that no one, including you, is touching the person. ✓ Say, "EVERYONE, STAND CLEAR." ✓ Deliver the shock by pushing the "shock" button, if necessary. (Some models can deliver the shock automatically while others have a "shock" button that must be manually pushed to deliver the shock.) |
| 7 | <p>After delivering the shock, or if no shock is advised:</p> <ul style="list-style-type: none"> ✓ Perform about 2 minutes (or 5 cycles) of CPR. ✓ Continue to follow the prompts of the AED. |
| 8 | If at any time you notice an obvious sign of life, such as breathing, stop performing CPR and monitor the person's breathing and any changes in the person's condition. |



Figure 40: Apply the pads to the person's bare, dry chest. Place one pad on the upper right chest and the other pad on the left side of the chest



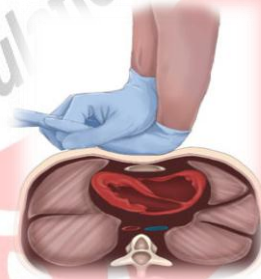


Figure 41: Advise everyone to "stand clear" while the AED analyzes the heart rhythm. Deliver a shock by pushing the shock button if indicated and prompted by the AED.

2- Apply CPR and AED for Children

• **CPR for a Child**

Actions: If during the unconscious check you find that the child is not breathing, place the child face-up on a firm, flat surface. Begin CPR by following these steps:

| Step | Action |
|------|---|
| 1 | The child should be on his or her back on a firm, flat surface. If the person is on a soft surface like a sofa or bed, quickly move him or her to a firm, flat surface before you begin. |
| 2 | <p>Locate the proper hand position on the middle of the breastbone as you would for an adult. If you feel the notch at the end of the sternum, move your hands slightly toward the child's head.</p>  <p>Figure 42: Position yourself so that your shoulders are directly over your hands.</p> |
| 3 | <p>Position your body as you would for an adult, kneeling next to the child's upper chest, positioning your shoulders over your hands and keeping your arms and elbows as straight as possible.</p>  <p>Figure 43: Locate the correct hand position</p> |
| 4 | <p>Give 30 chest compressions. Push hard, push fast to a depth of about 2 inches and at a rate of at least 100 compressions per minute. Lift up, allowing the chest to fully return to its normal position, but keep contact with the chest.</p>  <p>Figure 44: Push straight down with the weight of your body..</p> |
| 5 | <p>Tilt the head back and lift the chin up.</p> <ul style="list-style-type: none"> • Pinch the nose shut then makes a complete seal over the child's mouth. • Blow in for about 1 second to make the chest clearly rise. |


| | | |
|---|--|--|
| | <ul style="list-style-type: none"> • Give rescue breaths, one after the other. • If chest does not rise with the initial rescue breath, retilt the head before giving the second breath. If the second breath does not make the chest rise, the child may be choking. After each subsequent set of chest compressions and before attempting breaths, look for an object and, if seen, remove it. Continue CPR. |  |
| 6 | Continue cycles of 30 chest compressions and 2 rescue breaths. | |

Figure 45: Open the airway and give 2 rescue breaths.

• **When to Stop CPR**

Continue cycles of 30 chest compressions and 2 rescue breaths. Do not stop CPR except in one of these situations:

- ✓ You find an obvious sign of life, such as breathing.
- ✓ An AED is ready to use.
- ✓ Another trained responder or EMS personnel take over.
- ✓ You are too exhausted to continue.
- ✓ The scene becomes unsafe.

Important: If at any time you notice the child begin to breathe, stop CPR, keep the airway open and monitor breathing and for any changes in the child's condition until EMS personnel take over.

• **AED for Child**

AEDs equipped with pediatric AED pads can deliver lower levels of energy considered appropriate for children and infants up to 8 years of age or weighing less than 55 pounds. Use pediatric AED pads and/or equipment if available. If pediatric specific equipment is not available, use an AED designed for adults on children and infants. Always follow local protocols (i.e., guidelines provided by the facility's medical director or EMS) and the manufacturer's instructions. Follow the same general steps and precautions that you would when using an AED on an adult in cardiac arrest.

Actions of How to use AED for Adults:

| Step | Action |
|------|--|
| 1 | Turn on the AED. |
| 2 | Expose the child's or infant's chest and wipe it dry. |
| 3 | Apply the pediatric pads to the child's or infant's bare, dry chest. Place one pad on the child's upper right chest and the other pad on the left side of the chest. Make sure that the pads are not touching. If the pads |

| | |
|---|--|
| | risk touching each other, such as with a small child or an infant, place one pad in the middle of the child's or infant's chest and the other pad on the child's or infant's back, between the shoulder blades |
| 4 | Plug the connector into the AED, if necessary. |
| 5 | Let the AED analyze the heart rhythm (or push the button marked "analyze," if indicated and prompted by the AED). Advise all responders and bystanders to "Stand clear." No one should touch the child or infant while the AED is analyzing because this could result in faulty reading. |
| 6 | If the AED advises that a shock is needed: <ul style="list-style-type: none"> ✓ Make sure that no one, including you, is touching the child or infant. ✓ Say, "EVERYONE, STAND CLEAR." ✓ Deliver the shock by pushing the "shock" button, if necessary. |
| 7 | After delivering the shock, or if no shock is advised: <ul style="list-style-type: none"> ✓ Perform about 2 minutes (or 5 cycles) of CPR. ✓ Continue to follow the prompts of the AED. |
| 8 | If at any time you notice an obvious sign of life, such as breathing, stop performing CPR and monitor breathing and for any changes in the child's or infant's condition. |





Figure 46: Place one pediatric pad on the upper right chest and the other pad on the left side of the chest.

3- Apply CPR for Infant

- **CPR for a Child**

Actions: If during your check you find that the infant is not breathing, begin CPR by following these steps:

| Step | Action |
|------|---|
| 1 | Find the correct location for compressions. Keep one hand on the infant's forehead to maintain an open airway. Use the pads of two or three fingers of your other hand to give chest compressions on the center of the chest, just below the nipple line (toward the infant's feet). If you feel the notch at the end of the infant's sternum, move your fingers slightly toward the infant's head. |

| | | |
|---|---|--|
| 2 | <p>Give 30 chest compressions using the pads of these fingers to compress the chest. Compress the chest about 1 ½ inches. . Push hard, push fast Your compressions should be smooth, not jerky. Keep a steady rhythm. Do not pause between each compression. When your fingers are coming up, release pressure on the infant's chest completely but do not let your fingers lose contact with the chest. Compress at a rate of at least 100 compressions per minute.</p> |  <p>Figure 47: Place the pads of two or three fingers in the center of the infant's chest and compress the chest about 1½ inches.</p> |
| 3 | <p>Tilt the head back and lift the chin up to a neutral position.</p> <ul style="list-style-type: none"> • Make a complete seal over the infant's mouth and nose. • Blow in for about 1 second to make the chest clearly rise. • Give rescue breaths, one after the other. • If chest does not rise with the initial rescue breath, retilt the head before giving the second breath. If the second breath does not make the chest rise, the infant may be choking. After each subsequent set of chest compressions and before attempting breaths, look for an object and, if seen, remove it. Continue CPR. |  <p>Figure 48: Give 2 rescue breaths, covering the infant's mouth and nose with your mouth.</p> |
| 6 | <p>Continue cycles of 30 chest compressions and 2 rescue breaths. Do not stop CPR except in one of these situations:</p> | |

• **When to Stop CPR**

Continue cycles of 30 chest compressions and 2 rescue breaths. Do not stop CPR except in one of these situations:

- ✓ You find an obvious sign of life, such as breathing.
- ✓ An AED is ready to use.
- ✓ Another trained responder or EMS personnel take over.
- ✓ You are too exhausted to continue.
- ✓ The scene becomes unsafe.

Important: If at any time you notice the infant begin to breathe, stop CPR, keep the airway open and monitor breathing and for any changes in the infant's condition until EMS personnel take over.

- CPR SKILL COMPARISON**

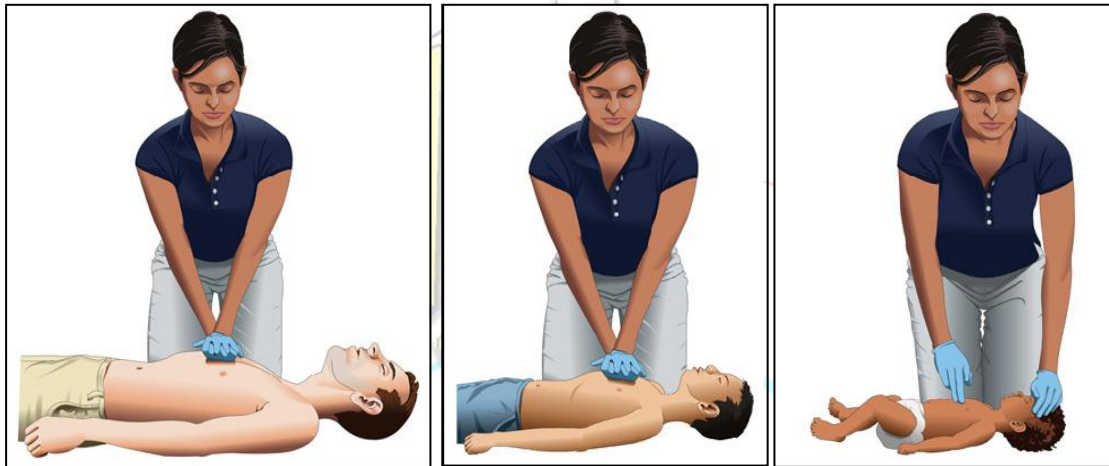


Figure 49: Comparison of hand position of CPR for adult, child, and infant

| CPR SKILL COMPARISON | | | |
|--|--|--|--|
| Skill Components | Adult | Child | Infant |
| HAND POSITION | Two hands in center of chest (on lower half of sternum) | Two hands in center of chest (on lower half of sternum) | Two or three fingers in center of chest (on lower half of sternum, just below nipple line) |
| CHEST COMPRESSIONS RESCUE BREATHS | At least 2 inches Until the chest clearly rises (about 1 second per breath) | About 2 inches Until the chest clearly rises (about 1 second per breath) | About 1 1/2 inches Until the chest clearly rises (about 1 second per breath) |
| CYCLE | 30 chest compressions and 2 rescue breaths | 30 chest compressions and 2 rescue breaths | 30 chest compressions and 2 rescue breaths |
| RATE | 30 chest compressions in about 18 seconds (at least 100 compressions per minute) | 30 chest compressions in about 18 seconds (at least 100 compressions per minute) | 30 chest compressions in about 18 seconds (at least 100 Compressions per minute) |