



San Diego Unified
SCHOOL DISTRICT

AMERICAN RED CROSS FIRST AID/CPR/AED

FIRST AID STUDY GUIDE

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Introduction

Medical emergencies can happen every day, in any setting. People are injured in situations like falls or motor-vehicle accidents, or they develop sudden illnesses, such as heart attack or stroke.

The statistics are sobering. For example, about 900,000 people in the United States die each year from some form of heart disease. More than 300,000 of these deaths are caused by sudden cardiac arrest. Heart disease is the number one cause of death in this country.

Another leading cause of death is unintentional injury. In 2008, approximately 118,000 Americans died from an unintentional injury and another 25.7 million were disabled.

Given the large number of injuries and sudden illnesses that occur in the United States each year, it is possible that you might have to deal with an emergency situation someday. If you do, you should know who and when to call, what care to give and how to give that care until emergency medical help takes over.

This chapter discusses your role in the emergency medical services (EMS) system, the purpose of Good Samaritan laws, how to gain consent from an injured or ill person and how to reduce your risk of disease transmission while giving care.

In addition, you will read about the emergency action steps, CHECK—CALL—CARE, which guide you on how to check and give emergency care for an injured or suddenly ill person. You also will read about the effects of incident stress and how to identify the signals of shock and minimize its effects.

Chapter 1

The EMS (Emergency Medical Services) system is a network of community resources, including police, fire and medical personnel and you. **Page 2**

Your role in the EMS system includes four basic steps:

Step 1: Recognize that an emergency exists by unusual noises, sights, odors and appearances or behaviors.

Step 2: Decide to act. The worst thing you can do is nothing.

Step 3: Activate the EMS System. Calling 9-1-1 or your local emergency number is the most important step you can take. Do not hang up before the call taker does so.

Step 4: Give care until:

- You see an obvious sign of life, such as breathing
- Another trained responder or EMS personnel take over
- You are too exhausted to continue
- The scene becomes unsafe.

Good Samaritan laws were developed to encourage people to help others in emergency situations. They require the “Good Samaritan” to use common sense and a reasonable level of skill and to give only the type of emergency care for which he or she is trained. They assume each person would do his or her best to save a life or prevent further injury. **Page 4**

Getting permission to give care

People have a basic right to decide what can and cannot be done to their bodies. They have the legal right to

accept or refuse emergency care. Therefore, before giving care to an injured or ill person, you must obtain the person's permission. **Page 5**

- Conscious Adult = Ask for permission to give care
- Unconscious Adult = Implied permission to give care
- Conscious child or infant = Ask parent or guardian if available, if not available implied consent
- Unconscious child or infant = Implied consent to give care

If a person is conscious you must ask for permission to treat the person. If they understand your question about giving care and what you plan to do, this is "expressed consent". If a person is unconscious or unable to respond and would agree to care if they could, this is called "implied consent". **Page 5**

If the conscious person is a child or infant, permission must be obtained from a parent or guardian if available. If it is a life-threatening condition and no parent or guardian is available, then permission is implied. **Page 5**

Never touch or give care to a conscious person who refuses it. **Page 5**

Animals, including humans and insects, can spread some diseases through bites. **Page 5**

To prevent disease transmission when giving care follow what are known as "standard precautions". **Page 5**

Use protective barriers such as CPR breathing barriers, disposable gloves and cover your own cuts scrapes or sores with a bandage. **Page 5**

The three emergency action steps are:

1. **Check** the scene and then the victim.
2. **Call** 9-1-1 or the local emergency number.
3. **Care** for the person. **Page 8**

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?

For first aid purposes, an adult is defined as someone about age 12 or older, a child is between the ages of 1 and 12 and an infant is someone younger than 1 year. **Page 10**

Do not move a seriously injured or ill person unless there is immediate danger, you have to get to another person with a more serious problem, or you have to in order to give proper care. **Page 9, 11**

If you must move a person you should do it as quickly and carefully as possible. **Page 9**

The first thing you do is check the scene to make sure it is safe for you to approach the injured person. Find out how many people are involved and prioritize care. **Page 9**

Unconsciousness is a life threatening emergency. **Page 10**

Call

Calling 9-1-1 or the local emergency number for help often is the most important action you can take to help an injured or ill person. **Page 10,11**

As a general rule, call 9-1-1 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

Also call 9-1-1 or the local emergency number immediately for any of these situations:

- 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

If you are alone:

- **Call first:** for any adult or child over 12 if unconscious, you witnessed a child or infant suddenly collapse, or if it is a child or infant known to have heart problems.
- **Care first:** for any unconscious child under the age of 12 who you did not see collapse and for any drowning victim. **Page 11**

In general

- **Call First** for cardiac emergencies and
- **Care First** for breathing emergencies. **Page 11**

When caring for a person do no further harm. **Page 11**

When in doubt and you think there is a life threatening condition call EMS. **Page 10**

Care

Once you have checked the scene and the person and have made a decision about calling 9-1-1 or the local emergency number, you may need to give care until EMS personnel take over.

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.

To check a conscious person with no immediate life-threatening conditions:

- Interview the person and bystanders.
- Check the person from head to toe. **Page 14**

Shock

When the body is healthy, three conditions are needed to keep the right amount of blood flowing:

- The heart must be working well.
- An adequate amount of oxygen-rich blood must be circulating in the body.
- The blood vessels must be intact and able to adjust blood flow.

Shock is a condition in which the circulatory system fails to deliver enough oxygen rich blood to the body's tissues and vital organs. When a person is going into shock, call 9-1-1 or the local emergency number immediately. **Page 16**

Signals that a person may be going into shock include:

- Restlessness or irritability
- Altered level of consciousness
- Nausea or vomiting
- Pale, ashen, or grayish, cool, moist skin
- Rapid breathing and pulse
- Excessive thirst. **Page 16**

To treat for shock, have the person lie down in a comfortable position, control any bleeding, reassure the person and continue to monitor breathing and for any changes in the person's condition. **Page 16**

When checking an unconscious person, check for (ABC):

- Open airway (Airway)
- Breathing (Breathing)
- Severe bleeding. (Circulation) **Page 17, 18**

Consciousness, effective (normal) breathing and circulation and skin characteristics are sometimes referred to as **signs of life. Page 17**

To open an unconscious person's air way, have them lie on their back, push down on the forehead while pulling up on the bony part of the chin with two or three fingers. This is called the head-tilt/chin lift technique. **Page 17**

For a child, place one hand on the forehead and tilt the head slightly past a neutral position. **Page 17**

For an infant, place one hand on the forehead and tilt the head to a neutral position while pulling up on the bony part of the chin with two or three fingers. **Page 18**

If you suspect that a person has a head, neck or spinal injury, carefully tilt the head and lift the chin just enough to open the airway. **Page 18**

After opening the airway, to check for breathing, for no more than 10 seconds, you:

- **Look** to see if the person's chest clearly rises and falls
- **Listen** for escaping air
- **Feel** for it against the side of your face. **Page 18**

If an unconscious adult has irregular, gasping or shallow breaths, (**agonal breath**) care for this person as if there is no breathing at all. **Page 18**

If an adult is not breathing normally, this person most likely needs CPR. **Page 18**

If a child or an infant is not breathing, give two rescue breaths. Tilt the head back, lift the chin up, pinch the nose shut and make a complete seal over the child's mouth and blow in for about 1 second. **Page 18**

For an infant, seal your mouth over the infant's mouth and nose. Give rescue breaths one after the other. **Page 18**

If you witness the sudden collapse of a child, assume a cardiac emergency. Do not give rescue breaths. Begin CPR immediately as with an adult. **Page 18**

If an unconscious person vomits, you should place the person in a recovery position and clear the mouth. **Page 20**



Incident Stress

After responding to an emergency involving a serious injury, illness, or death, it is not unusual to experience acute stress. Sometimes, people who have given first aid or performed CPR in these situations feel that they are unable to cope with the stress. This feeling is known as *incident stress*. If not appropriately managed, this acute stress may lead to a serious condition called **POST-TRAUMATIC STRESS DISORDER**. **Page 23**

Chapter 2

Cardiac Emergencies and CPR

Cardiac emergencies are life threatening. Heart attack and cardiac arrest are major causes of illness and death in the United States. Every day in U.S. homes, parks and workplaces someone will have a heart attack or go into cardiac arrest. Recognizing the signals of a heart attack and cardiac arrest, calling 9-1-1 or the local emergency number and giving immediate care in a cardiac emergency saves lives. Performing CPR and using an automated external defibrillator (AED) immediately after a person goes into cardiac arrest can greatly increase his or her chance of survival.

Heart Attack

When blood flow to the heart muscle is reduced, people experience chest pain. This reduced blood flow usually is caused by coronary heart disease. When the blood and oxygen supply to the heart is reduced, a may result. **Page 30**

The most common signal of a cardiac emergency is persistent pain, discomfort or pressure in the chest that lasts longer than 3 to 5 minutes or goes away and comes back. **Page 31**

Symptoms of a cardiac emergency may be:

- Pain in the chest.
- Discomfort in other areas of the upper body in addition to the chest.
- Trouble breathing
- Skin may be pale or ashen especially around the face.
- Some people may be damp with sweat or may sweat heavily.

- Dizziness, nausea, or vomiting. **Page 31**

If you suspect a person is having a heart attack:

- Call 9-1-1 or the local emergency number immediately.
- Have the person stop what they are doing
- Loosen any tight or uncomfortable clothing.
- Watch the person, be ready to perform CPR and use an AED if available.
- Ask the person if they have a history of heart disease.

Offer an aspirin if the patient can swallow. **Page 31**

Without oxygen, brain damage can occur at 4-6 minutes and may be irreversible at 10 minutes. **Page 33**

Cardiac Chain of Survival

CPR alone may not be enough to help someone survive cardiac arrest. Advanced medical care is needed as soon as possible. A person in cardiac arrest will have the greatest chance of survival if you follow the four links in the Cardiac Chain of Survival: **Page 33**

- Early recognition and early access to the emergency medical services (EMS) system.
- Early CPR
- Early defibrillation
- Early advanced medical care.

For each minute that CPR and defibrillation are delayed, the chance for survival is reduced by about 10 percent.

CPR is a combination of chest compressions and rescue breaths. **Page 34**

To give chest compressions, place the heel of one hand on the person's sternum at the center of their chest and the other hand directly on top of the first hand. **Page 35**

Give **30 chest** compressions that push down at least 2 inches then give **2 rescue breaths** that each last 1 second. **Page 35-36**

To locate the correct hand position for CPR for a child, locate the notch at the end of the sternum then move your hands slightly toward the child's head. Chest compressions and rescue breaths are the same as for an adult. **Page 38**

When giving CPR the victim should be on a firm, flat surface. **Page 34**

CPR for an infant is **30 chest** compressions with two or three fingers that compress the chest 1 ½ inches and **2 rescue breaths** covering the infant's nose and mouth with your mouth. **Page 39**

When an AED is available, continue CPR until the AED is turned on and the defibrillation pads are applied. **Page 45**

AED pads are placed, one on the upper right chest and the other on the left side of the chest. **Page 46**

While an AED is being used, no one should touch the victim. **Page 46**

After delivering a shock, or when no shock is advised:

- Perform about 2 minutes of CPR
- Follow the prompts on the AED. **Page 46**

When you press down on the breastbone, the weight of your upper body creates the force you need to compress the chest. **Page 35**

When a victim is breathing but unconscious, keep the victim in a face-up position and maintain an open airway. **Page 19**

Stop CPR:

- If you find obvious signs of life, such as breathing.
- When an AED is ready to use
- Another trained responder or EMS personnel to take over.
- You are too exhausted to continue.
- The scene becomes unsafe. **Page 39**

Chapter 4

Breathing Emergencies

A breathing emergency is any respiratory problem that can threaten a person's life. Breathing emergencies happen when air cannot travel freely and easily into the lungs. Respiratory distress, respiratory arrest and choking are examples of breathing emergencies. In a breathing emergency, seconds count so you must react at once. This chapter discusses how to recognize and care for breathing emergencies. **Page 55**

Asthma

Asthma is the inflammation of the air passages that results in a temporary narrowing of the airways that carry oxygen to the lungs. An asthma attack happens when a trigger, such as exercise, cold air, allergens or other irritants cause the airway to swell and narrow. This makes breathing difficult. **Page 57**

Hyperventilation occurs when a person's breathing is faster and more shallow than normal. Often, they are afraid and anxious or seem confused. **Page 58**

A severe allergic reaction can cause a condition called anaphylaxis. During anaphylaxis, the air passages swell and restrict a person's breathing. **Page 58**

Signs of anaphylaxis include:

- A rash
- Tightness in the chest and throat
- Swelling of the face, neck and tongue. **Page 57**

A person that has trouble breathing may breathe easier in a sitting position. **Page 58**

If an adult is unconscious and not breathing, the cause is most likely a cardiac emergency. Immediately begin CPR. **Page 58**

If an adult is not breathing because of a respiratory cause, such as drowning, give 2 rescue breaths and scan for bleeding, then begin CPR. **Page 58**

CHOKING

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. **Page 60**

If a choking person is coughing forcefully, let them try to cough up the object. Stay with the person and encourage them to continue coughing. **Page 61**

To clear a choking person's airway, use a combination of 5 back blows followed by 5 abdominal thrusts. Continue until the object is dislodged, the person can cough forcefully, speak or breathe, or becomes unconscious. **Page 61**

To give abdominal thrusts to a conscious, choking adult or child:

- Stand or kneel behind them and wrap your arms around their waist.
- Locate the navel with one or two fingers of one hand. Make a fist with the other and place the thumb against the middle of the person's abdomen, just above the navel and well below the breastbone.
- Grab your fist with your other hand and give quick, upward thrusts into the abdomen. **Page 62**

To give back blows;

- Position yourself slightly behind the person.
- Provide support by placing one arm diagonally across the chest and bend the person forward at the waist until the upper airway is parallel to the ground.
- Firmly strike the person between the shoulder blades with the heel of your other hand. **Page 62**

Give chest thrusts to a large or pregnant person who is choking. **Page 62**

If the person needing rescue breaths has a stoma (an opening in the airway that goes through the neck):

- Remove any covering over the neck down to the breast bone. Wipe away any secretions. Make an airtight seal around the stoma or tracheostomy with your lips and blow in for 1 second. **Page 20**

If an infant cannot cough, cry or breathe you will need to do 5 back blows followed by 5 chest thrusts. To give back blows, place one hand and forearm on the infant's back cradling the back of the head and one forearm on the front of the infant. Turn the infant over so that they are face down along your forearm. Rest your forearm on your raised thigh so that the infant's head is lower than their chest. Give 5 back blows with the heel of your hand between the shoulder blades. Maintain support of the infant's head and neck by firmly holding the jaw between your thumb and forefinger. Follow the back blows with chest thrusts by turning the infant over onto the

other thigh and use two or three fingers to compress the chest on the breast bone 5 times about 1 ½ inches. **Page 62-62**

If a conscious choking adult or child becomes unconscious, lower the person to the ground, open the mouth and look for an object. If you see one, remove it with your finger. If no object is seen, open the person's airway by tilting the head and give two rescue breaths. If the chest does not clearly rise give 30 chest compressions and check for an object in the mouth or throat again. Remove the object and give 2 rescue breaths. If air still won't go in give 30 chest compressions. Continue sequence until the object is removed and the chest rises when giving rescue breaths, the person starts breathing on their own, another trained provider or EMS personnel take over, you are too exhausted to continue or the scene becomes unsafe. **Page 63-64**

If the choking adult or child is unconscious, give 30 chest compressions that are about 2 inches deep, check for the object in the mouth, remove it if seen, give two rescue breaths. If air still does not go in, repeat cycles of chest compressions, foreign object check/removal and 2 rescue breaths. **Page 64**

If a choking infant becomes unconscious, give 30 chest compressions that are about 1 ½ inches deep, check for foreign object and remove it if seen. Give 2 rescue breaths. Repeat cycles of chest compressions, foreign object check/removal and rescue breaths until the object is removed and the chest clearly rises with rescue breaths, the infant starts to breathe on their own, another trained responder or EMS personnel take over, you are too exhausted to continue, or the scene becomes unsafe. **Page 64**

Chapter 5

Sudden illness

If a person suddenly becomes ill, it is important to respond quickly and effectively. When illness happens suddenly it can be hard to determine what is wrong and what you should do to help.

What to Look For

When a person becomes suddenly ill, he or she usually looks and feels sick. Common signals include:

- Changes in level of consciousness, such as feeling lightheaded, dizzy, drowsy, or confused, or becoming unconscious.
- Breathing problems (i.e., trouble breathing or no breathing).
- Signals of a possible heart attack, including persistent chest pain, discomfort or pressure lasting more than a few minutes that goes away and comes back or that spreads to the shoulder, arm, neck, jaw, stomach or back.
- Signals of a stroke, including sudden weakness on one side of the face (facial droop); sudden weakness, often on one side of the body; sudden slurred speech or trouble forming words; or a sudden, severe headache.
- Loss of vision or blurred vision.
- Signals of shock, including rapid breathing, changes in skin appearance and cool, pale or ashen (grayish) skin.
- Sweating.
- Persistent abdominal pain or pressure.
- Nausea or vomiting.
- Diarrhea.
- Seizures

Fainting is a temporary loss of consciousness. This occurs when there is insufficient blood flow to the brain for a short period of time. Fainting is not harmful. **Page 70**

A person who is about to faint often becomes pale, begins to sweat and then loses consciousness. **Page 70**

A person who feels weak or dizzy may prevent fainting by lying down or sitting with their head level with their knees. **Page 70**

If a person faints, lower them to the ground or other flat surface and position them on their back, lying flat. Loosen any tight clothing and make sure they are breathing. **Page 70**

Seizures

When the normal functions of the brain are disrupted by injury, disease, fever, infection, metabolic disturbances or conditions causing a decreased oxygen level, a *seizure* may occur. The seizure is a result of abnormal electrical activity in the brain and causes temporary, involuntary changes in body movement, function, sensation, awareness, or behavior.

Signals of seizures include:

- A blank stare
- A period of distorted sensation during which the person is unable to respond
- Uncontrolled muscular contractions, called convulsions, which last several minutes. **Page 71**

When a person is having a seizure:

- Do not hold or restrain them.
- Do not put anything in the person's mouth or between their teeth.
- Make sure the person will not injure themselves on any nearby objects.
- Care for the person as you would for an unconscious person. **Page 71**

Signals of a stroke, besides looking or feeling ill and/or behaving strangely include:

- Weakness or numbness of the face, arm or leg, usually on one side of the body.
- Facial droop or drooling.
- Trouble with speech.
- Loss of vision or disturbed vision in one or both eyes.
- Sudden severe headache.
- Dizziness, confusion, agitation, loss of consciousness or other severe altered mental status.
- Loss of balance or coordination.
- Incontinence. **Page 73**

If you suspect a stroke, think **FAST**.

- **Face:** Weakness, numbness or drooping on one side. Ask the person to smile.
- **Arm:** Weakness or numbness in one arm. Ask the person to raise both arms.
- **Speech:** Slurred speech or difficulty speaking. Ask the person to repeat a simple sentence.
- **Time:** Try to determine when the signals began. **Page 73**

Signals of a diabetic emergency include:

- Changes in the level of consciousness
- Changes in mood
- Rapid breathing and pulse
- Feeling and looking ill.
- Dizziness and headache.
- Confusion. **Page 75**

If a person with a diabetic emergency is conscious and able to swallow, advises you that they need sugar, give sugar in the form of several glucose tablets or glucose paste, a 12-ounce serving of fruit juice, milk, non-diet soft drink or table sugar dissolved in a glass of water. **Page 75**

Allergic Reactions

Allergic reactions are caused by over activity of the immune system against specific *antigens* (foreign substances). People with allergies are especially sensitive to these antigens. When their immune systems overreact to the antigens it is called an *allergic reaction*. Antigens that often cause allergic reactions in at-risk people include the following:

- Bee or insect venom
- Antibiotics
- Pollen
- Animal dander
- Latex
- Sulfa drugs
- Certain foods (e.g., tree nuts, peanuts, shellfish, and dairy products)

People who know that they are severely allergic to certain substances or bee stings may wear a medical ID tag, necklace or bracelet. **Page 76**

Signals of an allergic reaction are:

- Rash or hives
- Itching
- Weakness
- Nausea and/or vomiting
- Stomach cramps
- Dizziness
- Trouble breathing. This can progress to a blocked airway as the lips, tongue, throat, and larynx swell.
Page 76

If a person knows that they have severe allergic reactions to something, they may carry an epinephrine auto-injector. If so, help the person use it if they are conscious and administer for them if they are unable to, if permitted by state or local regulation. **Page 76**

POISONING

A poison is any substance that causes injury, illness, or death if it enters the body.

A person can be poisoned by:

- Swallowing
- Inhaling
- Absorbing
- Or injecting poisons. **Page 77**

If you suspect poisoning:

- Remove the person from the source of the poison if the scene is dangerous.
- Check the person's level of consciousness
- Care for any life-threatening conditions
- If the person is conscious, ask questions to get more information.
- Look for containers to give to Emergency personnel.
- Call the National Poison Control Center Hotline and follow their directions. 1-800-222-1222 **Page 77**

In the case of poisoning with dry chemicals, brush off the dry chemicals with gloved hands or a cloth. Carefully remove any contaminated clothing but avoid contaminating yourself or others. Flush the area thoroughly with large amounts of water. **Page 80**

If poisoning is from a wet chemical coming in contact with the skin, flush the affected area with large amounts of cool water. **Page 80**

Environmental Emergencies

Heat-Related Illness

Heat cramps, heat exhaustion and heat stroke are conditions caused by overexposure to heat, loss of fluids and electrolytes.

Heat cramps are painful muscle spasms and the least severe of the heat related illnesses. **Page 82**

To treat heat cramps, help the person move to a cool place, give an electrolyte and carbohydrate containing fluid like a sports drink, fruit juice, milk or water. Lightly stretch the muscle and gently massage the area. **Page 82**

Signals of heat exhaustion include cool, moist, pale, ashen or flushed skin; headache; nausea; dizziness; weakness and exhaustion. **Page 83**

To treat heat exhaustion: move the person out of the heat, loosen or remove as much clothing as possible, apply cool, wet cloths, moistening periodically, spraying the person with water and fanning also can help. **Page 83**

If the victim suffering from heat exhaustion is conscious and able to swallow, give them small amounts of a cool fluid such as a sports drink or fruit juice. Milk or water may also be given. Give about 4 ounces of fluid every 15 minutes. **Page 83**

Heat stroke is the **most sever heat-related illness**. It usually occurs when people ignore the signals of heat exhaustion. **Page 83**

Signals of heat stroke include extremely high body temperature, red skin that can be wither dry or moist, changes in consciousness; rapid, weak pulse; rapid, shallow breathing; confusion; vomiting; and seizures.

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To treat heat stroke: Preferred method:

- Rapidly cool the body by immersing the person up to the neck in water, if possible, or
- Douse or spray the person with cold water.
- Sponge the person with ice water-doused towels over the entire body, frequently rotating the cold, wet towels or cover with bags of ice.
- If you cannot measure and monitor the person's temperature apply cooling methods every 20 minutes.

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Cold-Related Emergencies

Frostbite and *hypothermia* are two types of cold related emergencies.

Frostbite is the freezing of body parts exposed to the cold. **Page 83**

Signals of frostbit include lack of feeling in the affected area, swelling and skin that appears waxy, is cold to the touch or is discolored. In more serious cases blisters may form and the affected part may turn black and show signs of deep tissue damage. **Page 84**

To care for frostbite, handle the area gently, remove wet clothing and jewelry. Never rub a frostbitten area. Do not attempt to rewarm the frostbitten area if there is a chance that it might refreeze or if you are close to medical care. For minor frostbite, rapidly rewarm the affected part by using skin-to-skin contact such as with a warm hand. **Page 84**

For serious frostbite, gently soak it in water not warmer than about 105*. The water should not be uncomfortable to your touch. Keep the frostbitten part in the water until normal color returns and it feels warm. Do not break any blisters. Loosely bandage the affected area. **Page 84**

Hypothermia signals include shivering, numbness, glassy stare, indifference, and loss of consciousness. **Page 84**

To care for hypothermia, first treat any life-threatening condition. Make the person comfortable in a warm place. Remove wet clothing and dry the person. Put on dry clothing. Warm the body gradually by wrapping the person in blankets and plastic sheeting to hold the body heat. If the person is alert, give warm liquids. **Page 85**

For severe hypothermia, the person may be unconscious. Breathing may have slowed or stopped. The body may feel stiff because the muscles became rigid. Check for breathing for no more than 10 seconds. If not breathing perform CPR. **Page 85**

Preventing Heat-Related Illnesses and Cold-Related Emergencies

In general, you can prevent illnesses caused by overexposure to extreme temperatures. To prevent heat-related illnesses and cold-related emergencies, follow these guidelines:

- Do not go outdoors during the hottest or coldest part of the day.
- Change your activity level according to the temperature.
- Take frequent breaks.
- Dress appropriately for the environment.
- Drink large amounts of fluids. **Page 85**

Insect Stings

Most of the time, insect stings are harmless. If the person is allergic, an insect sting can lead to anaphylaxis, a life-threatening condition.

What to Look For

Signals of an insect sting include:

- Presence of a stinger.
- Pain.
- Swelling.
- Signals of an allergic reaction.

For insect stings, remove any visible stinger by scraping it away with a fingernail or a plastic card, or use tweezers. If it is a bee sting, do not grab the venom sac. Wash with soap and water. Cover the site and keep it clean. Apply a cold pack to the area to reduce pain and swelling. If the person has any trouble breathing call 9-1-1. **Page 85**

If a person has been bitten by a venomous snake you should, Wash the wound, apply an elastic bandage to slow the spread of venom keep the injured area still and lower than the heart. **Page 92**

In the event of a snake bite **DO NOT:**

- Apply ice
- Cut the wound
- Apply suction
- Apply a tourniquet
- Use electric shock. **Page 93**

If a victim is bitten by an animal, control bleeding first if bleeding is serious, do not clean serious wounds. If bleeding is minor, wash the wound with soap and water then irrigate with clean running water. Apply an antibiotic ointment to minor wounds. Watch for signals of infection. **Page 94**

For jellyfish stings, except by a Portuguese man-of-war, flush the affected area with vinegar for 30 seconds. For a sting from a Portuguese man-of-war, flush with large amounts of ocean water. **Page 94**

If someone is struck by lightning, treat according to the extent of the injury. If not breathing, perform CPR. Care for other injuries as needed. Be prepared for other conditions such as hypothermia in a wet person.

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Soft Tissue Injuries

An injury to the soft tissue is commonly called a **wound. Page 99**

Signals of internal bleeding include:

- Tender, swollen, bruised or hard areas of the body, such as the abdomen.
- Rapid, weak pulse
- Skin that feels cool or moist or looks pale or bluish.
- Vomiting blood or coughing up blood
- Excessive thirst
- An injured extremity that is blue or extremely pale. **Page 99**

Open wounds include:

- Abrasions: Usually caused by something rubbing roughly against the skin.
- Lacerations: A cut in the skin commonly caused by a sharp object, such as a knife.
- Avulsions: A serious soft tissue injury where a portion of the skin, and sometimes other soft tissue, is partially or completely torn away.
- Punctures: Occur when a pointed object, such as a nail, pierces the skin. **Page 101**

To help prevent infection in minor wounds, after bleeding, wash the area with soap and water and, if possible, irrigate with large amounts of fresh running water to remove debris and germs. **Page 101**

Stitches are needed for open wounds that have edges that do not fall together, are on the face, or when the wound is over ½ inch long. **Page 102**

Dressings are pads placed directly on the wound to absorb blood and other fluids and to prevent infection. **Page 102**

An occlusive dressing is a bandage or dressing that closes a wound or damages area of the body and prevents it from being exposed to the air or water. **Page 102**

A bandage is any material that is used to wrap or cover any part of the body. Bandages are used to hold dressings in place, apply pressure to control bleeding, to protect a wound from dirt and infection, and to provide support to an injured limb or body part. **Page 103**

Any bandage applied snugly to create pressure on a wound or an injury is called a **pressure bandage. Page 103**

If blood soaks through the dressing and bandage, apply more dressing and bandage. Do not remove blood soaked bandages and dressings. **Page 104**

To control bleeding, cover the wound with a dressing and firmly press against the wound with a gloved hand until the bleeding stops. Apply a pressure bandage over the dressing to maintain pressure on the wound and to hold the dressing in place. **Page 105**

A tourniquet should be used only as a last resort in cases of delayed care or situations where response from emergency medical services is delayed, when direct pressure does not stop the bleeding or you are not able to apply direct pressure. **Page 106**

BURNS

Burns are a special kind of soft tissue injury. Like other types of soft tissue injury, burns can damage the top layer of skin or the skin and the layers of fat, muscle, and bone beneath.

Burns are classified as:

- Superficial (First degree)
- Partial Thickness (Second degree)
- Full thickness (Third degree) **Page 107**

A critical burn requires immediate medical attention. Even a superficial burn could be critical if it covers a large area of the body. **Page 107**

Burns are also classified by the source of the burn: Heat (Thermal) burns, chemical, electrical and radiation (such as from the sun). **Page 107**

Caring for burns depends on the type of burn:

- Heat burns:
 - Check the scene, stop the burning by removing the person from the source of the burn, check for life threatening conditions, cool the burn with large amounts of cool liquid, cover the burn loosely with a sterile dressing, minimize shock, comfort and reassure the person.
- Chemical burns:
 - if dry chemical, brush off the chemical using gloved hands or a towel, remove any contaminated clothing before flushing with water for 20 minutes or until EMS personnel take over. If an eye is burned by a chemical, flush the affected eye with water until EMS personnel take over. Tilt the head so that the affected eye is lower than the unaffected eye as you flush.
- Electric burns:
 - Never go near the person until you are sure they are not still in contact with the power source. Turn off the power at its source and care for any life-threatening conditions. Call 9-1-1 or the local emergency number.
- Radiation Burns:
 - Care for a radiation burn as you would for any thermal burn. Cool the burn and protect the area from further damage by keeping the person away from the source of the burn. **Page 108**

Never remove pieces of cloth that stick to the burned area. Do not apply ice or ice water to the burn. Do not touch a burn with anything except a clean covering. Do not try to clean a severe burn. Do not break blisters and do not apply any ointment to a severe burn. **Page 108**

SPECIAL SITUATIONS

Certain types of wounds need special attention or care. These types of situations include crush injury; severed body parts (amputations); impaled objects; and injury to the mouth, nose, lip, tooth, chest and abdomen.

If a part of the body has been torn or cut off, call 9-1-1 or the local emergency number. Try to find the part and wrap it in sterile gauze or any clean material. Put the wrapped part in a plastic bag and seal the bag. Keep the part cold and bag cool by placing it in an ice and water slurry, not on ice alone, if possible. **Page 109**

If a splinter is in the eye, do not attempt to remove it. **Page 110**

If an object, such as a knife or a piece of glass or metal, is embedded in a wound, do not remove it. Place several dressings around it to keep it from moving. Bandage the dressings in place around the object. **Page 110**

For a nose injury, in most cases you can control bleeding by having the person sit with the head slightly forward while pinching the nostrils together for about 10 minutes. **Page 110**

If a person's tooth is knocked out, control the bleeding and save the tooth so it may possibly be reinserted. To control bleeding, place a rolled sterile dressing into the space left by the missing tooth and have the person gently bite down on it. Place the tooth in milk, if possible, or cool water. Only touch the crown of the tooth, not the root. **Page 110**

Chest Injuries

The chest is the upper part of the trunk. It is shaped by 12 pairs of ribs. Ten of the pairs attach to the *sternum* (breastbone) in front and to the spine in back. Two pairs, the *floating ribs*, attach only to the spine. The *rib cage*, formed by the ribs, the sternum, and the spine, protects vital organs, such as the heart, major blood vessels and the lungs. Also, in the chest are the esophagus, trachea and muscles used for respiration.

A puncture wound to the chest that penetrates the rib cage, could cause a **sucking chest wound**. With each breath the person takes, you will hear a sucking sound coming from the wound. Cover the wound with a large occlusive dressing. A piece of plastic wrap, or a plastic bag folded several times and placed over the wound makes an effective occlusive dressing. Tape the dressing in place except for one side or corner. **Page 112**

To care for an open wound to the abdomen:

- Put on disposable gloves or use another barrier.
- Carefully position the person on their back with the knees bent, if that position does not cause pain.
- Do not apply direct pressure.
- Do not push any protruding organs back into the open wound.
- Remove clothing from around the wound.
- Apply moist, sterile dressings loosely over the wound.
- Cover dressings loosely with plastic wrap, if available. **Page 112**

To care for a close wound to the abdomen:

- While keeping the injured area still, apply cold to the affected area.
- Carefully position the person on their back with knees bent, if that position does not cause pain.
- Keep the person from getting chilled or over heated. **Page 112**

Injuries to Muscles, Bones and Joints

The four basic types of injuries to muscles, bones and joints are fractures, dislocations, sprains, and strains. **Page 118**

A fracture is a complete break, a chip or a crack in a bone. Fractures can be open or closed. An open fracture involves an open wound. A closed fracture does not have open skin. **Page 118**

A dislocation is the movement of a bone at a joint away from its normal position. Dislocations are usually more obvious than a fracture. **Page 120**

A sprain is the tearing of ligaments at a joint. **Page 120**

A strain is a stretching and tearing of muscles or tendons. **Page 121**

To care for a fracture, dislocation, sprain, or strain:

- Rest-do not move the injured person.
- Immobilize the injured area in the position it was found. Splint the injured part only if the person must be moved or transported to receive medical care and it does not cause more pain.
- Fill a plastic bag with ice and water or wrap ice with a damp cloth and apply ice to the injured area for periods of about 20 minutes. Do not apply heat.
- Elevate the injured part only if it does not cause more pain. **Page 121**

To splint a fractured part, splint the joints above and below the site of the injury. For sprains or joint injuries, splint the bones above and below the site of the injury. **Page 122**

An **anatomic splint** uses the person's body to immobilize the injured part. **Page 122**

Head, Neck and Spinal Injuries

Although head, neck and spinal injuries make up only a small fraction of all injuries, these injuries may be life threatening or cause permanent life-altering damage. Each year, approximately 12,000 Americans suffer a spinal cord injury. Most are male victims with an average age of about 40 years. The leading causes of spinal cord injuries are motor vehicle crashes, followed by falls, violence, and sports.

The best care you can give to a person you suspect has a head, neck, or spine injury, is to minimize movement of the head, neck, and spine. **Page 123**

To care for head, neck, or spine injuries:

- Support the head and neck in the position in which you found it.
- Maintain an open airway.
- Control any bleeding.
- Do not apply direct pressure if there are any signs of an obvious skull fracture.
- If there is clear fluid leaking from the ears of a wound in the scalp, cover the area loosely with a sterile dressing.
- Monitor the person for any changes in condition.

- Try to calm and reassure the person. Encourage the person to talk. It may prevent loss of consciousness. **Page 125**

A concussion is a type of brain injury that involves a temporary loss of brain function resulting from a blow to the head. Signals of a concussion include:

- Confusion, which may last from moments to several minutes.
- Headache.
- Repeated questioning about what happened.
- Temporary memory loss, especially for periods immediately before and after the injury.
- Brief loss of consciousness.
- Nausea and vomiting.
- Speech problems (patient unable to answer questions or obey simple commands).
- Blurred vision or light sensitivity. **Page 125**

Chest Injuries

Injuries to the chest may be caused by falls, sports mishaps or crushing or penetrating forces. Chest injuries range from a simple broken rib to serious life-threatening injuries

A person with a broken rib will take small, shallow breaths because normal or deep breathing is uncomfortable or painful. The person will usually attempt to ease the pain by supporting the injured area with a hand or arm. **Page 126**

If you suspect injured or broken ribs, have the person sit in a comfortable position and bind the person's upper arm to the chest on the injured side to support the injured area and make breathing easier. **Page 126**

Children up to 1 year of age are commonly referred to as infants. One and two year old children are toddlers. Three to five year old children are preschoolers. School age children are between six and 12 years of age. Children between 13 and 18 years of age are considered adolescents. **Page 136**

If a child has an object in the nose, do not try to remove it. **Page 140**

First Aid Quiz

1. Before giving care, you must ask a conscious person if he/she wishes to receive first aid.
T_____F_____
2. Your role in the EMS system includes these four steps: Recognize that an emergency exists, decide to act, activate the EMS system and give care until help takes over.
T_____F_____
3. The Good Samaritan laws give the caregiver immunity from any lawsuits so the care giver can do anything they want to a conscious victim as long as they saw it done on TV.
T_____F_____
4. The three First Aid emergency actions steps are: Call, Care, and Check.
T_____F_____
5. When evaluating an accident scene, the first thing you want to do is determine if it is safe for you to act.
T_____F_____
6. CPR for adults is cycles of 30 chest compressions and 2 rescue breaths per cycle.
T_____F_____
7. CPR for infants uses the same cycle as adults but the caregiver gives chest compressions with two or three fingers only.
T_____F_____
8. Allergic reactions are never life threatening.
T_____F_____
9. Perfume worn by students or bus drivers can trigger an asthma attack in some students
T_____F_____
10. Signs of a concussion include confusion, which may last from moments to several minutes
T_____F_____