

CPR AED FIRST AID



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CPR AED FIRST AID

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CPR/First Aid training materials meet Federal OSHA compliance standards.

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CPR
AED
FIRST AID



First Aid is the initial care given to someone who is injured or suddenly becomes ill before more advanced medical help arrives. The goal of this course is to expose you to some realistic emergencies, and give you the knowledge and skills needed to respond safely and effectively.

The CPR, AED and First Aid training programs by EMS Safety Services have been approved, accepted, or meet the guidelines of numerous federal, state and local agencies, organizations and regulatory bodies, including OSHA, CECBEMS, US Coast Guard, the Joint Commission, and various state Health, Human Services and EMS departments.

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This is a skills-based course. Your instructor will help you learn and practice the skills. **You will need to demonstrate them correctly in order to receive a certification card.** Review and practice your skills regularly so you are ready to respond in a first aid emergency.

Protection from Infection

Infectious diseases are spread when one person transmits germs to another. At an emergency scene, a rescuer may be exposed to a disease which could cause illness. Although the risk of actual disease transmission is very low, it is still important to protect yourself.

BLOODBORNE PATHOGENS

Bloodborne pathogens are disease-causing microorganisms that are present in blood and certain body fluids. **HIV, hepatitis B and hepatitis C** are viruses that are carried in the blood and body fluids of infected persons. They can be transmitted when the blood or body fluids from an infected person or on a contaminated object enter another person's body. During an emergency, exposure to bloodborne pathogens can happen through:

- A direct splash into the rescuer's eyes, mouth or nose
- An opening in the rescuer's skin, such as a cut, scab, or rash



Wear moisture-proof gloves

UNIVERSAL PRECAUTIONS

Follow **Universal Precautions** when giving care at an emergency scene to reduce your exposure to bloodborne pathogens. **Assume that all moist body substances are infectious.**

- Treat all victims as potential carriers of infectious disease.
- Wear personal protective equipment (PPE): moisture-proof gloves, mask, gown, eye protection.
- Use a CPR barrier for rescue breathing.
- Wash hands thoroughly before and after giving care, and after cleaning an accident scene.

HAND WASHING

Wash your hands immediately after glove removal. Use soap and running water, and scrub your hands for at least 20 seconds. Rinse well.



Wash hands for at least 20 seconds



If your hands are not visibly soiled and you don't have soap and water, use hand sanitizer, then wash as soon as possible.

REMOVE GLOVES SAFELY



Pinch the base of one glove and slowly peel it off. Hold it in the gloved hand.



Slip two fingers inside the other glove and carefully peel it off.



End with the gloves inside out, one inside the other. Dispose of them properly.

If you are **exposed** to blood or other body fluids, immediately remove your gloves and wash your hands and the exposed area thoroughly with soap and water. Follow your workplace **Exposure Control Plan**.

CLEANING AFTER AN EMERGENCY

Clean blood spills as soon as possible.

- ✓ Wear PPE.
- ✓ Wipe up the spill with absorbent towels.
- ✓ Dispose of contaminated materials in an appropriate container.
- ✓ If there is contaminated broken glass, use tongs or a brush and dustpan to pick it up. Place in a puncture-resistant container.
- ✓ Disinfect contaminated surfaces.
- ✓ Remove your personal protective equipment and wash your hands thoroughly.



Wash exposed area thoroughly



Protect yourself when cleaning up a blood spill



Clean contaminated surfaces with a 10% bleach solution (1 part bleach to 9 parts water).

FIRST AID KITS

A first aid kit should be designed for its location and the user's needs. Regularly inspect and restock your first aid kits. The commonly-used items may run out quickly, and many items have expiration dates. Keep a first aid kit at home, at work, in the car, and when traveling.

Visit [emssafety.com/firstaidkit](https://www.emssafety.com/firstaidkit) for the specific contents of an OSHA-compliant first aid kit.

RESCUER STRESS

Giving care in an emergency can have a physical, mental, and emotional impact on the rescuer. It's normal to feel stress after an incident. Sometimes the stress can last for weeks or even months, and can affect a person's health and family life.



Basic First Aid Kit

- ✓ Absorbent compress
- ✓ Adhesive bandages
- ✓ Adhesive tape
- ✓ Antibiotic treatment
- ✓ Disposable gloves
- ✓ Antiseptic swabs/wipes
- ✓ Antiseptic towelettes
- ✓ Compression bandage
- ✓ CPR barrier
- ✓ Burn dressing/treatment
- ✓ Cold pack
- ✓ Eye covering
- ✓ Eye/skin wash
- ✓ Hand sanitizer
- ✓ Roller bandages
- ✓ Elastic bandages
- ✓ Sterile gauze pads
- ✓ Triangular bandage
- ✓ Tweezers
- ✓ Digital thermometer
- ✓ Scissors
- ✓ Blanket
- ✓ Splint
- ✓ First Aid manual

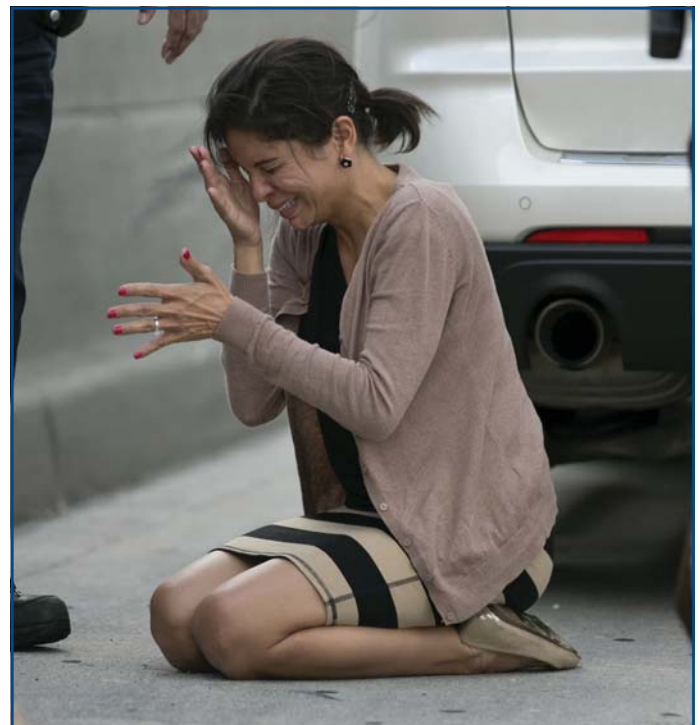


Signs

- Rapid breathing or heart rate
- Trembling, sweating
- Nausea, diarrhea
- Headache, fatigue
- Difficulty sleeping
- Change in appetite or weight
- Difficulty concentrating
- Nightmares
- Anxiety, guilt, anger
- Change in behavior or social interaction

TIPS FOR STRESS MANAGEMENT

- ✓ Talk about your feelings.
- ✓ Take care of your health.
- ✓ Consider professional help.



Rescuer stress is normal

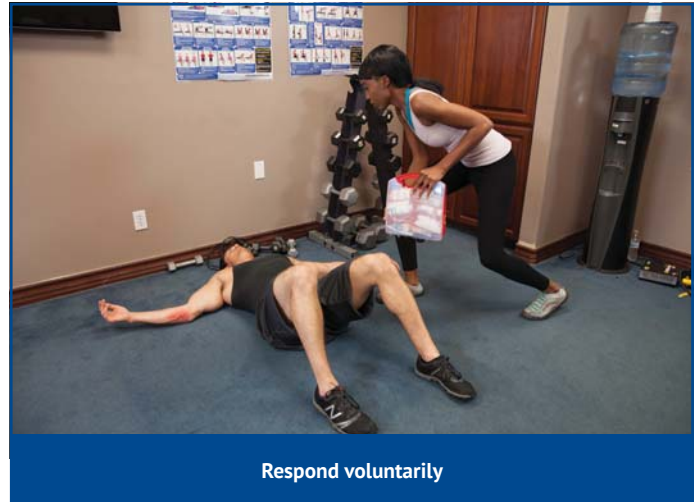
Legal Issues

GOOD SAMARITAN LAW

Every state has a **Good Samaritan Law** to protect you when you are providing first aid to an ill or injured person. Know the law in your state.

The Good Samaritan Law usually applies when you:

- Act voluntarily.
- Are not being paid to give care.
- Provide care with good intentions, reasonable skill and within the limits of your training.
- Do not abandon the person after beginning care. Stay with the victim until help arrives.



Respond voluntarily

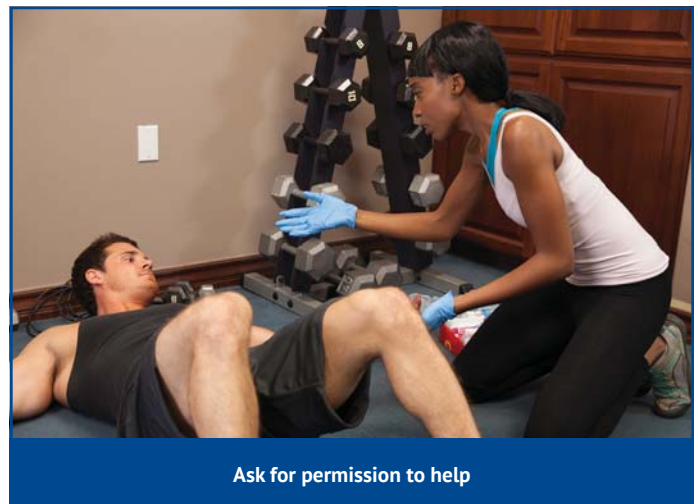
DUTY TO ACT

Some people have a legal obligation to act, according to statute or job description (e.g. teacher, childcare provider, lifeguard, firefighter, healthcare provider, police officer). If off duty and responding voluntarily, the rescuer would generally be covered under the Good Samaritan Law.

GAINING CONSENT

If a person is alert, ask for permission **before** beginning care. Give your name and level of training, then ask for permission to help. If the person refuses, call 911 and stay with the person until help arrives.

- **Helping a confused or unresponsive person:** If a person cannot give consent, you can assume that he or she gives you permission to help (implied consent).
- **Helping a child:** A parent or legal guardian must give consent before you begin care. If one is not present and the condition is life threatening, you can assume that you have permission to help.
- **Refusal of care:** Every adult has the right to refuse care. An unresponsive person may regain consciousness and refuse care. Call EMS and have them evaluate the person.



Ask for permission to help



Everyone has the right to privacy. Do not give the person's information out to bystanders or coworkers. Keep personal information private.

RECOGNIZE AN EMERGENCY

Pay attention to unusual sights, sounds, smells and situations, such as:

- A person who is unresponsive or appears seriously ill or injured
- Screams or panicked facial expressions
- A collision or vehicle stopped in an unusual location
- A suspicious environment (e.g. overturned furniture, disturbed plants, opened chemical or medication containers, broken glass, blood)
- Environmental hazards (e.g. fire, flooding, damaged electrical wires)



DECIDE TO ACT

After you recognize an emergency, decide to act. Don't assume that someone else will help. If you are unsure of what to do, call 911.



Don't delay calling 911

A person has a better chance of surviving an emergency when 911 is called early. Medical treatment is often more effective the sooner it is delivered. Ask a bystander to call 911. Call from your own cell phone if you are alone. Place the phone on speaker mode.

When you call 911 or your local emergency response number:

- You are connected to an emergency dispatcher.
- Provide your name, location and a description of the emergency.
- The dispatcher will give you instructions on how to give care.
- EMS responders are on the way while the dispatcher is still getting information from you.
- Always hang up last.
- Keep providing care until EMS responders arrive and tell you to stop.



At every emergency scene, check the scene for safety, get the first aid kit and AED, put on PPE and check the person.

CHECK THE SCENE

Check the scene in all directions from outside in. Look for immediate danger. If the scene does not look safe, stay out. Secure the area, keep others out and call for help.



Common hazards:

- Traffic
- Fire or smoke
- Wet, icy or unstable surface or structure
- Downed electrical wires
- Hazardous materials, chemicals, gases
- Open water, strong currents
- Confined spaces
- Possible crime scene
- Unsafe crowd
- Blood or body fluids

Check the person from a safe distance.

- How many people involved?
- What is their general condition?
- Can you identify the cause of the illness or injury?



Pay attention to possible resources, such as a first aid kit or bystanders who could help. Ask bystanders to tell you what happened, call 911 or meet emergency responders to lead them to the scene.



Check the scene and check the person again. An emergency scene can quickly change from safe to unsafe. A person's condition can worsen unexpectedly.

I Moving an Ill or Injured Person

Moving a person unnecessarily can worsen an injury, and is especially dangerous with a spinal injury. Only move a victim to provide lifesaving care, to reach another person who is seriously injured, or if there is danger.



Ankle Drag



Shoulder Pull



Blanket Drag - Roll the victim onto a blanket



Human Crutch



Clothes Drag - Support the head with your forearms



Pack-Strap Carry



Seat Carry - Lock arms under victim



When lifting, keep your back as straight as possible, tighten your abdominal muscles, and lift with your legs to protect your back.

Chain of Survival |

Heart disease is the leading cause of death in the United States. In many cases, heart disease leads to sudden cardiac arrest (SCA). About 70% of heart attack-related deaths occur before the person reaches the hospital.



The links in the chain of survival are the critical actions needed to save the life of someone in cardiac arrest. The chain of survival starts with you!



CALL 911

Recognize cardiac arrest, and quickly call 911. **Early recognition and action saves lives!**



EARLY CPR

Perform high quality compressions to improve the chance of survival.



EARLY AED USE

Use an AED as soon as it is available. The chance of survival decreases 7-10% every minute that passes without a shock from an AED.



EARLY ADVANCED CARE

Trained EMS professionals take over care and transport the person to the hospital.



POST-ARREST CARE

The hospital coordinates advanced care to improve the chance of survival with the least amount of disability.

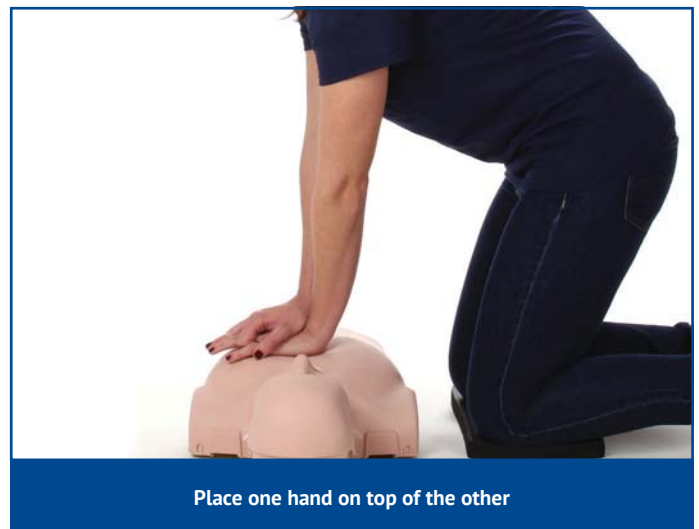
CARDIOPULMONARY RESUSCITATION (CPR)

A person in **cardiac arrest** (no heartbeat) is not getting oxygen delivered to the brain and other vital organs. **CPR combines external chest compressions with rescue breaths** to provide oxygen to the brain to keep it alive.

Rescue breaths provide oxygen to the lungs. Chest compressions squeeze the heart, moving blood from the heart to the lungs to pick up oxygen. Between each compression the heart refills with blood. Repeated compressions deliver oxygen throughout the body. **Good quality chest compressions are the most important part of CPR.**

CHEST COMPRESSION TECHNIQUE

- Place the heel of one hand in the center of the chest on the breastbone.
- Place the heel of the other hand directly on top of the first.
- Lift or interlace your fingers.
- Position your shoulders directly over your hands.
- Keep your arms straight.
- Push straight down.



QUALITY COMPRESSIONS

- ✓ **Push Hard**
Push downward at least 2 inches for an adult
- ✓ **Push Fast**
Between 100-120 compressions per minute
- ✓ **Minimize Interruptions to Compressions**
Try not to stop compressions for more than 10 seconds
- ✓ **Do Not Lean on the Chest**
Allow the chest to rise fully between compressions



CAB |

CAB stands for Compressions, Airway, Breathing. Starting CPR in this sequence gives a victim of sudden cardiac arrest the best chance of survival.

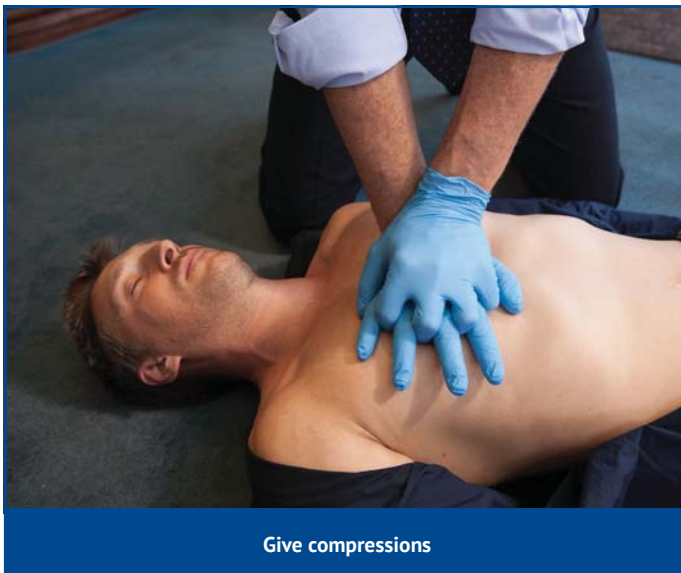


CHECK & CALL

If you see someone drop or on the ground and not moving, **check for response**. Tap his shoulder and shout, "Are you okay?" Look for any response such as blinking, moaning or moving. If no response, **yell for help**.

- If a bystander is available, tell him to call 911 and get the AED.
- If you are alone, call 911 and get the AED yourself.
- If a cell phone is available, use it to call 911 and place it on speaker. Follow the dispatcher's instructions.

Check for breathing. Scan the face and chest for 5 to 10 seconds. If the person is not breathing or only gasping, immediately begin compressions. **Gasping is not breathing!**



COMPRESSIONS

Position the victim face up on a firm, flat surface. Quickly move clothing out of the way. Immediately **provide 30 chest compressions**.

Push hard and fast in the center of the chest.

- **Depth:** At least 2 inches on an adult
- **Rate:** Between 100-120 compressions per minute
- **Do not lean on the chest** between compressions
- **Minimize interruptions** to compressions



It should take between 15-18 seconds to provide 30 chest compressions.

AIRWAY

After 30 compressions, **open the airway** to give rescue breaths.

Place one hand on the forehead and apply firm, backward pressure. Place the fingers of your other hand on the bony part of the jaw and lift the chin. When you tilt the head back and lift the chin, it lifts the tongue off the back of the throat so it does not block the airway.

When lifting the chin, do not press on the throat or the soft tissue under the chin.



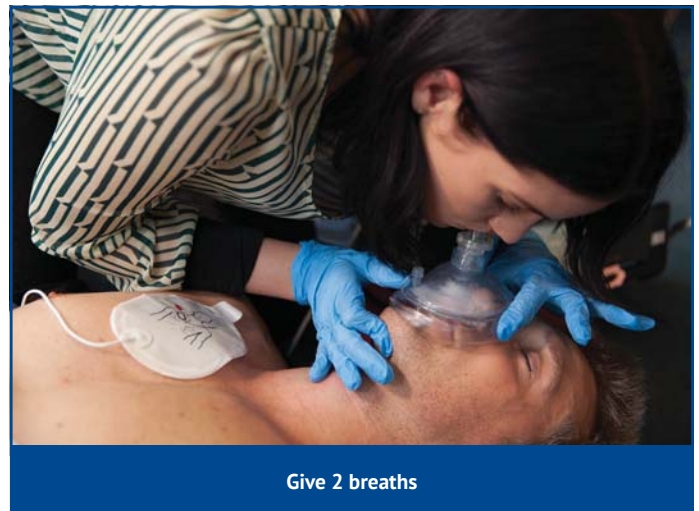
Open the airway

BREATHING

Give 2 rescue breaths for 1 second each breath.

Provide just enough air to make the chest rise.

For mouth-to-mouth breaths, open the airway and pinch the nose. Inhale a regular-sized breath, seal your mouth over the victim's mouth and give two breaths. Watch for chest rise. Lift your mouth between breaths. After two breaths, immediately resume compressions.



Give 2 breaths



If the chest does not rise with the first breath, reopen the airway and **try to give just one more breath**, then resume compressions.

CPR BARRIERS

The risk of catching a disease while giving rescue breaths is extremely low. Many people, however, are uncomfortable giving mouth-to-mouth rescue breaths. **CPR barriers may prevent exposure to a victim's blood or body fluids.**

A **face mask** has a filtered valve that allows air to enter but prevents fluid backflow. Select the correct size mask to create a seal and give effective breaths. Apply the mask with the narrow end on the bridge of the nose. Press the mask firmly to the face and lift the chin to open the airway.

A **face shield** contains a built-in, one-way valve or filter. Place the shield with the valve or filter over the victim's mouth. Pinch the nose to give breaths.



CPR face masks come in adult, child and infant sizes

Adult CPR I

Adult Age: Puberty and older

- ✓ **Male:** Facial or underarm hair
- ✓ **Female:** Signs of breast development

CHECK & CALL

Check Response and Call 911:

- ✓ Tap the victim's shoulder and shout.
- ✓ If no response, yell for help. Send a bystander to call 911 and get the AED.
- ✓ If you are alone, call 911 and get the AED yourself. Return quickly.
- ✓ If a cell phone is available, use it to call 911 and place it on speaker.

Check Breathing:

- ✓ Scan for breathing for 5-10 seconds.
- ✓ If no breathing or only gasping, start compressions.

PROVIDE COMPRESSIONS

Perform 30 chest compressions with 2 hands:

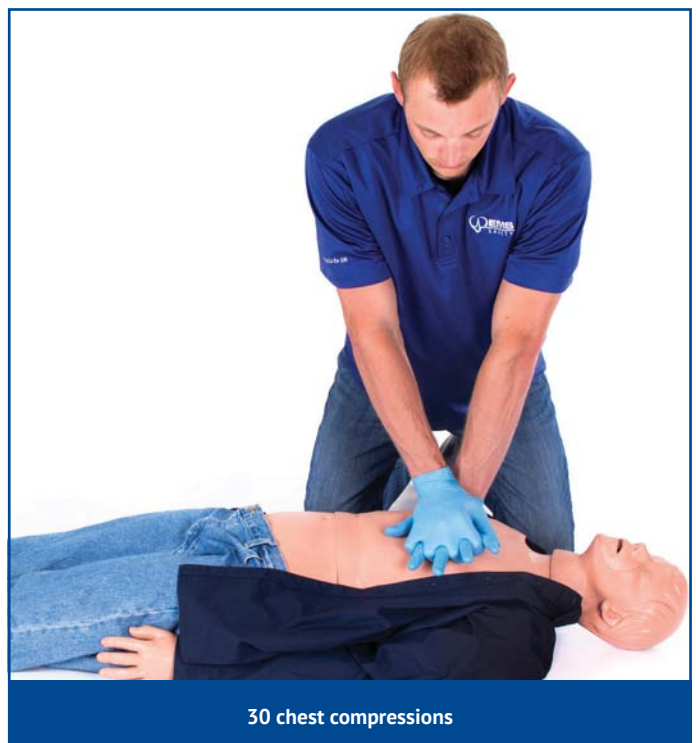
- Position face up on a firm, flat surface.
- Quickly move clothing out of the way.
- Place your hands in the center of the chest.
- Compress the chest 30 times.
- **Depth:** At least 2 inches
- **Rate:** Between 100-120 compressions/minute
- Give good quality compressions



If the person vomits, quickly roll him to the side, sweep out his mouth with a gloved finger, roll him back and continue CPR.



SCENE SAFETY: Quickly check the scene before you enter.



OPEN THE AIRWAY & GIVE 2 BREATHS

Open the airway:

- ✔ Tilt the head back and lift the chin to open the airway.

Provide 2 rescue breaths:

- ✔ Maintain an open airway.
- ✔ Pinch the nose or apply a face mask.
- ✔ Inhale a regular-sized breath.
- ✔ Give 2 rescue breaths for 1 second each breath.
- ✔ Watch for chest rise.
- ✔ Immediately resume compressions.



Give 2 breaths

CONTINUE CPR

Continue cycles of 30 compressions to 2 breaths until professional responders arrive and are ready to take over.

If an additional rescuer is present:

- Change rescuers every 5 cycles (2 minutes) to avoid fatigue.
- **Give feedback** on the quality of compressions to the rescuer performing CPR.

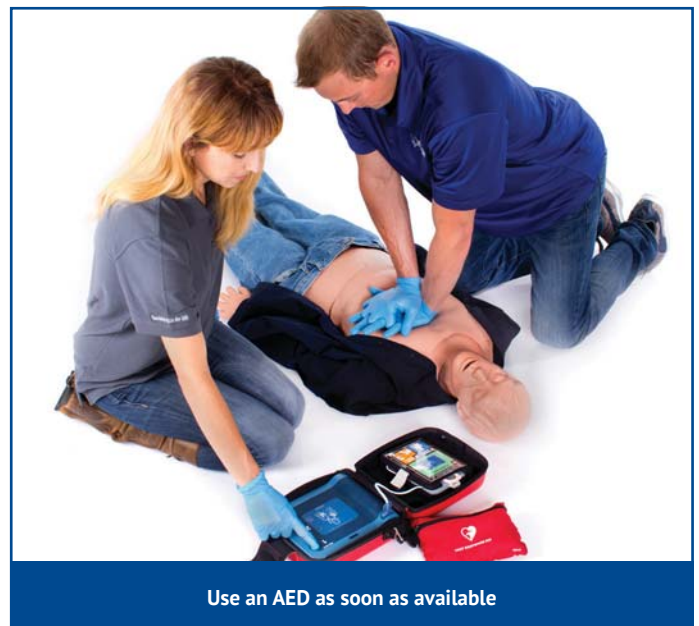


Continue CPR

USE AN AED

Use an AED as soon as it is available.

If there is another trained rescuer, have that person use the AED. Turn on the AED and follow the prompts.



Use an AED as soon as available



It should take less than 10 seconds to stop compressions, give 2 breaths, and resume compressions.

CPR Considerations |

Hypothermia: In a cold environment the body's metabolism slows down, reducing the need for oxygen. This can extend the amount of time in which CPR can be successful. Do not assume it is too late to begin CPR.

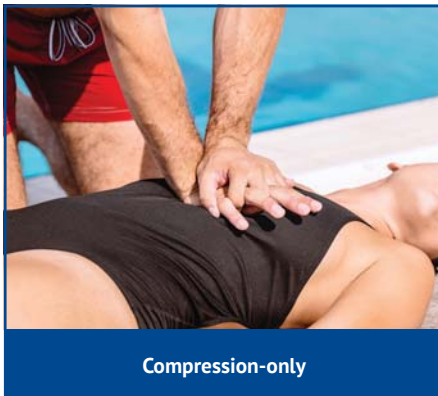
Electrical Shock: A victim of electrical shock may suddenly stop breathing or go into cardiac arrest. Before approaching the person, make sure the power source has been shut off and it is safe for you to approach.

CPR ALTERNATIVES

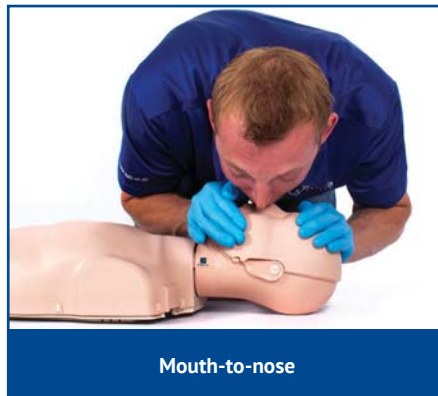
Compression-only CPR is used for an adult victim if a rescuer is untrained in standard CPR or unwilling to give rescue breaths due to blood or injury to the victim's mouth.

Mouth-to-Nose rescue breathing may be used if a victim's mouth or jaw is severely damaged. Be sure to hold the victim's mouth closed so that air does not escape.

Mask-to-Stoma rescue breathing is used if a victim has a stoma (a surgically-created opening at the base of the throat to allow for breathing). If possible, pinch the nose and close the mouth to reduce air loss.



Compression-only



Mouth-to-nose

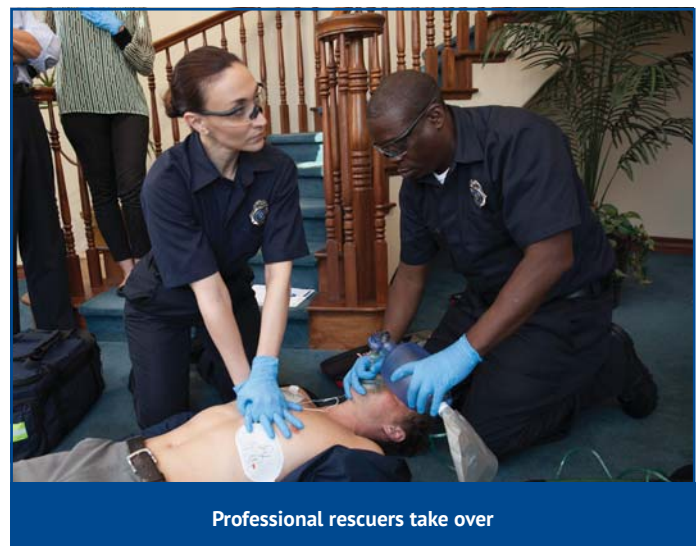


Mask-to-stoma

WHEN TO STOP CPR

Only stop CPR if:

- ✓ The victim begins to move or breathe.
- ✓ The AED directs you to stop.
- ✓ The scene becomes unsafe.
- ✓ You are physically exhausted and cannot continue.
- ✓ Professional rescuers arrive and are ready to take over.
- ✓ The victim is pronounced dead by a qualified person.



Professional rescuers take over

WHAT IS AN AED?

An **Automated External Defibrillator (AED)** is a computerized device that can analyze a person's heart rhythm, then deliver an electrical shock to restore a heartbeat. It gives directions through voice prompts and visual indicators. An AED is very simple and safe to use. It will not deliver a shock if the victim does not need one.

VENTRICULAR FIBRILLATION

When the heart is not receiving enough oxygen or is injured, it can stop beating and become overwhelmed with chaotic electrical activity known as **ventricular fibrillation (V-fib)**. The victim becomes unresponsive and is not breathing. Although CPR can supply oxygen to the brain and vital organs to keep them alive, it usually cannot restore a heartbeat in an adult. CPR buys time until an AED can be used.

When an AED detects V-fib, it sends a powerful electrical current through the heart, briefly stopping the chaotic electrical activity. This allows the heart to resume its normal electrical rhythm, restoring a heartbeat.

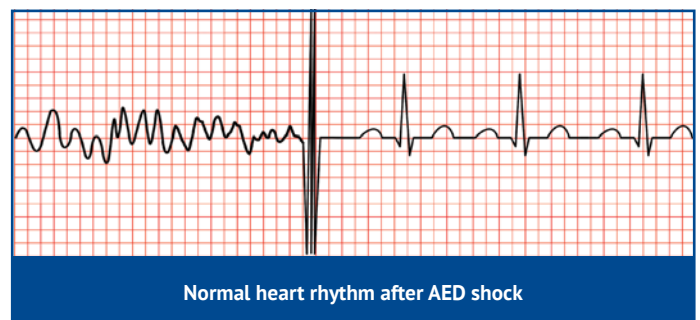
The sooner a shock is given, the better the chance of survival. An AED is most successful when used less than three minutes after cardiac arrest.



AEDs are often found in public areas



Use an AED as soon as possible



Normal heart rhythm after AED shock



An AED will not shock a person whose heart is not in a shockable rhythm, even if the shock button is pushed.

Using an AED |

TURN ON THE AED

Use an AED as soon as it is available. Place the AED near the victim's head and turn on the unit by pushing a button, lifting the lid or pulling the handle. Follow the AED prompts.

APPLY AED PADS

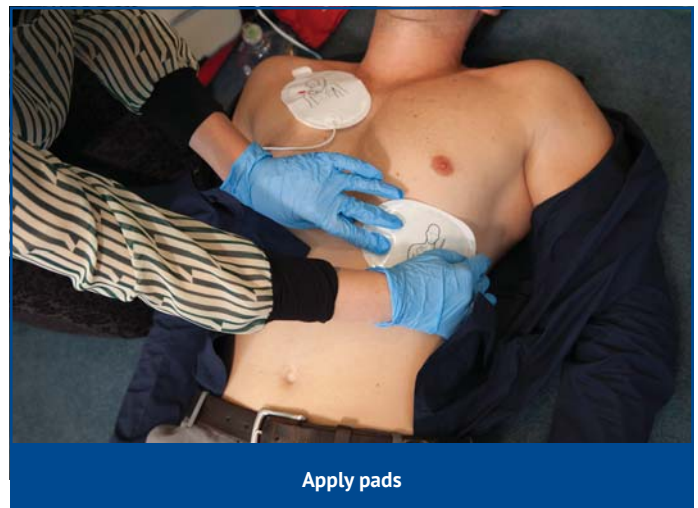
Expose the chest and wipe it dry if wet. Apply the pads to the chest according to the pictures on the pads.

- ✓ Peel the pads off the backing.
- ✓ Place one pad on the right side of the chest, just below the collarbone.
- ✓ Place the other pad on the lower left side of the chest.
- ✓ Connect the pads to the AED. Some pads come pre-connected to the AED.

If there are two trained rescuers, one performs CPR while the other uses the AED. The rescuer using the AED applies the pads around the hands of the person giving chest compressions. **Do not stop CPR** while the AED is being prepared for use. The AED will prompt you to stop CPR when it is ready to analyze the heart rhythm.



Turn on the AED



Apply pads



Follow the pictures on the pads



AEDs are usually stored with an accessory kit containing gloves, scissors to cut clothing, a razor to shave a hairy chest, a wipe to clean the chest, a towel to dry it off, and a CPR mask.

CLEAR THE VICTIM & SHOCK

It is critical that **no one touches the victim or his clothing** while the AED analyzes or delivers a shock.

When prompted by the AED to deliver a shock:

- ✔ Quickly look up and down the entire victim to ensure no one is touching him and loudly say, **“Clear.”**
- ✔ Push the shock button.

Resume compressions after the AED delivers a shock, or if no shock is advised. Every 2 minutes the AED will prompt you to stop CPR so it can analyze the heart rhythm.

If a second trained rescuer is present, switch roles every 2 minutes when prompted to stop CPR.



Clear the victim and shock

FOLLOW AED SAFETY PRECAUTIONS

- **Clear!** Make sure no one is touching the victim or his clothes while the AED analyzes or delivers a shock.
- If **oxygen** is close by, turn it off or move it several feet away before providing a shock.
- If the victim is **lying in water**, move him to a drier area before using the AED. A shock to a person in water could harm rescuers or bystanders. Make sure the rescuers and bystanders are not standing in water during AED use.
- If needed, **dry the chest** before attaching the pads. Water or excessive sweat on a person's chest can interfere with a shock. Do not let the AED and pads get wet.



Before pushing the shock button, what should she do?

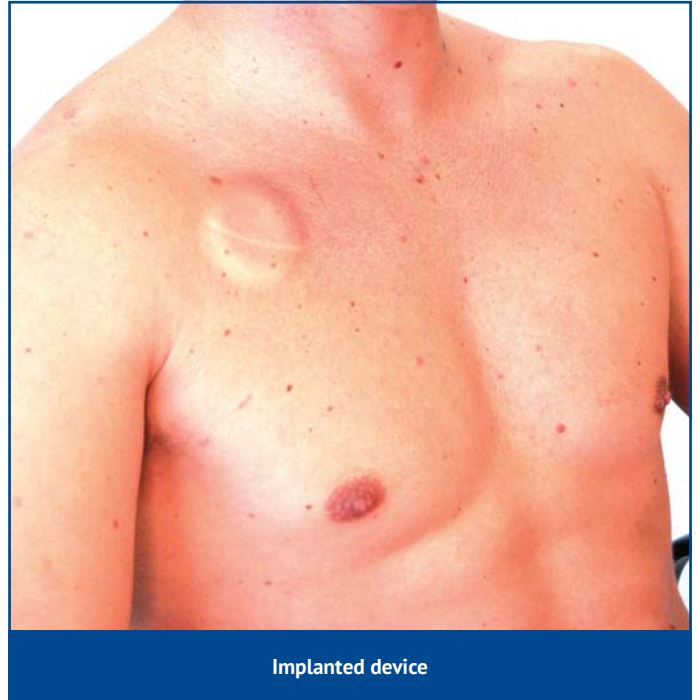


Rain, snow or small amounts of water will not interfere with safe AED use when safety precautions are followed.

AED Considerations |

APPLYING AED PADS

- **An implanted device** such as a pacemaker may appear as a small, hard lump under the skin. If a victim has an implanted medical device, position the AED pad at least one inch away from it.
- If a **medication patch** is applied to the skin, do not place an AED pad over it. Remove the patch with gloved hands, wipe the chest clean with a towel, then apply the AED pad.
- **Chest hair** can limit the contact between the pads and the skin, preventing the AED from reading the heart rhythm and delivering a shock. Use a razor to shave the chest in the area of pad placement. Another option is to apply an extra set of pads firmly to the chest, quickly pull them off, then apply a new set of pads.



Implanted device

MAINTENANCE AND TROUBLESHOOTING

Store an AED ready to use, close to trained rescuers. Extra pads and an accessory kit should be stored with the AED.

Perform regular inspections according to manufacturer's guidelines and local protocols. Make sure that pads and batteries have not expired, and there is no visible damage to the unit.

If the **AED detects a problem**, it will prompt you to troubleshoot:

- **Check pads:** Press down firmly on the pads, or replace the pads; check the cable connection.
- **Low battery:** Replace the battery.
- **Movement:** Do not touch the victim while the AED is analyzing the heart rhythm.



AED maintenance



Check pads: Press down firmly on the pads

Cardiac arrest in children usually results from respiratory arrest, not from a heart problem. Common causes include injury, poisoning, choking, drowning, and asthma.

Child Age: 1 year to puberty

CHECK & CALL

Check Response and Call 911:

- ✔ Tap the shoulder and shout.
- ✔ If no response, yell for help.
 - Send a bystander to call 911 and get the AED.
 - If alone, stay with the child.
 - If a cell phone is available, use it to call 911 and place it on speaker.

Check Breathing:

- ✔ Scan for breathing for 5-10 seconds.
- ✔ If no breathing or only gasping, start compressions.

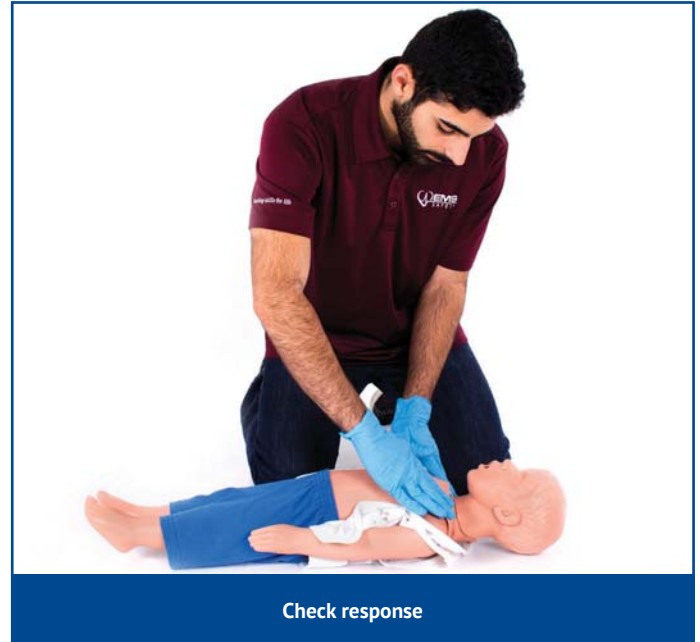
PROVIDE COMPRESSIONS

Perform 30 chest compressions with 1 or 2 hands:

- Position face up on a firm, flat surface.
- Quickly move clothing out of the way.
- Place one or two hands in the center of the chest between the nipples.
- Compress the chest 30 times.
- **Depth:** About 2 inches
- **Rate:** Between 100-120 compressions/minute



SCENE SAFETY: Quickly check the scene before you enter.



Check response



30 chest compressions

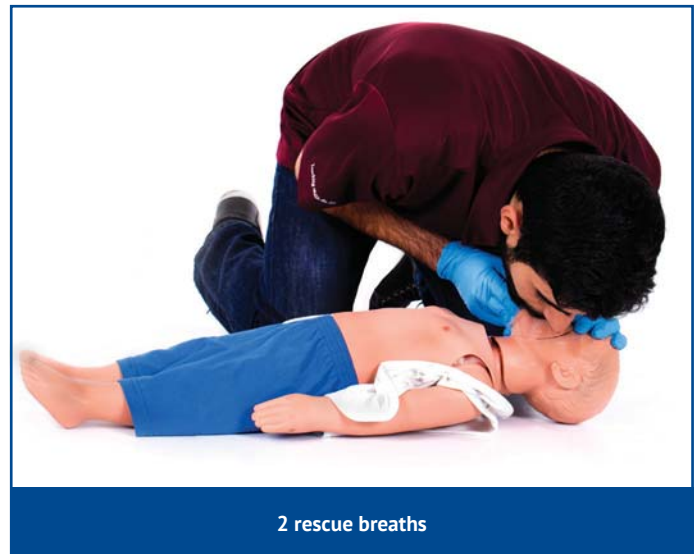
OPEN THE AIRWAY & GIVE 2 BREATHS

Open the airway:

- ✓ Tilt the head back and lift the chin to open the airway.

Provide 2 rescue breaths:

- ✓ Maintain an open airway position.
- ✓ Pinch the nose or apply a face mask.
- ✓ Give 2 rescue breaths for 1 second each breath.
- ✓ Watch for chest rise.
- ✓ Immediately resume compressions.



2 rescue breaths



It should take less than 10 seconds to stop compressions, give 2 breaths, and resume compressions.



If the first breath does not go in, reopen the airway and try one more breath, then resume compressions. Do not attempt to give additional breaths.

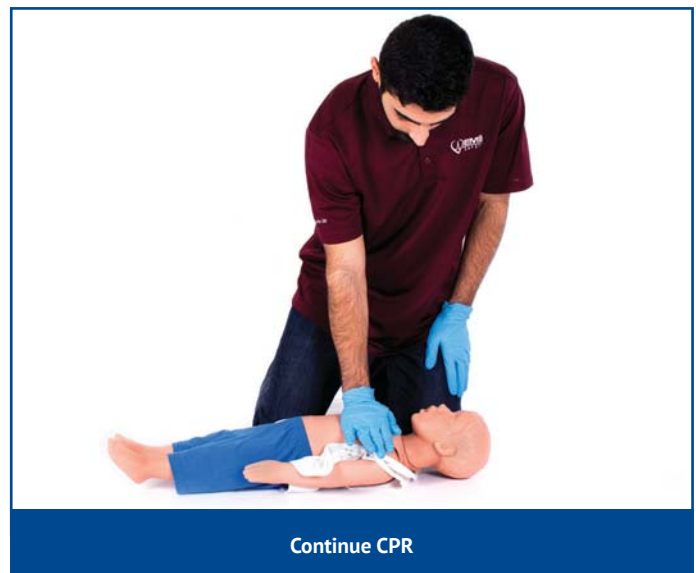
CONTINUE CPR

Continue cycles of 30 compressions and 2 breaths:

- After 2 minutes of CPR (5 cycles of 30:2), if no one has called 911 and you are alone, call 911 and get the AED yourself. Return quickly.
- If someone has already called 911, continue CPR until professional responders arrive and take over.

If an additional rescuer is present:

- Change rescuers every 5 cycles (2 minutes) to avoid fatigue.
- **Give feedback** on the quality of compressions to the rescuer performing CPR.



Continue CPR



If the child begins to move and breathe, turn him on his side to allow fluids or vomit to drain from the mouth.

USE AN AED

Use an AED as soon as it is available. Place the AED near the child's head. Turn on the AED and follow the prompts. *See the Using an AED section for more information.*

AED USE ON CHILDREN & INFANTS

A child requires a lower level of energy to defibrillate the heart. Some AEDs have pediatric pads or equipment for use on children and infants.

When using an AED, a **child is younger than age 8 or weighs less than 55 lbs.**

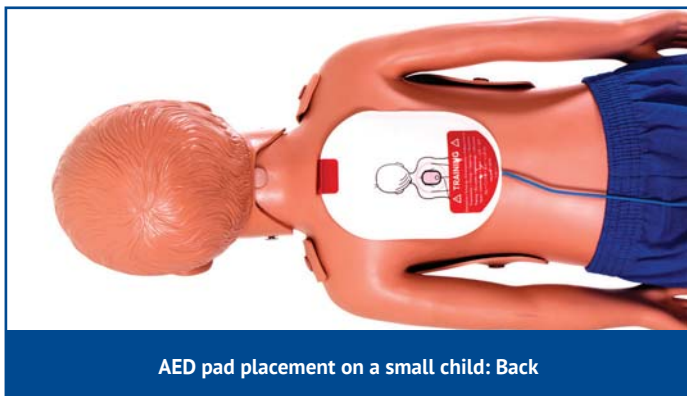
- ✔ Use child pads and equipment for a child younger than age 8 or weighing less than 55 lbs.
- ✔ Use adult pads and equipment for a child age 8 or older or weighing more than 55 lbs.
- ✔ If child pads or equipment are not available, use adult pads.



Child pads and equipment

CHILD AED PAD PLACEMENT

Apply the AED pads to the chest according to the pictures on the pads. Do not let AED pads touch or overlap. An infant or a child with a smaller chest may need an alternate pad placement.



AED pad placement on a small child: Back



AED pad placement on a small child: Front



Always follow your state, local and workplace protocols for AED use on a child or infant.



Do not use pediatric pads or equipment on an adult or a child more than 8 years old. The energy delivered will not be enough.

Infant CPR I

Cardiac arrest in infants usually results from respiratory arrest, not from a heart problem. Common causes include choking, injury, SIDS, and respiratory illness. When CPR is started immediately, a rescuer may be able to restore normal breathing without the use of an AED.

Infant Age: Younger than 1 year old

CHECK & CALL

Check Response and Call 911:

- ✓ Tap the bottom of the foot and shout.
- ✓ If no response, yell for help.
 - Send a bystander to call 911 and get the AED.
 - If alone, stay with the infant.
 - If a cell phone is available, use it to call 911 and place it on speaker.

Check Breathing:

- ✓ Scan for breathing for 5-10 seconds.
- ✓ If no breathing or only gasping, start compressions.

PROVIDE COMPRESSIONS

Perform 30 chest compressions with 2 fingers:

- Position face up on a firm, flat surface.
- Quickly move clothing out of the way.
- Place 2 fingers in the center of the chest just below the nipple line.
- Compress the chest 30 times.
- **Depth:** About 1 ½ inches
- **Rate:** between 100-120 compressions/minute



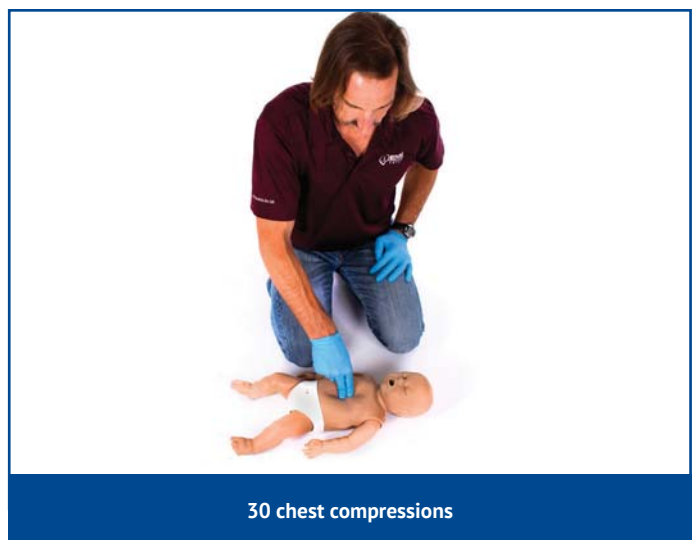
It should take less than 10 seconds to stop compressions, give 2 breaths, and resume compressions.



SCENE SAFETY: Quickly check the scene before you enter.



Check response



30 chest compressions

OPEN THE AIRWAY & GIVE 2 BREATHS

Open the airway:

- ✔ Tilt the head back slightly and lift the chin to open the airway to a neutral position.



Do not tilt the infant's head back too far. The infant's airway is not fully developed, and **over-extending the airway can block it.**



Open the airway to neutral

Provide 2 rescue breaths:

- ✔ Maintain an open airway position.
- ✔ Cover the mouth and nose or apply a face mask.
- ✔ Give 2 small breaths for 1 second each breath.
- ✔ Watch for chest rise.
- ✔ Immediately resume compressions.



If the first breath does not go in, reopen the airway and try one more breath, then resume compressions. Do not attempt to give additional breaths.



Give 2 breaths

CONTINUE CPR

Continue cycles of 30 compressions and 2 breaths:

- After 2 minutes of CPR (5 cycles of 30:2), if no one has called 911 and you are alone, call 911 and get the AED yourself. Return quickly. You may also carry the infant to the phone with you.
- If someone has already called 911, continue CPR until professional responders arrive and take over.

If an additional rescuer is present:

- Change rescuers every 5 cycles (2 minutes) to avoid fatigue.
- **Give feedback** on the quality of compressions to the rescuer performing CPR.

USE AN AED

Use an AED as soon as it is available. Place the AED near the infant's head. Turn on the AED and follow the prompts. *See the Using an AED section for more information.*

CPR at-a-Glance |

ACTION	ADULT	CHILD	INFANT
CPR Age	Puberty and Older	1 to Puberty	Up to 1 Year
Check Response	Tap shoulder and shout		Tap bottom of foot and shout
Call 911	If no response, send bystander to call 911 and get AED. Place phone on speaker mode.		
If Alone	Call 911 and get AED	Stay with the victim	
Check Breathing	Scan for 5 - 10 seconds		
CAB	If no breathing or only gasping, perform 30 chest compressions		
Compression Location	2 hands	1 or 2 hands	2 fingers
	Center of chest between nipples		Just below nipple line
Push Hard	At least 2"	About 2"	About 1 ½"
Push Fast	Between 100-120 compressions/minute		
Open Airway	Tilt the head back and lift the chin		Tilt the head and lift the chin to neutral position
Breathing	Cover mouth, pinch nose		Cover mouth and nose
	2 breaths, 1 second each breath		
Avoid Over-Ventilation	Just enough for chest rise		
Minimize Interruptions	< 10 seconds to stop CPR, open airway, give 2 breaths, resume CPR		
Resume Compressions	30 compressions:2 breaths		
Prevent fatigue	Change CPR rescuers every 2 minutes		
After 2 minutes	Continue CPR/AED use	Call 911 and get AED if not previously done	
AED	Use as soon as available		
AED Age	Age 8 & older or > 55 lbs.	1-8 years old	< 1 year old
AED Pads	Adult pads	Child pads; if none, adult pads	

There are three main phases of assessment:

1. Check the Scene
2. Check the Person
3. Check Again

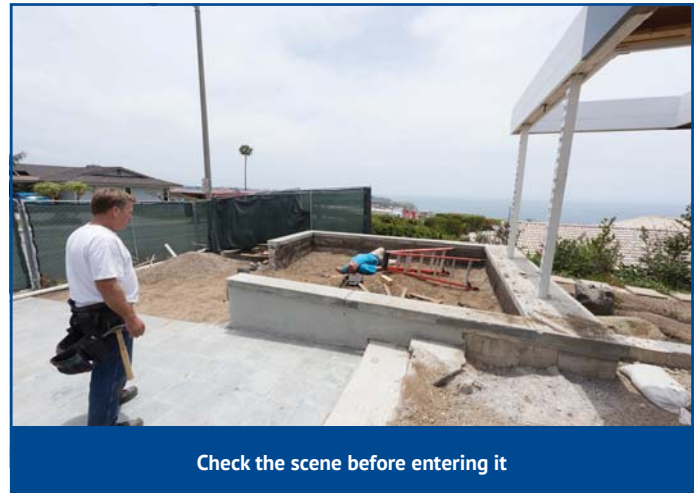


CHECK THE SCENE

- **Make sure the scene is safe** before you enter. If it is not safe, stay out and call 911.
- Look for the number of victims and their general condition.
- Look for resources, such as bystanders or a first aid kit and AED.
- Look for a possible cause of illness or injury.

Suspect serious injury with:

- A vehicle, motorcycle or bicycle accident
- A fall from greater than standing height
- An explosion or gunshot



Check the scene before entering it

CHECK THE PERSON

When you reach the person, **look for and treat life-threatening conditions first**, in order of importance: unresponsiveness, difficulty breathing and severe bleeding. Generally, you will assess a person in the position found.

ASSESSING A RESPONSIVE PERSON

Check for response. If a person appears unresponsive, tap the shoulder and shout, "Are you okay?" A responsive person may blink, move or talk.

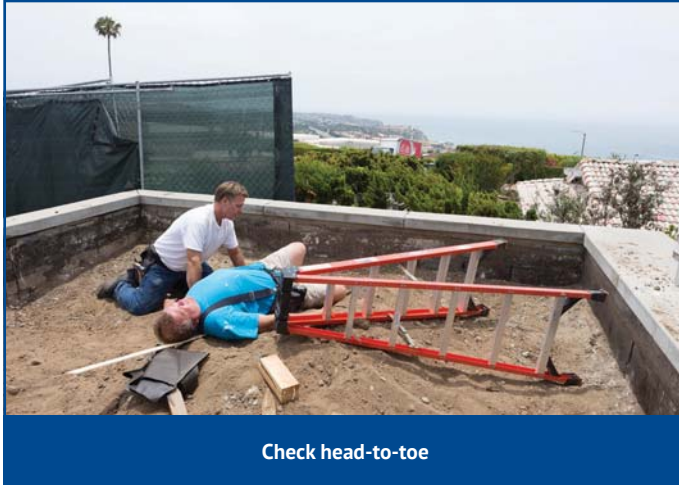
Check breathing. Observe for signs of difficulty breathing. Can the person speak? Listen for noisy breathing.

Check for severe bleeding by quickly scanning the person. Control heavy bleeding immediately.



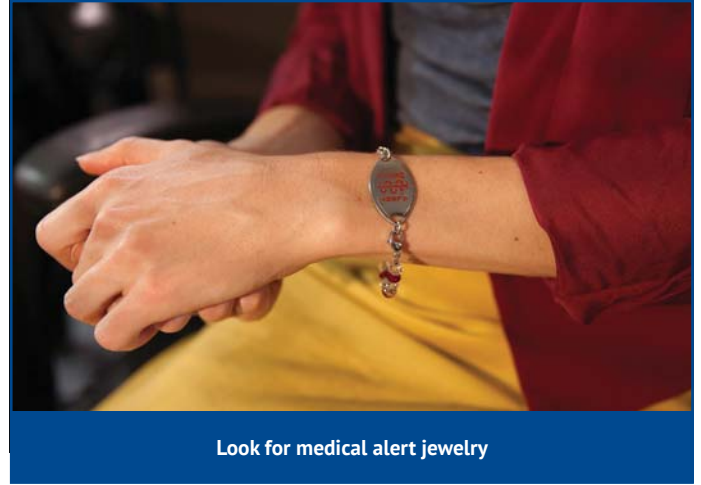
Assess the person in the position found

Check head-to-toe for injury. Look for obvious signs, such as wounds, bruising, burns, or twisted limbs. Smell for any chemicals which might indicate poisoning. Assess the person's appearance (e.g. color, sweating, movement, position).



Check head-to-toe

Check for medical alert jewelry which might indicate diabetes, seizure disorder, asthma, allergy, or other conditions.



Look for medical alert jewelry

ASSESSING AN UNRESPONSIVE PERSON

Check for response. If the person isn't moving, tap the shoulder and shout, "Are you okay?"

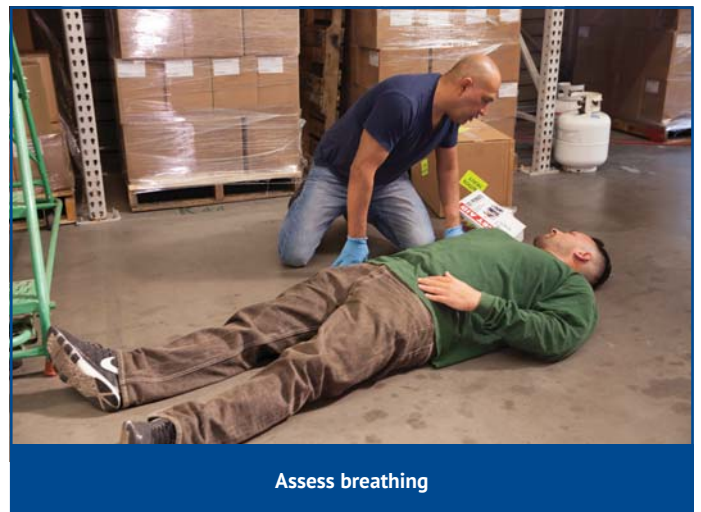
- If there is no response, yell for help. Have someone call 911 and get the AED.
- If you are alone, go call 911 and get the AED yourself (adult victim). Return quickly.
- If a cell phone is available, call 911 and place it on speaker.

Check breathing.

- Scan the face and chest for 5-10 seconds.
- If the person is **breathing normally** and you do not suspect serious injury, turn him onto his side to keep his airway open. Monitor breathing.
- If there is **no breathing or only gasping**, begin CPR and use an AED. If you are not trained, begin compressions alone.

Check for severe bleeding by quickly scanning the person. Control heavy bleeding immediately.

Check head-to-toe for obvious signs of injury.



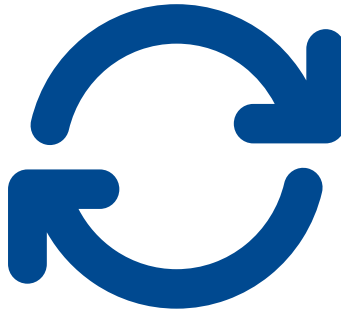
Assess breathing

CHECK AGAIN

Check the scene and check the person continually while giving care. Scene safety and a person's condition can change rapidly. A change in level of response, breathing, or appearance may indicate a deteriorating condition.

Check the scene again.

- Is it still safe?
- Are there new resources available?
- Are emergency responders on the way?



Check the person again.

- Is there a change in response or breathing?
- Are there signs of shock?
- Is the care still working?
- Did you miss any signs on the first assessment?



Get Medical Care If:

- A wound may need stitches (edges do not hold together), may have debris in it, may be infected, or the person may require a tetanus shot (none in the past 5 years)
- Severe vomiting or diarrhea
- Animal bites that break the skin
- Poisonous bites or stings with severe progressive symptoms or generalized illness
- Fever in a child who is moderately ill



Call 911 if

- Decreased response or mental status
- Difficulty breathing or no breathing
- Severe bleeding
- Signs of heart attack
- Signs of stroke
- Severe burn
- Suspected head, neck or back injury
- Suspected fracture
- Electrical shock
- Seizure
- Any problem involving pregnancy
- Severe pain
- Vomiting blood or blood in stool (signs of internal bleeding)
- You are unsure what to do



At every emergency you will check the scene for safety, get the first aid kit and AED, put on personal protective equipment, and check the person.

Shock |

SHOCK

Shock is a **life-threatening** condition that develops when the body's organs are not getting enough blood and oxygen. This can permanently damage internal organs and even lead to death. The goals of first aid care are to treat any obvious cause of shock, maintain a normal body temperature, and get emergency medical help fast.



Signs

- Confusion, agitation
- Dizziness, weakness or fainting
- Pale, cool, sweaty skin
- Nausea, vomiting
- Extreme thirst
- Rapid breathing and pulse
- Unresponsiveness



Shock is progressive, so the signs may change as the person's condition worsens.



Care

- Call 911.
- Lay the person down.
- Control external bleeding.
- Maintain body temperature.
- Calm and reassure the person.
- Monitor status.

SHOCK CAN BE CAUSED BY ANY SERIOUS INJURY OR ILLNESS:

- Bleeding
- Heat emergency
- Burns
- Heart attack
- Allergic reaction
- Infection
- Dehydration
- Spinal injury
- Poisoning



Maintain body temperature

Coronary artery disease develops when fat and cholesterol attach to the walls of the coronary arteries, causing them to narrow. A **heart attack** occurs when a clot blocks a narrowed coronary artery, depriving the heart muscle of oxygen. The heart attack victim feels discomfort because the heart muscle is dying.

The signs of a heart attack usually occur suddenly. They may come and go and appear in any combination.



Signs

- Chest pain, discomfort or pressure
- Radiating discomfort to arms, neck, back, jaw, or abdomen
- Shortness of breath
- Pale, cool, sweaty skin
- Dizziness or fainting
- Nausea, vomiting
- Unexplained fatigue



Chest discomfort is a sign of a heart attack



Offer aspirin



Care

- Call 911. Do not transport the person to the hospital yourself.
- Place in a comfortable position, usually sitting up.
- Calm and reassure the person.
- Offer 1 adult or 2 baby aspirin to chew. **Do not** offer aspirin if there are signs of stroke, aspirin allergy or recent bleeding. Make sure the person is alert enough to chew and swallow the aspirin.



Don't delay calling 911

Heart attack is the leading cause of sudden cardiac arrest. Fast recognition and response to early signs of heart attack is critical.

Clot-busting medication, which is given in the hospital, is most effective in the early hours of a heart attack. The sooner a heart attack victim receives medical care, the less damage to the heart and the better the chance of survival.

SIGNS OF HEART ATTACK MAY BE DIFFERENT

Women, people with **diabetes** and **older persons** may not experience the typical symptoms of chest discomfort and shortness of breath. They are more likely to have other symptoms such as jaw pain, nausea or vomiting, or unexplained fatigue.

Stroke |

A stroke is an injury to the brain caused by a disruption of blood flow to the brain cells. When a blood vessel becomes blocked or bursts, oxygen-rich blood is unable to reach a portion of the brain and brain cells begin to die. A stroke is a life-threatening condition that requires you to **recognize the signs and act fast**.



Signs

- Weakness or numbness of the face, arm or leg, usually on one side
- Difficulty speaking or swallowing
- Loss of balance/coordination, difficulty walking
- Confusion or decreased alertness
- Severe headache, dizziness
- Change in vision



Care

- ✓ Call 911.
- ✓ If **unresponsive and not breathing**, begin CPR.
- ✓ If **unresponsive and breathing**, or there are fluids or vomit in the mouth, position the person on her side.
- ✓ Calm and reassure the person.
- ✓ Note the time that signs of stroke began.



Call 911 immediately when:

There is a sudden onset of any signs of stroke. Don't delay and hope the signs will go away, or drive a victim to the hospital. Early recognition and rapid treatment in the hospital with clot-busting medications are critical to improved outcome and survival of stroke.

STROKE ASSESSMENT

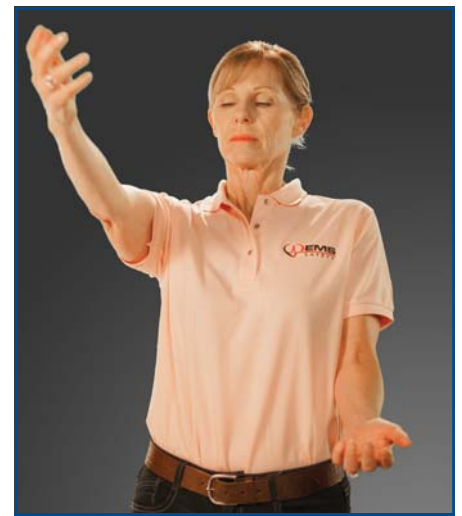
Use the first three letters of stroke, S-T-R, to quickly look for common signs of a stroke:



Smile - Ask the person to smile. Look for uneven facial movement.



Talk - Ask the person to repeat a common phrase. Listen for slurred or incorrect words.



Reach - Ask the person to close her eyes and raise both arms. Look for arm drift or weakness on one side.

A seizure is an abnormal electrical discharge in the brain that causes loss of awareness and a sudden change in sensation or behavior. The most common cause of seizure is **epilepsy**. Other causes include head injury, stroke, drug overdose, poisoning, low blood sugar, heatstroke, infection, or cardiac arrest.



Signs

- Involuntary movements and rhythmic muscle contractions
- Staring, eye movements, drooling
- Abnormal sensations, hallucinations
- Nausea, sweating
- Unresponsiveness



Care

- ✓ Move nearby furniture or objects.
- ✓ Place something small and soft under the head.
- ✓ After the seizure, check response, breathing, and appearance.
- ✓ Call 911 if:
 - Unresponsive & not breathing. Perform CPR.
 - Unresponsive & breathing. Turn him on his side to keep the airway open.
 - Potential head or spine injury. Support the head and neck together.
 - First time seizure or multiple seizures.
 - Seizure lasts longer than 5 minutes.
 - Injury-related, or occurred in the water.
 - The person is diabetic or pregnant.



Protect the head

A **febrile seizure** may occur when the body temperature rapidly increases. They are most common before age 2, but may be seen in children up to age 5. Most febrile seizures do not cause any harm.

FAINTING

Fainting is a brief period of unresponsiveness usually caused by a momentary lack of blood supply to the brain. It can be caused by suddenly standing, prolonged standing without moving, dehydration, low blood sugar, or emotional stress.



Signs

- Dizziness
- Blurred vision
- Nausea
- Pale, sweaty skin
- Unresponsiveness



Care

- ✓ Have the person lie down.
- ✓ Loosen restrictive clothing.
- ✓ Monitor response and breathing.
- ✓ Call 911 if the person does not respond or has signs of sudden illness.

Diabetic Emergencies

Diabetes is a disease that affects a person's ability to process sugar. Too much or too little sugar in the blood can lead to problems. It's a major cause of heart disease and stroke, and affects almost 10% of Americans of all ages. People who know they have diabetes can usually control it with medication, diet and exercise.

When a diabetic person's blood sugar is too low, it can quickly develop into an emergency, and even become life-threatening.



Recognize the early signs of low blood sugar



Give fast-acting sugar



Signs are Sudden

- Confusion, irritability
- Headache or dizziness
- Pale, cool, sweaty skin
- Tremor or seizures
- Weakness
- Hunger or thirst
- Double vision
- Rapid breathing and pulse
- Unresponsiveness



Care

- ✓ Give fast-acting sugar if the person is able to sit up and swallow (e.g. glucose tablets, orange juice, regular soda, sugar dissolved in water, soft chewable candy, whole milk).
- ✓ Call 911 if no improvement within 15 minutes after taking sugar.



Fast-acting sugars



Give sugar in all diabetic emergencies. Untreated low blood sugar may cause serious brain damage.

Check Your Knowledge

1. You do not need to wear gloves when giving care to a bleeding child because it is unlikely that a child will carry bloodborne pathogens.
 - a. True
 - b. False

2. You should only move a person with a suspected neck or spinal injury when:
 - a. There is immediate danger
 - b. The person needs CPR
 - c. The airway is blocked
 - d. All of the above

3. It's important to figure out a person's specific illness or injury before you are able to give first aid.
 - a. True
 - b. False

4. If an unresponsive person is only gasping, perform CPR. Gasping is not breathing.
 - a. True
 - b. False

5. When assessing a person, rank the first three things you check in order of importance.
 - a. Breathing _____
 - b. Heavy bleeding _____
 - c. Response _____

6. Position a person on his side when he is unresponsive and breathing, and you do not suspect neck or spine injury.
 - a. True
 - b. False

Bleeding and Wounds

An open wound can be minor, requiring basic wound care, or serious, resulting in severe bleeding that can be life-threatening. Control of severe bleeding by a rescuer is a critical first aid treatment that can truly save a life. A person bleeding heavily can die of blood loss within just a few minutes.

TYPES OF WOUNDS



Laceration: a cut in the skin. A deep laceration may cut a large blood vessel and bleed heavily.



Puncture: usually deep with minimal bleeding. A puncture has the greatest chance of infection.



Abrasion: painful scraping away of skin. An abrasion often has dirt and debris embedded into it.



Avulsion: a piece of skin or other tissue completely or partially torn from the body. If possible, replace torn skin, then bandage as a laceration.

MINOR WOUND CARE

Most minor wounds will stop bleeding after a few minutes of direct pressure. Focus on cleaning and bandaging the wound to reduce pain and prevent infection.



Care

- ✓ Apply firm direct pressure with sterile gauze until bleeding stops.
- ✓ Wash with soap and water, then rinse thoroughly to reduce risk of infection.
- ✓ Apply antibiotic ointment if no allergy and allowed by state and local regulations.
- ✓ Cover with a sterile dressing.
- ✓ Wrap securely with a bandage, but not so tightly that it cuts off circulation.





Get Medical Care If:

- Wound is large or deep and may need stitches
- Dirt or debris remains in the wound
- Wound is from a bite, puncture, burn, electrical or chemical injury
- Signs of infection: redness, warmth, increased pain, drainage, swelling, fever
- May need a tetanus shot if not received for the past 5 years.



Signs of infection

SEVERE BLEEDING

A damaged blood vessel will constrict and stop bleeding when the body produces a clot that plugs the damaged area. Heavy bleeding interferes with the clotting process. Holding **firm pressure directly on the wound** helps with the clotting process and is the best method to control severe bleeding.



Care

- ✓ Expose the wound to see where the bleeding is coming from. If an object is embedded in the wound, do not apply pressure directly on the object.
- ✓ Apply firm direct pressure with sterile gauze or the cleanest cloth available.
- ✓ Add dressings as they become soaked with blood. **Do not** remove soaked dressings.
- ✓ Treat for shock: lay the victim flat and maintain body temperature.
- ✓ Once bleeding has stopped, apply a pressure bandage to secure dressings in place and maintain pressure.



Remove clothing over the wound



Apply direct pressure



Call 911 if:

- Bleeding is severe or does not stop
- Signs of internal bleeding or shock
- Suspect head, neck or spine injury

PRESSURE BANDAGE

If you can't hold pressure on the wound, apply a pressure bandage with rolled gauze. Starting furthest from the heart, wrap once to anchor the bandage, then wrap in a spiral over the wound. Wrap back and forth over the wound, twisting the bandage each time. Pull the gauze tightly with each wrap to add more pressure.



Pressure bandage application

USING A TOURNIQUET

When direct pressure cannot control **severe bleeding from an arm or leg**, you can use a tourniquet to stop the bleeding. A tourniquet is a constricting device used on an arm or leg that applies pressure to the walls of blood vessels to stop bleeding. It has a strap to wrap around the limb and a rod to tighten it. It is best to use a commercial tourniquet, but if necessary you can make your own tourniquet with a bandage or strip of cloth at least 1" wide and a rod.

APPLYING A TOURNIQUET

- Apply a tourniquet to the limb at least 2" above the injury, but not over a joint.
- Tighten the rod just to the point that bleeding stops. Secure the rod.
- Record the time that you put it on.
- Tell EMS responders what time the tourniquet was applied.



Apply the tourniquet and tighten until bleeding stops



The priority is to stop the bleeding. Do not attempt to clean a wound that is bleeding heavily



Keep a tourniquet visible. **Do not** cover it with a bandage or clothing.

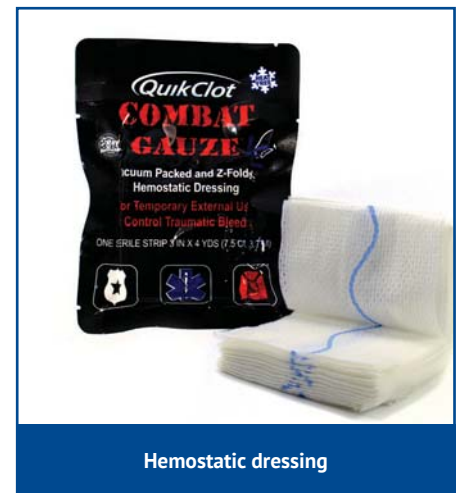
Do not remove a tourniquet once it has been applied.



Write down the time a tourniquet is applied

HEMOSTATIC DRESSING

Apply a hemostatic dressing when you cannot control severe bleeding with direct pressure, and a tourniquet is not available, not effective, or cannot be applied. A hemostatic dressing chemically reacts with the wound to create a clot and quickly stop the bleeding. Remove the gauze dressing from the wound, then pack the hemostatic dressing directly into the bleeding wound. Apply firm pressure and hold in place, or wrap with a pressure dressing.



Hemostatic dressing

INTERNAL BLEEDING

Heavy bleeding that is concealed within the body can be life-threatening. Internal bleeding can be caused by injury to internal organs or large bones, or by a sudden medical problem such as a bleeding ulcer. Although at first there may be no symptoms, the person may later show signs of shock.



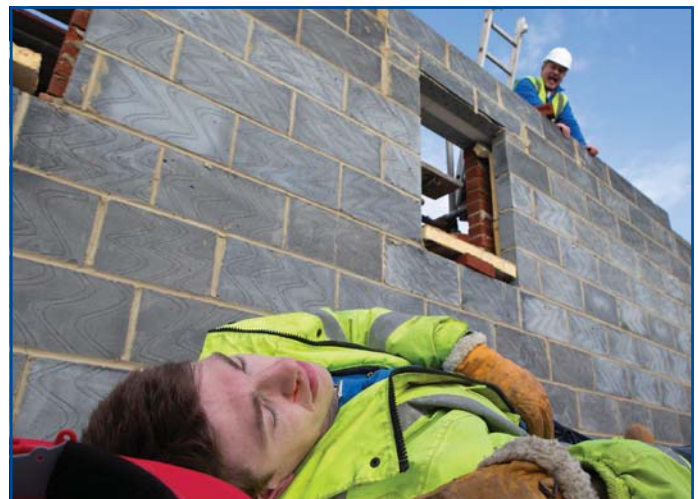
Signs

- Discolored, tender, swollen or hardened skin or tissues, especially in abdominal area and suspected fracture sites
- Chest or abdominal pain
- Bleeding from a natural opening
- Vomiting or coughing up blood
- Blood in stool (dark tarry or bright red)
- Signs of shock



Care

- Call 911.
- Treat for shock.
- Control external bleeding.
- Calm and reassure the person.
- Monitor status.



Suspect internal bleeding with a fall from a height

Traumatic Injuries |

TRAUMATIC INJURIES

A traumatic injury is caused by a physical force such as a car accident, fall, or gunshot. Trauma is a leading cause of death. Get emergency medical help fast, and assess for shock and internal bleeding.

Amputation: Loss of body part.

- ✔ Apply direct pressure to the site of bleeding. If direct pressure does not control heavy bleeding, consider applying a tourniquet.
- ✔ Wrap amputated part in dry sterile gauze and seal in plastic bag.
- ✔ Put plastic bag into second bag filled with ice. Do not let amputated part freeze or come in direct contact with ice or water.



Amputation

Impaled Object: Foreign body penetration.

- ✔ Do not remove the object, unless it is obstructing the airway.
- ✔ Stabilize in place with a bulky dressing and tape.



Impaled object

Gunshot Wound: Make sure the scene is safe before entering.

- ✔ Call 911 for EMS and law enforcement.
- ✔ Follow Severe Bleeding Care guidelines.
- ✔ Check for entrance and exit wounds. Exit wounds may be larger and bleed more than entrance wounds.
- ✔ The person may have severe damage to internal organs, major blood vessels, and bones. Do not move the victim except to provide essential care such as CPR or **severe bleeding** control, or for safety.



Gunshot wounds



Do not give food or drink to a victim with suspected shock, internal bleeding or traumatic injury. Surgery may be needed.

Muscle Bone and Joint Injuries

FRACTURES AND DISLOCATIONS

A **fracture** is a break in a bone produced by excessive strain or force. It can be caused by a blow, a fall, a twisting motion, or sometimes from no apparent cause. Sometimes the skin is broken over the fracture site. A **dislocation** is a separation of bones joined at a joint, usually caused by a fall or hard blow.



Signs

- Pain and tenderness
- Bruising, swelling
- Deformity
- Open wound or exposed bone ends
- Numb, cold to touch
- Crackling sound or grating felt with movement
- A “snap” heard at the time of injury
- Unable to move injured part



The bone may penetrate the skin, resulting in an open fracture



Care

- ✓ Call 911.
- ✓ Keep the person calm and still.
- ✓ Cover open wounds with a sterile dressing. Control bleeding with gentle pressure.
- ✓ Stabilize and support the injury in the position found.

While waiting for EMS:

- ✓ Apply an ice pack wrapped in a moist cloth for 15-20 minutes.
- ✓ Watch for signs of shock or internal bleeding.
- ✓ Monitor temperature and sensation beyond the injury site.
- ✓ Splint the injury only if emergency responders are delayed, or if you transport the victim yourself for a minor injury or from a remote location.



Stabilize and support the injury in the position found

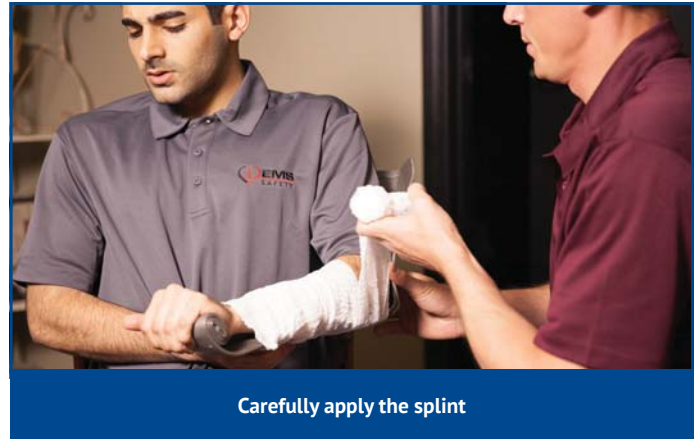
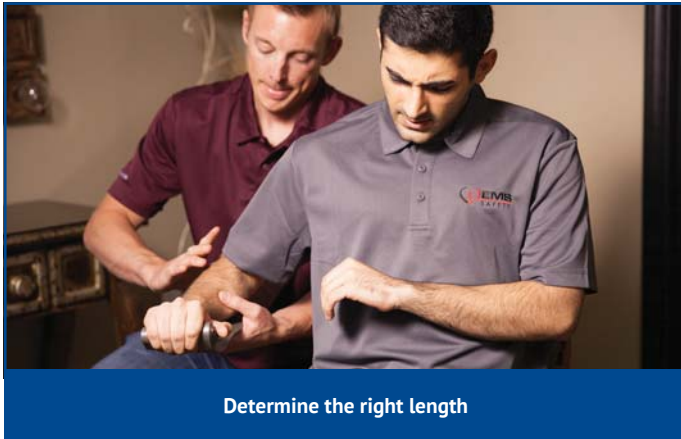


- **Do not** move a victim with a suspected fracture unless it is necessary for safety or to provide essential care.
- **Do not** attempt to straighten a broken bone.
- **Do not** give the person food or drink. This may delay any necessary surgery.

APPLYING A SPLINT

A splint is used to immobilize fractures, dislocations and severe sprains. Splinting reduces the movement of injured muscles and bones, and allows the person to be transported with less pain and risk of further injury. A splint should immobilize the areas above and below the injury site.

- ✔ Explain the procedure to the person.
- ✔ Check temperature and sensation below the injury site.
- ✔ Select a splint that is longer than the bone it will support. Pad it if needed. Measure the splint against the uninjured side.
- ✔ Carefully apply the splint and secure it in place with tape or binding above and below the injury site.
- ✔ Recheck temperature and sensation to make sure the splint is not too tight. Adjust the splint if the person is numb or cold.



Remove rings, bracelets and watches before splinting and put them in the person's pocket or give to a family member.

TYPES OF SPLINTS

A splint can be made from a variety of rigid or firm materials, such as cardboard, a tree branch, a broom handle, or a tightly rolled blanket or magazine.



Improvised splint



Improvised splint



Flexible splint in sling



Improvised splint for knee injury

An **anatomic splint** uses an uninjured body part to splint the injured one.



Anatomic finger splint



Anatomic leg splint

BRUISES, SPRAINS AND STRAINS

A **bruise** is caused when something impacts the body, and the tissue underneath is damaged and bleeds under the skin.

A **sprain or strain** occurs when a muscle or joint is stretched beyond its normal range of motion.

The acronym **RICE** is used to treat a bruise or a possible sprain or strain.

Rest

Stop activity after an injury. Do not move or put weight on the injured area.

Ice

Apply an ice pack wrapped in a moist cloth to reduce swelling, bruising and pain. Do not place ice directly on skin. Apply the ice for 15-20 minutes at a time. Repeat 3-4 times a day.

Compress

Wrap an elastic bandage around the injury, starting furthest from the heart. Use overlapping turns to wrap snugly, but still allow a finger to slip under the bandage.

Elevate

Raise the injury above the level of the heart to minimize swelling, if it does not increase the pain.



Sprained ankle



Apply an ice pack wrapped in a moist cloth



Apply an elastic bandage and elevate the injury

Head-to-Toe Injuries

A head, neck or spine injury can be very serious, and possibly even life-threatening. Suspect a head, neck or spine injury with:

- Car, motorcycle or bicycle accident
- Fall from a height greater than standing
- Violence
- Electrical shock or lightning strike
- Diving accident
- Contact sports
- Safety helmet broken
- Unresponsive for unknown reason

HEAD INJURIES

An **external head** injury is visible, with bleeding from the scalp, or swelling and indentations in the skull. **Traumatic brain injury** is damage to the brain itself, despite the bony skull protecting it. A **concussion** is a bruise to the brain, and is caused by a violent jolt or blow to the head. If you suspect a concussion, have the person evaluated by a healthcare professional before resuming activity.



Signs

- Head trauma (bleeding, bruising, swelling, soft spots or indentations)
- Headache
- Nausea, vomiting
- Confusion, memory loss
- Slurred speech
- Impaired movement or sensation
- Blurred vision, unequal pupils
- Ringing in the ears
- Bleeding or fluid from nose, ears, eyes
- Seizures, unresponsiveness



Head trauma



Do not ignore signs of concussion



Care

- Call 911.
- Stabilize the head and neck together in the position found.
- Treat the conditions found (e.g. control bleeding, maintain temperature).
- Calm and reassure.
- Monitor for changes in response, breathing, and appearance. Treat as indicated.



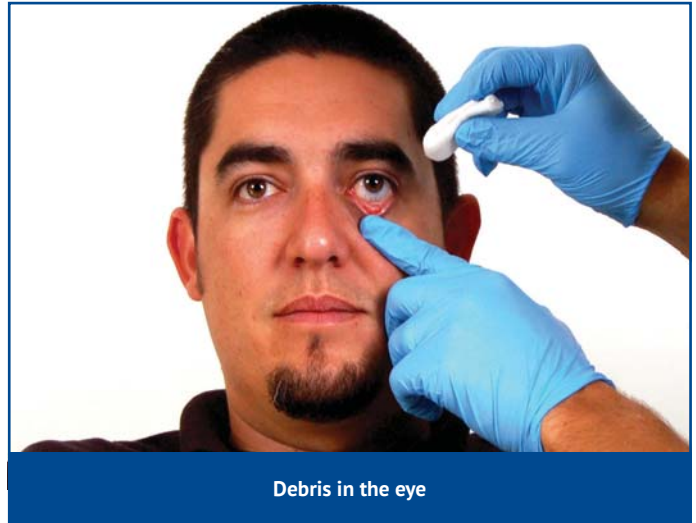
If a scalp wound appears minor with no signs of head or neck injury, provide an ice pack and wound care as needed. Monitor for signs of head injury, because even a minor head injury can result in a slow bleed in the brain.

EYE INJURIES

Debris in the Eye

Small, loose foreign objects such as sand or dirt are usually removed by tears or blinking. If debris remains in the eye, gently flush it with lukewarm water while holding it open.

- ✓ Remove an object under the lower lid by pulling down gently on the lid and flushing with water or by using wet, sterile gauze.
- ✓ Remove an object under the eyelid by laying a swab across the eyelid and folding the lid up over the swab. Flush with water or use a wet, sterile gauze pad.



Debris in the eye

Chemical in the Eye

Flush the eye immediately. Tilt the head so the affected eye is lower than the unaffected eye and flush gently with running water for at least 20 minutes. Get medical care. Call 911 for a caustic chemical and continue flushing the eye until EMS takes over.

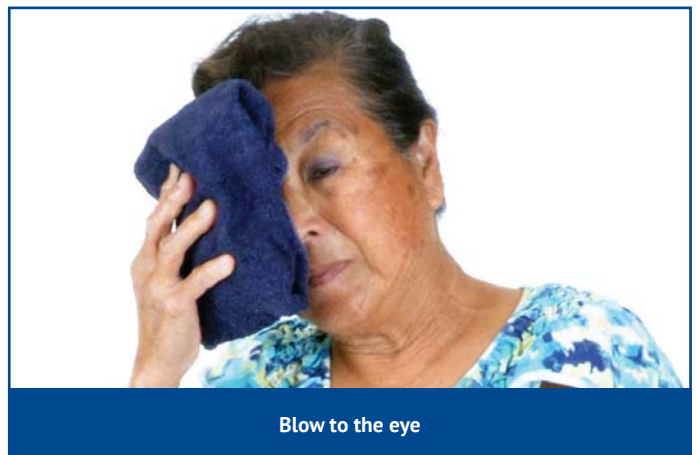


Flushing the eye

Blow to the Eye

Apply an ice pack wrapped in a damp cloth to reduce pain and swelling. Do not apply pressure to the eye. Seek medical care for changes in vision or a black eye.

If only the eyelid is cut, not the eye, apply gentle pressure with gauze and call 911.



Blow to the eye



When caring for an eye injury, **do not apply pressure or rub the injured eye.** This may cause further damage if there are debris or chemicals in the eye.

EYE INJURIES

Corneal Abrasion

When the surface of the eye is scratched, it will often feel as if something is in the eye. Signs may include pain, redness, tears, blurred vision, or sensitivity to light. Get medical care for evaluation and possible antibiotics.

Penetrating Trauma to the Eye

Penetrating trauma to the eye can be upsetting for the rescuer and the victim. It occurs when something cuts into your eye, such as broken eyeglasses from a fall. Focus your care on activating EMS and stabilizing the object.



Care

- Call 911.
- Keep the person calm and still.
- Cover the uninjured eye.
- Stabilize the object in place with bulky dressings.
- Secure a cup over the eye to protect it.



Stabilize the object in place



Get Medical Care If:

- Changes in vision
- Black eye
- It feels like something is in the eye



Call 911 if:

- Signs of head or neck injury
- Chemical burn of the eye
- Penetrating trauma of the eye

NOSEBLEEDS



Care

- Sit the person in a chair and lean slightly forward.
- Pinch nostrils for about 10 minutes.
- Apply an ice pack wrapped in a moist cloth to the bridge of the nose if bleeding does not stop.
- Get medical care if you suspect a broken nose.



A broken nose may be painful, swollen, bleeding and crooked. Do not straighten the nose. Treat the nosebleed, apply an ice pack and get medical care.

MOUTH AND TOOTH INJURIES

Injuries to the mouth, tongue or teeth can be a concern due to the risk of inhaling or swallowing blood or pieces of a broken tooth. The goal of first aid is to control bleeding and protect the airway.

Knocked-Out Adult Tooth

If a permanent tooth is knocked out, the sooner it is reinserted, the more likely it can be saved. **Do not** allow a knocked-out tooth to dry out.



Care

- ✓ Bite down on rolled sterile gauze to control bleeding.
- ✓ Handle the tooth by the biting edge, not by the root.
- ✓ Place the tooth in a container of Hank's Balanced Salt Solution, egg white, coconut water or whole milk to preserve the tooth. If not available, place in the person's saliva, but not in the mouth.
- ✓ See a dentist as soon as possible to try to reinsert the tooth. Go to an emergency department if after hours. Try to have the tooth reimplanted within 30 minutes for the best outcome.

If a tooth is loose, gently bite down on gauze to hold it in place, and visit a dentist as soon as possible.

Bleeding from the Mouth

Most bleeding from the tongue, lip or cheek is caused by a person's own teeth. Control bleeding by using sterile gauze or a clean cloth to **apply direct pressure** to the cut areas. Position the victim either sitting with the head tilted slightly forward or in the recovery position to allow blood to drain from the mouth. Watch for signs of airway compromise.

Jaw Injury

Immobilize a possible jaw fracture by splinting it with a gauze roll. If a gauze roll is unavailable, use a towel, shirt or necktie to secure the jaw. Do not interfere with the airway and do not overtighten the bandage. Stay alert for airway complications. Get professional medical care.



Knocked-out tooth



Preserve the tooth for reimplantation



Jaw injury



Call 911 if:

- Difficulty breathing
- Signs of head or neck injury
- Bleeding continues for more than 10 minutes

NECK AND BACK INJURIES

The spinal cord is a group of nerve tracts that originates in the brain, runs through the spine, and ends in nerves that go to the various parts of the body. When the spine is injured, the spinal cord may be damaged, possibly resulting in loss of movement, sensation, and even breathing.

Do not move a person with suspected head, neck or spine injury unless there is immediate danger, to perform CPR, or for airway management. Movement may worsen the injury and even cause paralysis.

SUPPORT THE HEAD AND NECK

If you suspect a head injury, assume there is also a neck injury. Treatment of a person with suspected head, neck or spine injury is focused on preventing further injury, activating EMS, and keeping the person still and supported in the position found.



Signs

- Pain or injury to head, neck or spine
- Numbness or tingling in arms or legs
- Weakness or paralysis in arms or legs
- Loss of bowel or bladder control
- Difficulty breathing



Support head and neck in the position found



Care

- Call 911.
- Stabilize the head and neck together in the position found.
- Treat the conditions found.
- Keep the person calm and still.



Leave a helmet in place while waiting for help



If the person is wearing a helmet, do not remove it unless you are trained to do so or you must access the victim's airway.

CHEST AND ABDOMINAL INJURIES

Chest and abdominal injuries are commonly caused by motor vehicle accidents, falls, sports, or penetrating injuries such as knife or gunshot wounds. Consider the mechanism of injury, because internal bleeding from a chest or abdominal injury can be life-threatening.

BROKEN RIBS

A **rib fracture** is painful, but rarely life-threatening. Complications can include damage to internal organs, or the development of pneumonia from shallow breathing. Hold a pillow or blanket against the injury to support it and reduce pain when breathing or coughing. Get medical care for evaluation and pain management.



Call 911 if:

- Signs of internal bleeding or shock
- Difficulty breathing
- Severe pain or injury
- Sucking noise with breathing



Encourage a person with a rib fracture to take occasional deep breaths and fully expand the lungs to prevent pneumonia.

A **flail chest** occurs when several adjacent ribs are broken, creating an unstable chest wall. Signs include bruising, pain, deformity, and abnormal movement of the chest wall during breathing.



Care

- Call 911.
- Keep the person calm and still.

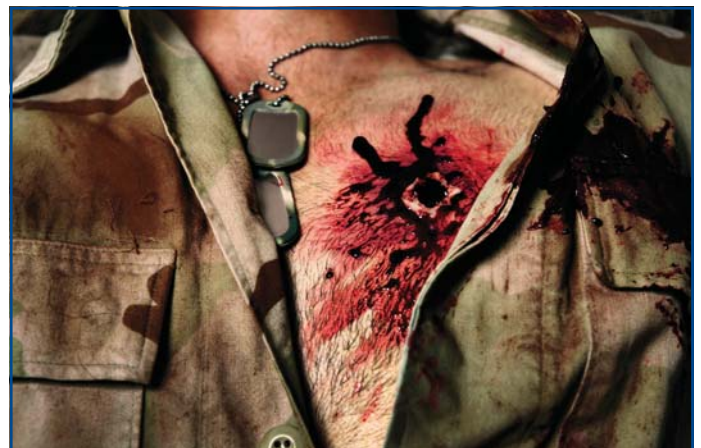
OPEN CHEST WOUND

Trauma that has penetrated the chest wall may cause a **sucking chest wound**, which is life-threatening. When the person breathes, a sucking sound is heard as air passes through the open wound. Air rushes into the chest cavity, collapsing the lungs.



Care

- Call 911.
- Control bleeding with firm, direct pressure. Remove and replace each dressing as it becomes blood-soaked.
- Keep the person calm and still.
- After bleeding is controlled, leave the wound exposed without a dressing. A blood-soaked dressing could cause fatal complications.
- Monitor response, breathing, and appearance.



Open chest wound

An **open abdominal wound** is usually caused by a penetrating injury and may result in abdominal organs pushing out through the wound. A **closed abdominal injury** is usually caused by blunt trauma.



Signs

- External bleeding
- Abdominal organs visible
- Weak, rapid pulse
- Pale, cool, sweaty skin
- Abdominal pain, tenderness or rigidity
- Nausea or vomiting
- Vomit that is bright red or looks like coffee grounds
- Blood in stool (dark tarry or bright red)
- Back pain (kidney damage)
- Other signs of shock



Do not push abdominal organs back into the abdomen



Care

- Call 911.
- Keep the person calm and still.
- Position on back with knees bent, if does not increase pain.
- Stabilize penetrating object; do not remove.
- Cover exposed organs loosely with a moist, sterile dressing, then cover loosely with plastic wrap.
- Treat for shock if needed.



Cover with a moist, sterile dressing



Do not give food or drink. This may delay necessary surgery.



All pregnancy-related emergencies should be evaluated by a physician. Call 911 for any sign of sudden illness, complications, or injury. Position a pregnant victim on her left side.

Burns |

Burns are classified by the depth of the injury.

1st degree (superficial): red, painful, swelling

2nd degree (partial thickness): red and splotchy, severe pain and swelling, may have blisters

3rd degree (full thickness): Damages all layers of the skin, and often fat, muscle and even bone.



1st degree sunburn



2nd degree scalding



3rd degree full thickness burn

THERMAL BURNS

A **thermal burn** may result from fire, steam or other exposure to high temperatures. Remove the heat source before giving care.



Care for Minor Burns

- ✓ A 1st degree burn or a small 2nd degree burn is considered a minor burn.
- ✓ Rinse the burn with cool water for at least 20 minutes or until the pain is relieved. Use a cool, clean compress if water is not available.
- ✓ Apply an antibiotic ointment if no allergy and allowed by state and local regulations.
- ✓ Cover with a dry, sterile, non-stick dressing (2nd degree burn).



Cool a minor burn with water



Care for Severe Burns

- ✓ If the person's clothes are on fire, **Stop, Drop and Roll.**
- ✓ Call 911.
- ✓ Remove clothing and jewelry that is not stuck to the skin.
- ✓ Cover with a dry, sterile bandage or cloth.
- ✓ Elevate the burn to decrease swelling.



Get Medical Care If:

- 2nd degree burn larger than 2-3 inches
- Large 1st degree burn
- Signs of infection



Cooling a large burn with water can result in hypothermia because the victim no longer has intact skin to help regulate body temperature.

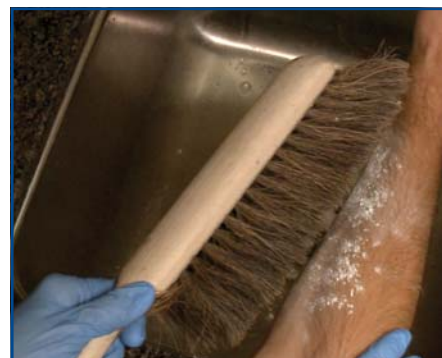
CHEMICAL BURNS

A **chemical burn** is caused when a caustic chemical gets in the eye or on the skin. It will keep burning until the chemical is removed. A chemical burn to the eye is very dangerous and may cause blindness. Scene safety involves protection from the chemical that burned the victim.



Care

- ✓ Call 911.
- ✓ Brush a dry chemical off the skin with a brush and gloved hand.
- ✓ Remove contaminated clothing and jewelry.
- ✓ Rinse the burn with cool water for at least 20 minutes. Make sure run-off water does not flow over unaffected skin or onto the rescuer.
- ✓ If a caustic chemical is in the eye, begin flushing the eye with water immediately (see Eye Injuries). Do not stop until EMS takes over.



Chemical burn

ELECTRICAL BURNS

An **electrical burn** may seriously damage internal organs. **Scene safety** is the most important consideration. Before approaching the person, make sure the power has been turned off at the source. Once the scene is safe, treat life-threatening conditions first.



Care

- ✓ Call 911.
- ✓ Provide CPR or treat for shock if needed.
- ✓ Look for entrance and exit wounds, and treat thermal burns.



Call 911 if:

- Burn to head, neck, hands, feet, genitals, or over a major joint
- Large burn area or multiple burn sites
- Burn to airway or difficulty breathing. Airway burns cause swelling, which may close the airway.
- 3rd degree burn, especially to the elderly, very young, or pregnant
- Chemical or electrical burn
- Burn with other traumatic injuries



Stay alert for electrical safety hazards

Check Your Knowledge I

1. If firm, direct pressure does not control heavy bleeding from an arm or leg, apply a tourniquet.
 - a. True
 - b. False

2. Apply a hot pack to a suspected fracture, bruise or sprain to reduce pain and swelling.
 - a. True
 - b. False

3. Write down the meaning of RICE
 - a. R _____
 - b. I _____
 - c. C _____
 - d. E _____

4. When giving care to a person with an impaled object, you should:
 - a. Leave the object in place and control bleeding while waiting for emergency medical help.
 - b. Cover the object so it doesn't scare the victim.
 - c. Pull out the object carefully, then apply firm, direct pressure.
 - d. None of the above

5. It is easy for a first aid provider to identify a concussion.
 - a. True
 - b. False

6. An epinephrine auto-injector may be used:
 - a. Through coins or keys
 - b. Against bare skin or through clothing
 - c. For suspected asthma
 - d. None of the above

Adult or Child Choking

A serious airway obstruction is life-threatening. Recognize a choking emergency and act quickly. The technique to manage choking is the same for adults and children age 1 and older.

To tell the difference between choking and other emergencies, look for the **universal sign of choking** – one or both hands at the throat. Suspect choking when someone **suddenly stops talking**.

MILD CHOKING

A person with a mild airway block can cough forcefully or speak. Do not interfere. If the person can speak, he can breathe. Encourage coughing, and monitor in case of progression to a severe airway block.

SEVERE CHOKING

A person with a severe airway block cannot breathe, cough effectively, or speak. He may make a high-pitched sound when inhaling or turn blue around the lips and face.



Care

- ✓ Ask the person, "Are you choking?"
- ✓ If he nods 'yes' or is unable to speak, tell him you are going to help. Do not leave.
- ✓ Reach under his arms from behind.
- ✓ Place your fist just above the navel, thumb side in. Grasp the fist with your other hand.
- ✓ Perform quick, forceful abdominal thrusts in and up until the object is expelled or he becomes unresponsive.



Call 911 if:

- A mild airway block is prolonged
- You are unable to help with a severe obstruction
- The person becomes unresponsive



When giving abdominal thrusts, make sure your closed fist is placed above the navel but below the tip of the breastbone.



Place one fist just above the navel



Give continuous abdominal thrusts



Look in the mouth after each set of compressions

UNRESPONSIVE CHOKING PERSON

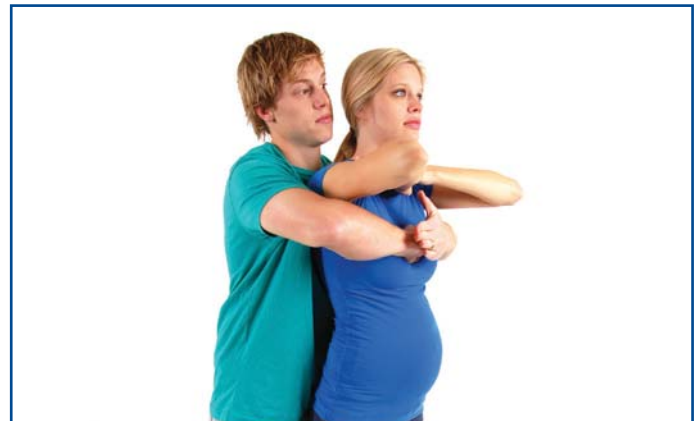
When a choking person becomes unresponsive, carefully lower the person to the ground. Use CPR to relieve the blockage.

1. Send a bystander to call 911 and get an AED.
 - ✔ If alone with an adult victim, go call 911 yourself, then return to perform CPR.
 - ✔ If alone with a child victim, call 911 after 2 minutes of CPR.
 - ✔ If a cell phone is available, call 911 and place the phone on speaker mode.
2. Perform CPR with the added step of **looking in the mouth after each set of compressions**. If you see the object, remove it.
3. Continue CPR until the person breathes normally.

CHEST THRUSTS

If you cannot reach around the waist or she is obviously pregnant, use chest thrusts to relieve the obstruction.

1. Place your fist in the middle of the chest, thumb side in.
2. Grasp the fist with your other hand.
3. Pull back on the chest quickly and forcefully.
4. Continue until the object is expelled or the person becomes unresponsive.



Give chest thrusts to a pregnant choking person



Alone and choking

ALONE AND CHOKING

If you are alone and choking, press your abdomen firmly against a hard object such as the back of a chair to relieve the blockage. You may also give yourself abdominal thrusts in the same location you would give them to another person.

An infant (under 1 year old) will not give the universal sign of choking. Be alert and recognize a sudden onset of these signs:

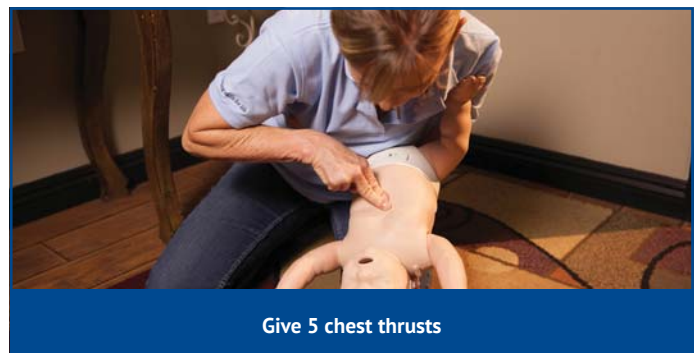
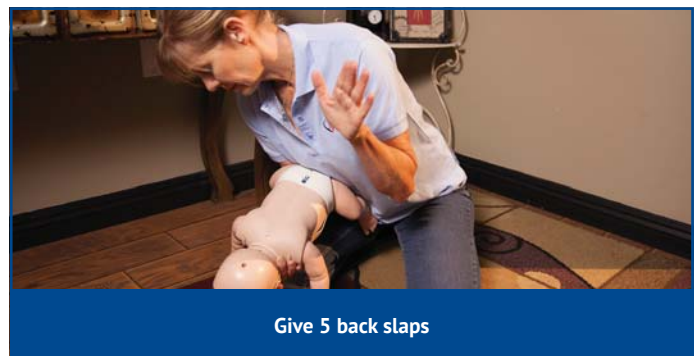
- Unable to cry or cough effectively
- Difficulty or no breathing
- Wheezing or high-pitched sound
- Bluish color skin
- Bulging or tearing eyes
- Panic or distressed facial expression

MILD CHOKING

Observe for signs of choking. If the infant can cough or cry, do not interfere. Monitor in case of progression to a severe airway block. Do not leave the infant.

SEVERE CHOKING

1. Send a bystander to call 911 and get an AED. **Do not** leave the infant.
2. Hold the infant face down on your forearm, supporting the head and neck. Keep the infant's head slightly lower than the chest.
3. Give 5 back slaps forcefully between the shoulder blades.
4. Support the infant between your arms and turn face up.
5. Give 5 chest thrusts in the same location as CPR, about 1 per second.
6. Repeat 5 back slaps and 5 chest thrusts until the object is expelled, the infant cries or becomes unresponsive.



UNRESPONSIVE INFANT

When a choking infant becomes unresponsive, use CPR to relieve the blockage.

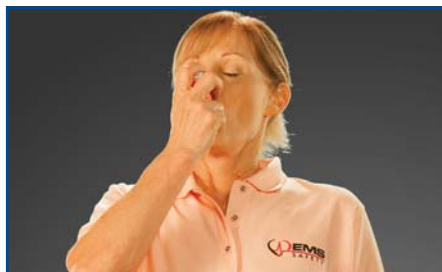
1. Send a bystander to call 911 and get an AED. If **alone with an infant**, call 911 after 2 minutes of CPR. If a cell phone is available, call 911 and place the phone on speaker.
2. Perform CPR with the added step of looking in the mouth after each set of compressions. If you see the object, remove it and continue CPR.
3. Continue CPR until the infant breathes normally.



Most incidents of choking in infants and young children occur when parents or caregivers are close by, usually during eating or play.

Difficulty Breathing I

Severe difficulty breathing is a medical emergency. Some causes include injury, heart attack, stroke, severe allergic reaction, choking, poisoning, respiratory infection, congestive heart failure and asthma. Recognize the emergency and call 911 without delay!



Inhale slowly and deeply

ASTHMA

Asthma is a chronic disease affecting the lungs. During an **asthma attack**, the muscles around the airways tighten and extra mucus can block the airway. Many people with asthma carry **inhaled medication** that can quickly open narrowed air passages and ease breathing. An asthma attack can occur suddenly; recognize the signs and respond quickly.



Inhaler with spacer



Signs

- Labored, rapid breathing
- Coughing, wheezing
- Shortness of breath
- Chest tightness
- Anxiety
- Tripod position (rigid sitting position, leaning forward, supported on arms)
- Bluish lips and fingers
- Flared nostrils



Care

- ✓ Position of comfort, usually sitting up.
- ✓ Ask the person if she has an inhaler, and offer to help her use it if needed.
- ✓ Call 911 if no relief from the inhaler.
- ✓ Keep the person calm and still.

USING A QUICK-RELIEF INHALER:

1. Locate and assemble the inhaler.
2. Shake it hard a few times.
3. Remove the cover. Attach the spacer if there is one.
4. Instruct the person to fully exhale.
5. Place the inhaler in the person's mouth and press down on the canister as the person inhales slowly and deeply.
6. Tell the person to hold her breath for 10 seconds. If using a spacer, tell the person to take 6 deep breaths.
7. Repeat with a 2nd dose after a few breaths.

Allergic Reactions

An allergy is an **overreaction of your body's immune system** to something that doesn't usually cause problems for most people. A severe allergic reaction can quickly cause swelling of the airway and a sudden drop in blood pressure, which may be life-threatening. Common allergens include bee sting venom, nuts, eggs, shellfish, dairy products, chocolate and certain drugs.

SEVERE ALLERGIC REACTION



Signs

- Hives or rash
- Sneezing, congestion
- Tightness in the chest and throat
- Dizziness, confusion
- Swelling in face, throat, tongue
- Difficulty breathing
- Nausea, vomiting, diarrhea
- Signs of shock



Care

- ✓ Call 911.
- ✓ Calm and reassure the person.
- ✓ Help the person use his epinephrine auto-injector if allowed by state and local regulations.
- ✓ If the allergic reaction is from a bee sting, quickly scrape off the stinger.
- ✓ Monitor response, breathing, and signs of shock.
- ✓ Consider a repeat dose if signs persist and EMS will not arrive for 5-10 minutes.

Allergic reactions often get worse with repeated exposures. The quicker the onset of symptoms, the more severe the reaction. People with severe allergies may carry an **epinephrine auto-injector** to combat the allergic reaction.



Carefully remove the cap



Press firmly against the thigh

USING AN EPINEPHRINE AUTO-INJECTOR

1. Remove the cap. Be careful not to touch either end of the auto-injector.
2. Jab the tip firmly against the outer thigh, halfway between the hip and knee.
3. Hold for 10 seconds, then pull straight out.
4. Rub the injection site for about 10 seconds.
5. Record the time of the injection.
6. Dispose of the auto-injector safely or give to EMS responders.

Check Your Knowledge |

Match the position with the condition. Draw a line to the corresponding photo.

1. Shock position

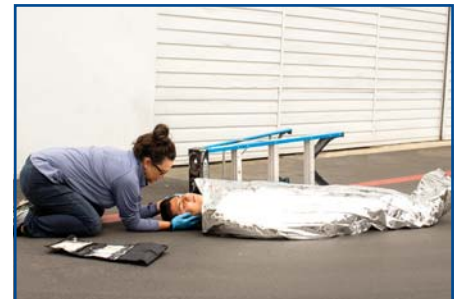
A



Lying face up on a firm, flat surface

2. Unresponsive and breathing

B



Lying down flat, while maintaining body temperature

3. Unresponsive and not breathing

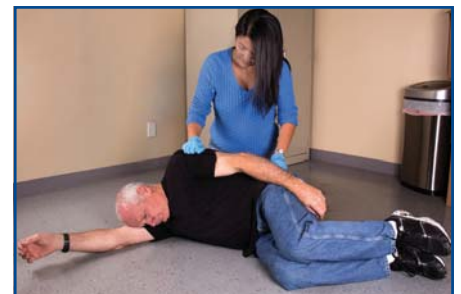
C



Sitting up, leaning forward, supported on hands

4. Difficulty breathing

D



Lying down turned on the side

Poisoning is an exposure to any substance that produces undesired effects. More than 90% of poisonings occur in the home, and half of those involve children younger than age 6.

POISONING CAN OCCUR THROUGH:

Eating or drinking: Commonly swallowed poisons include medications and over-the-counter products, household cleaning products, cosmetics, personal care products, chemicals, plants, and illegal drugs.



Inhaling gases or fumes: Commonly inhaled poisons include carbon monoxide, fumes from glue or paint, and pesticides.



Absorption through the skin: Chemicals such as pesticides and fertilizers can be poisonous when absorbed through the skin.



Injection: A poisonous bite, sting, or hypodermic needle can result in poisoning.



POISON OAK, POISON IVY, POISON SUMAC

Exposure to certain plants such as **poison oak**, **poison ivy**, and **poison sumac** can produce itching, swelling, redness and blisters. If exposed, remove clothing carefully and wash skin thoroughly with soap and warm water. Wash clothing with soap and hot water. Get medical help for treatment.



POISONS ACT FAST – SO MUST YOU!

Recognize the emergency. Look for clues to the possible poisoning, such as empty bottles, opened containers, or disturbed plants. Try to **identify the poison**, how much and when it was taken.



Look for clues to poisoning



Do not give the person food or drink unless instructed to do so.

Do not induce vomiting unless instructed to do so by a poison control center or medical professional.

Do not enter a confined space without proper equipment and training.



Signs

- Dizziness, headache or confusion
- Change in behavior or mood
- Difficulty breathing
- Chest pain or tightness, sweating
- Nausea, vomiting, diarrhea
- Burns or blisters around the mouth
- Throat or abdominal pain
- Drooling, unusual odor on breath
- Seizures or decreased response



Care

- ✓ Call 911 if the person is unresponsive or having difficulty breathing. Perform CPR if needed.
- ✓ Call 1-800-222-1222 for a poison control center if the person is alert.
- ✓ For an inhaled poison, move the victim into fresh air if it is safe for you.
- ✓ For a chemical on your skin, remove exposed clothing, brush off the chemical with a brush and your gloved hand, and rinse the skin with water for at least 20 minutes.
- ✓ Place in a comfortable position.
- ✓ Monitor response, breathing and appearance.

POISON CONTROL CENTERS

There are over 4 million calls each year to poison control centers in the U.S. **A medical expert is ready to help at any time of day or night.**

- When you call 1-800-222-1222, you are connected to your local poison control center anywhere in the U.S.
- Anyone can call anytime. They are open 24 hours a day.
- The call is free and confidential.
- They have interpreters, including TTY for the deaf and hard of hearing.



DRUG POISONING

Drug poisoning can occur from exposure to **illegal, prescription, or over-the-counter** drugs. Drug overdose is a leading cause of death in the U.S. Suspect substance abuse if drug paraphernalia, empty pill or alcohol containers are present. Follow general poisoning care guidelines.



Scene Safety: Make sure you have an escape route in case the person becomes violent.

OPIOID-ASSOCIATED EMERGENCY

Legal opioids are used to control pain. Some types include codeine, hydrocodone, morphine and oxycodone. Heroin is an illegal opioid. While opioids are effective at managing pain, abuse of opioids is common.

An opioid overdose results in unresponsiveness and respiratory arrest (breathing stops), which leads to cardiac arrest. **Naloxone** is a prescription medication that can quickly reverse an opioid overdose. It is easy to administer, and comes as a nasal spray or an auto-injector.

If someone is at risk for an opioid overdose, a physician may prescribe naloxone and train household members on how to recognize an opioid overdose and give naloxone.

IF YOU SUSPECT AN OPIOID OVERDOSE

Check response and call 911.

If the person is responsive:

- ✔ Call 911 and stay with the person.

If the person appears unresponsive:

- ✔ Tap the person's shoulder and shout.
- ✔ If no response, yell for help. Send a bystander to call 911 and get the AED and naloxone kit.
- ✔ If a cell phone is available, use it to call 911 and place it on speaker.
- ✔ Give the naloxone as soon as it is available.

Check breathing.

- ✔ Scan for breathing for 5-10 seconds.

- ✔ If no breathing or only gasping, begin CPR. Use a CPR barrier.

After 5 cycles of CPR:

- ✔ If you are alone and no one has called 911, call 911 and get the AED and naloxone kit yourself. Return quickly.

Give the naloxone.

- ✔ If the person becomes responsive, stop CPR and stay with the person until emergency responders arrive.
- ✔ If there is no response and no breathing or only gasping, continue CPR. Use an AED as soon as it is available.



Naloxone requires training in how to recognize an opioid overdose and how to give the medication. Naloxone should be given by prescription only.

Heat-Related Emergencies |

Heat-related illness occurs when a person's body is unable to cool itself through sweating and heat loss into the air. It is most common when a person becomes **dehydrated**, and there is **high temperature with high humidity and no breeze**. The people most at risk are those who **work or exercise outdoors** in the heat, such as athletes, laborers, and soldiers, or those who have **poor tolerance of heat**, such as the elderly, the very young, or people with medical problems. Recognize a heat emergency and treat it early before it becomes life-threatening.

There are 3 types of heat-related emergency that are progressively more serious.

HEAT CRAMPS

Signs include painful muscle cramps in the abdomen, arms and legs, usually during strenuous activity; heavy sweating.



Care

- ✓ Stop activity and move to a cool location.
- ✓ Drink sports drink, juice or milk. Give water if the others are not available.
- ✓ Gently stretch and massage muscles.



Give fluids to drink

HEAT EXHAUSTION

Develops when you ignore early signs of heat-related illness. The condition can worsen quickly.



Signs

- Signs of Heat Cramps **AND**
- Sweating
- Intense thirst
- Pale, cool skin
- Weakness, faintness
- Headache, dizziness
- Nausea, vomiting



Care

- ✓ Stop activity and lie down in a cool location.
- ✓ Remove clothing.
- ✓ Cool the person (cool water bath, spray, fan).
- ✓ Give sports drink, juice or milk. Give water if the others are not available.
- ✓ If the person does not quickly improve, call 911 and give care for Heat Stroke.



Plan ahead when it will be hot and humid. Bring a hat and sports drinks; rest in the shade. Watch closely for early signs of heat-related illness.

HEAT STROKE

The body can no longer control its temperature, so the body temperature rises rapidly. This is a **life-threatening emergency**.



Signs

- Signs of Heat Exhaustion **AND**
- High body temperature
- Dry or moist, flushed skin
- Confusion, dizziness
- Slurred speech
- Seizures
- Severe headache
- Fast breathing and pulse
- Unresponsiveness



Quickly cool the person



Care

- ✓ Call 911.
- ✓ Quickly cool the person by immersing in water up to the neck, spraying with cool water, or placing ice packs against the groin, armpits and sides of the neck.



Immerse in water up to the neck

BEAT THE HEAT

When you work or exercise in hot weather, take these precautions:

- **Watch the temperature.** Monitor the weather forecasts and heat alerts.
- **Get acclimated to the heat.** If you're not used to working in the heat, gradually increase workloads and take more frequent breaks for the first week or two.
- **Watch out for each other.** Move to a cool location and give first aid to anyone who is developing signs of heat-related illness.
- **Drink fluids** before, during and after activity.
- **Perform the heaviest work during the coolest part of the day.**
- **Protect yourself** with a hat, sunglasses and sunscreen.
- **Dress appropriately** in lightweight, light-colored, loose-fitting clothes.
- **Rotate tasks** among different workers to minimize heat exposure and overexertion.

Cold-Related Emergencies |

HYPOTHERMIA

When exposed to cold temperatures, the body may lose more heat than it produces. Prolonged exposure to cold results in **hypothermia**, or abnormally **low body temperature**. This occurs even more quickly in wet and cold conditions. Hypothermia is a serious condition, and may be life-threatening.

Older adults have a higher risk for hypothermia due to a lower tolerance to prolonged cold, and difficulty sensing a drop in temperature. **Medical conditions** such as diabetes and certain medications increase the risk for hypothermia. **Children** are more at risk because their body temperature regulation is not fully developed, and they may not dress warmly enough or go inside when they are cold.



Signs

- Shivering (may eventually stop)
- Cold, pale skin
- Drowsiness, exhaustion
- Slow breathing and pulse
- Unresponsiveness



Remove wet clothing



Care

- Move to a warm location.
- Call 911.
- Gently remove wet clothing, dry the skin, and replace with dry clothing. Cover the head and neck and wrap in blankets.
- If emergency help is delayed, gradually rewarm the person near a source of heat or with containers of warm water or heating pads. Keep a barrier between the heat source and the skin.
- If alert, give warm liquids (no caffeine or alcohol).
- Monitor response and breathing.



Give warm liquids

FROSTBITE

Frostbite is the actual **freezing of body tissues**. It usually affects the ears, nose, cheeks, hands and feet. Often a person with frostbite does not realize it because the frozen tissue is numb.



Signs

- Pale, cold, waxy skin
- Painful burning sensation, or numbness
- Blisters, hardened tissues



Do not rewarm with direct heat.

Do not pop blisters.

Do not rub affected area.

Do not rewarm the part if it may refreeze.



Care

- ✓ Move to a warm location.
- ✓ Call 911.
- ✓ Gently remove wet clothing, dry the skin, and replace with dry clothing.
- ✓ Remove rings, watches and bracelets.
- ✓ Cover with a dry, sterile dressing.
- ✓ For minor frostbite, rewarm the frostbitten part with skin-to-skin contact, such as a warm hand.
- ✓ If emergency help is delayed, immerse the frostbitten part in warm water (100° - 104°) for 20-30 minutes.



Early frostbite



Immerse in warm water

PREVENT HYPOTHERMIA AND FROSTBITE

- Wear extra clothing in loose layers.
- Wear clothes that are windproof and water-resistant.
- Cover your head, hands and feet in cold weather.
- Keep as dry as possible.
- Keep an eye on the weather.
- Watch for early signs of hypothermia.
- Take frequent breaks indoors.
- Heat your home in cold weather, especially at night.
- Drink warm, sweet drinks for energy.
- Do not drink alcohol, because it lowers your ability to retain heat.
- Avoid overexertion and sweating in cold weather.
- Keep your vehicle in good condition.

Bites and Stings |

ANIMAL OR HUMAN BITES

The primary concern with **animal bites** is bleeding and infection. **Rabies** can be transmitted through a bite from a bat, skunk, raccoon, fox, dog, cat, or other mammal that is behaving strangely or bites unprovoked. Consider scene safety first. Do not put yourself in danger when trying to help someone.

There are about 4.5 million dog bites each year in the U.S. Dogs may bite while protecting their owners or territory, when in pain, eating, or feeling threatened. Regardless of size, breed or personality, all dogs can bite if provoked. Children age 5 - 9 have the highest rate of dog bite-related injuries.



Care if Skin is Broken

- ✓ Wash a minor wound thoroughly with soap and running water.
- ✓ Control bleeding with direct pressure.
- ✓ Apply an antibiotic ointment if no allergy and allowed by state and local regulations.
- ✓ Cover with a sterile dressing.
- ✓ Report bites to police or animal control.

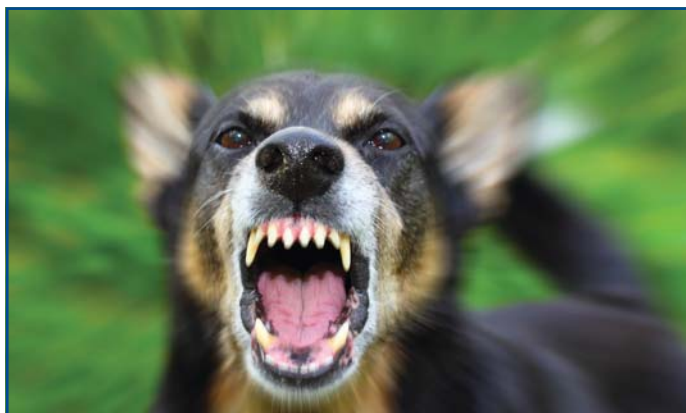


Do not try to capture an animal that you suspect may have rabies; contact animal control. **Rabies can be fatal, so get medical treatment fast.**



Get Medical Care If:

- May need stitches
- May need rabies vaccination
- Need additional wound cleaning
- Signs of infection



All dogs can bite if provoked



A bite wound is at high risk for infection



Call 911 if:

- Severe bleeding
- Animal remains a danger
- Animal may have rabies



Human bites may occur when a small child bites, when a confused person is agitated, or during a fight. They are at high risk of infection. **Cat bites or scratches** are also at high risk of infection.

Snakebites can be painful, but most snakes are not venomous. There are four types of venomous snakes found in the US: the rattlesnake, the coral snake, the cottonmouth (water moccasin), and the copperhead. Consider all snakes venomous until proven otherwise.



Rattlesnake



Coral snake



Cottonmouth (water moccasin)

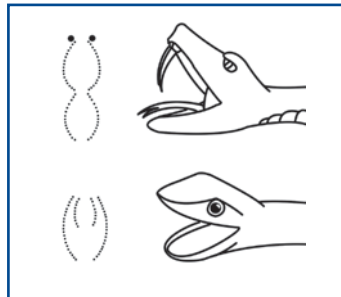


Copperhead



Signs

- Fang marks (2 small puncture wounds)
- Burning pain
- Rapid swelling
- Nausea, vomiting
- Weakness, sweating



A poisonous bitemark has puncture wounds



- Do not** pick up a snake or play with it.
- Do not** apply ice, a tourniquet or suction.
- Do not** approach a dead or dying snake.



Care

- ✓ Call 911 if you suspect the bite is from a venomous snake. The right antivenom can save a person's life if given soon after the bite.
- ✓ Keep the person calm and still, with the bite area lower than the heart.
- ✓ Wash the wound with soap and water.
- ✓ Remove jewelry, and wrap an elastic bandage around the entire bitten arm or leg, starting furthest from the heart. Use overlapping turns to wrap snugly, but still allow a finger to slip under the bandage.
- ✓ Check temperature and sensation below the wrap to make sure it is not too tight.

SPIDER BITES AND SCORPION STINGS

Although most spiders are venomous, very few cause serious illness in a person. The **black widow** and the **brown recluse** pose the most danger to humans in the U.S. Assume all scorpions are venomous because it is difficult to tell those that are dangerous from those that are not.

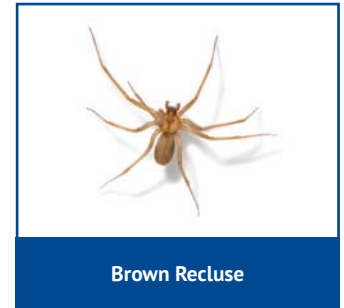


Signs

- Severe pain or burning near the site
- Chest pain
- Rigid muscles, painful joints
- Swelling, rash, itching
- Small puncture wounds
- Blister or ulcer (may turn black)
- Headache, dizziness, weakness
- Sweating, fever, cramps
- Nausea, vomiting
- Rapid heart rate
- Difficulty breathing
- Seizures, unresponsiveness



Black Widow



Brown Recluse



Care

- ✓ Call 911 for suspected bite from a black widow, brown recluse, scorpion, or for any life-threatening signs.
- ✓ Wash the wound with soap and water.
- ✓ Apply an ice pack wrapped in a moist cloth.



Avoid getting bitten by spiders: shake out blankets and shoes if they have not been used lately; be careful around piles of wood, rocks, or leaves.

INSECT BITES AND STINGS

Insect stings commonly cause pain, swelling, itching and redness. If a bee stinger is visible, quickly scrape it off the skin using a credit card or similar object. Apply an ice pack wrapped in a moist cloth to reduce pain and swelling.

Monitor the person for at least 30 minutes for signs of severe allergic reaction. If the person develops difficulty breathing, severe swelling, nausea or dizziness, call 911 and help with his epinephrine auto-injector if needed. *See the Allergic Reactions section for more information.*



Removing a bee stinger

TICK BITES

Ticks bites are a concern in the areas where they are known to carry diseases such as Lyme disease. Remove a tick as soon as possible.



Tick Removal & Care

- ✓ Use fine-tipped tweezers to grasp the tick close to the skin.
- ✓ Slowly and steadily lift the tick straight out. First lift until the skin tents, then lift out completely when the tick lets go.
- ✓ Save the tick in a sealable plastic bag or container to give to the doctor if illness develops.
- ✓ Wash the skin with soap and water. Apply antibiotic ointment if no allergy and allowed by state and local regulations.



Tick Removal



- **Do not** twist the tick.
- **Do not** pull so quickly that the tick breaks apart.
- **Do not** apply heat, petroleum jelly, rubbing alcohol or nail polish.



Get Medical Care If:

- You are in a region where tick-borne illness occurs
- You cannot remove the tick completely
- You develop a rash or flu-like symptoms

MARINE ANIMAL STINGS

Jellyfish, corals, sea anemones and the **Portuguese man-of-war** have tentacles, which are the firing mechanism of the sting.

A **stingray** is often buried under sand, and thrusts its tail spine into a person's foot or leg, releasing venom.



Care for Stingray Injury

- ✓ Remove the barb if superficial.
- ✓ Immerse in hot water for 30-90 minutes.
- ✓ Get medical help to clean the wound and remove any remaining fragments of the spine.



Care for Jellyfish Stings

- ✓ Remove tentacles with a towel or rigid object like a credit card. Do not touch with bare hands.
- ✓ Rinse quickly with lots of vinegar for at least 30 seconds. If vinegar is not available, use a baking soda and water solution.
- ✓ Immerse in hot water for at least 20 minutes or until pain is relieved.



Jellyfish



Call 911 if:

- Signs of a severe allergic reaction or poisonous sting.

Check Your Knowledge |

1. Difficulty breathing may be a sign of:
 - a. Heart attack
 - b. Severe allergic reaction
 - c. Asthma attack
 - d. All of the above

2. Call a poison control center when you suspect poisoning and:
 - a. The person is alert and breathing normally.
 - b. The person is having difficulty breathing and vomiting blood.
 - c. The person is unresponsive.
 - d. You are ready with a credit card to pay for poison control assistance.

3. Drug poisoning can occur from prescription, over-the-counter, and illegal drugs.
 - a. True
 - b. False

4. When working in the heat, as long as you keep drinking fluids you will not get ill.
 - a. True
 - b. False

5. If a person has signs of heatstroke, you should:
 - a. Offer a sports drink.
 - b. Move to a cool location to rest.
 - c. Take the person to the doctor.
 - d. Call 911 and quickly cool the person.

6. Following a snakebite, it is important to capture the snake to identify it.
 - a. True
 - b. False

7. Remove a tick from the skin by pulling it out quickly.
 - a. True
 - b. False

CARDIAC ARREST CAN HAPPEN ANYWHERE, AT ANY TIME!

Now that you are trained in CPR and AED . . .



Ask your employer where your AEDs are located.

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