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Introduction

Your Heartsaver® course will teach you to perform many lifesaving skills. You can refer to this workbook as you learn about the skills in class. You can also refer to it anytime to help you remember and use those skills. In this workbook, you will find

- A detailed section on the key steps for responding to an emergency
- A comprehensive section on performing cardiopulmonary resuscitation (CPR) and using an automated external defibrillator (AED)
- An alphabetical list of injuries and conditions that may require first aid treatment and what initial actions to take
- A glossary of key terms and concepts

Course Overview

Course Goal

Heartsaver courses prepare people to safely and effectively provide first aid and CPR and use an AED in all environments.

Learning Objectives

Course learning objectives will vary, depending on the course topics you take.

At the end of the Heartsaver CPR AED Course, students will be able to

- Demonstrate how to assess the scene in an emergency
- Describe how CPR improves survival
- Explain the concepts of the Chain of Survival
- Recognize when someone needs CPR
- Perform CPR for an adult, a child, and an infant
- Describe how to perform CPR with help from others
- Demonstrate giving effective breaths by using mouth-to-mouth or a mask for all age groups
- Demonstrate using an AED on an adult
- Describe how to use an AED on a child and an infant
- Describe when and how to help a choking adult, child, and infant
- Discuss how to help someone experiencing an opioid-associated emergency

- Recognize the techniques that help prevent drowning emergencies
- Discuss initial actions to take when helping someone who has drowned
- Recognize the legal questions that apply to rescuers

At the end of the Heartsaver First Aid Course, students will be able to

- Discuss how universal precautions, personal protective equipment (PPE), and handwashing can protect against germs and disease
- List the priorities, roles, and responsibilities of first aid rescuers
- Describe the key steps in first aid
- Describe the steps to remove protective gloves
- Demonstrate the steps to respond to a first aid emergency
- Describe the assessment and first aid actions for the following life-threatening conditions: heart attack, difficulty breathing, choking, severe bleeding, shock, and stroke
- Describe how to use an epinephrine autoinjector
- Demonstrate how to control bleeding and apply direct pressure and a bandage
- Recognize elements of common illnesses and injuries
- Describe how to prevent repetitive stress injuries and overexertion
- Recognize signs of mental health crisis in the workplace
- Recognize the legal questions that apply to first aid rescuers

At the end of the Heartsaver Pediatric First Aid CPR AED Course, students will be able to

- Demonstrate how to assess the scene in an emergency involving a child or an infant
- Describe how CPR improves survival
- Explain the concepts of the Chain of Survival
- Recognize when a child or infant needs CPR
- Perform CPR for a child, an infant, and an adult
- Describe how to perform CPR with help from others
- Demonstrate giving effective breaths by using mouth-to-mouth or a mask for all age groups
- Describe how to use an AED on a child and an infant
- Demonstrate using an AED on an adult
- Describe when and how to help a choking child, infant, and adult
- Discuss how to help someone experiencing an opioid-associated emergency
- Recognize the techniques that help prevent pediatric drowning emergencies

- Discuss initial actions to take when helping a child or person who has drowned
- Discuss how universal precautions, PPE, and handwashing can protect against germs and disease
- List the priorities, roles, and responsibilities of first aid rescuers
- Describe the key steps in pediatric first aid
- Describe the steps to remove protective gloves
- Demonstrate the steps to respond to a pediatric first aid emergency
- Describe the assessment and first aid actions for the following life-threatening conditions: difficulty breathing, choking, heat-related injuries (dehydration), severe bleeding, pediatric shock, and diabetes (low blood sugar)
- Describe how to use an epinephrine autoinjector
- Demonstrate how to control bleeding and apply direct pressure and a bandage
- Recognize elements of common pediatric illnesses and injuries
- Recognize the legal questions that apply to first aid rescuers

Successful Course Completion

During the course, you will be asked to practice and demonstrate important skills. As you read and study this workbook, pay attention to those skills.

If you complete all course requirements and demonstrate the skills correctly, you'll receive a course completion card. Your course completion card will be valid for 2 years.

CPR and First Aid Icons

As you use this workbook, these icons will help you remember important ideas:

Adults: Specific to helping adults

Children: Specific to helping children

Infants: Specific to helping infants

Adult and Pediatric: Same for adults, children, and infants

CPR Tip: Extra context for giving CPR

First Aid Fact: Extra context for giving first aid

Urgent!: Information on life-threatening and emergency situations

Age Definitions

We use the following age definitions for providing first aid and CPR.

Table 1. Heartsaver Age Definitions

Adult

For CPR and first aid: Anyone with visible signs of puberty: chest hair, underarm hair, breast development.

Child

For CPR and first aid: 1 year of age to puberty (if unsure, provide emergency care as if the person is an adult).

Infant

For CPR and first aid: Less than 1 year old.

For AED pads, use adult pads for anyone who is 8 years or older. Use child pads or a child cable, key, or switch for anyone younger than 8 years (if these are unavailable, use adult pads).

CPR Tip

It's better to give CPR to someone who doesn't need it than to not give it to someone who does. Without CPR, someone who is in cardiac arrest will die. If you aren't sure, provide CPR. You may save a life.

Chain of Survival

The American Heart Association Chain of Survival (Figure 1) shows the most important actions needed to treat adults, children, and infants who have cardiac arrests outside of a hospital. During this course, you'll learn about the first 3 links of the chain. The fourth and fifth links represent advanced care provided by the health care professionals who assume care. The sixth link is recovery and survivorship. Each link in the Chain of Survival represents the important interventions applicable to adults, children, and infants.



Chain of Survival: recognition and emergency activation; high-quality CPR; defibrillation; advanced resuscitation; post-cardiac arrest care; recovery and survivorship.

Figure 1. Chain of Survival

Calling 911

Call 911 whenever someone is seriously ill or injured or if you're not sure what to do in an emergency. Acting fast can make all the difference because calling 911 activates the emergency response system.

Put the phone on speaker mode so that you can hear the emergency dispatcher's instructions.

Be ready to provide some basic information, such as

- Your exact location
- What happened
- Whether the person is responding or breathing

Your answers will help the dispatcher assess the situation and send the right people to help. If needed, send someone to meet the emergency responders.

Urgent!

When you call 911, stay on the phone until the dispatcher says it's OK to hang up.

In an emergency, it's important to know the location of the nearest phone and how to use it. This could be a landline. Consider the following:

- Are you in an office where you need to dial 9 or 0 for an outside line?
- Is there an internal number to notify responders who are on-site? You can often find those emergency numbers in the facility's first aid kit or posted by the phone.

Recovery Position

If a person is unresponsive but breathing normally and hasn't experienced any trauma or injuries, put them in the recovery position. This position will help prevent the person from choking if they vomit.

Actions to Take: Recovery Position

1. Gently turn their head to the left.



Recovery position: gently turn the person's head to their left.

2. Place their left arm at a right angle to their body.



Place the person's left arm out at a right angle to the body.

3. Put their right hand under their left cheek



Bring the right hand across the chest and place it under the left cheek.

4. Bend their right knee, and roll them onto their left side



Bend the right knee while supporting the person's head.

5. Once they're in the recovery position gently open their airway by tilting the head back and lifting the chin. This is known as the head tilt-chin lift maneuver. Check to make sure that nothing is blocking the airway, and closely monitor the person's breathing and level of responsiveness until emergency responders arrive.



Roll the person onto their left side with the bent knee supporting the position.



With the person on their side, tilt the head back and lift the chin to open the airway.

Good Samaritan Laws

All US states have Good Samaritan laws that protect anyone who gives first aid and CPR in good faith and to the best of their abilities. The laws differ from state to state, so be sure to check the laws in your area or talk to your instructor.

Key Steps in an Emergency

First aid and CPR rescuers should use PPE and follow these steps in an emergency:

- Check that the scene is safe.
- Tap and shout to determine responsiveness.
- Shout for help.
- Call 911.
- Send someone to get a first aid kit and an AED if one is available (figure 2).
- Check breathing.
- Look for injuries and medical information jewelry.



Figure 2. A first aid kit beside a cabinet marked AED.

Figure 2. First aid kit and AED.

The order of steps may vary depending on the age of the injured person and whether or not you're alone.

Basics for Responding to an Emergency

When you see an emergency situation, use the information that you learn in this course to assess the problem and get help. You may even be able to take some actions at the same time. For example, you can call 911 with your phone on speaker mode while you check breathing.

Responding to an Emergency

Actions to Take: Responding to an Emergency

1. Check that the scene is safe.
 - If there's a danger to you or others, address it before you do anything else. You can't help anyone if you are in danger.

- Once you've ensured that you can act safely, say aloud, "The scene is safe."

2. Check for responsiveness by tapping the person and shouting, "Hey! Are you OK? Are you OK?"

Adults and children: Tap the person's shoulders

Infants: Tap the infant's foot.

- If the person doesn't blink, move, speak, or cry, consider them unresponsive. Act immediately.
- If the person is responsive (they blink, move, speak, or otherwise react), ask if they need help, and continue first aid care (refer to the First Aid section).



Check an adult's responsiveness by tapping the shoulders and shouting.



Check a child's responsiveness by tapping the shoulders and shouting.



Check an infant's responsiveness by tapping the foot.

3. See if others are around to help by shouting, "Help! Somebody, help me!"

- Once help arrives, point and shout, "You! Call 911!" and "You! Get a first aid kit and an AED!". To avoid confusion, point at a specific person for each task.



Point to a specific bystander and direct them to call 911 or bring emergency equipment.

4. If no one comes to help and you have a phone, call 911 and put the phone on speaker mode so that you can hear the emergency dispatcher's instructions.

If you're alone and don't have a phone, do the following depending on the person's age:

Adults: Leave the injured person while you go call 911 and get a first aid kit and an AED if one is available. However, if you suspect they had a breathing issue that caused the cardiac arrest (such as drowning, choking, or an opioid-related emergency), you should provide CPR by giving 5 sets of 30 compressions and 2 breaths before leaving to call 911 and get an AED if one is available.

Children and infants: Quickly check the child's or infant's breathing (refer to step 5 for instructions). If they need CPR, give 5 sets of 30 compressions and 2 breaths before you leave the child or infant to go call 911 and get an AED yourself. (If you're helping an infant who isn't injured, carry them with you while you call 911 and get an AED if one is available.) Then, return to the child or infant and continue CPR.



A rescuer carries an uninjured infant while calling for emergency help.

5. Check for signs of breathing. Scan the adult's, child's, or infant's chest for signs of breathing for at least 5 but no more than 10 seconds.
 - If the person is unresponsive and not breathing or not breathing normally: They may be in cardiac arrest. Start CPR immediately and use the AED as soon as it arrives. Keep performing CPR and using the AED until someone else takes over, emergency responders arrive, or the person starts to respond. If someone else knows CPR, you can take turns providing compressions. Switch rescuers about every 2 minutes, or sooner if you get tired. Do not interrupt compressions for more than 10 seconds.

- If the person is unresponsive but breathing normally: Look for injuries, such as bleeding, broken bones, burns, or anything out of the ordinary, and provide first aid as needed (refer to the First Aid section). Check for medical information jewelry, such as a bracelet or necklace. If they don't have any trauma or injuries, place them in the recovery position (refer to Recovery Position). Check to make sure that nothing is blocking their airway. Stay with them until emergency responders arrive.



Kneel beside the adult and scan the chest for breathing.



A rescuer leans over an adult to check for breathing.



Kneel beside the child and scan the chest for breathing.



A rescuer leans over a child to check for breathing.



Look at the infant's chest for signs of breathing.



A rescuer leans close to an infant to check for breathing.



Look for medical information jewelry, such as a bracelet on the person's wrist.

Using PPE Correctly

Use PPE if it's available. People rarely get an infection from providing first aid. But to be safe, treat all body fluids as though they can cause infections. If PPE isn't available, use your best judgment to give first aid. If anyone's blood touches you or gets in your mouth or eyes, clean it off as soon as possible. Be sure to let your workplace supervisor or emergency responders know about any exposure.

Actions to Take: Putting on PPE

1. Use PPE every time you provide first aid.
 - Wear medical gloves (nonlatex, if possible).
 - Wear goggles or safety glasses if the ill or injured person is bleeding or vomiting.
 - Use a face mask any time there's blood or body fluids or if there's a possibility of a respiratory infection.



Wear protective eyewear when providing care that may expose you to body fluids.

2. After you give first aid, be sure to remove your gloves properly.

Actions to Take: Removing Protective Gloves

1. Grip one glove on the outside, near the cuff, and peel it down until it comes off inside out.



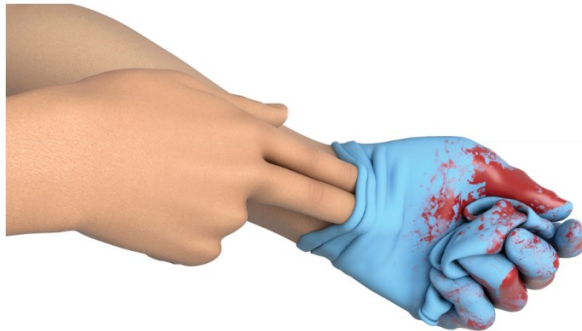
Pinch the outside of one contaminated glove near its cuff.

- 2.** Cup the used glove with your other, gloved hand.



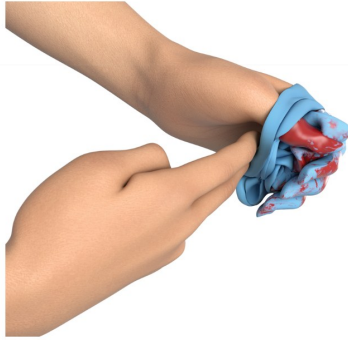
Peel the first glove off inside out and hold it in the other gloved hand.

- 3.** Place 2 fingers of your bare hand inside the cuff of the glove that's still on your other hand



Slide two bare fingers inside the cuff of the remaining glove without touching its contaminated exterior.

- 4.** Peel that glove off so that it comes off inside out, with the first glove inside of it



Peel off the second glove inside out, enclosing the first glove.

5. Dispose of the gloves in a hazardous waste container or trash bin or per your company's policies.



Discard the enclosed gloves into an appropriate waste container.



Alternative view of disposing of contaminated gloves in a waste container.

6. Thoroughly wash your hands immediately after removing the gloves.

Actions to Take: Washing Hands Well

1. Wet your hands with clean, warm water and apply soap.
2. Rub your hands together, and scrub all surfaces of your hands, including your fingers and the backs of your hands, for 20 seconds.



Wash all surfaces of the hands with soap and running water.

3. Rinse your hands with a lot of running water.

4. Dry your hands and turn off the faucet with a paper towel, if possible.

First Aid Fact

Hand sanitizer can also work if you don't have immediate access to soap and water. But if blood or body fluids get on your skin, washing with soap and water is best.

CPR and AED

This section covers the CPR and AED skills you learn about in your Heartsaver CPR AED Course.

Cardiopulmonary Resuscitation

A person in cardiac arrest is not responsive and not breathing or not breathing normally. They will not survive without CPR. CPR comprises 2 parts:

- 1. Providing compressions
- 2. Giving breaths

Compressions

Make sure that your compressions are deep enough and fast enough. Let the chest come all the way back up between compressions, and keep interruptions to no more than 10 seconds, even when you give breaths.

Actions to Take: Compressions

- 1. Make sure the person is lying faceup on a firm, flat surface.
 - If the person is seated, lying on a bed, or in a wheelchair, carefully slide them down onto the floor.
- 2. Quickly move any bulky clothes out of the way.
 - If you can't remove them, you can still provide compressions over clothing.
 - Position yourself beside the person and provide compressions at a rate of 100 to 120/min, counting out loud.
- 3. If someone else knows CPR, switch rescuers about every 2 minutes, or sooner if you get tired.

Table 2. Chest Compressions by Age

Adult

Hand placement: 2 hands Place the heel of one hand on the center of the person's chest, on the lower half of the breastbone. Put your other hand on top of the first one.

Your body position: Bend at the waist, keep your arms straight with your elbows locked, and position yourself directly over the person.

Rate: 100-120/min.

Depth: Push straight down at least 2 inches, or 5 cm (about the height of a credit card).

Chest recoil: As you release, let the chest return to its normal position after each compression.

Do not stop: Never interrupt chest compressions for more than 10 seconds.

Child

Hand placement: 1 hand Put the heel of one hand on the center of the child's chest, over the lower half of the breastbone but not over the bottom tip. 2 hands (for a larger child or if you can't push deep enough with 1 hand) Put the heel of one hand on the center of the child's chest, over the lower half of the breastbone. Put your other hand on top of the first hand.

Your body position: Bend at the waist, keep your arms straight with your elbows locked, and position yourself directly over the person.

Rate: 100-120/min.

Depth: Push straight down about 2 inches, or 5 cm (at least one third the depth of their chest or the height of a credit card).

Chest recoil: As you release, let the chest return to its normal position after each compression.

Do not stop: Never interrupt chest compressions for more than 10 seconds.

Infant

Hand placement: 2 thumbs (2 thumb- encircling hands technique) Place both thumbs side by side on the lower half of the infant's breastbone, just below the nipple line, while you encircle the infant's chest with the fingers of both your hands. 1 hand (heel-of-1-hand technique) Place the heel of 1 hand on the center of the infant's chest, just below the nipple line.

Your body position: Heel-of-one-hand: Same position as Adult and Child. Two-thumbs-encircling: Position so that you can have the infant between both hands.

Rate: 100-120/min.

Depth: Push straight about 1½ inches, or 4 cm (at least one third the depth of their chest).

Chest recoil: As you release, let the chest return to its normal position after each compression.

Do not stop: Never interrupt chest compressions for more than 10 seconds.

*Perform chest compressions for a pregnant person who is in cardiac arrest the same way you would for anyone else in cardiac arrest.

Hands-only CPR

When an adult or a teen collapses, anyone who is not trained in CPR or who is unwilling or unable to provide breaths should give Hands-Only CPR until advanced help arrives. They can also use Hands-Only CPR to take turns giving chest compressions with someone who's trained in CPR.

Hands-Only CPR comprises 2 simple steps:

1. Call 911.
2. Push hard and fast in the center of the chest.

However, you should include breaths with compressions whenever possible. This is especially true if the person's cardiac arrest might be caused by drowning, choking, or drug overdose or if the person is a child or an infant.

Urgent!

Hands-Only CPR is not recommended for children and infants. The American Heart Association recommends CPR with compressions and breaths for infants and children and victims of drowning, drug overdose, or people who collapse due to breathing problems.

Most important: Don't be afraid to act. CPR can save a person's life in an emergency.

Breaths

After each set of 30 compressions, give 2 breaths. When you give breaths, the chest should rise visibly. Try not to interrupt chest compressions for more than 10 seconds to give breaths.

Actions to Take: Breaths

1. Open the airway by putting one hand on the person's forehead and the fingers of your other hand under their chin.
 - Don't press into the soft area under the chin because this might block the airway.

Infants: Don't tilt the head back too far, but make sure you tilt it far enough to open the airway. Infants have small airways, so you don't need to tilt their head very far.



Open an adult's airway with one hand on the forehead and fingers of the other hand lifting the bony part of the chin.



Use a head tilt and chin lift to open a child's airway.

2. Tilt the head back and lift the chin to move their tongue away from the back of their throat. Don't tilt too far -just enough to open the airway.
3. Give breaths with or without a pocket mask or disposable barrier device.
 - A disposable barrier device looks like a sheet of plastic that lies over the person's face and has a filter for you to give breaths through.

Without a pocket mask

Adults and children

- Use your thumb and forefinger to pinch the person's nose closed.
- Cover the person's mouth with your mouth, being sure to get a good seal.

Infants

- Cover their mouth and nose with your mouth. If you have difficulty making an effective seal, try a mouth-to-mouth breath.
- Mouth-to-mouth technique: Use your thumb and forefinger to pinch the nose closed.



For infant breaths, make a seal with your mouth over the infant's mouth and nose.

With a pocket mask

Pocket masks come in different sizes for adults and children. If you need to put a pocket mask together before you use it, pop the mask into shape and attach the valve

- Put the mask over the person's mouth and nose. If the mask has a narrow end, place it on the bridge of the nose while the wide part rests on their chin.
- Tilt the head and lift the chin while pressing the mask against the person's face to make an airtight seal.



Pocket masks come in several sizes. An assembled mask has its valve attached.



An adult receives breaths through a pocket mask while the rescuer maintains the head tilt and chin lift.



A child receives breaths through a pocket mask that seals over the nose and mouth.



An infant receives breaths through a correctly sized pocket mask.

4. Take a normal breath and breathe into the person's mouth for 1 second. Do this twice, watching for the chest to rise with each breath. You should provide only enough breath to make the chest rise.

Infants: Small breaths work well on infants.

If the person's chest isn't rising

- Reposition the pocket mask (if you are using one) and ensure that there is a good seal.
- Let the head return to its normal position, and then use the head tilt-chin lift maneuver again while ensuring that there is a good seal.
- Give another breath.
- Return to compressions. Make sure that you are not pausing compressions for more than 10 seconds.

Automated External Defibrillator

Using an AED

Once an AED arrives on the scene, use it. You can use it on anyone in cardiac arrest, even someone who is pregnant. They are easy to use. All you have to do is turn it on and follow the prompts. An AED will only deliver a shock if one is needed.

CPR Tip

When you use an AED with CPR, you can double or even triple a person's chance of survival.

Actions to Take: Using an AED

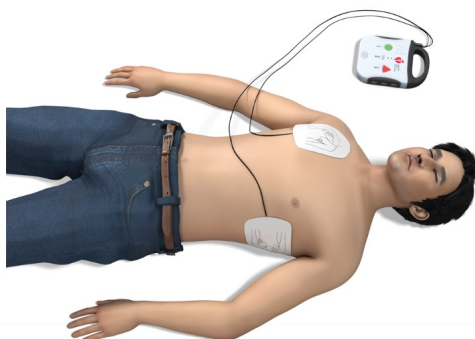
1. Remove any clothing covering the chest or where the AED pads will be placed.
2. Turn on the AED by pressing the On button, and follow the prompts.
 - Reminder: Some AEDs turn on automatically when you open them, and others require pressing the On button.



Turn on the AED using its On button and follow its spoken prompts.

3. Attach the pads by peeling the backing from the pads and placing them directly onto the bare skin of the person's chest. Follow the pictures on each pad for correct placement. Then, plug in the pads connector (if not already connected).

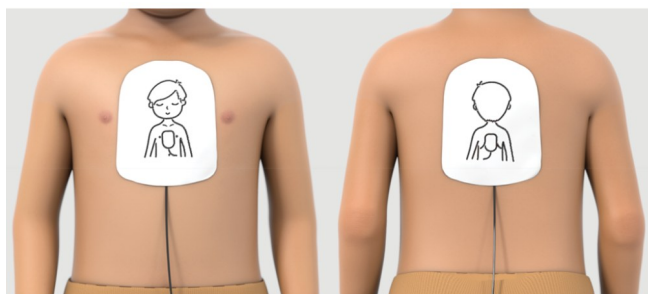
- The AED will alert you if the pads do not have good contact.



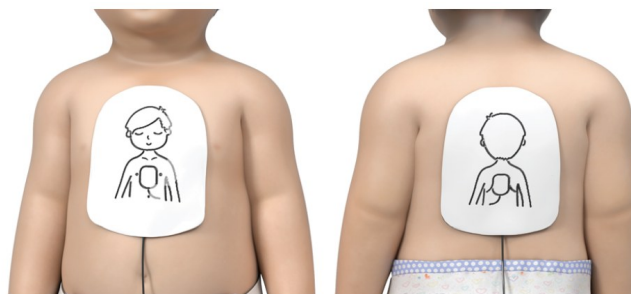
Adult AED pad placement: one pad on the upper right chest and the other on the lower left side of the chest.

Children and infants: Use child pads or a child cable, key, or switch if the child is younger than 8 years.

- If none of these are available, use adult pads.
- Make sure that the pads don't touch each other. If they do touch, move one pad to the center of the chest and the other to the center of the upper back.



If child AED pads would touch on the chest, place one at the center of the chest and the other at the center of the upper back.



Front and back AED pad placement on an infant keeps the pads from touching.

4. Let the AED analyze.

- Shout, "Clear!" and make sure that no one is touching the person.
- If the AED tells you that a shock is not needed, resume CPR.

5. Deliver a shock if needed.

- Shout, "Clear!" and make sure that no one is touching the person just before you press the Shock button.



Before delivering an AED shock, ensure no one is touching the person.

- 6.** After the shock is delivered, immediately resume CPR with cycles of 30 compressions and 2 breaths. After 2 minutes, the AED will analyze the heart rhythm again.
- 7.** Continue this cycle until emergency responders arrive or the person starts responding.



Resume chest compressions immediately after an AED shock.

Special Situations for AED Use

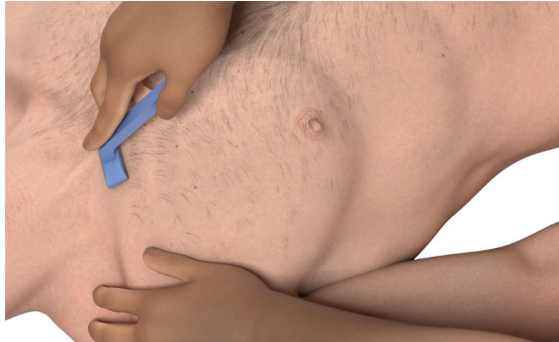
Some special situations affect how you should place the AED pads. Before you apply the pads, quickly scan the person to check for any special situations.

Actions to Take: Special Situations for AED Use

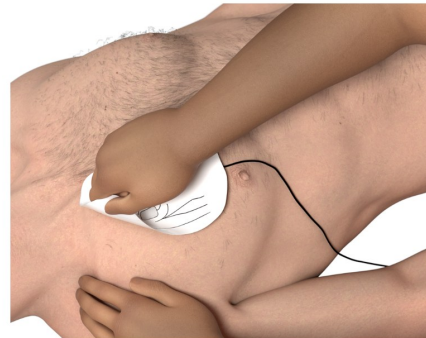
Hairy Chest

If the person has a hairy chest that may prevent pads from sticking, remove the hair in one of these ways:

- If you have a razor: Quickly shave the area where you will place the pads by using a razor, if the AED case has one.
- If you don't have a razor: If the AED comes with 2 sets of pads, use 1 set of pads to remove hair. Press down firmly and remove the pads forcefully. Reapply a new set of pads to the bare skin.



Use a razor, if available, to remove chest hair from the areas where AED pads will attach.



If the AED has two sets of pads and no razor is available, one set can remove chest hair; apply a new set afterward.

Jewelry

If the person is wearing jewelry: Either move it out of the way or place the AED pad next to it, making sure the pad is not touching it. You do not need to remove the jewelry

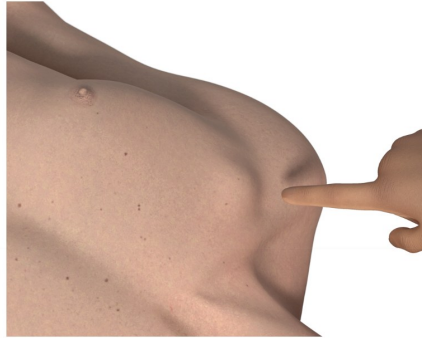


Jewelry can be moved out of the way; AED pads must not touch it.

Implanted Pacemaker

If the person has an implanted defibrillator or pacemaker: Don't put the AED pad directly over the implanted device

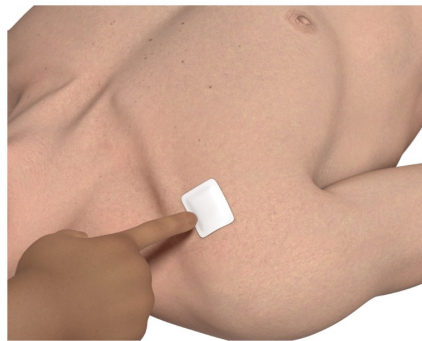
- Generally, pacemakers are easy to spot—look for a lump under the person's skin.
- Place the AED pad next to the lump, making sure the pad is not touching it.



A raised lump under the skin may indicate an implanted pacemaker or defibrillator; place the AED pad beside it.

Medicine Patch

If the person is wearing a medication patch that interferes with pad placement: Use gloves to remove the patch. Wipe off any excess medicine residue before you attach the AED pads to avoid burns or contact with the medication.



A medication patch on the chest must be removed with gloves if it interferes with AED pad placement.

Undergarments

If the person has undergarments covering the chest: Move or remove undergarments and any other clothes covering the chest so that they don't interfere with proper pad placement.

Water on or Near the Person

- If the person is lying in snow or a small puddle: As long as the person's chest is dry, you can safely use an AED on someone in a shallow puddle or snowy environment, or even on a metal surface.
- If there is sweat on the person's chest: Quickly wipe the chest dry before attaching the pads.



Wipe a wet or sweaty chest dry before attaching AED pads.

Table 3. Summary of CPR Steps

Check that the scene is safe

Check that the scene is safe and say aloud, "The scene is safe."

Tap and shout

Check for responsiveness by tapping the person and shouting, "Hey! Are you OK? Are you OK?"

Adults and children: Tap their shoulders.

Infants: Tap their foot.

Shout for help

Get help by shouting, "Help! Somebody, help me!" If others are nearby, they can help you. When help arrives, tell someone to call 911 and someone to get an AED. Say, "You! Call 911!" and "You! Get an AED!"

Check breathing

- Scan the person's chest for at least 5 but no more than 10 seconds.
- If the person is not breathing, not breathing normally, or is only gasping, start CPR immediately.

Children and infants: If you're alone and no one comes to help you, give 5 cycles of 30 compressions and 2 breaths before you leave to call 911 and get an AED if one is available.

This is especially important for a person of any age who you think experienced cardiac arrest because of a breathing problem due to drowning, choking, drug overdose, or something else.

- If the person is unresponsive but breathing normally, place them in the recovery position. Stay with them until emergency responders arrive.

Start CPR

Make sure the person is on a firm, flat surface.

Move bulky clothing out of the way.

Kneel or stand beside the person.

Push hard and fast, at a rate of 100-120 compressions per minute, in the center of the person's chest.

- After giving 30 compressions, give 2 breaths.

Use the AED

Use the AED as soon as it's available. Turn it on and follow the prompts.

Continue CPR

Continue performing cycles of 30 compressions and 2 breaths and using the AED until the person becomes responsive or emergency responders arrive. If someone else arrives to help, take turns providing chest compressions.

Figure 3 shows the fundamental steps to take to save a life in an emergency.

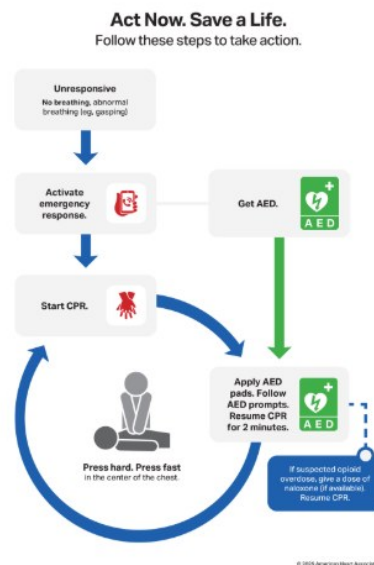


Figure 3. Act Now. Save a Life. If a person is unresponsive with no breathing or abnormal breathing such as gasping, activate emergency response and get an AED. Start CPR. Press hard and fast in the center of the chest. Apply AED pads and follow AED prompts. Resume CPR for 2 minutes and repeat the cycle. If opioid overdose is suspected, give naloxone if available and resume CPR. © 2025 American Heart Association.

Figure 3. Lay rescuer action steps.

Figure 3. Act Now. Save a Life. If a person is unresponsive with no breathing or abnormal breathing such as gasping, activate emergency response and get an AED. Start CPR. Press hard and fast in the center of the chest. Apply AED pads and follow AED prompts. Resume CPR for 2 minutes and repeat the cycle. If opioid overdose is suspected, give naloxone if available and resume CPR. © 2025 American Heart Association.

First Aid

First aid is the immediate care that you give to someone who has an illness or injury.

First Aid Kits

Class A kit: For homes or small workplaces

- Class B kit: For larger workplaces; has supplies for treating injuries that occur more often in workplaces with complex or high-risk environments (like warehouses, factories, and outdoor areas)

Table 4. Sample First Aid Kit Supply List*

Adhesive bandage

Minimum quantity - Class A kit: 16; Class B kit: 50. Minimum size or volume - US: 1 x 3 inches; Metric: 2.5 x 7.5 cm.

Adhesive tape

Minimum quantity - Class A kit: 1; Class B kit: 2. Minimum size or volume - US: 2.5 yd (total); Metric: 2.3 m.

Antibiotic application

Minimum quantity - Class A kit: 10; Class B kit: 25. Minimum size or volume - US: 1/57 oz; Metric: 0.5 g.

Antiseptic

Minimum quantity - Class A kit: 10; Class B kit: 50. Minimum size or volume - US: 1/57 oz; Metric: 0.5 g.

Breathing barrier device

Minimum quantity - Class A kit: 1; Class B kit: 1. Minimum size or volume - US: N/A; Metric: N/A.

Burn dressing (gel soaked)

Minimum quantity - Class A kit: 1; Class B kit: 2. Minimum size or volume - US: 4 x 4 inches; Metric: 10 x 10 cm.

Burn treatment

Minimum quantity - Class A kit: 10; Class B kit: 25. Minimum size or volume - US: 1/32 oz; Metric: 0.9 g.

Cold pack

Minimum quantity - Class A kit: 1; Class B kit: 2. Minimum size or volume - US: 4 x 5 inches; Metric: 10 x 12.5 cm.

Eye covering (with means of attachment)†

Minimum quantity - Class A kit: 2; Class B kit: 2. Minimum size or volume - US: 2.9 sq inches; Metric: 19 sq cm.

Eye/skin wash

Minimum quantity: Class A kit, 1 fl oz total (29.6 mL). Class B kit, 1 fl oz minimum per container (29.6 mL), with 4 fl oz total (118.3 mL). The source gives no separate US size or volume value.

Foil blanket

Minimum quantity - Class A kit: 1; Class B kit: 1. Minimum size or volume - US: 52 x 84 inches; Metric: 132 x 213 cm.

Hand sanitizer

Minimum quantity - Class A kit: 10; Class B kit: 20. Minimum size or volume - US: 1/32 oz; Metric: 0.9 g.

Medical exam gloves (preferably nonlatex)†

Minimum quantity - Class A kit: 2 pairs; Class B kit: 4 pairs. Minimum size or volume - US: N/A; Metric: N/A.

Roller bandage (2 inch)

Minimum quantity - Class A kit: 1; Class B kit: 2. Minimum size or volume - US: 2 inches x 4 yd; Metric: 5 cm x 3.66 m.

Roller bandage (4 inch)

Minimum quantity - Class A kit: 0; Class B kit: 1. Minimum size or volume - US: 4 inches x 4 yd; Metric: 10 cm x 3.66 m.

Scissors

Minimum quantity - Class A kit: 1; Class B kit: 1. Minimum size or volume - US: N/A; Metric: N/A.

Splint

Minimum quantity - Class A kit: 0; Class B kit: 1. Minimum size or volume - US: 4 x 24 inches; Metric: 10.2 x 61 cm.

Sterile pad

Minimum quantity - Class A kit: 2; Class B kit: 4. Minimum size or volume - US: 3 x 3 inches; Metric: 7.5 x 7.5 cm.

Tourniquet*

Minimum quantity - Class A kit: 1; Class B kit: 1. Minimum size or volume - US: 1 inch (width); Metric: 2.5 cm (width).

Trauma pad

Minimum quantity - Class A kit: 2; Class B kit: 4. Minimum size or volume - US: 5 x 9 inches; Metric: 12.7 x 22.9 cm.

Triangular bandage

Minimum quantity - Class A kit: 1; Class B kit: 2. Minimum size or volume - US: 40 x 40 x 56 inches; Metric: 101 x 101 x 142 cm.

Directions for requesting emergency assistance (including a list of important local emergency telephone numbers, such as the police, fire department, emergency medical services, and poison control centers)

Minimum quantity - Class A kit: 1; Class B kit: 1. Minimum size or volume - US: N/A; Metric: N/A.

Heartsaver First Aid CPR AED Student Workbook§

Minimum quantity - Class A kit: 1; Class B kit: 1. Minimum size or volume - US: N/A; Metric: N/A.

*This list follows American National Standards Institute standards; find more information at ansi.org.

†Personal protective equipment.

*The American Heart Association recommends a manufactured tourniquet for every first aid kit.

§Item that is in addition to those listed in the American National Standards Institute guidelines.

First Aid Topics

Common first aid topics are covered in this section. Some situations will require more training. At a minimum, you should feel comfortable calling 911 in an emergency. In serious emergencies, first aid can mean the difference between life and death.

Topics are alphabetized for quick access in an emergency. Refer to the Key Steps in an Emergency section and remember: In any first aid emergency, always check that the scene is safe, wear PPE, and get a first aid kit.

Allergic Reactions

About

Allergic reactions can be brought on by medications, insect bites and stings (especially bee stings), and foods (eg, dairy, nuts, eggs, seafood). Mild allergies are common, but a severe allergic reaction can quickly turn into a medical emergency.

Signs and Symptoms

Mild allergic reactions

- Sneezing
- Stuffy nose
- Itching around the eyes or on the skin
- Raised, red rash on the skin (hives)
- Severe allergic reactions
- Trouble breathing
- Swelling of the tongue or face
- Fast heartbeat
- Nausea
- Dizziness

Urgent!

Someone who has a severe allergic reaction needs help fast. You should call 911 and send someone to get the person's epinephrine autoinjector, a first aid kit, and an AED if one is available.

Actions to Take: Epinephrine Autoinjector

1. Hold the autoinjector in your fist without touching the tip, where there's a needle.
 - Epinephrine doses are different for children and adults, so be sure you are using the person's prescribed device.
2. Take off the safety cap. Have the person sit down while you hold their leg firmly in place.
3. Press the tip of the injector hard against the side of the person's outer thigh, about halfway between the hip and the knee.
 - Give the injection through the person's clothes or on their bare skin.



Hold the seated person's leg firmly and press the epinephrine autoinjector against the middle of the outer thigh.

4. Hold the leg still while the needle is in place. Follow the instructions on the device for how long to hold the needle in place.
5. Pull the autoinjector straight out. Don't touch the needle. Follow the manufacturer's recommendations for proper disposal.
6. Note the time.
7. Rub the spot where the injection was given for about 10 seconds.
8. When emergency responders arrive, tell them what time you gave the injection. You can give them the used epinephrine autoinjector for proper disposal. Report what caused the reaction (if known), or save a sample of what seems to have caused the reaction.
9. If the person doesn't get better or if emergency responders don't arrive within 10 minutes after you call them, consider giving a second dose, if available.
10. Watch for signs of cardiac arrest, and be ready to give CPR if needed (refer to the CPR and AED section).

Amputation

About

An amputation is a loss of a body part as a result of being cut or torn off.

First Aid Fact

Amputation can be traumatic and must be treated immediately. Surgeons may be able to reattach an amputated body part. After you control the bleeding, find the amputated part and take it with you, but don't delay treatment to look for the body part.

Actions to Take: Amputation

1. Check to make sure the scene is safe. Shout for help. Send someone to call 911 and get a first aid kit, a bleeding control kit, and an AED if one is available.
2. Control bleeding with direct pressure or a tourniquet (refer to the Bleeding, External topic).
3. Once the bleeding is under control, safely retrieve the amputated body part, if possible.
4. Rinse the amputated body part with clean water to remove dirt and debris.



Rinse an amputated body part with clean water to remove dirt and debris.

- 5.** Pat it dry; wrap it loosely with a clean, damp dressing; and place it in a clean, watertight bag.



Wrap the amputated part in a clean, damp dressing and place it in a watertight bag.

- 6.** Write the name of the injured person, the date, and the time on the bag.
- 7.** Place the sealed bag in a container filled with ice and water. Remember: Never place an amputated body part directly in ice and water without a plastic bag. The injured part can be harmed if directly exposed to water.



Put the sealed bag containing the amputated part into a container of ice and water.

- 8.** Make sure the amputated body part makes it to the hospital with the injured person.

Bites and Stings

About

Bites and stings can come from many sources. Stay away from animals or insects you don't normally interact with.

First Aid Fact

Wild animals, such as raccoons, skunks, foxes, snakes, marine animals, and especially bats, can spread rabies. Anyone who has been exposed to a bat should see a health care professional right away.

Urgent!

Call 911 if a person who was bitten develops symptoms throughout their body, such as difficulty breathing, dizziness, or confusion. Control the bleeding by applying pressure.

Actions to Take: Bites and Stings

1. Make sure that the scene is safe and that the animal or insect is no longer a threat.
2. Call 911 right away and get a first aid kit and an AED if the person
 - Has uncontrolled bleeding at the bite site
 - Shows signs of a severe allergic reaction
 - Develops breathing problems
 - Has symptoms that spread across their body
3. Remove any jewelry or restrictive clothing from the person's injured body part. Reminder: The body part will most likely swell after the injury.
4. Clean the affected area with soap and water, and control the bleeding (refer to the Bleeding, External topic). Keep the wounded body part as still as possible.
5. Apply ice wrapped in a towel to the affected area for up to 20 minutes.
6. Provide the person with over-the-counter pain medication.
7. Refer to the table in the Bites and Stings topic for information on specific types of bites and stings.

In addition to the steps listed in the Actions to Take: Bites and Stings section, take the following actions for specific types of bites and stings:

Table 5. Signs and Symptoms of and Actions to Take for Bites and Stings

Animal and human bites

Signs and symptoms

- Pain, broken skin, or bleeding
- Redness, swelling, or drainage

Actions to take

1. Clean the injured area.
2. Control the bleeding by applying pressure. Call 911 if you can't control the bleeding or if the bite wound is very large.
3. If the person was bitten by a pet, ask the owner about their pet's rabies vaccine status, and get their contact information.
4. Thoroughly wash the area, and follow up with a health care professional.

Insect, bee, and wasp bites and stings

Signs and symptoms

- Mild pain, itching, or local swelling
- Sometimes, severe allergic reaction

Actions to take

1. If a person has a known allergy to insect stings or has trouble breathing, facial swelling, or signs of shock

Call 911 and get a first aid kit and an AED if one is available

Watch the person for at least 30 minutes, even if you don't see immediate signs of an allergic reaction

Be prepared to use an epinephrine autoinjector (refer to the Allergic Reactions topic)

2. For a bee sting, remove the stinger. Scrape the stinger and venom sac away with the edge of something hard and flat that won't squeeze the venom sac, such as a credit card.

Spider bites and scorpion stings

Signs and symptoms

- Severe pain at the bite or sting site
- Muscle cramps
- Headache
- Fever
- Vomiting

- Breathing problems
- Seizures
- Unresponsiveness

Actions to take

1. If the person's wound worsens or they develop more symptoms after you followed the steps in Actions to Take: Bites and Stings, follow up with a health care professional.
2. Call 911 if
 - The person has trouble breathing
 - The person's symptoms spread throughout their body
 - The person becomes dizzy or confused
3. If the person becomes unresponsive and is not breathing or not breathing normally, start CPR and use an AED as soon as one is available (refer to the CPR and AED section).

Tick bites

Signs and symptoms

- Body of tick may still be attached to person's skin
- Redness, swelling, or bullseye-type rash around bite area
- Headache, muscle aches, fatigue

Actions to take

1. If the tick head or body is still attached, use tweezers to grab the tick as close to the person's skin as you can (never use heat).
2. Pull the tick straight out until the person's skin lifts and the tick lets go. Don't leave any of the tick's head or mouth parts under the skin.
3. Put the tick in a plastic bag to take with you when seeking medical care.
4. Wash the affected area well with soap and clean water.
5. Follow up with a health care professional if
 - The site of the tick bite does not heal or it gets redder and more swollen
 - The person develops flu-like symptoms
 - The person is in an area known for having tick-borne illnesses

Snakebites

Signs and symptoms

- Swelling of the bite area
- Increasing pain at the bite area
- Nausea
- Vomiting
- Sweating
- Weakness
- Paralysis

Actions to take

1. Treat any snakebite as if it was from a venomous snake. Call 911 and get a first aid kit and an AED if one is available.
2. Remove jewelry or tight-fitting clothing from the bite area.
3. Avoid moving the affected body part, and do not apply ice.
4. Do not touch the snake, attempt to suck out the venom, or apply a tourniquet.
5. Keep the person still until emergency responders arrive.
6. If the person becomes unresponsive and is not breathing or not breathing normally, start CPR and use an AED as soon as one is available (refer to the CPR and AED section).

Marine bites and stings

Signs and symptoms

- Pain (may be severe)
- Swelling
- Redness
- Bleeding
- Breathing problems
- Paralysis

Actions to take

1. Remove any stingers or tentacles with a gloved hand and a towel, or rinse with seawater.
2. After removing any stingers or tentacles, immerse the area in nonscalding, hot water or have the person shower in nonscalding, hot water for at least 20 minutes or for as long as the pain lasts.

3. Seek medical attention for any bite or sting that breaks the skin.
4. Call 911 if the person has
 - A severe allergic reaction

Been bitten while in an area known to have venomous marine animals

Difficulty breathing

Signs of shock

Severe pain

5. If the person becomes unresponsive and is not breathing or not breathing normally, start CPR and use an AED as soon as one is available (refer to the CPR and AED section).

First Aid Fact

The longer a tick stays attached to a person, the greater the chance that it could transmit a serious disease. Always remove ticks as soon as possible and wash the area with soap and water.

First Aid Fact

Snakes can bite even when they are hurt or close to death.

First Aid Fact

Even dead marine animals can sting. Avoid touching them.

Bleeding, External

Signs and Symptoms

Minor bleeding: Small amount of blood, easily controlled with pressure and an adhesive bandage

- Severe, life-threatening bleeding: Continuous, steady flow of blood and loss of a large volume (6 ounces, or about half a standard soda can, or more)

Urgent!

Bleeding can become severe for a person who is on a blood-thinning medication like aspirin. Uncontrolled bleeding can become life-threatening.

Actions to Take: Controlling Minor Bleeding

1. Put on clean, disposable gloves.
2. Wash the wound with soap and water.
3. Place a dressing, such as gauze or a sterile pad, on the wound.
4. Apply pressure until the bleeding stops.

5. Once the bleeding stops, put an adhesive bandage or rolled gauze over the dressing to keep it in place.
6. If the injury is deep or gaping or was caused by something dirty or contaminated, make sure the injured person gets medical help as soon as possible.

Actions to Take: Controlling Severe Bleeding With Direct Pressure

1. A Alert: Call 911 and send someone to get a first aid or bleeding control kit if available.
2. B Bleeding source: Determine the bleeding source by looking for the largest source of active bleeding.
3. C Control bleeding: Apply direct pressure on top of a dressing until the bleeding stops. If you have a hemostatic dressing, use it.
 - Put on clean, disposable gloves.
 - Place the dressing over the wound. Then, apply direct pressure by placing the palm of one hand over the dressing.
 - Put your other hand on top of the first hand and press down with firm, steady, and constant pressure
 - Do not stop applying pressure to replace the dressing or check on the wound. If the bleeding continues, add more dressings on top of the first and press harder.



Press firmly with both hands over a dressing on a bleeding wound.

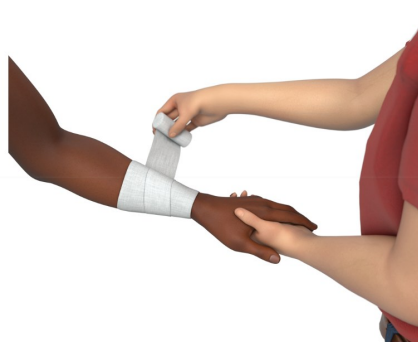


Place a clean dressing on the wound and apply pressure with the palm of one hand.



Place the other hand on top and maintain firm, steady pressure.

4. Once the bleeding is controlled, wrap a bandage tightly over the dressing to hold it in place.



Once bleeding is controlled, secure the dressing with a bandage.

5. The person may need stitches or a tetanus shot. They should see a health care professional as soon as possible.
6. If direct pressure doesn't control the bleeding and emergency responders haven't arrived yet, try packing the wound or using a manufactured tourniquet (refer to the next 2 Actions to Take sections).

Actions to Take: Controlling Severe Bleeding by Packing the Wound

1. Press more dressings or a clean cloth tightly into a wound anywhere on the body.



Pack dressings or a clean cloth tightly into a severe bleeding wound.

2. Apply direct pressure on top of the packed wound until emergency responders arrive or the bleeding stops



Maintain direct pressure over the packed wound.

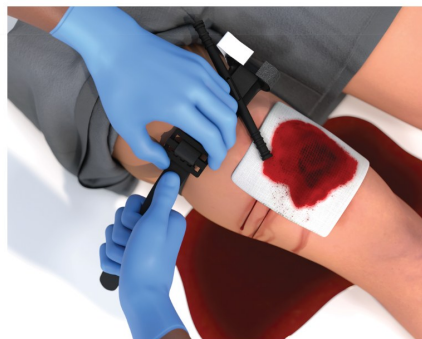
Actions to Take: Controlling Severe Bleeding on an Arm or a Leg With a Windlass Rod Tourniquet

1. Get the tourniquet from the first aid kit.
2. Place the tourniquet about 3 inches above the bleeding site closer to the heart. Never place a tourniquet on a joint.



Position the tourniquet above the bleeding site and prepare its strap and windlass.

3. Pull the free end of the tourniquet to make it as tight as possible and then secure it



Pull the tourniquet strap firmly to tighten it and secure the loose end.

4. Twist the windlass until the bleeding stops. This may cause the person pain, but it will slow or even stop blood loss.



Twist the windlass rod until the bleeding stops.

5. Secure the windlass and note what time you applied the tourniquet



Secure the windlass rod and fasten the tourniquet strap.



Write the application time on the tourniquet; the illustration shows 11:00.

6. If the tourniquet doesn't slow or stop the bleeding, apply a second tourniquet above the first, closer to the torso and heart.
7. Leave the tourniquet(s) in place until emergency responders arrive.

Bleeding, Internal, and Shock

About

Internal bleeding occurs when someone's blood vessels or organs are damaged and blood collects inside their body. Internal bleeding can be caused by blunt force trauma, like being struck on the torso with a baseball bat. It can also be caused by penetrating trauma, such as a gunshot wound or being impaled by a sharp object. People who take blood-thinning medications are at higher risk for internal bleeding after injuries.

Internal bleeding can lead to shock, which happens when the body's organs don't receive enough blood or oxygen to function properly due to severe infections, allergic reactions, heart problems, or severe bleeding.

Urgent!

Internal bleeding is life-threatening and needs to be treated in a medical facility. If you suspect internal bleeding, call 911 right away.

Signs and Symptoms

- Internal bleeding
- Known abdominal or chest injury, with or without pain
- Bruises
- Light-headedness
- Shortness of breath
- Restlessness
- Coughing up or vomiting blood
- Shock
- Rapid heartbeat
- Confusion
- Light-headedness
- Pale, cool, or sweaty skin

Actions to Take: Internal Bleeding and Shock

1. Call 911 and send someone to get a first aid kit and an AED.
2. If the person is responding and breathing normally, help them lie down. Keep them still to prevent further injury.
3. Keep the person warm. If it would not cause pain, place their feet on something that's about 6 to 12 inches off the floor.



A person with suspected internal bleeding or shock lies on their back and is covered to stay warm.

4. If the person is breathing normally but is showing decreased responsiveness or is vomiting, or if you need to leave them to go call 911, place them in the recovery position (refer to Recovery Position).

5. If the person becomes unresponsive and stops breathing or stops breathing normally, start CPR and use the AED (refer to the CPR and AED section).

Breathing Problems, Asthma

About

Asthma is a medical condition in which the airways in the lungs become swollen and narrow, making it difficult to breathe.

Signs and Symptoms

- Fast or slow breathing
- Cough
- Trouble with every breath
- Noisy breathing (like with a wheeze or rattling sound)
- Difficulty speaking more than a few words at a time
- Pale, bluish, or grayish coloring

First Aid Fact

Breathing problems can be caused by an allergic reaction or a chronic medical condition, such as asthma. If you have a rescue inhaler or an epinephrine autoinjector, always carry it with you.

Actions to Take: Breathing Problems Due to Asthma

1. Ask, "Do you need help?" If the answer is yes, ask, "Do you have medicine?"

Children: Stay calm and soothe the child. Crying can make asthma worse.

2. If the person has medicine, like a rescue inhaler, help them use it (refer to Actions to Take: Inhaler Assembly and Use).
3. Call 911 and get an AED if the person
 - Has no medicine

Does not get better-or gets even worse-after using their medicine

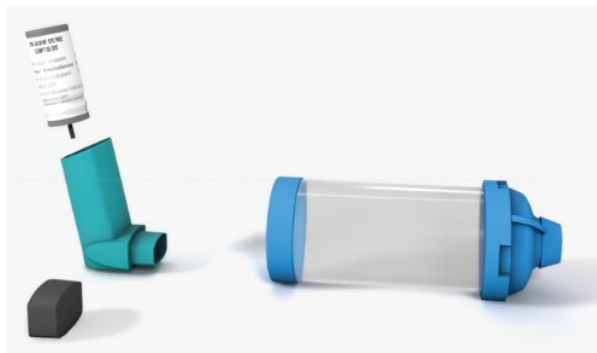
- Has trouble speaking

Becomes unresponsive

4. If the person stops breathing or stops breathing normally, start CPR and use an AED as soon as one is available (refer to the CPR and AED section).
5. Stay with the person until emergency responders arrive.

Actions to Take: Inhaler Assembly and Use

1. Remove the cap and shake the inhaler well.
2. If the inhaler has a spacer, attach it to the mouthpiece



Parts of an inhaler and spacer: medicine canister, inhaler body, cap, and spacer chamber.

3. Have the person breathe out all the way. This may be difficult during an asthma attack.
4. Place the mouthpiece between their teeth, and have them seal their lips around it



An adult places the spacer mouthpiece between the teeth and seals the lips around it.



A child seals the lips around a spacer mouthpiece while using an inhaler.

5. As they start to breathe in, press down on the inhaler canister once.
 - Have them breathe in slowly and deeply for 5 seconds.
6. Have them hold their breath for up to 10 seconds to allow the medicine to reach their lungs.
7. Repeat steps 3 through 6 for each puff indicated on the inhaler (typically 2 puffs total).
8. Replace the cap on the inhaler.

Broken Bones and Sprains

About

A fracture is a break in a bone. A sprain is a stretch or complete tear in a ligament (a thick, tough tissue that connects 2 bones).

Signs and Symptoms

Some broken bones are easy to identify, especially when they are visibly out of place or misshapen. Other breaks may be less obvious, showing only pain, bruising, or swelling; these symptoms are similar to those of sprains and strains, so the break may only be able to be identified by an x-ray.

Actions to Take: Broken Bones and Sprains

1. Keep the injured body part still.
2. If there's severe bleeding, control the bleeding by applying pressure to the wound.
3. Cover the injury with a clean towel. Then apply ice on top of the towel.



Apply a cold pack wrapped in cloth over the injured area.

Severe injury

- Call 911 right away if

A bone is protruding through the skin

There's heavy bleeding

- Keep the injured body part still until emergency responders arrive.

Less severe injury

- Splint the injury yourself (refer to Actions to Take: Applying a Splint).

First Aid Fact

If you need to move the person, splint the injury before you do to protect the injured body part from further injury. Do not try to straighten the injured body part.

Actions to Take: Applying a Splint

1. Find something to use as a splint to keep the injured body part from moving.
 - Use rigid, supportive materials, such as a piece of wood. If nothing's available, splint the body part against the rest of the person's body.

2. Use a splint that is longer than the injury. It should be long enough to immobilize the joints above and below the injury. Adjust the splinting material to the correct length, and pad any hard surfaces.



A padded splint supports the lower leg and extends beyond the injury to immobilize nearby joints.

3. Control any bleeding as needed (refer to the Bleeding, External topic).
4. Apply the splint. Use tape, gauze, or another material that can be used to secure it.
 - The splint should be snug but not so tight that it cuts off circulation. If the area below the splint gets numb, cold, or discolored, loosen the splint.
5. Keep the limb still until the injured person can be seen by a health care professional.



A splint secured with a bandage supports an injured forearm.

Burns: Heat, Electrical, and Chemical

About

Heat burns can be caused by exposure to fire, hot liquids, steam, or the sun.

Electrical burns occur when an electrical current passes through the body, which can lead to severe external and internal damage and even cardiac arrest.

Chemical burns happen when skin or eyes come into contact with an irritant and can affect a person both externally and internally if the irritant is ingested.

First Aid Fact

Putting ice directly on a burn can damage the burned area. Use only cool water and clean dressings on a burn. If available, you can also apply antibiotic ointment or petroleum jelly to the burn and provide over-the-counter pain medications for minor pain control.

Actions to Take: Small Heat Burns

1. Run cold (but not freezing) water on the burn for at least 5 minutes. If you do not have cold water, use a clean, cool or cold (but not freezing) compress.



Cool a small heat burn under cool running water.

2. If there is any available, apply antibiotic ointment or petroleum jelly to the burn and provide over-the-counter pain medications for minor pain control.
3. Cover the burn with a dry, clean dressing.



Cover the cooled burn with a dry, clean dressing.

4. See a health care professional as soon as possible.

Urgent!

Seek immediate medical treatment for burns that are larger than the palm of the hand or that are on the face, hands, feet, or genitalia. Stop cooling the burn and wait for emergency responders if the person becomes cold, starts to shiver, or becomes drowsy.

Actions to Take: Large Heat Burns

1. If the person or their clothing is on fire, have them stop, drop, and roll. Then, immediately cover them with a wet blanket.
2. If you can, carefully remove jewelry and clothing that is not stuck to the skin from the burn area.
3. Run cold water over the burn for at least 5 minutes.
4. After cooling, cover the burn with a dry, clean dressing.
5. Cover the person with a dry blanket to prevent shock (refer to the Bleeding, Internal, and Shock topic for signs of shock).
6. Make sure the injured person sees a health care professional as soon as possible.

Urgent!

Don't touch someone who is still touching a power source because electricity can travel through the person to you. Turn the power off first-but only if it's safe to do so.

Actions to Take: Electrical Burns

In addition to the Actions to Take for small and large heat burns, take these actions:

1. Make sure the power is turned off before you approach the injured person.
2. Call 911 immediately and get a first aid kit and an AED.
3. When it is safe to touch the person, check whether they need CPR (refer to the CPR and AED section).
 - If the person is responsive: Stay with them until emergency responders arrive.
 - If the person doesn't respond and is not breathing or not breathing normally: Start CPR and use an AED as soon as it's available.
4. A health care professional should check anyone who has an electrical injury as soon as possible.

Actions to Take: Chemical Burns

1. Call 911 and get a first aid kit and an AED.
 - After you've called 911, you can call poison control at 1-800-222-1222 or visit poisonhelp.org.
2. Using appropriate PPE, remove all contaminated clothing and equipment while making sure to not get the chemical on yourself.
3. Unless otherwise recommended, flush the injured area with clean running water for at least 15 minutes.
4. Cover the burn with a clean, dry dressing and bandage loosely.
5. Follow up with a health care professional.

First Aid Fact

When someone is exposed to a chemical at work or school, consult the workplace safety data sheet and contact on-site safety personnel to determine the chemical or chemicals involved as well as proper response.

Choking: Responsive Adult, Child, or Infant

Signs and Symptoms: Mild Airway Block

- Able to breathe, speak, make sounds, or cough loudly

Actions to Take: Mild Airway Block

1. Stand by and encourage the person to cough. Continue to check for signs of severe airway block.
2. Call 911 if you're concerned about their breathing.

Signs and Symptoms: Severe Airway Block

- Struggling to breathe, speak, make sounds, cry, or cough
- Discolored face
- Tearing up
- Severely drooling
- Grabbing at the throat with their hands



An adult with severe choking may grasp their throat with both hands.



A child with severe choking may grasp their throat and be unable to speak or breathe.

Actions to Take: Severe Airway Block in an Adult or Child

1. Ask, "Are you choking? Can I help?"
2. If the adult or child nods yes, stand firmly or kneel behind them. If someone else is nearby, have them call 911 and get an AED if one is available.
3. Put one foot (or one knee if you are kneeling) in front of the other to give yourself a steady base.

4. Place one hand on the person's shoulder.
5. Bend them slightly forward and use the heel of your other hand to give them 5 forceful back blows between the shoulder blades.



For adult back blows, support the chest, lean the person forward, and strike between the shoulder blades with the heel of the hand.



For a child, bend the child forward and give back blows between the shoulder blades.

6. If the back blows don't clear the airway, give 5 abdominal thrusts. To do this
 - Stand or kneel with your legs shoulder-width apart, with one leg slightly forward.
 - Wrap your arms around the person's waist so that your hands are in front.
 - Make a fist with one hand and place it thumb side against the person's abdomen, just above the belly button and well below the breastbone
 - Grab your fist with your other hand and give quick, inward and upward thrusts to the abdomen. Make sure your thrust goes upward and not straight backward.



For abdominal thrusts, stand behind the adult and grasp a fist placed slightly above the belly button and below the breastbone.



For child abdominal thrusts, position yourself behind the child and place the fist above the belly button and below the breastbone.

7. Alternate between giving 5 back blows between the shoulder blades and 5 abdominal thrusts until the object is forced out and the person can breathe, cough, or speak or until they become unresponsive.
8. If they become unresponsive, start CPR (refer to the Choking: Unresponsive Adult, Child, or Infant topic).

Actions to Take: Alternative to Abdominal Thrusts

If you can't wrap your arms fully around the person's waist, such as if the person is large, pregnant, or in a wheelchair

1. Place your arms under the person's armpits and your hands in the center of their chest.
2. Make a fist with one hand and place it thumb side against the person's chest on the lower half of the breastbone.



Use chest thrusts when you cannot encircle the abdomen or the person is pregnant: place the fist at the center of the chest.



Grasp the fist with the other hand and give straight-back chest thrusts.

3. Pull straight back to give chest thrusts.

Actions to Take: Severe Airway Block in an Infant

If someone else is nearby, have them call 911 and get an AED if one is available.

2. Place the infant facedown on your forearm.
3. Support their head and jaw with your hand, and rest your forearm on your lap or thigh to support their body. Make sure their head is lower than the rest of their body.
4. With the heel of your free hand, give 5 firm back blows between the infant's shoulder blades



For infant back blows, support the head and jaw with the infant facedown along your forearm and the head lower than the chest.

5. If the object does not come out after 5 back blows, give 5 chest thrusts. To do this

- Place your free hand on the infant's back. Support the back of the infant's head with the palm of that hand.
- While cradling the infant between your forearms, turn the infant over with the palm of one hand supporting the face and jaw and the palm of the other hand supporting the back of the infant's head.
- Hold the infant faceup, with your forearm resting on your thigh. Keep the infant's head lower than their chest.
- Give 5 chest thrusts by firmly pressing the heel of one hand on the lower half of the infant's breastbone, just below the nipple line but not over the bottom tip of the breastbone. Be sure to use a rate of 1 thrust per second.



For infant chest thrusts, support the infant faceup with the head lower than the chest and press with the heel of one hand on the lower half of the breastbone.

6. Alternate between giving 5 back blows and 5 chest thrusts until the object comes out or the infant becomes unresponsive.
7. If they become unresponsive, start CPR (refer to the Choking: Unresponsive Adult, Child, or Infant topic).

Urgent!

Never give abdominal thrusts to an infant. Doing so can cause serious harm.

Choking: Unresponsive Adult, Child, or Infant

Signs and Symptoms

- No response to tapping and shouting
- Not breathing or only gasping

Urgent!

Do not reach into the choking person's mouth if you can't see the object. You can accidentally push the object in deeper and make things worse.

Actions to Take: Choking Person Who Becomes Unresponsive

1. Position the person faceup on a firm, flat surface while you have someone call 911 and get an AED if one is available.
2. Start CPR and use the AED as soon as it's available (refer to the CPR and AED section).
3. After giving 30 chest compressions, look into the person's mouth to check if the object has come out. If you can see an object, take it out.



Before giving breaths to an unresponsive choking person, open the mouth and remove an object only if you can see it.

4. Give 2 breaths and then repeat 30 compressions.
5. Continue cycles of giving 30 compressions, checking the mouth for the object, and giving 2 breaths until
 - Emergency responders arrive
 - The person starts responding and breathing normally

First Aid Fact

No matter what, anyone who has severely choked should be seen by a health care professional.

Cold-Related Emergencies: Frostbite and Hypothermia

About

Frostbite occurs when a small, unprotected area of the body freezes due to exposure to an extremely cold environment or substance like dry ice or liquid nitrogen. It most commonly affects fingers, toes, ears, and the nose.

Hypothermia happens when a person's body temperature drops significantly due to prolonged exposure to cold, wet conditions.

Signs and Symptoms

Frostbite

- The person has waxy, pale, or discolored skin or cold, numb skin

- The frostbitten area is hard and will not move when you push on it
- Hypothermia
- Mild: The person is slow to respond, has skin that is cool or cold to the touch, or shivers (but stops when the body temperature becomes very low)
- Moderate: The person is confused; shows unusual behavior; has lack of coordination; responds only to loud voices or pain; has stiffened muscles; or has cold, pale skin, especially in the hands and feet
- Severe: The person is unresponsive, stops shivering, has a slowed heart rate and breathing, or experiences cardiac arrest

Hypothermia progression: mild → moderate → severe.

Actions to Take: Frostbite

1. Get the person to a safe, warm place.
2. If the person is hypothermic, address the hypothermia before you rewarm the frostbitten body part (refer to Actions to Take: Hypothermia).
3. Remove any wet or tight clothing, and pat the skin dry.
4. Keep the person warm.
5. Remove any jewelry from the frostbitten area.
6. Put the affected body part in lukewarm (not hot) water. If there is no warm water available, apply body heat or expose the area to warm air.
7. Provide over-the-counter medication, such as ibuprofen, for minor pain and swelling.
8. Make sure the person follows up with a health care professional.

Urgent!

Do not attempt to rewarm a frostbitten body part if there's a chance of it refreezing. Never rub the frostbitten skin to warm it up because this might cause more damage.

Actions to Take: Hypothermia

1. Move the person to a safe, warm place.
 - If they are showing signs of mild hypothermia, rewarm them and make sure that they see a health care professional as soon as possible.
 - If they are showing signs of moderate or severe hypothermia, call 911 and continue to the next step.
2. Remove any wet clothing from the person. Pat them dry and cover them with a blanket.

3. Have the person sit near a heat source, like a fireplace or heater, if available. If you can't get to a warm place right away and the person is dry, don't remove their clothing.
4. Wrap them in a blanket or thermal foil blanket.
5. Stay with the person until emergency responders arrive.
6. If the person becomes unresponsive and is not breathing or not breathing normally, start CPR and use an AED if one is available (refer to the CPR and AED section).

First Aid Fact

Hypothermia can occur even in temperatures above freezing, particularly when someone is wet or in water.

Diabetes

About

Diabetes is a disease that affects the level of sugar in the blood and how the body processes food and turns it into energy. People with diabetes produce little to no insulin, a hormone that the body uses to process blood sugar as needed after eating.

Blood sugar levels that are too high or too low can cause serious health problems and should be monitored. This is simple to do with glucose monitors.

Low blood sugar can occur when someone with diabetes exercises, hasn't eaten enough, is vomiting, has an illness, is exposed to extremely hot weather, or has taken too much of their diabetes medication. Puberty can also affect blood sugar levels.

Signs and Symptoms

- Confused
- Weak
- Shaky
- Sweaty
- Seizure, in some cases

First Aid Fact

Measuring a person's blood sugar using a standard glucose monitor involves pricking their skin with a needle and testing a small sample of their blood. Another way to monitor blood sugar is by using a continuous glucose monitor, which is a sensor placed under the skin that sends an alert to a device when blood sugar levels are too high or too low. A continuous glucose monitor can also be part of an insulin pump, which is a device that some people with diabetes use to take insulin as a medication.

Actions to Take: Low Blood Sugar

1. Help the person sit down slowly if they're standing.
2. If the person is responding and can sit up and swallow, have them eat or drink something with sugar, such as
 - Glucose tablets
 - Six to 8 ounces of fruit juice or regular soda
 - A tablespoon of honey or table sugar
 - Fifteen to 25 jelly beans or gummy bear-type candies
3. For a person who is awake but doesn't want to eat anything, place a sugar-and-water mixture under their tongue or inside their cheek.
 - Never force a person who isn't fully awake to eat something because they might choke.
4. If the person can't sit up or swallow, help them sit or lie down and then call 911.
5. If the person becomes unresponsive and is not breathing or not breathing normally, start CPR while you have someone call 911 and get an AED if one is available (refer to the CPR and AED section).

Drowning and Water Competency

About

Water competency is the ability to anticipate, avoid, and survive common drowning situations. It involves developing water skills, being water smart, and helping others. Skills like treading water, floating, swimming, and knowing how to enter and exit the water help to keep you safe around bodies of water.

You can be water smart by

- Having pool fences at least 4 feet tall that have self-closing and self-latching gates
- Making sure that children take swimming lessons and wear a US Coast Guard-approved life jacket around open water
- Closely watching small children around water (stay within arm's length of beginning swimmers)

However, the best way to help prevent a water emergency is to use a combination of interventions and to never swim alone.

First Aid Fact

Drowning can occur in just a few inches of water, especially with infants, so make sure you're paying attention when you're supervising children around water!

Actions to Take: Drowning

1. Check that the scene is safe.
2. Shout for help and send someone to call 911 and get an AED if one is available.
3. Extend a rope, pole, or flotation device to the drowning person to grab onto, but be sure to stay out of the water yourself.
4. If you can do so without putting yourself in danger, move the person to shallow water or out of the water completely, ideally with the person faceup and their head above water.
5. If the person is not responding and not breathing or not breathing normally, open their airway by tilting their head and lifting their chin and then give 2 breaths.
6. If you can't give mouth-to-mouth breaths, give mouth-to-nose breaths instead.
7. Don't worry about clearing any water that the person may have breathed in.
8. After giving 2 breaths, check to see if the person is breathing and responding. If not, start CPR and use an AED as soon as it is available (refer to the CPR and AED section).
9. Make sure the person is completely out of the water, and quickly wipe their chest dry before you apply the AED pads.
10. Continue giving CPR with breaths and using the AED until someone else takes over, emergency responders arrive, or the person starts to breathe or respond.

Urgent!

Keep in mind that someone who dove into a shallow pool or water with hazards, like stumps or rocks, could have a head or spine injury. Refer to the Head, Neck, and Spine Injuries topic for information on how to care for these possible injuries.

Eye Injuries

About

Eye injuries can be caused by debris, such as sawdust or sand; physical objects, such as sticks or pencils; and chemicals.

For actions to take for a chemical eye injury, refer to the Poison Emergencies topic. Continue reading for information on physical eye injuries.

Signs and Symptoms

Redness

- Swelling
- Bruising
- Bleeding pain

- Vision loss

Actions to Take: Physical Eye Injuries

1. Call 911 and have the injured person keep their eyes closed if
 - The eye has been punctured
 - The person is in extreme pain
 - The person has vision loss
2. If something small, such as sand, is in the eye, rinse the eye in an eyewash station or with tap water.



Rinse an injured eye with cool tap water, saline, or an eyewash station.

3. Don't let the person rub their eyes.
4. If the person wears contact lenses, remove them.
5. Stay with the injured person until help arrives.

Fainting

About

Fainting happens when there isn't enough blood getting to the brain, such as when someone stands for too long without moving, especially in hot weather; when someone stands up too quickly after sitting, squatting, or bending down; or as a result of low blood sugar, dehydration, or another medical condition.

Signs and Symptoms

- Feeling dizzy and then becoming unresponsive for a short time until blood flow to the brain returns to normal; then, starting to wake up and feel better

First Aid Fact

Fainting does not typically cause a person to stop breathing, but you should still check.

Actions to Take: Helping Someone Who Fainted

1. Make sure the person is lying on their back. Do not move them if you suspect a head or spine injury.
2. Check for responsiveness, breathing, and injuries if the person fell.
3. If the person is responsive: Have them continue lying down until they feel normal, and then help them slowly sit up.
4. If the person is unresponsive for more than 1 minute but is breathing normally: Call 911 and stay with them.
5. If the person is unresponsive and not breathing normally: Start CPR right away and call 911 (refer to the CPR and AED section).

Actions to Take: Preventing Fainting or Helping Someone Who Is Dizzy but Responsive

Help the person sit on a chair or lie faceup, flat on the floor

- If they are sitting, have them bend forward and put their head near their knees.



Help a responsive person who feels faint lie flat on the floor.



If the person cannot lie down, help them sit and bend forward with the head near the knees.

2. Don't let them get up too quickly. Help them get up slowly if they feel alert and are breathing normally.



Support the person as needed and stay with them while they recover.

3. Call 911 and get a first aid kit and an AED if the person continues to feel dizzy or faints more than once.

Fever

About

Fever can be caused by an illness or infection and sometimes by a bite or sting from a venomous spider, a scorpion, or certain marine animals.

Actions to Take: Fever

1. Take the person's temperature with a thermometer.

Children: Use a thermometer that is not made of glass.

2. Give medicine to reduce fever per package directions or as directed by a medical professional.

Children: Give medicine only if a parent, caregiver, or health care professional tells you to give it and approves the medicine.

3. Keep the person away from others.

4. Call 911 if the person

- Has a seizure
- Has trouble breathing
- Is hard to wake up
- Shows signs of dehydration or shock (refer to the Heat-Related Emergencies: Dehydration, Heat Cramps, Heat Exhaustion, and Heat Stroke and Bleeding, Internal, and Shock topics)

Urgent!

Never give aspirin to a child who has a fever unless directed to do so by a health care professional. Giving aspirin to a child can lead to serious medical conditions.

Head, Neck, and Spine Injuries

About: Head Injuries and Concussions

A concussion happens when the head or the body is hit so hard that the brain moves forcefully inside the skull, potentially damaging the brain. Symptoms might not appear for hours or even days, which makes concussions especially dangerous. Concussions are more common in children, teenagers, and older adults, but they can happen to anyone.

Concussions and other head injuries can be caused by accidents like falls from a height, blows to the head, or automobile or bike accidents (especially if the person isn't wearing a helmet).

Signs and Symptoms: Head Injuries and Concussions

Confusion

- Dizziness
- Headache
- Difficulty concentrating or remembering
- Nausea
- Vomiting
- Trouble seeing or moving
- Light and noise sensitivity
- Changes in personality
- In some cases, seizure or loss of consciousness

Urgent!

If a person with a head injury shows a change in consciousness, worsening signs or symptoms, or other cause for concern, this may be a sign of a serious injury. If they become unresponsive, call 911 and be prepared to give CPR and use the AED if one is available (refer to the CPR and AED section).

Actions to Take: Head Injury or Concussion

1. Have the person stop all activity.
2. Make sure they're seen by a health care professional for evaluation.
3. They should not resume any physical activity until they're told it's OK by a health care professional.

About: Neck and Spine Injuries

Damage to the spinal cord can cause loss of feeling, function, and mobility in different parts of the body, which is why neck and spine injuries are so serious.

Spine injuries can be caused by accidents like falls from a height, blows to the head, automobile or bike accidents (especially if the person isn't wearing a helmet), or diving into a pool or other body of water with hazards.

Signs and Symptoms: Neck and Spine Injuries

- Tingling, numbness, or weakness in the arms or legs
- Pain in the head, neck, or back
- Inability to move a part of the body

First Aid Fact

If you have to move a person with a neck or spine injury, avoid twisting their head or neck to prevent any further damage. Have someone help you, if possible. Move the person carefully, making sure to keep their head, neck, and spine aligned.

Actions to Take: Neck or Spine Injury

1. Call or have someone else call 911 and get a first aid kit and an AED if one is available.
2. Have the injured person remain as still as possible.
3. Do not try to move the person unless they are
 - In danger
 - Vomiting
 - At risk of choking
 - In need of CPR
4. Stay with them until emergency responders arrive.
5. If the person becomes unresponsive and is not breathing or not breathing normally, start CPR and use an AED if one is available (refer to the CPR and AED section).

A person with a neck or spine injury should not use heavy machinery, play sports, or drive until a health care professional says it's OK.

Heart Attack

About

A heart attack is a blood-flow problem that occurs when a clot or blockage forms in a blood vessel in the heart, stopping oxygen-filled blood from reaching the heart muscle. When this happens, a part of the heart muscle starts to die from lack of oxygen, and the heart can't pump enough blood throughout the body. Without treatment, this can lead to cardiac arrest.

Difference Between a Heart Attack and Cardiac Arrest

Cardiac arrest is when the heart stops beating and no longer pumps blood or oxygen to vital organs. It usually starts with someone becoming unresponsive and collapsing. They can then look like they're having a seizure. They will stop breathing or only gasp.

You should always perform CPR on a person in cardiac arrest.

Signs and Symptoms

- Chest discomfort, usually in the center of the chest and lasting more than a few minutes and perhaps lessening and returning; can feel like uncomfortable pressure, squeezing, fullness, or pain that can be mistaken for heartburn or indigestion

- Discomfort or pain in one or both arms, upper back, neck, jaw, shoulder, or stomach
- Shortness of breath (with or without chest discomfort)
- Cold sweats
- Nausea
- Light-headedness
- Extreme tiredness or fatigue
- More subtle symptoms that may not include chest pain (especially for female persons, people with diabetes, and older adults)

Urgent!

A heart attack is a time-sensitive emergency. Treatment can begin on the way to the hospital to lessen the damage to the heart. If a heart attack is left untreated, it can lead to cardiac arrest. If you suspect a heart attack, call 911 right away—even if the person is unsure that they need it.

Actions to Take: Heart Attack

1. Call or have someone else call 911 and get a first aid kit and an AED. Make sure that the person stays calm and rests.
2. If the person you're helping doesn't have an allergy to aspirin, serious bleeding, or signs of a stroke, have them chew and swallow 1 adult aspirin or 2 to 4 low-dose aspirins.
3. If the person becomes unresponsive and stops breathing or stops breathing normally be prepared to start CPR and use an AED (refer to the CPR and AED section).

Heat-Related Emergencies: Dehydration, Heat Cramps, Heat Exhaustion, and Heat Stroke

About

Heat-related emergencies can be caused by working, playing, or training in extreme heat or by loss of water or fluids through heat exposure, too much exercise, or decreased fluid intake. Remember, people very young or very old are more susceptible to heat and fluid loss.

Heat illness progression: dehydration → heat cramps → heat exhaustion → heat stroke.

First Aid Fact

The best first aid for dehydration is prevention. Encourage everyone to drink enough to stay hydrated, especially children, because they may not take the time on their own to stay hydrated.

Table 6. Signs and Symptoms of and Actions to Take for Heat-Related Emergencies

Dehydration

Signs and symptoms

- Weakness
- Thirst
- Dry mouth
- Chapped lips
- Dizziness
- Less urination than usual
- Confusion

Actions to take

1. Move the person to a cool, shaded place to rest.
2. Have the person slowly drink water, juice, or a sports drink.

If drinking makes them vomit, they should stop immediately.

Heat cramps

Signs and symptoms

- Painful muscle spasms or cramps, most often in the arms, legs, abdomen, and back

Actions to take

1. Have the person stop all activity, move out of the heat, and remove extra clothing.
2. Place a cool cloth on the person's skin.
3. Give the person a sports drink, juice, or water to drink.
4. Help the person gently stretch the cramped muscle.
5. If they can tolerate it, apply a bag with ice and water wrapped in a towel to the cramping area for up to 20 minutes.

Heat exhaustion

Signs and symptoms

- Weakness
- Fainting
- Fatigue

- Muscle cramps
- Headache
- Nausea
- Vomiting

Actions to take

1. Move the person to a cool, shaded place.
2. Give them a sports drink, juice, or water to drink.
3. Remove as much of their clothing as possible.
4. Cool them with a cold-water spray or cool, damp cloths on their neck, armpits, and groin.

If they begin to shiver, stop cooling them.

5. If the person doesn't get better, call 911 and get an AED if one is available.

Heat stroke

Signs and symptoms

- Similar signs and symptoms to heat exhaustion, but much more severe
- Lack of sweating
- Slurred speech
- Confusion
- Agitation
- High fever
- Seizures
- Coma

Actions to take

1. Have someone call 911 and get an AED while you stay with the person.
2. If the person is responsive and breathing normally, start cooling them down immediately.
3. Put them up to their neck in cool water, like in a pool or a bathtub, for up to 15 minutes or until they start acting normally.

If you can't submerge them, you can spray them with cool water and apply ice packs wrapped in towels to their neck, groin, and armpits.

4. If they start behaving normally again, stop cooling them. If you don't stop, it could lead to hypothermia.

Children: Monitor children closely as you cool them because they may become too cold quickly.

5. If the person becomes unresponsive and is not breathing or not breathing normally, start CPR and use the AED as soon as it arrives (refer to the CPR and AED section).

Urgent!

Heat stroke is life-threatening. Call 911 and immediately begin cooling a person who might have heat stroke- every minute counts.

Mental Health Crises in the Workplace, Recognition of

About

Chronic stress can cause high blood pressure and increase risk of heart disease, stroke, and mental health problems. In some extreme cases, it could even lead to suicidal thoughts or violence in the workplace.

Signs and Symptoms

- Withdrawal and a drop in functioning
- Reckless behavior
- Mood changes
- Problems thinking or concentrating
- Performance changes
- Increased use or abuse of substances like alcohol

Actions to Take: Recognizing a Mental Health Crisis in the Workplace

1. Talk to your coworker.
2. Ask if they're experiencing any of the signs or symptoms of a mental health crisis.
3. Listen to them nonjudgmentally.
4. Encourage them to get professional help if they are experiencing a crisis.
5. Encourage self-help behaviors.
6. Offer them reassurance. Remember that it's OK if someone has mental health challenges. Talking to the person can help them feel less alone and more supported.
7. If you or anyone else shows the signs or symptoms of a mental health crisis, look to resources like employee assistance programs, health initiatives, and occupational medicine professionals.
8. Periodically check in with yourself and your colleagues.

First Aid Fact

If you or someone else is in distress, contact the Suicide and Crisis Lifeline at 988.

Mouth Injuries

About

Being hit in the face or mouth can result in injuries that loosen or knock out a permanent tooth or cut the tongue, lip, or cheek. Loss of control or consciousness, like from a seizure, can result in a person biting their cheek, lip, or tongue.

Actions to Take: Bleeding From the Mouth

1. Locate the wound and if the bleeding is from the tongue, lip, or cheek and you can reach the wound, apply pressure with gauze or a clean cloth to control any bleeding.



Apply pressure to bleeding inside the mouth with a dressing, using gloved hands.

2. If a tooth has fallen out, refer to the Tooth Injuries topic.
3. If the bleeding does not stop within 10 minutes or if the person has trouble breathing, call 911.

Nose Injuries (Nosebleeds)

About

Injuries to the nose can be alarming, but prompt first aid can improve the outcome for the injured person.

First Aid Fact

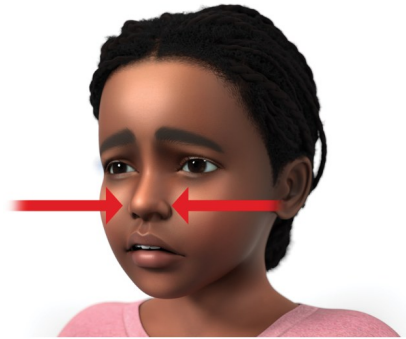
Leaning back will not help stop a nosebleed. Instead, the blood will drain down the throat, which can lead to vomiting.

Actions to Take: Nosebleed

1. Have the injured person sit down and lean forward (not backward).
2. With a clean dressing, pinch both sides of the nose and apply pressure while they continue to lean forward.



For a nosebleed, pinch the soft part of the adult's nose below the bony bridge.



For a child's nosebleed, pinch the soft part of the nose below the bony bridge.



Have the adult lean forward while maintaining pressure on the soft part of the nose.



Have the child lean forward while maintaining pressure on the soft part of the nose.

3. If the bleeding continues, increase the pressure.
4. Call 911 if
 - The bleeding doesn't stop after 15 minutes
 - The bleeding is heavy
 - The person has signs of a head injury, nose fractures, or facial fractures
 - The person has trouble breathing
 - The person feels dizzy or light-headed
 - The person is on blood thinners (eg, aspirin) or has a condition that causes them to bleed more than others

Penetrating or Puncturing Injuries

About

A penetrating or puncturing injury can happen when a knife, nail, construction material, or other sharp object punctures the skin or goes into the body.

Urgent!

Only a health care professional should remove a sharp object that is stuck in the body. Removing an object stuck in the body may cause more bleeding or damage to internal organs.

Actions to Take: Penetrating or Puncturing Injuries

1. Call 911 and get a first aid kit or bleeding control kit and an AED if one is available.
2. Have the injured person remain as still as possible.
3. Put on gloves and control any bleeding by applying pressure with a clean dressing around the object near the wound.
 - If the object is stuck in the body, leave it there.
 - Do not put direct pressure on the object.
 - If the wound is on a larger part of the body (eg, the torso or upper leg), the bleeding could be more severe inside the body.
4. Be prepared to give CPR and use the AED if the person becomes unresponsive and stops breathing normally or stops breathing normally (refer to the CPR and AED section).

Repetitive Stress Injuries and Overexertion Prevention

About

The best prevention of repetitive stress injuries and overexertion is applying ergonomics, which is the study of efficiency and safety in the work environment.

Risks for stress injuries and overexertion include excessive force, repetitive tasks, awkward postures, localized pressure, cold temperatures, vibration, or a combination of these.

First Aid Fact

Don't ignore pain or other symptoms related to your work! Report them to your employer and follow up with a health care professional.

Actions to Take: Implementing Workplace Health and Safety Controls

Implement these controls to prevent repetitive stress injuries and overexertion:

- Engineering controls and physical modifications to the workplace

Examples include using lifting devices, reducing load weight, adjusting work tables, and using conveyor systems.

- Administrative and work practice controls and efficient processes

Examples include requiring 2 people to manage heavy loads, rotating workers, scheduling regular breaks, ensuring proper use and maintenance of tools and equipment, and setting up the workspace for one's task and body.

- Job-specific PPE that helps protect people from hazards

Examples include hard hats, ear protection, well-fitting thermal gloves, and padding.

Opioid-Associated Emergencies

About

Opioids are a highly addictive class of drugs that includes illegal substances like heroin as well as prescription pain medications like morphine, codeine, oxycodone, hydrocodone, fentanyl, hydromorphone, and buprenorphine. Many drugs are mixed with opioids, so someone might take an opioid without even knowing. If someone takes too much of an opioid, their breathing and heart rate can slow down, decreasing oxygen to their brain and other vital organs. This can lead to cardiac arrest and can cause brain damage even before the person's heart has stopped beating.

Signs and Symptoms

- Slowed breathing and heart rate
- Evidence of drug use nearby (eg, syringes, powder, pill bottles)
- Vomiting
- Person unresponsive or difficult to wake up
- Discolored skin; bluish or grayish fingernails or lips
- Sweaty skin
- Very small pupils

First Aid Fact

Naloxone can reverse the effects of an opioid-associated emergency and is safe to give even if you don't know what drug was taken. It's common to find naloxone in a first aid kit, near an AED, or in a pharmacy. Naloxone is most often found as a nasal spray and usually does not require a prescription.

Actions to Take: Opioid-Associated Emergencies

1. Check that the scene is safe.
2. Tap and shout (check for responsiveness).

3. Shout for help.
4. If someone is nearby, tell them to call 911 and get naloxone and an AED if one is available.
5. Check for breathing.

Normal breathing but person not alert

- Tap and shout to keep the person awake.
- Keep their airway open by tilting their head back and lifting their chin.
- Give the first dose of naloxone (refer to Actions to Take: Giving Naloxone Nasal Spray), and continue to monitor responsiveness and breathing.
- Tap and shout to keep them awake.
- If they're still not alert but are still breathing, or if their breathing slows or they become less responsive, give a second dose of naloxone.
- If you need to leave the person, place them in the recovery position (refer to Recovery Position).
- Stay with the person until emergency responders arrive.

No normal breathing or only gasping

- Provide CPR with breaths and use the AED as soon as it is available (refer to the CPR and AED section).
- Give naloxone as soon as you can, but do not delay CPR to give it.

If you're alone and without a phone, start CPR with breaths before going to call 911 and get naloxone and an AED. Give 5 cycles of 30 compressions and 2 breaths before leaving (refer to the CPR and AED section).

- Continue giving CPR and using the AED until

Someone else arrives who can take turns providing CPR

Emergency responders arrive

The person starts to respond

Actions to Take: Giving Naloxone Nasal Spray

1. Remove the nasal spray canister from the box, and peel back the tab to open it.
2. Hold the canister with your thumb on the bottom of the plunger and your pointer and middle fingers on either side of the nozzle



Hold the naloxone nasal spray with the thumb on the plunger and two fingers on either side of the nozzle.

3. Insert the tip of the nozzle into the person's nostril.
4. Press and hold the plunger down to administer the entire dose



Insert the nozzle into one nostril and press the plunger firmly to deliver the dose.

5. After you've emptied the canister, remove the nozzle from the person's nostril and discard the canister into the trash.
6. If the person doesn't respond within 2 to 3 minutes, you might need to give them a second dose of naloxone in the other nostril.
7. Each canister holds only a single dose. You'll need another canister to give a second dose, if needed.
8. If the unresponsive person stops breathing or stops breathing normally at any time, start CPR immediately.

Poison Emergencies

About

Poison emergencies are caused by breathing, swallowing, or touching any substance that can cause sickness or death. These emergencies can happen in the workplace and at home.

First Aid Fact

Home poisoning occurs most often in children. To help prevent exposure, keep medicine and hazardous substances, like household chemicals, in locked cabinets. Be sure to dispose of old or unused medication, and properly label medicine bottles and cleaning supplies.

Urgent!

Poisoning can be life-threatening. Act fast if someone has been poisoned-but remember to protect yourself too.

Actions to Take: Assessing the Scene and Calling 911 for Possible Poisoning

1. Check that the scene is safe.
2. Be aware of posted warning signs spilled or leaking containers, unusual odors, the sound of escaping gas, pill bottles, cleaning solutions, or other substances.



Poison warning pictograms: skull and crossbones, serious health hazard, exclamation mark, and corrosion to skin or materials.

3. Proper PPE for chemical emergencies is highly specialized. If you are in a workplace, consult on-site safety personnel for guidance on the correct protective equipment to use, or consult the safety data sheet.
4. Chemical spills can affect multiple people. Inhaled poisons, such as carbon monoxide poisoning, can cause multiple people to suddenly become ill in an enclosed space. If the scene seems unsafe or if multiple people may have been affected, do not approach. Evacuate the area.
5. Call 911 and get a first aid kit and an AED if one is available.
6. Tell the dispatcher the name of the poison or substance and answer their questions. They may connect you to poison control.
7. Give only the drinks or antidotes that the 911 dispatcher or poison control tells you to give.

Poison Help Line

After calling 911, call poison control at 1-800-222-1222, or visit poisonhelp.org.

If possible, tell them the name of or give a description of the poison; how much poison the person touched, breathed, or swallowed; the person's age and weight; when the poisoning happened; and the person's postal code and contact information.

Actions to Take: Poison on the Skin

1. Move the person to an area with fresh air.
2. Call 911.
3. Using appropriate PPE, remove all contaminated clothing and equipment from the person.
4. With a gloved hand, remove any dry powder or solid substances from the person's skin



With gloves on, remove a dry poison from the skin before rinsing.

5. Run clean water over the affected areas for at least 15 minutes.
6. Stay with the person until emergency responders arrive.
7. If the person becomes unresponsive and stops breathing or stops breathing normally, start CPR and use an AED as soon as one is available (refer to the CPR and AED section).
8. Use a pocket mask to give breaths if the substance touched the person's lips or mouth.

Actions to Take: Chemical Eye Injury (Poison in the Eye)

1. Rinse the injured person's eyes with tap water for at least 15 minutes or until emergency responders arrive.
 - Use an eyewash station or kit if one is available. If not, you can use a saline solution or hose, faucet, or any other source of clean water to rinse the eyes.
 - If only a single eye is affected, make sure that that eye is lower than the other so that you don't rinse the poison (chemical) into the unaffected eye.
2. Call 911 and then call poison control at 1-800-222-1222 if you're not sure what to do.
3. Make sure the injured person sees a health care professional as soon as possible.

Seizures

About

A seizure is abnormal electrical activity in the brain that can be caused by epilepsy, head injury, low blood sugar, prolonged heat exposure, poisoning, or cardiac arrest. A seizure can be a one-time or recurring event.

Signs and Symptoms

Remember: Symptoms could include all or only some of those listed.

- During a seizure
- Stiffening
- Loss of consciousness
- Loss of muscle control
- Collapse
- Twitching, jerking, or shaking
- Person unresponsiveness with a glassy-eyed stare
- After a seizure
- Confusion
- Slow response time
- Appearing to be asleep

First Aid Fact

Seizures typically stop in just a few minutes.

Actions to Take: During a Seizure

1. Protect the person from injury.
2. Gently lower the person to the floor.
3. Move furniture or other objects out of the way.
4. Place something soft under their head.
5. Don't hold them down or put anything in their mouth.
6. Once the seizure is over, quickly check to see if the person is responsive and breathing.
7. If the person is unresponsive and not breathing or not breathing normally: Start CPR and send someone to call 911 and get an AED if one is available (refer to the CPR and AED section).

8. If the person is unresponsive but breathing normally: If you don't suspect a head or spine injury, place the person in the recovery position (refer to Recovery Position) and stay with them until emergency responders arrive.
9. Call 911 if the person
 - Has never had a seizure before
 - Has a seizure that lasts longer than 5 minutes
 - Has a second seizure
 - Has difficulty breathing or staying awake
 - Was injured during the seizure
 - Has a seizure in water
 - Has a known health condition, such as diabetes or heart disease
 - Is pregnant

Stroke

About

A stroke occurs when blood stops flowing to a part of the brain or bleeding occurs in the brain. This leads to death of brain cells.

Urgent!

Stroke is a serious and time-sensitive medical emergency. Recognizing the symptoms and getting immediate medical help are the most important steps to take.

Stroke Warning Signs

Know and use the F.A.S.T. memory aid to remember the warning signs of stroke:

- F - Face drooping: Does one side of the face droop, or is it numb? Ask the person to smile. Is their smile crooked?
- A - Arm weakness: Is one arm weak or numb? Ask the person to raise both arms. Does one arm drift downward? Or can the person not lift their arm at all?
- S - Speech difficulty: Is speech slurred or difficult to understand? Are they unable to speak at all?
- T - Time to call 911: If someone shows these signs, call 911 right away and note the time symptoms started.



Stroke warning sign: one side of the face droops when the person tries to smile.



Stroke warning sign: one arm drifts downward when the person tries to hold both arms up.



Check for stroke-related speech difficulty by asking the person to repeat a simple sentence.



If stroke signs are present, call 911 immediately.

Other signs and symptoms include

- Blurred or double vision
- Sudden severe headache
- Numbness or weakness of the face, arm, or leg, especially on one side of the body
- Trouble walking, dizziness, loss of balance or coordination

Actions to Take: Stroke

1. Recognize the signs of stroke.
2. Call or send someone else to call 911 and get an AED if one is available.
3. Help the person sit or lie down.
4. Note the time when stroke signs first appeared or when the person was last seen without symptoms.
5. Stay with the person until emergency responders arrive.
6. If the person becomes unresponsive and is not breathing or not breathing normally, start CPR and use the AED as soon as it arrives (refer to the CPR and AED section).

Tooth Injuries

Urgent!

To save a permanent tooth that's been injured or knocked out, the person needs immediate first aid and emergency dental care. Be aware that broken, loosened, or knocked-out teeth can be a choking hazard.

Actions to Take: Tooth Injury

1. Check for chipped, loose, or missing teeth.
2. Chipped tooth: Gently clean the injured area and contact a dentist.
3. Loose tooth: Have the person bite down on a piece of gauze to keep the tooth in place, and contact a dentist.
4. Knocked-out tooth: A health care professional may be able to reattach a permanent tooth.
 - Use a gloved hand to hold the tooth by the crown (the top part of the tooth). Never hold a tooth by the root (the bottom part of the tooth).
 - Quickly rinse the tooth (for less than 10 seconds) with saline or clean water to remove any visible debris.
 - Apply pressure with gauze to stop any bleeding in the empty tooth socket.
 - Clean the tooth socket with saline or clean water.
 - Gently place the tooth back into its socket and then have the person bite down on a piece of gauze to help hold the tooth in place.
 - If you're unable to put the tooth back into its socket or if it's not safe to do so, you can store the tooth in one of these substances:
 - Oral rehydration salt solution
 - Cow's milk
 - The injured person's saliva
 - Plastic wrap, wrapped tightly



Hold a knocked-out tooth by the crown, the broad upper part indicated by the arrow, rather than by the root.

5. Take the injured person and their tooth to a dentist or the emergency department immediately.
6. If you can't control the bleeding, call 911.

Additional First Aid Resources

Bleeding Control

- Stop the Bleed: dhs.gov/stopthebleed
- Stop the Bleed Coalition: stopthebleedcoalition.org

Preventing the Spread of Contagious Diseases

- Centers for Disease Control and Prevention: cdc.gov
- European Centre for Disease Prevention and Control: ecdc.europa.eu/en
- European Vaccination Information Portal: vaccination-info.europa.eu/en
- Vaccines.gov: vaccines.gov
- World Health Organization: who.int

Appendix

Heartsaver Glossary

911

An emergency telephone number in many countries

abdominal thrusts

An emergency technique (inward and upward movement) to help clear someone's airway when they are choking; given slightly above the belly button to push air from the lungs

adult

Anyone with visible signs of puberty (chest or underarm hair, any breast development) and older

asthma

A chronic airway condition that causes inflammation and narrowing of the air passages in the lungs, making it difficult to breathe

automated external defibrillator, or AED

A portable electronic device that can identify a life-threatening abnormal heart rhythm and deliver a shock to reset the heart's rhythm, causing it to start pumping blood to the brain and the rest of the body

bandage

Material used to protect or cover a cut or other injury; also used to hold a dressing in place

barrier device

A protective device (such as a pocket mask or face shield) that fits over a person's nose and mouth to limit exposure to body fluids when giving breaths during CPR

cardiopulmonary resuscitation, or CPR

A lifesaving emergency technique used for a person who has signs of cardiac arrest (ie, unresponsive, not breathing or not breathing normally); the 2 key components of CPR are chest compressions and breaths

Chain of Survival

The most important actions to treat adults, children, and infants who experience cardiac arrest outside of a hospital; each link is independent but connected to the links before and after it; if any link is broken, the chance for a good outcome decreases

child

A person who is 1 year of age to puberty (signs of puberty: chest or underarm hair or any breast development)

choking

When a person's airway is blocked by an object (like food), keeping air from getting to their lungs

compression

An emergency technique that comprises pushing down in the center of the chest and allowing recoil to help pump blood to the brain and other vital organs during CPR

concussion

A head injury that happens when the head or body is hit so hard that the brain moves inside the skull

dehydration

The loss of body fluids that may occur due to heat exposure, too much exercise, illness, excessive vomiting or diarrhea, or decreased fluid intake

diabetes

A chronic health condition that affects how the body turns food (sugar) into energy

dispatcher

A person who answers 911 calls and sends emergency services to help

dressings

A clean cloth or gauze pressed directly onto a wound to stop bleeding and protect the wound

emergency medical services, or EMS

A system of health care professionals who provide emergency care and transportation of critically ill or injured people to hospitals

epilepsy

A chronic brain condition that causes recurring seizures

epinephrine

A prescription drug that can treat a severe allergic reaction; often administered with an epinephrine autoinjector

fainting

A brief period of unresponsiveness followed by a return to normal, usually resulting from a temporary drop in blood flow to the brain

fever

A temporary rise in body temperature in response to a disease or illness

first aid

The immediate care that you give to a person with an illness or injury

first aid kit

A kit with supplies for handling common emergencies

gasps/agonal gasps

Forceful or weak breathing patterns that may appear in the first minutes after sudden cardiac arrest; they may sound like a snort, snore, or groan

Good Samaritan laws

Laws that protect anyone who gives first aid or CPR in good faith (to the best of their abilities)

Hands-only CPR

Providing chest compressions without breaths during CPR

head tilt-chin lift maneuver

The method of opening a person's airway by tilting the head back with one hand on the forehead and the other hand lifting the bony part of the lower jaw, near the chin

hemostatic dressing

A special dressing that promotes blood clotting

hypothermia

Abnormally low body temperature that can lead to injury or death if untreated

infant

A child who is younger than 1 year

insulin

A prescription medication or hormone that lowers the level of glucose (a type of sugar) in the blood

medical information jewelry

A necklace, bracelet, or other piece of jewelry worn by a person that shows important medical information like allergies or chronic conditions

naloxone

A medication that can temporarily reverse or lessen the overdose effects of an opioid and is often administered via a nasal spray

opioid

A group of drugs that includes prescription pain medications and illegal drugs, such as fentanyl and heroin, that cause respiratory depression that can lead to cardiac arrest

personal protective equipment, or PPE

Equipment, such as goggles, medical gloves, and face masks, that protects you from contact with blood, body fluids, or other infectious substances

recovery position

The left side-lying body position that helps prevent an unresponsive person from choking if they vomit

responsive

When someone moves, speaks, blinks, or otherwise reacts when you tap them or speak to them

shock

A life-threatening condition in which the body's tissues and organs are not getting enough blood or oxygen

splint

A rigid object, such as a piece of wood, that you can secure to an injured arm or leg to keep it from moving

tourniquet

A device that can stop uncontrolled bleeding from an arm or leg

unresponsive

When someone does not move, speak, blink, or otherwise react when you tap them or speak to them

wound

An injury that breaks the skin or other body tissues and can include cuts, scrapes, scratches, and punctured skin