

Part 4: Environmental Emergencies

What You Will Learn Topics covered in this part are

- Bites and stings
- Heat-related emergencies
- Cold-related emergencies
- Poison emergencies

Bites and Stings

Animal and Human Bites

When an animal bite breaks the skin, the wound can bleed and become infected.

Not only is the bite a concern, the risk of rabies from dogs or wild animals must be considered. Rabies in wild animals is most frequently reported in raccoons, skunks, and bats. Dogs bitten by infected animals can become infected.

Also, because of the risk of rabies, anyone who has had direct contact with a bat or has been alone in a room with a bat should contact a healthcare provider as soon as possible.

Actions to Take for an Animal or Human Bite

Follow these first aid action steps for a person with an animal or human bite:

Actions to Take for an Animal or Human Bite

- Make sure the scene is safe for you and the person who has been bitten.
- With animal bites, be sure to wash the wound with plenty of soap and water.
- Apply a bag of ice and water wrapped in a towel to help with bruising and swelling.
- If there is a bruise or swelling, place a bag of ice and water wrapped in a towel on the bite for up to 20 minutes.
- For all bites that break the skin, phone a healthcare provider as soon as possible.

Snakebites

If someone has been bitten by a snake, you can sometimes identify the snake from its color or bite mark. But if you're not sure, assume that the snake is poisonous.

Signs of poisonous snakebites are

- Pain at the bite area that keeps getting worse
- Swelling of the bite area
- Nausea, vomiting, sweating, or weakness

Scene Safety and Snakebites

When making sure the scene is safe, be very careful around any snake, even if it's wounded. Back away and go around the snake.

If the snake has been killed or hurt, don't handle it. A snake can bite even when severely hurt or close to death.

Actions to Take for a Snakebite

Follow these first aid action steps to help a person bitten by a snake:

Actions to Take for a Snakebite

- Make sure the scene is safe for you and the person who has been bitten.
- Get the first aid kit.
- Wear PPE.
- Ask another adult to move any other people away from the area and phone 9-1-1.
- Ask the injured person to stay as still and calm as possible and avoid moving the part of the body that was bitten.
- Remove any tight clothing and jewelry.
- Gently wash the area with running water and soap.
- Keep the person still and calm until someone with more advanced training arrives and takes over.

Insect, Bee, and Spider Bites and Stings

Usually, insect bites and stings cause only mild pain, itching, and swelling at the bite. However, some insect bites can be serious and even fatal if

- The person bitten has a severe allergic reaction to the bite or sting
- Poison (venom) is injected into the person from the bite or sting

Bees are the only insects that leave behind their stingers. If you or someone you know gets stung by a bee, you should look for the stinger and remove it.

Actions to Help a Person With a Bite or a Sting

Follow these first aid action steps for a person who has a bite or sting:

Actions to Help a Person With a Bite or a Sting

- Make sure the scene is safe for you and the person who has been stung or bitten.
- Get the first aid kit.
- Wear PPE.
- If the person was stung by a bee, scrape the stinger and venom sac away with something hard and dull that won't squeeze it—like the edge of a credit card or photo ID card.
- Wash the sting or bite area with running water and soap.
- Put a bag of ice and water wrapped in a towel over the area for up to 20 minutes.
- Watch the person for at least 30 minutes for signs of a severe allergic reaction. Be prepared to use the person's epinephrine pen if needed.

Allergic Reactions to Bee Stings

People who have had severe allergic reactions to an insect bite or sting usually have an epinephrine pen and know how to use it. They often wear medical identification jewelry.

Phone or send someone to phone 9-1-1 and get the first aid kit if the person develops a severe allergic reaction. Use the skills you learned earlier to help the person inject the epinephrine pen.

Poisonous Spider Bites and Scorpion Stings

The bite of nonpoisonous insects can cause mild signs of redness and itching at the bite area. However, the bite or sting of a poisonous spider or scorpion can cause a person to become ill.

Signs of poisonous spider bites and scorpion stings are

- Severe pain at the site of the bite or sting
 - Muscle cramps
 - Headache
 - Fever
 - Vomiting
 - Breathing problems
 - Seizures
 - Lack of response
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Actions to Help a Person Who Is Bitten or Stung by a Poisonous Spider or Scorpion

If you know that a person has been bitten or stung by a poisonous spider or scorpion or has any of these signs listed above after such a bite or sting, then follow these first aid action steps:

Actions to Help a Person Who Is Bitten or Stung by a Poisonous Spider or Scorpion

- Make sure the scene is safe for you and the person who was bitten or stung.
- Get the first aid kit.
- Wear PPE.
- Phone 9-1-1.
- Wash the bite or sting area with lots of running water and soap.
- Put a bag of ice and water wrapped in a towel on the bite.

Tick Bites

Many ticks are harmless, but some carry serious diseases. They are found in wooded areas and attach themselves to exposed parts of the body.

If you find a tick, remove it as soon as possible. The longer the tick stays attached to a person, the greater the chance of catching a disease.

Actions to Help a Person Who Has a Tick Bite

The first aid actions for a tick bite begin with removing it from the person's body. Follow these first aid action steps for a person who has a tick bite:

Actions to Help a Person Who Has a Tick Bite

- Get the first aid kit.
- Wear PPE.
- Use tweezers to grab the tick by its mouth or head, as close to the skin as possible.
- Try to avoid pinching the tick.
- Lift the tick straight out. If you lift the tick until the person's skin tents and wait for several seconds, the tick may let go.
- Place the tick in a plastic bag in case the person needs to take it with him when getting medical care.
- Wash the bite area with running water and soap.
- If you are in an area where you know there is tick-borne illness, suggest that the person see a healthcare provider as soon as possible.

Marine Bites and Stings

Just as it's important to be aware of ticks and other insects and animals when you're in the wilderness, it's important to be aware of marine fish and animals when swimming in the ocean.

Bites and stings from jellyfish, stingray, or stonefish may cause pain, swelling, redness, or bleeding. Some marine bites and stings can be serious and even fatal if a person has a severe allergic reaction to the sting or the venom.

Actions to Help a Person Who Has a Marine Bite or Sting

Follow these first aid action steps for a marine bite or sting:

Actions to Help a Person Who Has a Marine Bite or Sting

- Make sure the scene is safe for you and the person who has been stung.
- Get the first aid kit.
- Wear PPE.
- Keep the injured person quiet and still.
- Wipe off stingers or tentacles with a gloved hand or towel.
- If the sting is from a jellyfish, rinse the injured area for at least 30 seconds with lots of vinegar. If vinegar is not available, use a baking soda and water solution instead.
- Put the part of the body that was stung in hot water. You may also have the person take a shower with water as hot as he can bear for at least 20 minutes or as long as pain persists.
- Phone 9-1-1 if
 - A person has been bitten or stung by a marine animal and has signs of a severe allergic reaction
 - A person was bitten or stung while in an area known to have poisonous marine animals
- For all bites and stings that break the skin, see a healthcare provider.

Heat-Related Emergencies

Dehydration

Working, training, or playing in extreme heat can be dangerous. If a person doesn't take the proper care, exposure to extremely hot environments can lead to life-threatening medical conditions.

Dehydration occurs when a person loses water or fluids through

- Heat exposure
- Too much exercise

- Vomiting, diarrhea, fever, or decreased fluid intake

If not responded to early, dehydration may lead to shock.

Signs of Dehydration

Signs of heat-related or environmental dehydration include

- Weakness
 - Thirst or dry mouth
 - Dizziness
 - Confusion
 - Less urination than usual
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Actions to Take for Dehydration

If you suspect that a person is dehydrated, contact a healthcare provider right away. The best first aid for dehydration is prevention: make sure a person drinks and eats enough to stay hydrated.

Heat Cramps

Heat cramps are painful muscle spasms, most often occurring in the calves, arms, stomach muscles, and back.

Signs of Heat Cramps

Signs of heat cramps are

- Muscle cramps
- Sweating
- Headache

Heat cramps are a sign that heat-related problems may continue to get worse if the person doesn't take action.

Actions to Help a Person Who Has Heat Cramps

Follow these first aid action steps to help someone with heat cramps:

Actions to Help a Person Who Has Heat Cramps

- Get the first aid kit.
 - Wear PPE.
 - Have the person rest and cool off.
 - Have the person drink something with sugar and electrolytes, such as a sports drink or juice, or water if these aren't available.
 - If the person can tolerate it, apply a bag with ice and water wrapped in a towel to the cramping area for up to 20 minutes.
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Heat Exhaustion

A milder condition, such as heat cramps, can quickly turn into heat exhaustion. That's why it's important to recognize and give first aid for heat-related emergencies early.

Signs of Heat Exhaustion

The signs of heat exhaustion are similar to those of heat stroke:

- Nausea
 - Dizziness
 - Vomiting
 - Muscle cramps
 - Feeling faint or fatigued
 - Heavy sweating
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Actions to Help a Person Who Has Heat Exhaustion

Follow these first aid action steps for heat exhaustion:

Actions to Help a Person Who Has Heat Exhaustion

- Get the first aid kit.
 - Wear PPE.
 - Phone 9-1-1.
 - Have the person lie down in a cool place.
 - Remove as much of the person's clothing as possible.
 - Cool the person with a cool water spray. If a cool water spray is not available, place cool, damp cloths on the neck, armpits, and groin.
 - If the person is responsive and can drink, have the person drink something with sugar and electrolytes, such as a sports drink or juice, or water if these aren't available.
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Heat Stroke

Heat-related conditions can progress quickly if not recognized and treated. Heat stroke is a dangerous condition that is life threatening.

It's important to begin cooling a person who might have heat stroke immediately—every minute counts. If you can't immerse the person in water, try to cool him with a cool water spray.

If the person starts behaving normally again, stop cooling him. If you keep cooling the person, it could actually lead to low body temperature.

Signs of Heat Stroke

Signs of heat stroke are

- Confusion
- Feeling faint or fatigued
- Dizziness
- Fainting
- Nausea or vomiting
- Muscle cramps
- Seizure

Actions to Help a Person Who Has Heat Stroke

Follow these first aid action steps to help someone with heat stroke:

Actions to Help a Person Who Has Heat Stroke

- Phone 9-1-1.
- Put the person in cool water up to his neck if possible, or spray him with cool water.
- If the person becomes unresponsive and is not breathing normally or only gasping, give CPR.

Cold-Related Emergencies

Frostbite

Frostbite typically occurs outside in cold weather. But it can also occur inside or in a workplace if people are exposed to extremely cold materials, such as cold gases, without wearing gloves.

Signs of Frostbite

Frostbite affects parts of the body that are exposed to the cold, such as the fingers, toes, nose, and ears.

The signs of frostbite are the following:

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

Actions to Help a Person Who Has Frostbite

Follow these first aid action steps for frostbite:

Actions to Help a Person Who Has Frostbite

- Make sure the scene is safe for you and the person with frostbite.
- Move the person to a warm place.
- Get the first aid kit.
- Wear PPE.
- Phone 9-1-1.
- Remove wet or tight clothing and pat the body dry.
- Put dry clothes on the person and cover him with a blanket.
- Remove tight rings or any bracelets from the frostbitten part.

Caution

These are things you *should not do* for frostbite:

- Do not try to thaw the frozen part if you think there may be a chance of the body refreezing before the person can get to medical care.
- Do not rub the frostbitten area. Rubbing it may cause damage. If you need to touch the area, do so gently.

Low Body Temperature (Hypothermia)

Hypothermia is another name for low body temperature. Staying too long in a cold, pouring rain or other wet and cold conditions can lead to hypothermia. A person can develop low body temperature even when the outside temperature is above freezing.

When hypothermia occurs, it can cause serious problems or even death.

Signs of Low Body Temperature

The signs of low body temperature may include

- Skin that's cool to the touch
- Shivering, which stops when the body temperature is very low
- Confusion
- Personality change
- Sleepiness and the person's lack of concern about his condition
- Stiff, rigid muscles while the skin becomes ice-cold and blue

As the person's body temperature continues to drop, it may be hard to tell if the person is breathing. The person may become unresponsive and even appear to be dead.

Actions to Help a Person Who Has Hypothermia

Follow these first aid action steps for a person with low body temperature:

Actions to Help a Person Who Has Hypothermia

- Make sure the scene is safe for you and the person who has hypothermia.
- Get the person out of the cold.
- Remove wet clothing, pat the person dry, and cover with a blanket.
- Get the first aid kit and AED.
- Phone 9-1-1.
- Put dry clothes on the person.
 - Cover the body and head, but not the face, with blankets, towels, or even newspapers.
- Remain with the person until someone with more advanced training arrives and takes over.
- If the person becomes unresponsive and is not breathing normally or only gasping, give CPR.

Poison Emergencies

A poison is anything that someone swallows or breathes or that gets into the eyes or on the skin and that causes sickness or death. Many products can poison people.

Poison Control Hotline

The phone number for the poison control center should be in the first aid kit or prominently displayed in the areas where chemicals are used.

Contact your local poison center by phoning the American Association of Poison Control Centers (Poison Control) at

1-800-222-1222

Questions the Poison Control Center Dispatcher May Ask

When you call the Poison Control Center, the dispatcher may ask for the following information:

- What is the name of the poison?
 - Can you describe it if you can't name it?
 - How much poison did the person touch, breathe, or swallow?
 - How old is the person?
 - How much does the person weigh?
 - When did the poisoning happen?
 - How is the person feeling or acting now?
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Actions to Take for Scene Safety in a Poison Emergency

If someone has been exposed to a poison, first make sure the scene is safe. For example, you may need to look for spills of liquids or powders that might be poison.

Follow these actions steps before doing anything else:

Actions to Take for Scene Safety in a Poison Emergency

- Make sure the scene is safe for you and the ill or injured person before you approach.
- Look for signs that warn you that poisons are nearby (Figure 29).
- Look for spilled or leaking containers.
- If the scene seems unsafe, do not approach. Tell everyone to move away.
- Stay out of the scene if you see multiple people who may have been poisoned.
- If the scene is safe, get the first aid
- Phone 9-1-1.
- Tell the dispatcher the name of the poison if you know it. Some dispatchers may connect you to a poison control center. Give only those antidotes that the poison control center or dispatcher tells you to. The first aid instructions on the poison itself can be helpful but may be incomplete.



Figure 29. Look for symbols of poisons, such as these.

Safety Data Sheet

Some places have a safety data sheet, or SDS, that provides a description of how a specific chemical or poison can be harmful. It may have first aid recommendations as well.

Actions to Help a Person Who Has Poison on the Skin or in the Eyes

Follow these first aid action steps to remove poison from a person's skin or eyes.

Actions to Help a Person Who Has Poison on the Skin or in the Eyes

- Make sure the scene is safe for you and the ill or injured person by following the "Actions to Take for Scene Safety in a Poison Emergency" section.
- If you approach the scene, wear PPE.
- Move the person from the scene of the poison if you can, and help the person move to an area with fresh air.
- As quickly and as safely as you can, wash or remove the poison from the person's skin and clothing. Help the person to a faucet, safety shower, or eyewash station.
- Remove clothing and jewelry from any part of the body touched by the poison. Use a gloved hand to brush off any dry powder or solid substance from the person's skin (Figure 30).
- Run lots of water over the affected area until someone with more advanced training arrives and takes over.

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Actions to Help a Person Who Has Poison on the Skin or in the Eyes

- If an eye is affected, ask the person to blink as much as possible while rinsing the eyes. If only one eye is affected, make sure the eye with the poison in it is the lower eye so that you don't rinse the poison into the unaffected eye.
- Give CPR if the person becomes unresponsive and isn't breathing normally or is only gasping. Use a mask for providing breaths. This is especially important if the poison has contaminated the person's lips or mouth.

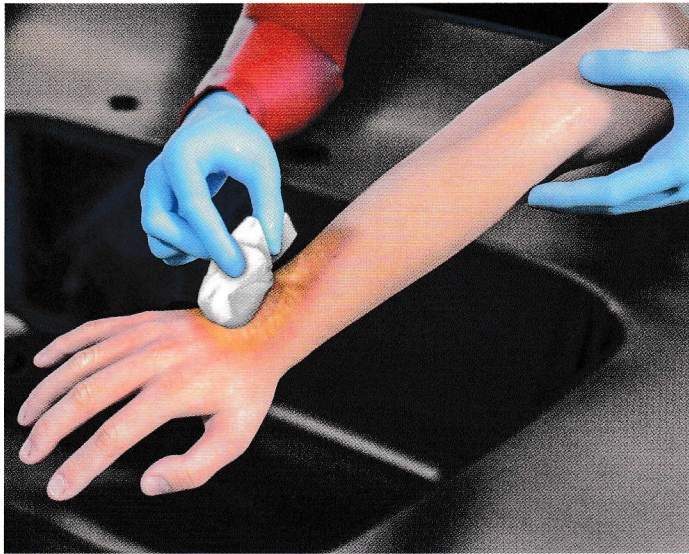


Figure 30. Brush off any dry powder or solid substances from the person's skin with your gloved hand.

Environmental Emergencies: Review Questions

Question	Your Notes
<p>1. Someone who has been bitten by an insect or bee may have a severe allergic reaction and should be watched for at least ____ minutes.</p> <p>a. 10</p> <p>b. 20</p> <p>c. 30</p> <p>d. 60</p>	
<p>2. When someone has a bite, be sure to wash the bite area with a lot of soap and water.</p> <p>True False</p>	
<p>3. Heat stroke is a life-threatening condition.</p> <p>True False</p>	
<p>4. Remove ticks _____.</p> <p>a. with a hot matchstick</p> <p>b. with lots of alcohol on the skin</p> <p>c. by using tweezers</p> <p>d. with your hands</p>	
<p>5. Being confused may be a symptom of heat stroke and low body temperature.</p> <p>True False</p>	
<p>6. If you give CPR to someone who has been poisoned, it is important to use a mask, if possible, to give breaths.</p> <p>True False</p>	

Answers: 1. c, 2. True, 3. True, 4. True, 5. True, 6. True