

CHAPTER 6

FIRST AID FOR BITES AND STINGS

INTRODUCTION

Snakebites, insect bites, or stings can cause intense pain and/or swelling. If not treated promptly and correctly, they can cause serious illness or death. The severity of a snakebite depends upon: whether the snake is poisonous or nonpoisonous, the type of snake, the location of the bite, and the amount of venom injected. Bites from humans and other animals, such as dogs, cats, bats, raccoons, and rats can cause severe bruises and infection, and tears or lacerations of tissue. Awareness of the potential sources of injuries can reduce or prevent them from occurring. Knowledge and prompt application of first aid measures can lessen the severity of injuries from bites and stings and keep the soldier from becoming a serious casualty.

6-1. Types of Snakes

a. Nonpoisonous Snakes. There are approximately 130 different varieties of nonpoisonous snakes in the United States. They have oval-shaped heads and round eyes. Unlike poisonous snakes, discussed below, nonpoisonous snakes do not have fangs with which to inject venom. See Figure 6-1 for characteristics of a nonpoisonous snake.

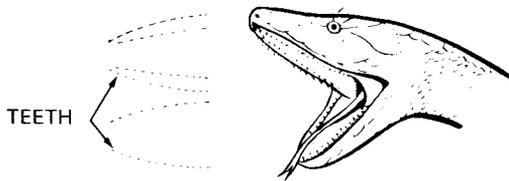


Figure 6-1. Characteristics of nonpoisonous snake.

b. Poisonous Snakes. Poisonous snakes are found throughout the world, primarily in tropical to moderate climates. Within the United States, there are four kinds: rattlesnakes, copperheads, water moccasins (cottonmouth), and coral snakes. Poisonous snakes in other parts of the world include sea snakes, the fer-de-lance, the bushmaster, and the tropical rattlesnake in tropical Central America; the Malayan pit viper in the tropical Far East; the cobra in Africa and Asia; the mamba (or black mamba) in Central and Southern Africa; and the krait in India and Southeast Asia. See Figure 6-2 for characteristics of a poisonous pit viper.

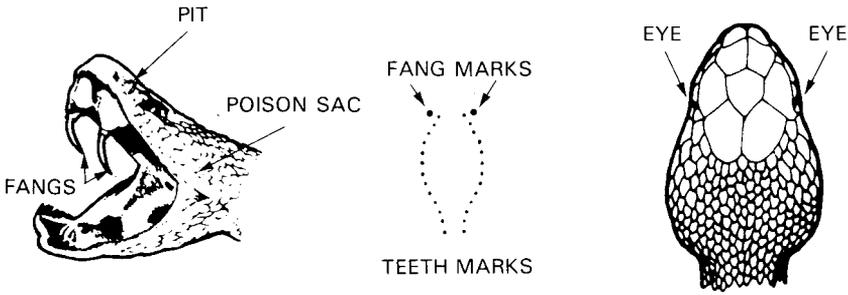
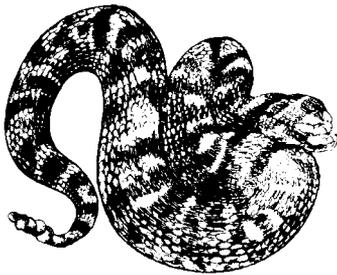
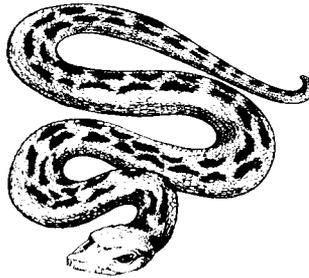


Figure 6-2. Characteristics of poisonous pit viper.

c. Pit Vipers (Poisonous). See Figure 6-3 for illustrations.



TROPICAL RATTLESNAKE



MALAYAN PIT VIPER



BUSHMASTER



FER-DE-LANCE

Figure 6-3. Poisonous snakes.

(1) Rattlesnakes, bushmasters, copperheads, fer-de-lance, Malayan pit vipers, and water moccasins (cottonmouth) are called pit vipers because of the small, deep pits between the nostrils and eyes on each side of the head (Figure 6-2). In addition to their long, hollow fangs, these snakes have other identifying features: thick bodies, slit-like pupils of the eyes, and flat, almost triangular-shaped heads. Color markings and other identifying characteristics, such as rattles or a noticeable white interior of the mouth (cottonmouth), also help distinguish these poisonous snakes. Further identification is provided by examining the bite pattern of the wound for signs of fang entry. Occasionally there will be only one fang mark, as in the case of a bite on a finger or toe where there is no room for both fangs, or when the snake has broken off a fang.

(2) The casualty's condition provides the best information about the seriousness of the situation, or how much time has passed since the bite occurred. Pit viper bites are characterized by severe burning pain. Discoloration and swelling around the fang marks usually begins within 5 to 10 minutes after the bite. If only minimal swelling occurs within 30 minutes, the bite will almost certainly have been from a nonpoisonous snake or possibly from a poisonous snake which did not inject venom. The venom destroys blood cells, causing a general discoloration of the skin. This reaction is followed by blisters and numbness in the affected area. Other signs which can occur are weakness, rapid pulse, nausea, shortness of breath, vomiting, and shock.

d. Corals, Cobras, Kraits, and Mambas. Corals, cobra, kraits, and mambas all belong to the same group even though they are found in different parts of the world. All four inject their venom through short, grooved fangs, leaving a characteristic bite pattern. See Figure 6-4 for illustration of a cobra snake.

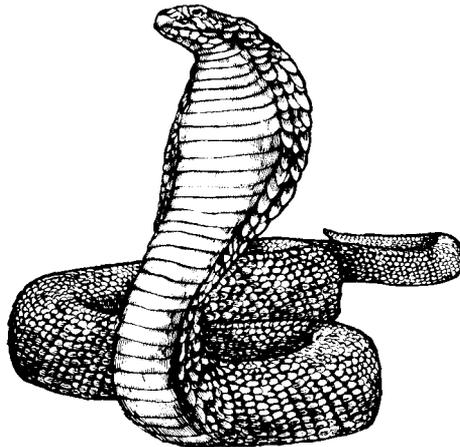


Figure 6-4. Cobra snake.

(1) The small coral snake, found in the Southeastern United States, is brightly colored with bands of red, yellow (or almost white), and black completely encircling the body (Figure 6-5). Other nonpoisonous snakes have the same coloring, but on the coral snake found in the United States, the red ring always touches the yellow ring. To know the difference between a harmless snake and the coral snake found in the United States, remember the following

“Red on yellow will kill a fellow. Red on black, venom will lack.”

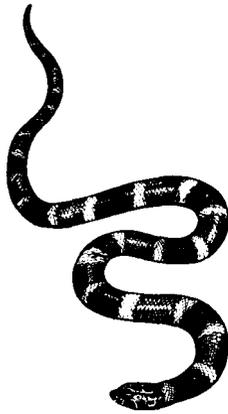


Figure 6-5. Coral snake.

(2) The venom of corals, cobras, kraits, and mambas produces symptoms different from those of pit vipers. Because there is only minimal pain and swelling, many people believe that the bite is not serious. Delayed reactions in the nervous system normally occur between 1 to 7 hours after the bite. Symptoms include blurred vision, drooping eyelids, slurred speech, drowsiness, and increased salivation and sweating. Nausea, vomiting, shock, respiratory difficulty, paralysis, convulsions, and coma will usually develop if the bite is not treated promptly.

e. *Sea Snakes*. Sea snakes (Figure 6-6) are found in the warm water areas of the Pacific and Indian oceans, along the coasts, and at the mouths of some larger rivers. Their venom is VERY poisonous, but their fangs are only 1/4 inch long. The first aid outlined for land snakes also applies to sea snakes.

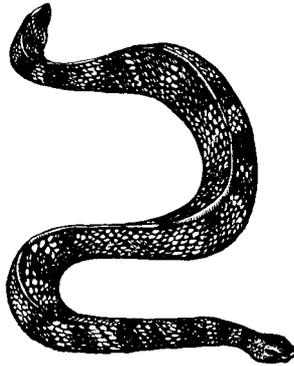


Figure 6-6. Sea snake.

6-2. Snakebites

If a soldier should accidentally step on or otherwise disturb a snake, it will attempt to strike. Chances of this happening while traveling along trails or waterways are remote if a soldier is alert and careful. Poisonous snakes DO NOT always inject venom when they bite or strike a person. However, all snakes may carry tetanus (lockjaw); anyone bitten by a snake, whether poisonous or nonpoisonous, should immediately seek medical attention. Poison is injected from the venom sacs through grooved or hollow fangs. Depending on the species, these fangs are either long or short. Pit vipers have long hollow fangs. These fangs are folded against the roof of the mouth and extend when the snake strikes. This allows them to strike quickly and then withdraw. Cobras, coral snakes, kraits, mambas, and sea snakes have short, grooved fangs. These snakes are less effective in their attempts to bite, since they must chew after striking to inject enough venom (poison) to be effective. See Figure 6-7 for characteristics of a poisonous snakebite. In the event you are bitten, attempt to identify and/or kill the snake. Take it to medical personnel for inspection/identification. This provides valuable information to medical personnel who deal with snakebites. **TREAT ALL SNAKEBITES AS POISONOUS.**

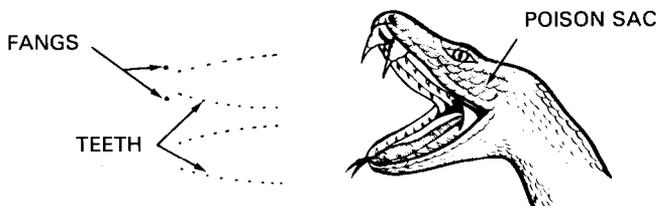


Figure 6-7. Characteristics of poisonous snake bite.

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a. Venoms. The venoms of different snakes cause different effects. Pit viper venoms (hemotoxins) destroy tissue and blood cells. Cobras, adders, and coral snakes inject powerful venoms (neurotoxins) which affect the central nervous system, causing respiratory paralysis. Water moccasins and sea snakes have venom that is both hemotoxic and neurotoxic.

b. Identification. The identification of poisonous snakes is very important since medical treatment will be different for each type of venom. *Unless it can be positively identified the snake should be killed and saved.* When this is not possible or when doing so is a serious threat to others, identification may sometimes be difficult since many venomous snakes resemble harmless varieties. When dealing with snakebite problems in foreign countries, seek advice, professional or otherwise, which may help identify species in the particular area of operations.

★ *c. First Aid.* Get the casualty to a medical treatment facility as soon as possible and with minimum movement. Until evacuation or treatment is possible, have the casualty lie quietly and not move any more than necessary. The casualty should not smoke, eat, nor drink any fluids. If the casualty has been bitten on an extremity, DO NOT elevate the limb; keep the extremity level with the body. Keep the casualty comfortable and reassure him. If the casualty is alone when bitten, he should go to the medical facility himself rather than wait for someone to find him. Unless the snake has been positively identified, attempt to kill it and send it with the casualty. Be sure that retrieving the snake does not endanger anyone or delay transporting the casualty.

★ (1) If the bite is on an *arm* or *leg*, place a constricting band (narrow cravat [swathe], or narrow gauze bandage) one to two finger widths above and below the bite (Figure 6-8). However, if only one constricting band is available, place that band on the extremity between the bite site and the casualty's heart. If the bite is on the *hand* or *foot*, place a single band above the wrist or ankle. The band should be tight enough to stop the flow of blood near the skin, but not tight enough to interfere with circulation. In other words, it should not have a *tourniquet-like affect*. If no swelling is seen, place the bands about one inch from either side of the bite. If swelling is present, put the bands on the unswollen part at the edge of the swelling. If the swelling extends beyond the band, move the band to the new edge of the swelling. (If possible, leave the old band on, place a new one at the new edge of the swelling, and then remove and save the old one in case the process has to be repeated.) If possible, place an ice bag over the area of the bite. DO NOT wrap the limb in ice or put ice directly on the skin. *Cool the bite area—do not freeze it. DO NOT stop to look for ice if it will delay evacuation and medical treatment.*

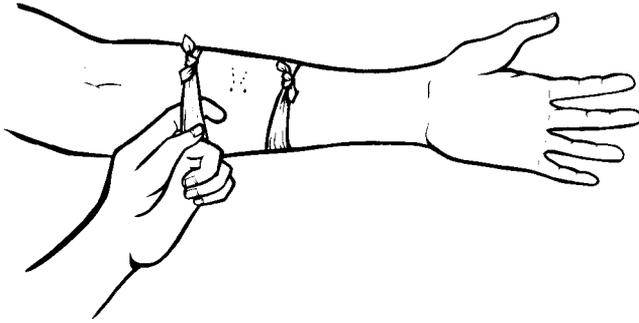


Figure 6-8. Constricting band.

CAUTION

DO NOT attempt to cut open the bite nor suck out the venom. If the venom should seep through any damaged or lacerated tissues in your mouth, you could immediately lose consciousness or even die.

(2) If the bite is located on an arm or leg, immobilize it at a level below the heart. DO NOT elevate an arm or leg even with or above the level of the heart.

CAUTION

When a splint is used to immobilize the arm or leg, take **EXTREME** care to ensure the splinting is done properly and does not bind. Watch it closely and adjust it if any changes in swelling occur.

(3) When possible, clean the area of the bite with soap and water. DO NOT use ointments of any kind.

(4) **NEVER** give the casualty food, alcohol, stimulants (coffee or tea), drugs, or tobacco.

(5) Remove rings, watches, or other jewelry from the affected limb.

NOTE

It may be possible, in some cases, for an aidman who is specially trained and is authorized to carry and use antivenin to administer it. The use of antivenin presents special risks, and only those with specialized training should attempt to use it!

d. *Prevention.* Except for a few species, snakes tend to be shy or passive. Unless they are injured, trapped, or disturbed, snakes usually avoid contact with humans. The harmless species are often more prone to attack. All species of snakes are usually aggressive during their breeding season.

(1) *Land snakes.* Many snakes are active during the period from twilight to daylight. Avoid walking as much as possible during this time.

- Keep your hands off rock ledges where snakes are likely to be sunning.

- Look around carefully before sitting down, particularly if in deep grass among rocks.

- Attempt to camp on clean, level ground. Avoid camping near piles of brush, rocks, or other debris.

- Sleep on camping cots or anything that will keep you off the ground. Avoid sleeping on the ground if at all possible.

- Check the other side of a large rock before stepping over it. When looking under any rock, pull it toward you as you turn it over so that it will shield you in case a snake is beneath it.

- Try to walk only in open areas. Avoid walking close to rock walls or similar areas where snakes may be hiding.

- Determine when possible what species of snakes are likely to be found in an area which you are about to enter.

- Hike with another person. Avoid hiking alone in a snake-infested area. If bitten, it is important to have at least one companion to perform lifesaving first aid measures and to kill the snake. Providing the snake to medical personnel will facilitate both identification and treatment.

- Handle freshly killed venomous snakes only with a long tool or stick. *Snakes can inflict fatal bites by reflex action even after death.*

- Wear heavy boots and clothing for some protection from snakebite. Keep this in mind when exposed to hazardous conditions.

- Eliminate conditions under which snakes thrive: brush, piles of trash, rocks, or logs and dense undergrowth. Controlling their food (rodents, small animals) as much as possible is also good prevention.

(2) *Sea snakes.* Sea snakes may be seen in large numbers but are not known to bite unless handled. Be aware of the areas where they are most likely to appear and be especially alert when swimming in these areas. Avoid swimming alone whenever possible.

WARNING

All species of snakes can swim. Many can remain under water for long periods. A bite sustained in water is just as dangerous as one on land.

6-3. Human and Other Animal Bites

Human or other land animal bites may cause lacerations or bruises. In addition to damaging tissue, human or bites from animals such as dogs, cats, bats, raccoons, or rats always present the possibility of infection.

a. Human Bites. Human bites that break the skin may become seriously infected since the mouth is heavily contaminated with bacteria. All human bites *MUST* be treated by medical personnel.

b. Animal Bites. Land animal bites can result in both infection and disease. Tetanus, rabies, and various types of fevers can follow an untreated animal bite. Because of these possible complications, the animal causing the bite should, if possible, be captured or killed (without damaging its head) so that competent authorities can identify and test the animal to determine if it is carrying diseases.

c. First Aid.

(1) Cleanse the wound thoroughly with soap or detergent solution.

- (2) Flush it well with water.
- (3) Cover it with a sterile dressing.
- (4) Immobilize an injured arm or leg.
- (5) Transport the casualty immediately to a medical treatment facility.

NOTE

If unable to capture or kill the animal, provide medical personnel with any information possible that will help identify it. Information of this type will aid in appropriate treatment.

6-4. Marine (Sea) Animals

With the exception of sharks and barracuda, most marine animals will not deliberately attack. The most frequent injuries from marine animals are wounds by biting, stinging, or puncturing. Wounds inflicted by marine animals can be very painful, but are rarely fatal.

a. Sharks, Barracuda, and Alligators. Wounds from these marine animals can involve major trauma as a result of bites and lacerations. Bites from large marine animals are potentially the most life threatening of all injuries from marine animals. Major wounds from these animals can be treated by controlling the bleeding, preventing shock, giving basic life support, splinting the injury, and by securing prompt medical aid.

b. Turtles, Moray Eels, and Corals. These animals normally inflict minor wounds. Treat by cleansing the wound(s) thoroughly and by splinting if necessary.

c. Jellyfish, Portuguese men-of-war, Anemones, and Others. This group of marine animals inflict injury by means of stinging cells in their tentacles. Contact with the tentacles produces burning pain with a rash and small hemorrhages on the skin. Shock, muscular cramping, nausea, vomiting, and respiratory distress may also occur. Gently remove the clinging tentacles with a towel and wash or treat the area. Use diluted ammonia or alcohol, meat tenderizer, and talcum powder. If symptoms become severe or persist, seek medical aid.

d. Spiny Fish, Urchins, Stingrays, and Cone Shells. These animals inject their venom by puncturing with their spines. General

signs and symptoms include swelling, nausea, vomiting, generalized cramps, diarrhea, muscular paralysis, and shock. Deaths are rare. Treatment consists of soaking the wounds in hot water (when available) for 30 to 60 minutes. This inactivates the heat sensitive toxin. In addition, further first aid measures (controlling bleeding, applying a dressing, and so forth) should be carried out as necessary.

CAUTION

Be careful not to scald the casualty with water that is too hot because the pain of the wound will mask the normal reaction to heat.

6-5. Insect Bites/Stings

An insect bite or sting can cause great pain, allergic reaction, inflammation, and infection. If not treated correctly, some bites/stings may cause serious illness or even death. When an allergic reaction is not involved, first aid is a simple process. In any case, medical personnel should examine the casualty at the earliest possible time. It is important to properly identify the spider, bee, or creature that caused the bite/sting, especially in cases of allergic reaction when death is a possibility.

a. Types of Insects. The insects found throughout the world that can produce a bite or sting are too numerous to mention in detail. Commonly encountered stinging or biting insects include brown recluse spiders (Figure 6-9), black widow spiders (Figure 6-10), tarantulas (Figure 6-11), scorpions (Figure 6-12), urticating caterpillars, bees, wasps, centipedes, conenose beetles (kissing bugs), ants, and wheel bugs. Upon being reassigned, especially to overseas areas, take the time to become acquainted with the types of insects to avoid.

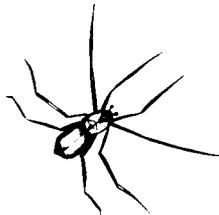


Figure 6-9. *Brown recluse spider.*

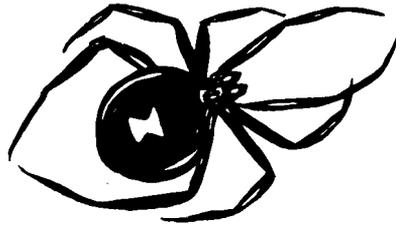


Figure 6-10. Black widow spider.



Figure 6-11. Tarantula.

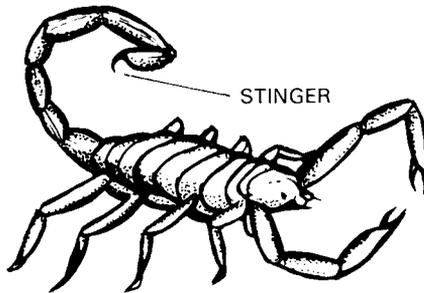


Figure 6-12. Scorpion.

b. Signs/Symptoms. Discussed in paragraphs (1) and (2) below are the most common effects of insect bites/stings. They can occur alone or in combination with the others.

(1) *Less serious.* Commonly seen signs/symptoms are pain, irritation, swelling, heat, redness, and itching. Hives or wheals (raised

areas of the skin that itch) may occur. These are the least severe of the allergic reactions that commonly occur from insect bites/stings. They are usually dangerous only if they affect the air passages (mouth, throat, nose, and so forth), which could interfere with breathing. The bites/stings of *bees*, *wasps*, *ants*, *mosquitoes*, *fleas*, and *ticks* are usually not serious and normally produce mild and localized symptoms. A tarantula's bite is usually no worse than that of a bee sting. *Scorpions* are rare and their stings (except for a specific species found only in the Southwest desert) are painful but usually not dangerous.

(2) *Serious*. Emergency allergic or hypersensitive reactions sometimes result from the stings of *bees*, *wasps*, and *ants*. Many people are allergic to the venom of these particular insects. Bites or stings from these insects may produce more serious reactions, to include generalized itching and hives, weakness, anxiety, headache, breathing difficulties, nausea, vomiting, and diarrhea. Very serious allergic reactions (called anaphylactic shock) can lead to complete collapse, shock, and even death. *Spider* bites (particularly from the black widow and brown recluse spiders) can be serious also. Venom from the black widow spider affects the nervous system. This venom can cause muscle cramps, a rigid, nontender abdomen, breathing difficulties, sweating, nausea and vomiting. The brown recluse spider generally produces local rather than system-wide problems; however, local tissue damage around the bite can be severe and can lead to an ulcer and even gangrene.

c. First Aid. There are certain principles that apply regardless of what caused the bite/sting. Some of these are:

- If there is a stinger present, for example, from a bee, remove the stinger by scraping the skin's surface with a fingernail or knife. DO NOT squeeze the sac attached to the stinger because it may inject more venom.
- Wash the area of the bite/sting with soap and water (alcohol or an antiseptic may also be used) to help reduce the chances of an infection and remove traces of venom.
- Remove jewelry from bitten extremities because swelling is common and may occur.
- In most cases of insect bites the reaction will be mild and localized use ice or cold compresses (if available) on the site of the bite/sting. This will help reduce swelling, ease the pain, and slow the absorption of venom. Meat tenderizer (to neutralize the venom) or calamine lotion (to reduce itching) may be applied locally. If necessary, seek medical aid.

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- In more serious reactions (severe and rapid swelling, allergic symptoms, and so forth) treat the bite/sting like you would treat a snakebite; that is, apply constricting bands above and below the site. See paragraph 6-2c(1) *above* for details and illustration (Figure 6-8) of a constricting band.

- ★ ● Be prepared to perform basic lifesaving measures, such as rescue breathing.

- Reassure the casualty and keep him calm.

- In serious reactions, attempt to capture the insect for positive identification; however, be careful not to become a casualty yourself.

- If the reaction or symptoms appear serious, seek medical aid immediately.

★ CAUTION

Insect bites/stings may cause *anaphylactic shock* (a shock caused by a severe allergic reaction). This is a *life-threatening* event and a **MEDICAL EMERGENCY!** Be prepared to immediately transport the casualty to a medical facility.

NOTE

Be aware that some allergic or hypersensitive individuals may carry identification (such as a MEDIC ALERT tag) or emergency insect bite treatment kits. If the casualty is having an allergic reaction and has such a kit, administer the medication in the kit according to the instructions which accompany the kit.

d. Prevention. Some prevention principles are:

- Apply insect repellent to all exposed skin, such as the ankles to prevent insects from creeping between uniform and boots. Also

apply the insect repellent to the shoulder blades where the shirt fits tight enough that mosquitoes bite through. DO NOT apply insect repellent to the eyes.

- Reapply repellent, every 2 hours during strenuous activity and soon after stream crossings.

- Blouse the uniform inside the boots to further reduce risk.

- Wash yourself daily if the tactical situation permits. Pay particular attention to the groin and armpits.

- Use the buddy system. Check each other for insect bites.

- Wash your uniform at least weekly.

e. Supplemental Information. For additional information concerning insect bites, see FM 8-230 and FM 21-10.

6-6. Table

See Table 6-1 for information on bites and stings.

Table 6-1. Bites and Stings

TYPES	FIRST AID
Snakebite	<ol style="list-style-type: none"> 1. Move the casualty away from the snake. 2. Remove all rings and bracelets from the affected extremity. 3. Reassure the casualty and keep him quiet. 4. Place ice or freeze pack, if available, over the area of the bite. 5. Apply constricting band(s) 1-2 finger widths from the bite. One should be able to insert a finger between the band and the skin. <ul style="list-style-type: none"> ● Arm or leg bite—place one band above and one band below the bite site. ● Hand or foot bite—place one band above the wrist or ankle. 6. Immobilize the affected part in a position below the level of the heart.

Table 6-1. Continued

TYPES	FIRST AID
Snakebite <i>Continued.</i>	7. Kill the snake (if possible, without damaging its head or endangering yourself) and send it with the casualty. 8. Seek medical aid immediately.
Brown Recluse Spider or Black Widow Spider Bite	1. Keep the casualty quiet. 2. Wash the area. 3. Apply ice or freeze pack, if available. 4. Seek medical aid.
Tarantula Bite or Scorpion Sting or Ant Bites	1. Wash the area. 2. Apply ice or freeze pack, if available. 3. Apply baking soda, calamine lotion, or meat tenderizer to bite site to relieve pain and itching. 4. If site of bite(s) or sting(s) is on the face, neck (possible airway problems), or genital area, or if local reaction seems severe, or if the sting is by the dangerous type of scorpion found in the Southwest desert, keep the casualty quiet as possible and seek immediate medical aid.
Bee Stings	1. If the stinger is present, remove by scraping with a knife or fingernail. DO NOT squeeze venom sac on stinger; more venom may be injected. 2. Wash the area. 3. Apply ice or freeze pack, if available. ★ 4. If allergic signs/symptoms appear, be prepared to seek immediate medical aid.