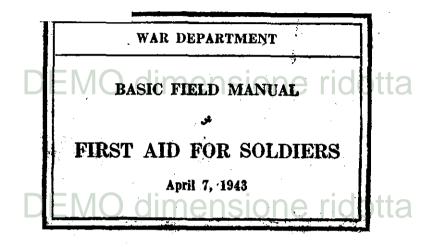
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### FM 21-11

### BASIC FIELD MANUAL

# FIRST AID FOR SOLDIERS

### Prepared under direction of the Commanding General, Army Service Forces DEMO dimensione ridotta

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#### **BASIC FIELD MANUAL**

#### FIRST AID FOR SOLDIERS

(The matter contained herein supersedes chapter 10, FM 21-10; and section II, chapter 14, FM 21-100.)

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■ 1. PURPOSE OF MANUAL.—The purpose of this manual is to teach the soldier what he can do for himself or a fellow soldier if injury or sickness occurs when no medical officer or Medical Department soldier is nearby. Information is also given concerning the use of certain supplies which are for the purpose of helping to keep well. If a soldier does the right thing, he may save his own or someone else's life, or at least relieve suffering. If he does the wrong thing, he may do more harm than if he does nothing.

■ 2. DEFINITION.—First aid means those medical measures which a soldier can carry out for himself or a companion and does not apply to the emergency medical treatment which is given by a medical officer or a Medical Department soldier.

■ 3. SOLDIER'S EQUIPMENT FOR FIRST AD.—Every soldier is issued certain equipment for giving first aid. Besides the supplies which he carries, other equipment will be found in the first-aid kits and packets in motor vehicles, airplanes, or among special troops. Soldiers whose assignments may require them to know how to use special first-aid equipment can find descriptions, illustrations, and directions for use of these supplies in sections XI and XII. In addition to the first-aid supplies mentioned, many objects which are a regular part of every soldier's clothing and general equipment or which will be found almost anywhere can be used in giving certain types of first aid.

- 4. IMPORTANT FIRST-AID RULES.
  - a. Do not get excited; act quickly but calmly.
  - b. Do not try to do too much.

c. Handle an injured person gently.

d. Keep an injured person warm.

e. Whenever possible, give an injured person first aid before he is moved.

f. Do not pour liquids into the mouth of an unconscious person; to do this may choke him.

g. Do not try to bring an unconscious injured person to consciousness. Let him lie quietly, face down, with his head turned to one side.

h. Remember that drugs are dangerous if too much is given; follow directions when using drugs in first-aid kits and packets.

i. Anyone who has been given first aid for a serious condition should be seen as soon as possible by a medical officer.

**5.** FIRST AID IN COMDAT.—Successful accomplishment of the assigned mission is the alm of battle. The combat soldier will administer first aid only when he can do so without interfering with his combat duties. When administration of first aid in actual combat is possible, usually only those measures will be taken which are immediately necessary to save life. The wounded person should be placed where he is protected from enemy fire and the elements, marking the spot where he lies so that he can be easily found by Medical Department personnel,

#### SECTION II

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■ 6. GENERAL.—Wounds are the most common conditions which require first aid. Prompt and correct first aid for wounds will not only speed their healing, but will often save a life. First aid for wounds includes measures to stop bleeding, overcome shock, relieve pain, and prevent infection.

■ 7. EXPOSURE OF WOUND.—To give proper first aid, the entire wound must be well exposed in order to ascertain exactly where it is, how large it is, and how much it is bleeding. When a wound has been caused by a bullet, a shell fragment, or other object which could have gone all the way through a part of the body, look for a wound where the object may have come out, because the wound where it comes out is usually larger than the wound where it goes in. In order to see all wounds which may be present, cut, tear, or remove the clothing as much as necessary. Do not drag clothes over a wound; carefully lift them off.

■ 8. BLEEDING.—All open wounds bleed more or less. Bleeding from an artery is known as arterial bleeding, and bleeding from a vein is known as venous bleeding. Bleeding from the arteries is more dangerous because the blood flows fast and will soon cause a person to bleed to death unless the flow of blood is stopped. In most severe wounds there is bleeding from both arteries and veins. Bleeding of any type must be stopped as soon as possible. The first-aid methods to stop bleeding are to press directly over the wound, to elevate the wounded part, or to use a tourniquet.

a. Direct pressure over wound.—Direct pressure over the wound should always be tried first. To do this, put a sterile dressing, such as the one in your individual first-aid packet.



FIGURE 1.-Direct pressure over a wound to stop bleeding.

over the wound and press firmly on the dressing as shown in figure 1. Keep up the pressure for at least 5 minutes and then hold the dressing in place by bandaging. (See par. 11d.) More than one dressing may be needed for large wounds.

b. Elevating wounded part.—Raising a wounded arm or leg high above the body, as shown in figure 2, will help to stop



FIGURE 2.-Elevation of an arm to help stop bleeding.

bleeding. The wounded person must lie down and the arm or leg must be held up as high as possible while direct pressure is made on the wound and a sterile dressing is put on. c. Use of tourniquet.—(1) Do not use a tourniquet unless bleeding cannot be stopped by other means. Bleeding from a wound can usually be stopped by applying a sterile dressing, pressing directly over the wound, and, if possible, raising the wounded part. If a regular issue tourniquet is used, the buckle should be on the inside of the upper arm or thigh as shown in figures 3 and 4, and the strap should be pulled

in a downward direction while the injured part is steadied. If bleeding cannot be stopped by simply pulling the tourniquet tight, loosen it enough to slip a bayonet or other object under it so that it can be made tight enough by twisting.

(2) For bleeding from the arm and hand, put on the tourniquet about a hand's breadth below the armpit as shown in Figure 3. For the thigh and leg, put it on about a hand's breadth below the crotch as shown in figure 4.



(3) If a regular tourniquet is not available, a triangular bandage, a tie, a belt, or a handkerchief will do instead. Figure 5 shows how a tourniquet is tightened by twisting it with a bayonet or a stick.

(4) Tighten a tourniquet only as much as is necessary to stop bleeding.

(5) A properly applied tourniquet stops all the blood going to the injured part, and gangrene may develop if a tourniquet is left on too long. It should be loosened every 20 or 30 minutes, and then tightened again after 10 or 15 seconds.

(6) Do not cover a tourniquet with a bandage or a splint because, if covered, it may be forgotten and left on too long. 8



FIGURE 5.—An improvised tourniquet.

If you put a tourniquet on a wounded person who is conscious and then leave him, tell him to be sure to get someone to loosen it for at least 10 or 15 seconds every 20 or 30 minutes.

9. SHOCK.-a. Shock is a condition of weakness which usually follows wounds, burns, or other injuries. When severe shock has developed, the injured person is pale, and his skin is cold and wet with sweat. Remember, however, that these are signs of severe and fully developed shock. A person who is suffering from a mild degree of shock may not show these signs. First-aid measures for shock should, whenever possible, be started before the injured person has developed definite signs of shock. Shock is especially likely to occur if a person is bleeding. Shock can also be caused or increased by exposure to cold, fatigue, or hunger. A certain amount of shock follows all injuries and burns; it may be slight and last only for a few minutes, or it may be severe and last for a long time, and may even cause death. As a rule, the more severe an injury or burn, the greater will be the amount of shock. Shock often does not appear until many minutes or even several hours after a wound, burn, or other injury. Even before shock can be noticed, take measures to prevent it.

b. Handle the injured person gently, avoid unnecessary moving of the injured part or of the injured person, and in all other ways make him as comfortable as possible.

c. To prevent or overcome shock, put the injured person on his back with his head and shoulders lower than his legs and hips. If he is unconscious, keep him *face down*, with his *head turned to one side*, and with his head and shoulders lower than his legs and hips.

d. Stop any bleeding as soon as possible.

e. Remove the individual's pack and loosen tight clothing or straps.

f. Keep an injured person warm, but be sure not to overheat him because overheating can increase shock instead of preventing or overcoming it. Ordinarily, simply cover him with extra clothing or blankets. If the weather is cold, apply heat by means of bottles or canteens filled with hot water, or by means of warm stones or bricks. These warm objects can be placed between the legs, under the armpits, and beside the waist; they should be covered or placed between blankets and should not be put against bare skin or against very thin clothing because they may burn the person.

g. Warm drinks are helpful in shock. If a person has a wound of the abdomen or throat, never give him more than a few small sips of water to wet his lips. Unless very thirsty, a person with a wound of the abdomen or throat should be given nothing to drink, and should never be given anything to eat.

10. PAIN.—Some pain occurs sooner or later following all wounds. Pain is often so slight that it does not bother the injured person enough to require any particular attention but, if pain is severe, it must be relieved as much as possible. Pain can often be prevented or relieved by simple measures such as keeping an injured person quiet and warm, carefully changing his position to make him comfortable, splinting an injured arm or leg, and gentle handling during transportation. Only when pain is severe, or when a badly injured person must be moved quickly, as from a wrecked vehicle or aircraft, is it wise to give him morphine. If pain is severe, however, a dose of morphine will not only relieve the pain but will also lessen shock. If morphine is needed to relieve pain, it will be found in certain first-aid kits and packets, already prepared for injection, in a collapsible tube with an attached needle. Directions for its use are given in paragraph 110 and are shown in figures 96 and 97.

Caution: The full effects of, morphine are not felt for 20 to 30 minutes after injection. A second injection of morphine for continued severe pain should not be given sooner than 2 hours after the first one. Never give a second dose of morphine to a person who is breathing 12 or less times a minute. Never give morphine to an unconscious person.

■ 11. INFECTION.—a. Whenever the skin is torn or cut, infection may occur. Infection is very likely to take place if a wound touches the ground, or if anything else dirty touches or gets into it. A wound which becomes infected is much more serious than one which is kept clean, so the prevention of infection is a very important first-aid measure. At the same time that bleeding is being stopped and a dressing applied, as well as after these first-aid measures have been

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carried out, care must be taken to keep a wound clean, so as to prevent infection.

b. Do not touch a wound with dirty hands or dirty clothing. Do not allow a wound to touch the ground. Do not wash a wound.



FIGURE 6.—First-aid packet being opened by pulling on metal tape which seals the container.

c. If there is only a small amount of bleeding from a wound when first seen, or if bleeding has been easily stopped, sprinkle sulfanilamide, which is in the first-aid packet (figs. 6 and 7), into the wound as shown in figure 8, and then apply the sterile dressing, which is also in the first-aid packet. When bleeding has been hard to stop, do not lift up or take off the dressing to sprinkle sulfanilamide into the wound; removing the dressing may start bleeding again.

d. The proper application of a sterile dressing is an important means of preventing infection as well as of stopping bleeding. To use the dressing in the first-aid packet, carefully remove the wrapper as shown in figure 9. Open the

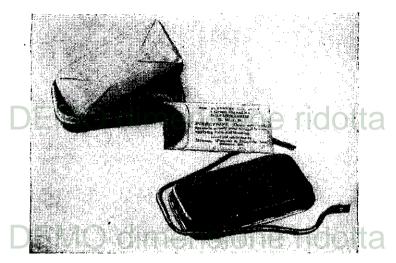


FIGURE 7.-Contents of first-aid packet.

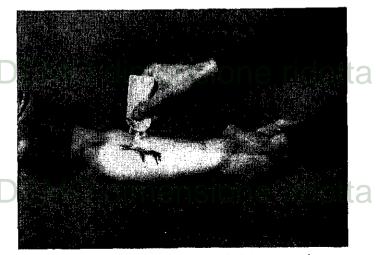


FIGURE 8 .- Sprinkling sulfanilamide into a wound.

#### FIRST ALD FOR SOLDIERS

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FIGURE 9,-Removal of wrapper from dressing.



FIGURE 10.-Method of opening compress.

compress by pulling on the two folded bandages attached to the compress, as shown in figure 10, being careful not to touch the inside of the compress with the fingers or anything else. Still holding one folded bandage in each hand, apply the compress to the wound as shown in figure 11; then wrap the bandage around the injured part of the body and tie the ends together or fasten them with safety pins.



FIGURE 11,-Application of dressing to wound.

e. When wounded other than in the abdomen or throat, take by mouth, along with a large amount of water, the eight sulfadiazine tablets (or the twelve sulfanilamide tablets found in some packets instead of sulfadiazine tablets) which are in the sealed packet carried in the first-aid pouch attached to the cartridge belt. If sweating has been great or if large amounts of water cannot be taken both with the drug and for 24 hours afterward, no sulfadiazine or sulfanilamide tablets are to be taken. ■ 12. SPLINTING OF INJURED ARM OR LEG.—A severely wounded arm or leg should, if possible, be splinted (par. 17) or placed in a sling after dressings have been applied, even if no bone is broken; this will keep the injured part at rest and will help to prevent bleeding, to lessen shock, to relieve pain, and to prevent infection.

■ 13. WOUNDS REQUIRING SPECIAL ATTENTION.—a. Wounds extending into the chest.—If there is a wound of the chest through which air is sucking in and blowing out, the life of the person may depend upon quickly applying a dressing which is large enough to cover the wound and which completely stops the flow of air through the wound. If this does not stop the back and forth movement of air, apply more dressing. A large piece of raincoat, overcoat, blouse or shirt applied tightly over the dressing may be useful in making the dressing airtight. A person with a wound of the chest will be more comfortable and breathe more easily if he lies on the injured side.

b. Wounds entering the abdomen.—If a bullet or other object has gone into or through the abdomen, the injured person should be given nothing to eat or drink. Under no circumstances give anything more than a few small sips of water to wet his lips. If the abdominal organs have come through the wound do not try to put them back. Sprinkle sulfanilamide over the Wound and organs, and put on a large sterile dressing.

c. Wounds of the jaws, mouth, and face.—If there is a wound of these parts, the face of the wounded person should be kept pointed toward the ground in order to prevent blood from getting into the back of the throat where it may cause choking. Until bleeding stops, keep the person in a sitting position with his head bent forward. If it is necessary for him to lie down, or if he must be carried on a litter, keep his face pointed to the ground.

### FRACTURES, DISLOCATIONS, AND SPRAINS

■ 14. TYPES OF FRACTURES.—A simple fracture is a break in a bone. A compound fracture is one in which there is a flesh wound which extends through the skin and down

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to the broken bone. The flesh wounds in compound fractures are usually caused by the sharp ends of the broken bone or by bullets or fragments of high explosive shells, grenades, or bombs. Compound fractures are more serious than simple fractures because of the danger of infection in the flesh wound and because shock is usually greater. Careless handling of a simple fracture may cause it to become a compound fracture.

**15.** SIGNS AND SYMPTOMS OF FRACTORE.—One or more of the following signs or symptoms may be present when there is a fracture:

a. Pain and tenderness near the fracture.

b. Partial or complete loss of ability of the injured person to move the part.

c. Deformity (unnatural shape).

d. Swelling.

e. Discoloration (blueness about the point of injury). f. Grating of bone ends may be felt, but no attempt should be made to produce this.

■ 16. FIRST AID FOR FRACTURES.—a. Handle all persons with fractures, or even suspected fractures, with the greatest gentleness; rough or careless handling causes pain and shock. Immediate transportation of a person with a serious fracture is sometimes harmful even if done very carefully; this is especially true of fractures of the thigh, hip, leg, or back, and in all cases in which shock has already appeared. Give first aid, including splinting of the fracture, where the injured person is lying:

b. Straighten the limb by pulling gently but steadily upon its lower end.

c. Keep up this steady pull and support the limb on either side of the fracture until a splint is applied.

■ 17. SPLINTS.—a. A splint should be as wide as the limb and long enough to prevent movement of the next joint in either direction from the fracture. Temporary splints can be made from many common materials such as shingles, pieces of board, bayonet scabbards, pieces of tin, wire mesh, and folded blankets. Pad splints well on the side toward the skin and bind them securely in place at several points

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above and below the fracture but not over the fracture. b. Be sure that bandages are not so tightly bound as to stop the circulation of blood when swelling of the limb occurs, as it usually does after a fracture. Swelling, coldness, stiffness, blueness, or numbness of a foot or hand is often due to too tight bandaging. If any of these signs are noticed, loosen the bandages which hold on the splints but do not remove them.

■ 18. SLINCS.—In fractures or other severe injuries of the arm or shoulder, the arm should usually be supported by a sling, in addition to the use of splints or other first-aid measures. A triangular bandage (pars. 72 and 73) makes a very good sling (figs. 12, 13, 14, and 15), but arm slings may be made from ordinary bandages, clothing, or by using safety pins to fasten the coat or shirt sleeve to the front of the coat or shirt. The coat flap or shirt tail may be used as a sling by pinning it to the coat or shirt or by punching a hole through the lower edge of the flap or tail and buttoning this to one of the upper coat or shirt buttons. Various types of slings are shown in figures 12 to 18, inclusive.

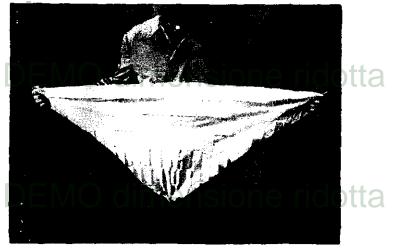


FIGURE 12 .- Triangular bandage.



FIGURE 13.-Sling made with triangular bandage-first step.



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