FMFRP 4-52

First Aid

U.S. Marine Corps

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DEPARTMENT OF THE NAVY
Headquarters United States Marine Corps
Washington, DC 20380-0001

19 October 1990

FOREWORD

Read this manual now. FMFRP 4-52, *First Aid*, provides vital information on first aid lifesaving skills that your Commandant wants every Marine to know. First aid is the emergency or life-saving care given to the sick, injured, or wounded before trained medical personnel are available; it is both self-aid and buddy aid. A corpsman will not be available for every injured Marine. That Marine's life, and maybe even your own life, may one day depend on how much you know about first aid. Without your prompt first aid action, an injured Marine may not live until a corpsman or doctor can treat him.

This manual contains essential information about real emergencies which you may face. You must be ready to help yourself and your fellow Marine. Use this pocket manual to guide you in your training. Know its contents so you will not have to use it when an emergency arises; but use it then if you must. Reread it often to refresh your memory and keep your skills current. Emergencies occur both on and off the battlefield. Share the information in this manual with your family and friends; the life they save may be yours!

Warning

In a life-threatening condition, every second counts. Know your skills before you need to use them; an emergency is the wrong time to try to learn.

The Battle Skills Training/Essential Subjects Handbook (MCO P1500.44) describes various other first aid treatments in detail.

The information on CPR in this manual is not a substitute for formal training. Training includes reading materials, classroom instruction by certified instructors, and practice with manikins. Contact your Medical Department or Education and Training Office to find out more about CPR training.

Even though this publication uses the terms "Marine" and "he/his/him," they apply to all casualties/victims. The first aid actions described apply to male and female persons alike.

We encourage users of this manual to recommend changes for its improvement. For proper evaluation, suggestions must be specific. Give the reasons for your change. Forward suggestions using the User Suggestion format to—

Commanding General
Marine Corps Combat Development Command (WF 12)
Quantico, Virginia 22134-5001

Reviewed and approved this date.

BY DIRECTION OF THE COMMANDANT OF THE MARINE CORPS

M. P. CAULFIELD
Major General, U.S. Marine Corps
Deputy Commander for Warfighting
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Quantico, Virginia

DISTRIBUTION: 140 04520000

USER SUGGESTION FORM

From:

To: Commanding General, Marine Corps Combat Development Command (WF 12), Quantico, Virginia 22134-5001

Subj: RECOMMENDATIONS CONCERNING FMFRP 4-52, *FIRST AID*

1. In accordance with the Foreword to FMFRP 4-52, which invites individuals to submit suggestions concerning this FMFRP directly to the above addressee, the following unclassified recommendation is forwarded:

Page	Article/Paragraph No.	Line No.	Figure/Table No.

Nature of Change: ☐ Add ☐ Delete ☐ Change ☐ Correct

2. Proposed new verbatim text: (Verbatim, double-spaced; continue on additional pages as necessary.)

3. Justification/source: (Need not be double-spaced.)

NOTE: Only one recommendation per page.

Record of Changes

Change No.	Date of Change	Date of Entry	Organization	Signature

First Aid

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Chapter 3. Bleeding

Chapter 5. Specific Injuries

CHAPTER 1

The Basics of First Aid

Through proper first aid, you can save yourself and your fellow Marines. You may be able to save a life, prevent permanent disability, and reduce periods of hospitalization. You must know what to do, what not to do, and when to seek medical support. Most injured or ill Marines return to their units primarily because they received appropriate and timely first aid followed by the best medical care possible. Casualty evaluation is the first step in any first aid procedure. Don't panic; keep the casualty calm. Let him know you are going to help him and that he will be okay.

The ABC's of First Aid

You must carefully and skillfully evaluate casualties to determine the required first aid. Do this evaluation and the required actions in the right order to find the most serious condition first. The priority is **A**irway, **B**leeding, and **C**ontrol of shock. Remember **ABC**. Then always protect the casualty from further injury.

A Check the airway. Make sure the casualty is breathing. Lack of oxygen because of a blocked airway or inadequate breathing will lead to brain damage or death in a very few minutes.

B Check for bleeding. Stop bleeding. Without blood, oxygen cannot get to the body parts, and they start to die.

C Control shock. Prevent or treat shock. Preventing shock greatly increases the casualty's chances of survival. Rapid treatment of shock is essential. Shock can cause death even when the injury would not otherwise be fatal.

How to Evaluate a Casualty

When you find a Marine unconscious or injured, you must accurately evaluate the casualty to determine what to do. Your actions will treat the injury or illness and prevent further injury or death. You should seek medical support as soon as possible, but do not stop treatment. Stopping treatment may cause further harm to the casualty. Send a second person for medical help. If you find a life-threatening condition during your evaluation, STOP and treat that condition. Then resume the evaluation.

After giving first aid treatment, continue to monitor the casualty for conditions which may require further treatment or other lifesaving actions. Such actions include maintaining the airway, control of bleeding, and treatment for shock. You should continue to monitor the casualty until relieved by medical personnel. Remember that in an actual or suspected nuclear-, biological-, or chemical-contaminated environment, put your mask on first, then help mask the casualty. Then administer an antidote as appropriate. Follow the steps below in evaluating a casualty. Refer to other pages of this manual for specific first aid procedures.

1 **Check the casualty for a response.** Gently shake or tap him and calmly ask, "Are you okay?" If the casualty does not respond, go to step two. If the casualty is conscious but is choking and cannot talk, see "Choking" (page 2-10). If the casualty responds, continue evaluation. Ask where he feels different than usual. Ask, "Where do you feel pain?" or "Where do you have no feeling?" If there is no feeling in some part of the body, suspect a broken neck or back.

WARNING

If you suspect a broken neck or back, do not move the casualty unless to save his life. Movement may cause paralysis or death.

2 **Check the airway.** See Chapter 2, "Opening the Airway and Cardiopulmonary Resuscitation" (page 2-1). If the casualty is breathing, go to step three.

If the casualty is not breathing, stop the evaluation and begin treatment. See "Opening the Airway" (page 2-1). If an airway obstruction is apparent, clear the obstruction (page 2-12). Then start rescue breathing (page 2-3).

3 **Check for pulse.** If a pulse is present and the casualty is breathing, go to step four.

If a pulse is present, but the casualty is still not breathing, start rescue breathing. See "Rescue Breathing" (page 2-3).

If a pulse is not present, start cardiopulmonary resuscitation (CPR). See CPR (page 2-6).

WARNING

CPR should be given only by qualified personnel.

When the casualty is breathing and has a pulse, then go to step four.

4 **Check for bleeding.** Look for spurts of blood or blood-soaked clothes. Also check for both entry and exit wounds. If the casualty is bleeding from an open wound, stop the evaluation and begin treatment. See "Bleeding" (page 3-1).

WARNING

In an NBC environment, do not increase exposure of any wound. Apply dressings over protective clothing.

5 **Control shock.** See "Shock "(page 4-1). If you see signs or symptoms of shock, stop the evaluation and begin treatment immediately. When you have completed treatment for shock, go to step six.

6 **Check for neck or back injuries and fractures.** See "Fractures" (page 5-12).

WARNING

If you suspect a broken neck or back, do not move the casualty unless to save his life. Movement may cause paralysis or death.

Immobilize any casualty you suspect has a neck or back injury. (See page 5-19.)

Check the casualty for open and closed fractures (page 5-12).

If you suspect or find a fracture, stop the evaluation and begin treatment.

7 **Check for possible head injury.** See "Head Injury" (page 5-1). If you suspect a head injury, continue to watch for signs which would require rescue breathing, CPR, control of bleeding, or treatment for shock. GET MEDICAL HELP.

8 **Check for burns.** See "Burns" (page 5-9). Look carefully for reddened, blistered, or charred skin. Also, check for singed clothing. If you find burns, stop the evaluation and begin treatment.

9 **Check for heat- or cold-environment and other injuries.** (See page 5-22.)

WARNING

Check for skin discoloration of face and areas of pain or injury. In casualties with dark skin, look for color changes in the skin of the mouth and eyelids and under fingernails and toenails.

For a summary of these first aid actions, see the figure on page 1-6.

After giving buddy aid/first aid, remember, **CONTINUE YOUR MISSION.**

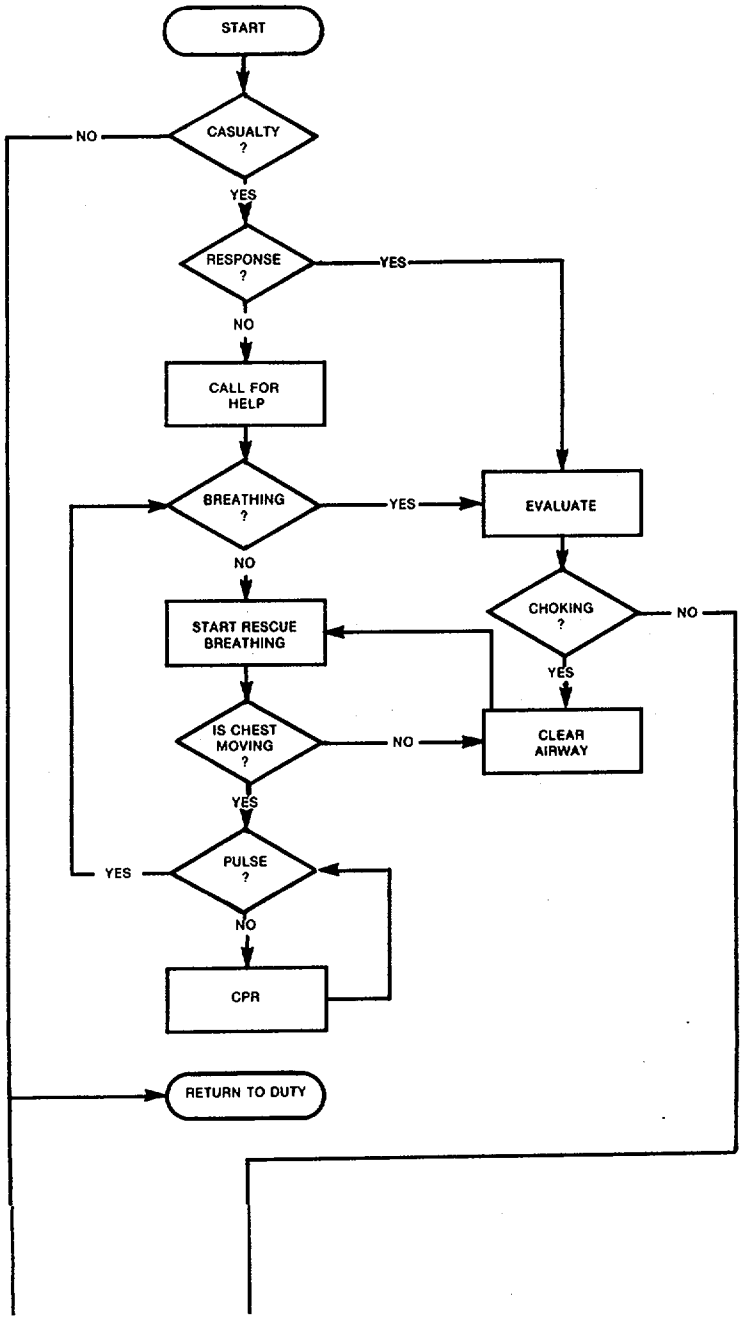
If your mission requires you to leave an injured Marine behind, mark his location so that rescue parties can find him. Normally, mark an unconscious casualty with a rifle and bayonet stuck in the ground. Do not place the victim's helmet on the rifle. This is done only by trained medical personnel to indicate those killed in action.

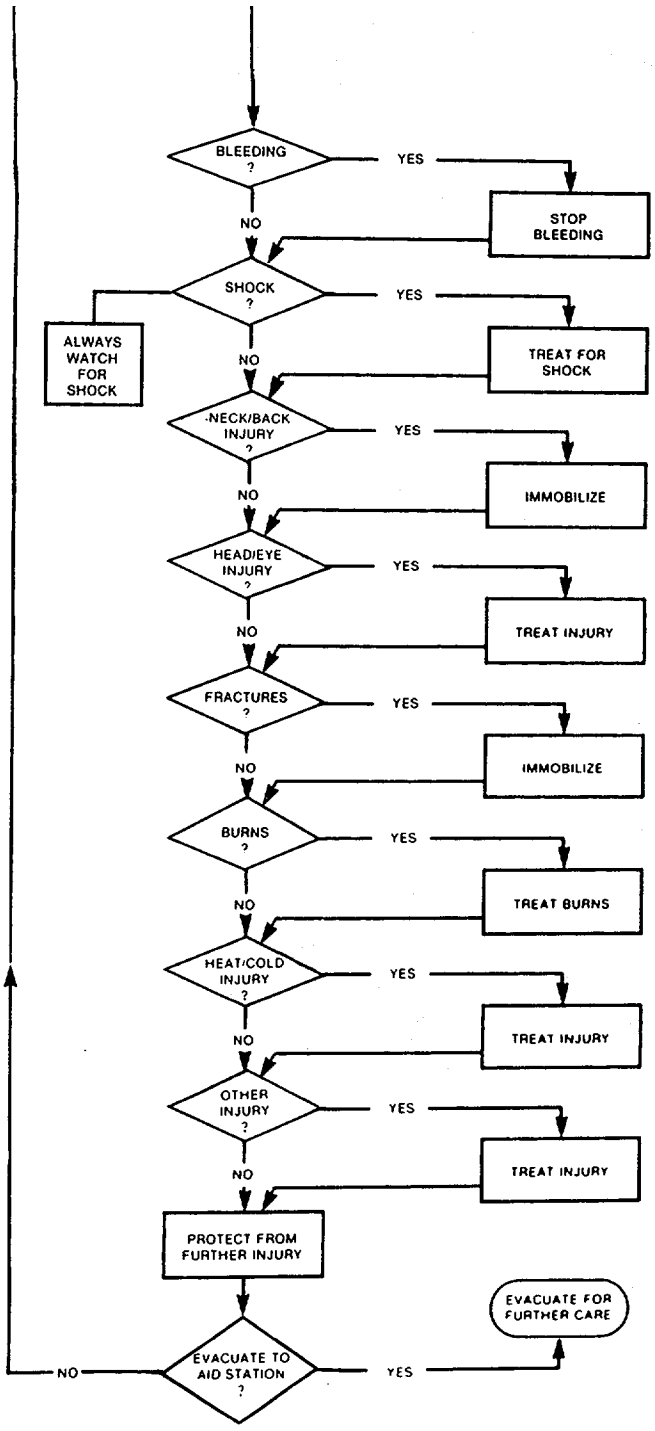
Self-Aid – What to Do When Injured and Alone

Panic is your worst enemy. Remain calm, talk to yourself, and think things through. Decide as quickly and sensibly as possible what is wrong. Can you get help? Where is the nearest person? Where is the nearest aid station? Can you attract attention by yelling, firing a weapon, or building a fire? Get any bleeding stopped, and you will have time for remaining problems.

If you have a major medical emergency, try to think about the procedures in this manual. Lie down and make yourself as comfortable as possible. Conserve your energy. Don't tire yourself out.

First Aid Priority Flowchart




BLEEDING ?
YES
STOP BLEEDING
NO
SHOCK ?
YES
ALWAYS WATCH FOR SHOCK
TREAT FOR SHOCK
NO
NECK/BACK INJURY ?
YES
IMMOBILIZE
NO
HEAD/EYE INJURY ?
YES
TREAT INJURY
NO
FRACTURES ?
YES
IMMOBILIZE
NO
BURNS ?
YES
TREAT BURNS
NO
HEAT/COLD INJURY ?
YES
TREAT INJURY
NO
OTHER INJURY ?
YES
TREAT INJURY
NO
PROTECT FROM FURTHER INJURY
EVACUATE FOR FURTHER CARE
EVACUATE TO AID STATION ?
NO
YES

CHAPTER 2

Opening the Airway and Performing Cardiopulmonary Resuscitation

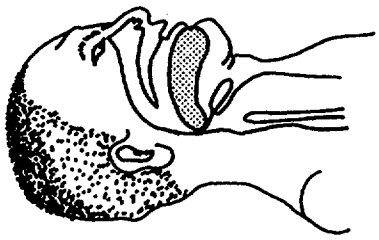
Living things require oxygen. Without it, cells of the brain begin to die within minutes. Opening the airway, giving rescue breathing, and performing cardiopulmonary resuscitation (CPR) get lifesaving oxygen into the blood and then to the brain and other organs of the body where it is needed. When a casualty can't breathe, his life is in very great danger. This chapter shows you how to treat this primary medical emergency.

If the victim is conscious, see "Choking," page 2-10.

If the victim is unconscious, see "Opening the Airway," below.

Opening the Airway Unconscious Casualty

The tongue is the most common cause of an airway obstruction. Many times, simply extending the neck will clear the airway.



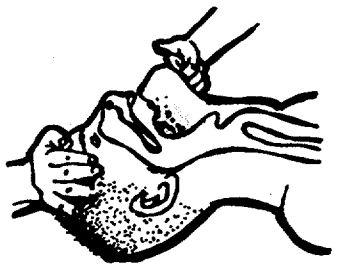
AIRWAY BLOCKED BY TONGUE

1. Determine a response. Ask, "Are you okay?" If there is no response, call for help and then position the casualty. Move (roll) the casualty onto his back. If you suspect a neck or back injury, take appropriate precautions (page 5-19).

2. Perform either the head tilt/chin lift or the jaw thrust technique to open the airway. If you suspect a neck or back injury, use the jaw thrust method.

Head Tilt/Chin Lift

Kneel beside the casualty's head and place one hand on his forehead. Place the fingertips of the other hand under the chin.



HEAD TILT/CHIN LIFT

While pressing on the forehead to tilt the head back, lift the chin forward to open the airway. Do not press on soft tissues under the chin; pressing may obstruct the airway. Bring the teeth together, but do not close the mouth completely.

Jaw Thrust

Grasp the angles of the casualty's lower jaw. Lift with both hands, one on each side, displacing his jaw forward while tilting his head backwards. Rest your elbows on the surface on which the casualty is lying. If his lips close, retract his

JAW THRUST

lower lip with your thumb. The jaw thrust method is recommended when opening the airway of a casualty with a suspected neck injury.

3. Once you have opened the airway, make sure it remains open. Sometimes this will mean using something under the shoulders to keep the neck extended.

If the victim is still not breathing, go to rescue breathing.

Rescue Breathing and CPR

This section presents the procedures for rescue breathing and cardiopulmonary resuscitation. Look carefully at the pictures and read the descriptions of each important step. THIS SECTION IS NOT A SUBSTITUTE FOR FORMAL CPR TRAINING. Use this section to refresh your skills and serve as a guide if an emergency arises where you, though untrained, are the only rescuer. Reading material does not, by itself, make up a CPR course. You must practice on manikins, with certified instructors to guide you, to gain the skills needed for CPR. NEVER PRACTICE CPR SKILLS ON ANOTHER PERSON.

CPR is a holding action for sudden heart or lung failure until more advanced life support is available. CPR involves a

combination of rescue breathing and external chest compressions. It keeps some blood with oxygen flowing to the brain and other vital organs.

Remember, CPR, like any skill, needs to be practiced to keep the important steps straight. That way, if an emergency arises, you may be able to help save a life.

1. Determine unresponsiveness. Tap or gently shake the casualty and ask, "Are you okay?" Call for help. Turn or position the casualty on his back on a firm surface. Place the casualty's head level with or lower than the rest of his body.

DETERMINE RESPONSE. CALL OUT FOR HELP

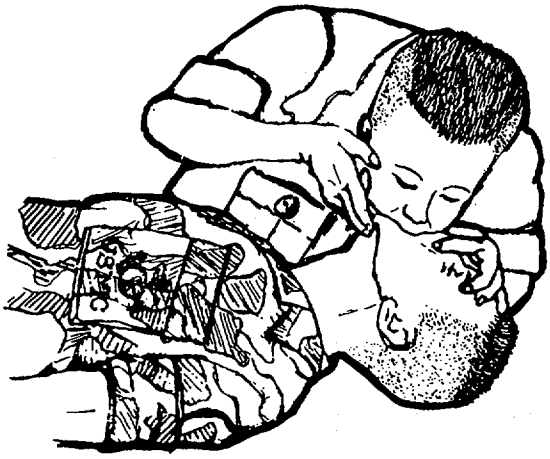
2. Open the airway. Kneel beside the casualty's shoulder. Use the head tilt/chin lift or jaw thrust method (see page 2-2).

3. Check for breathing. Turn your head toward the casualty's chest and place your ear directly over and close to his mouth. Look for the rise and fall of the chest. Listen for sounds of breathing. Feel for the breath on the side of your face. An accurate check is important. Do not perform rescue breathing on someone who is already breathing.

Rescue Breathing

4. If the casualty is NOT breathing, perform rescue breathing (ventilate the victim), as follows:

Pinch the nostrils with the thumb and forefinger of your upper hand while maintaining pressure on the forehead to keep the head tilted.



START RESCUE BREATHING

Open your mouth wide, take a deep breath, and make a tight seal around the casualty's mouth. ***NOTE: If you cannot use the casualty's mouth to give breaths, seal your mouth around his nose instead.*** Breathe into the casualty's mouth for 1 to 1½ seconds. Allow the casualty's lungs to deflate. Then repeat to give a second breath. Watch for the chest to rise and then fall.

If the chest does not rise, reposition the casualty's head and repeat rescue breathing. Give two full breaths at 1 to 1½ seconds per breath and allow the casualty's lungs to deflate between breaths.

If the chest still does not rise, check for a blocked airway (see Airway Obstruction, page 2-12). Try abdominal thrusts

(or chest thrusts only in cases of pregnant or obese persons) and finger sweeps to clear the airway. Again give two breaths causing the chest to rise and fall. ***NOTE: Also see the chest pressure/arm lift method on page 2-8 for another method of rescue breathing.***

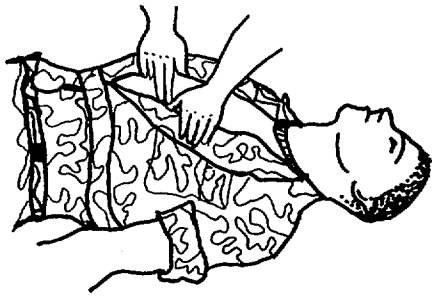
5. Check pulse. Place two or three fingers (not your thumb) on the voice box just below the chin. Slide your fingers into the groove between the voice box and muscle on the side nearest you.

Maintain the head tilt with other hand. Feel for the pulse. If the casualty is not breathing but has a pulse, continue rescue breathing. Deliver 12 breaths (respirations) per minute or one breath every 5 seconds. Check the pulse after every 12th breath. If a pulse is absent, perform external chest compressions as in "CPR," below.

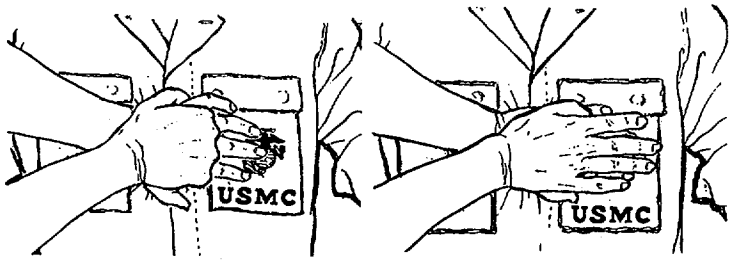
CPR

6. If the casualty does *not* have a pulse, perform CPR as follows:

Move your hand that is closest to the casualty's legs to his chest. Run the index and middle fingers up the lower edge of the rib cage. Locate the notch at the bottom center of the rib cage. Keep the middle finger in this notch and the index finger on the sternum (breastbone). Place the heel of the hand closest to the head on the sternum next to but not covering the index finger.



Place the second hand on top of the first. Precise hand placement is essential to avoid serious injury. Fingers may be interlaced or extended. Do not rest your fingers on the casualty's ribs.



INTERLACED EXTENDED

Bend from your hips with your arms straight and compress the chest with your upper body weight falling straight down from the shoulders. Keep your shoulders over your hands and your elbows straight and locked. Depress the sternum 1½ to 2 inches for an adult. Between compressions, release the pressure completely, but do not remove your hands from the chest. Count aloud to establish a rhythm: one-and-two-and-three-and-four-and. . . . The down stroke pushes blood to the body. The release allows the heart to fill again.

Give 15 compressions at the rate of 80-100 per minute, then two rescue breaths. Remember to ventilate properly. Check the pulse and breathing after 1 minute (every fourth cycle) and then every few minutes. If a pulse returns but breathing does not, continue with rescue breathing at a rate of 12 breaths per minute.

7. Continue rescue breathing or CPR until the casualty recovers, others help, you become too tired to continue, or the mission does not permit further efforts. The casualty may vomit. Be prepared to clear the airway by turning the head or the body if a neck/back injury is suspected.

Alternate Rescue Breathing Method— Chest Pressure/Arm Lift

If the casualty has a severe injury to the lower face, you may have to use the chest pressure/arm lift method to give rescue breathing. Until advanced methods of rescue breathing are developed for an NBC environment, use this method for a masked casualty in a contaminated area. Chest pressure/arm lift is not as effective as mouth-to-mouth resuscitation so use it when other conditions ABSOLUTELY prevent the use of the mouth-to-mouth method.

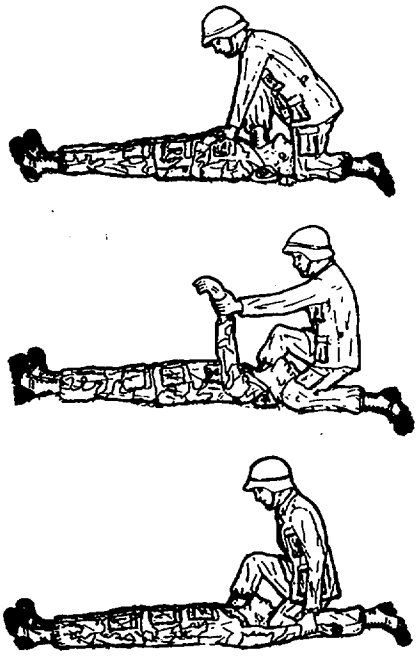
To perform this technique—

1. Place the casualty in a face-up position. Maintain an open airway by placing something under the casualty's shoulders to raise them several inches, allowing his head to drop backward.

2. Kneel at the top of the casualty's head. Grasp his wrists and cross them over his lower chest in the same location as you place your hands for CPR.

3. Rock forward until your arms are almost straight up and down. Allow the weight of the upper part of your body to

push with steady even pressure downward. This forces air out of the casualty's lungs.



4. Immediately release the pressure by rocking back. Pull the casualty's arms outward and upward over his head and backward as far as possible. This should allow air to flow into the lungs.

5. Repeat this cycle about 12 times per minute. Check the airway often for obstructions and foreign matter (see Airway Obstruction, page 2-12). Keep the airway clear.

Choking Obstructed Airway, Conscious Casualty

1. If the victim can speak, cough, or breath, DO NOT interfere. Know and use the universal sign for choking.

UNIVERSAL SIGN: "I am choking!"

A whooping sound is often heard when an object is stuck in the airway.

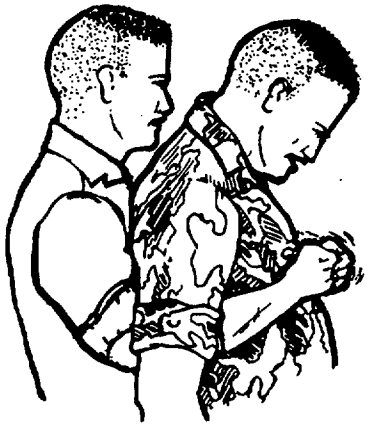
2. If the victim cannot speak, cough, or breathe, give 6 to 10 quick, inward and upward abdominal thrusts (the Heimlich maneuver).

HEIMLICH MANEUVER—ABDOMINAL THRUST

Stand behind the victim with your head to one side and wrap your arms around the casualty's waist. Grasp one fist with your other hand and place the thumb side of your fist in the middle just above the navel. Press your fist into abdomen with quick inward and upward thrusts. Deliver each abdominal thrust forcefully.

CAUTION

If the casualty has an abdominal wound, is obese, or is pregnant, use chest thrusts as below.



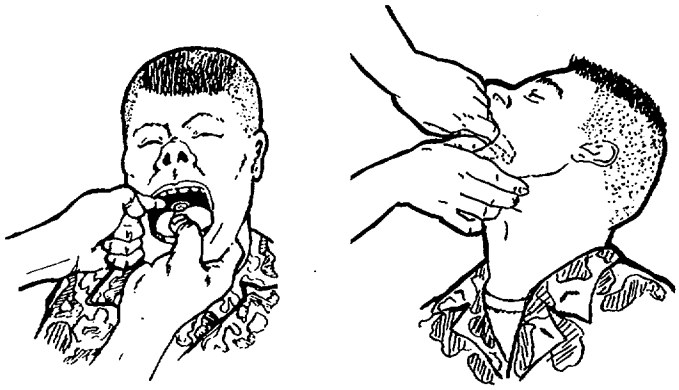
HEIMLICH MANEUVER—CHEST THRUST

Stand behind the casualty with your head to one side and place your arms under the armpits and around the chest. Grasp one fist with the other hand and place the thumb side of the fist on the middle of the breastbone. Press with quick thrusts toward you.

NOTE: Continue abdominal thrusts (or chest thrusts, but not both) until the casualty can breathe normally. Continue until relieved by a qualified person or until the casualty becomes unconscious and requires the procedure shown in step 4 of Airway Obstruction, page 2-12.

Airway Obstruction Lying or Unconscious Casualty

1. Check for a response. Call for help.
2. Check the mouth for objects. Use the finger sweep.



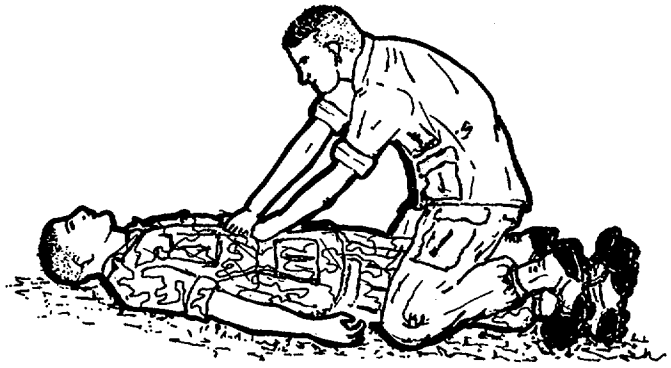
Turn the head up; open the mouth by placing your thumb on the tongue and pull the jaw out and down toward the chin. Sweep deeply into the mouth and along the cheek with a hooked finger.

3. Open the airway and attempt rescue breathing (see page 2-3). If the chest does not move, go to step 4 below.

4. Give 6 to 10 abdominal thrusts (if victim is not pregnant, obese, or wounded in the abdomen). Straddle the casualty's thighs. Place the heel of one hand on the abdomen in the middle just above the navel. Place the hand well below the last rib at the bottom center of the rib cage. Place the second hand directly on top of the first hand.

Press into the abdomen with quick thrusts angled upward toward the lungs. Apply each thrust with the intent of freeing the obstruction. Continually check for success.

For chest thrusts, use the same hand position as for external chest compressions in CPR (see page 2-7). Exert a quick, downward thrust.



ABDOMINAL THRUST ON UNCONSCIOUS CASUALTY

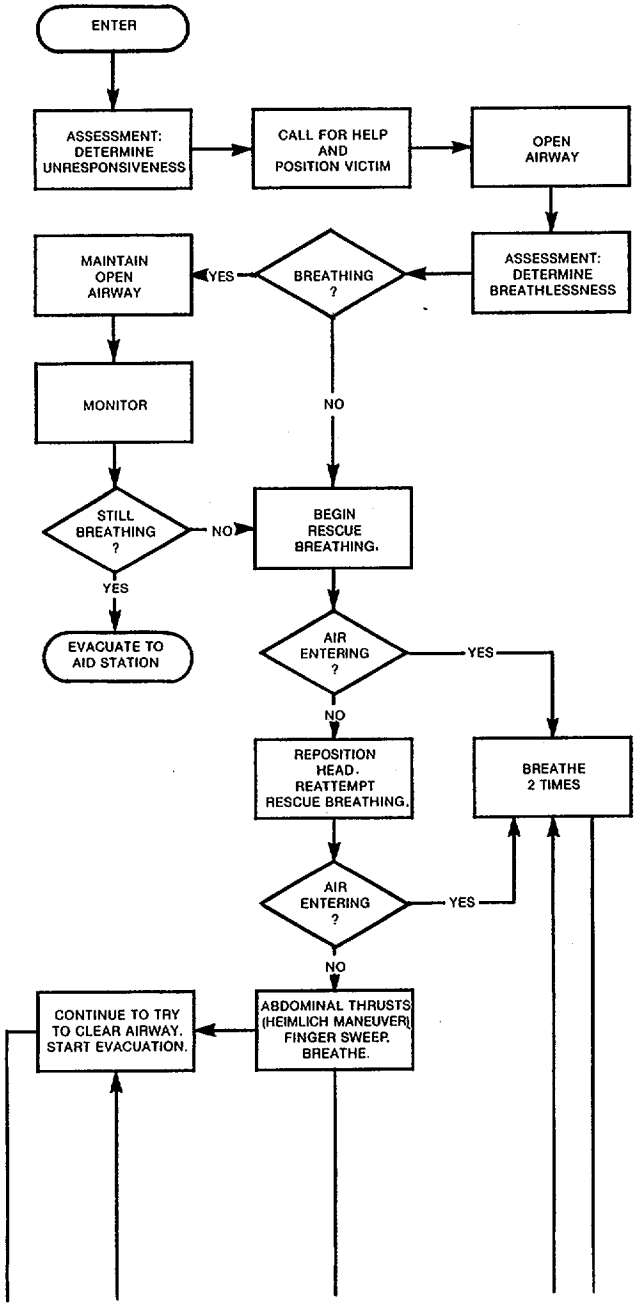
CHEST THRUST ON UNCONSCIOUS CASUALTY

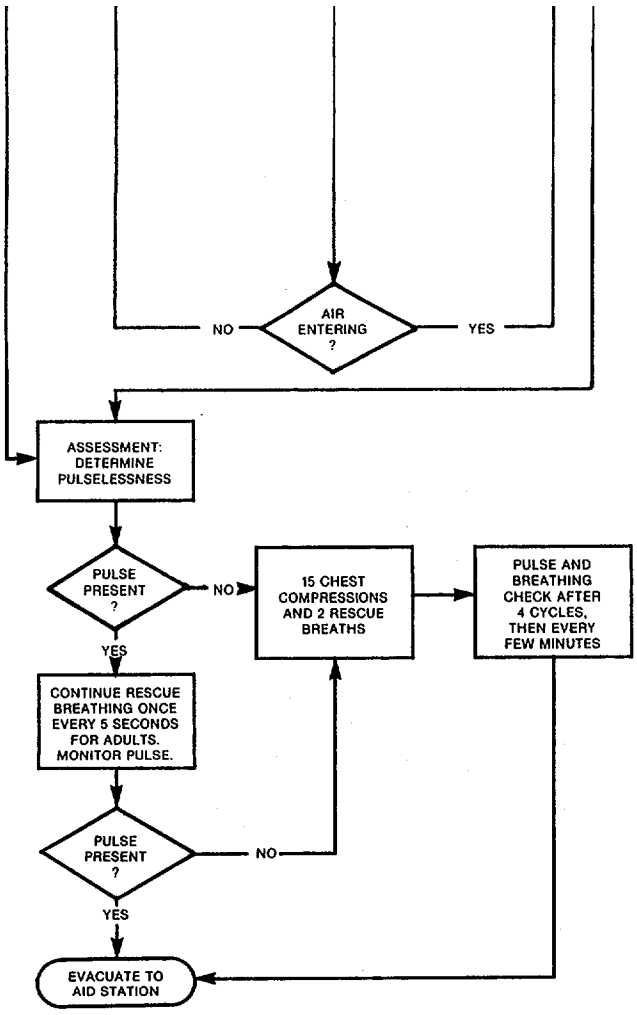
5. Apply finger sweeps as necessary.

6. Attempt to get the casualty air. Check pulse and either do external chest compressions (CPR) or continue rescue breathing. ***NOTE: Repeat all steps in rapid order until you clear the airway. As the casualty becomes more deprived of oxygen, muscles relax and thrusts may be more effective.***

A flowchart on CPR and rescue breathing is on page 2-14.

Flowchart on CPR and Rescue Breathing




AIR ENTERING ?
NO
YES
ASSESSMENT: DETERMINE PULSELESSNESS
PULSE PRESENT ?
NO
15 CHEST COMPRESSIONS AND 2 RESCUE BREATHS
PULSE AND BREATHING CHECK AFTER 4 CYCLES, THEN EVERY FEW MINUTES
YES
CONTINUE RESCUE BREATHING ONCE EVERY 5 SECONDS FOR ADULTS. MONITOR PULSE.
PULSE PRESENT ?
NO
YES
EVACUATE TO AID STATION

CHAPTER 3

Bleeding

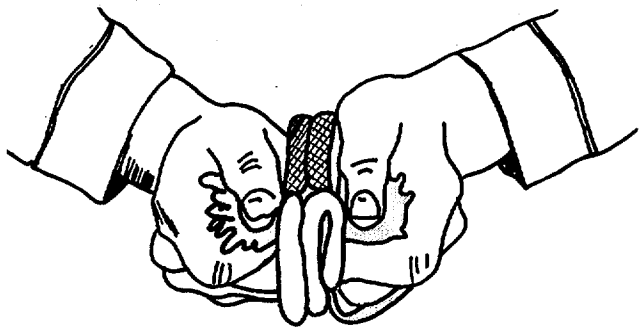
Stop the bleeding and protect the wound. Carefully examine the casualty to determine if there is more than one wound. The exit wound is usually larger than the entrance wound. Carefully cut or tear the clothing to expose the wound except in an NBC environment. If there is clothing or debris stuck in the wound, leave it alone. Do not touch the wound.

WARNING

In an NBC environment, do not increase exposure of the wound(s). Apply dressings over protective clothing.

Field Dressing

1. Use the casualty's field dressing; grasp the tails with both hands.



2. Pull the dressing open with the white side against the wound.

CAUTION

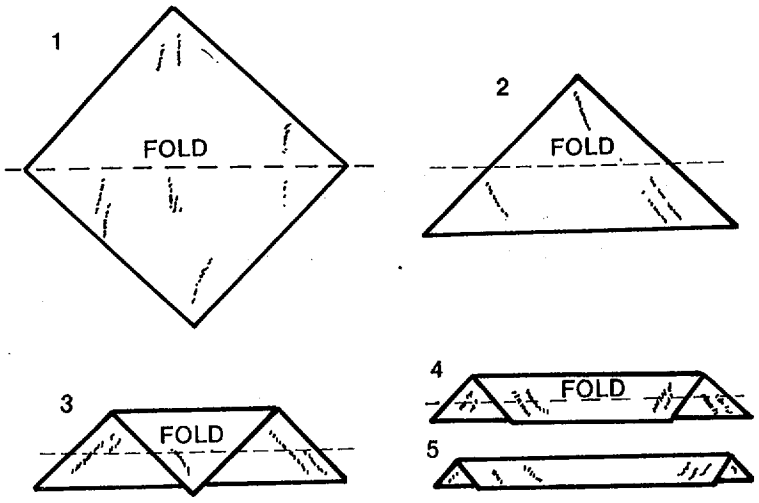
The white side of the dressing is sterile. Do not touch the white (sterile) side.

3. Place the dressing directly over the wound.

4. Wrap the dressing tails in the opposite direction around the injured part.

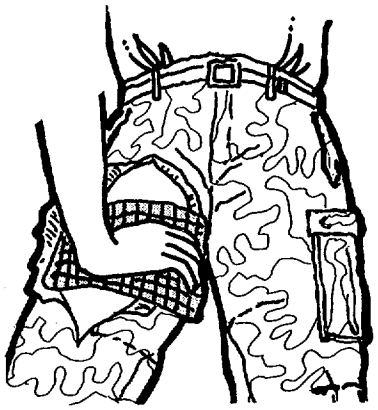
5. Tie the tails into a nonslip knot over the site of bleeding. Tie firmly to prevent slipping but loose enough to insert a finger between the knot and the dressing. If the dressing is too loose, it will not control bleeding nor protect the wound. If it is too tight, it will cut off blood supply to the far end of the arm or leg.

6. Use a triangular bandage if a field dressing is not available. Place a sterile gauze pad or the cleanest material you can find directly over the wound. Fold the bandage into a triangle. Then fold so that the point meets the long side. Fold the short side to the long side until it is the right width for the wound. When folded, a triangular bandage is a cravat. Place the middle of the cravat over the pad. Wrap the ends of the cravat around the body until the ends meet over the pad. Tie the ends over the pad.



Direct Pressure

If bleeding continues after applying a field dressing, use direct pressure.



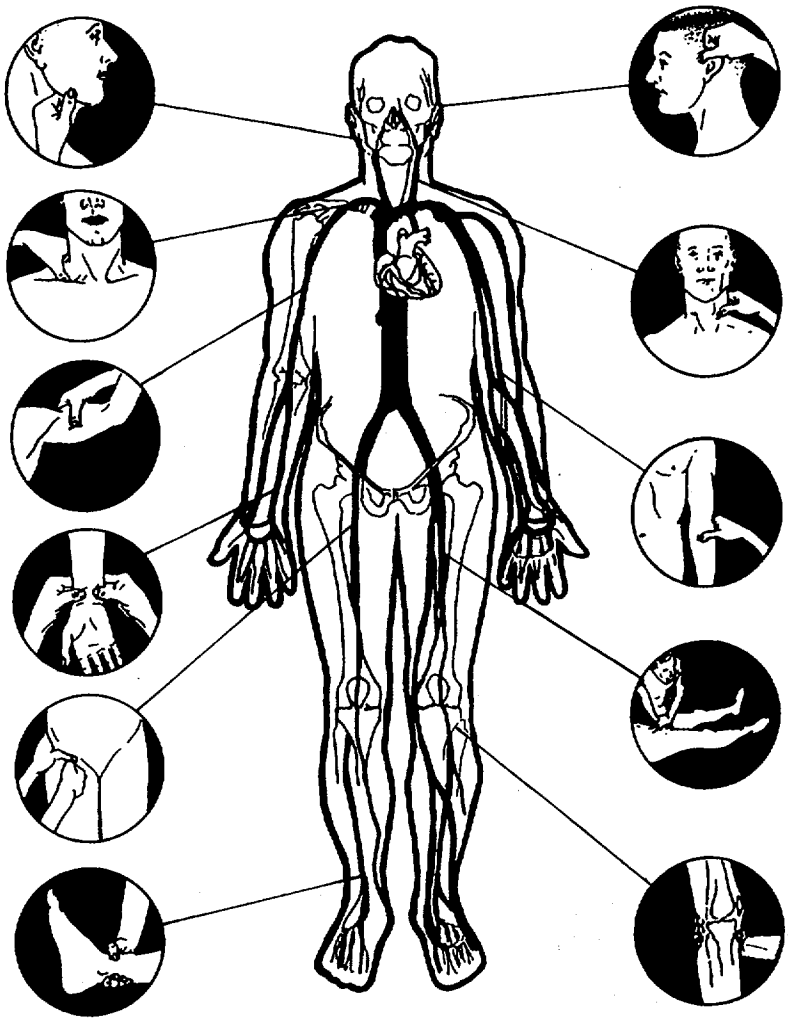
1. Place your hand on the dressing and exert firm pressure for 5 to 10 minutes.

2. While exerting firm pressure, elevate the injured limb 2 to 4 inches above the heart. Splint the limb before elevating if needed.

Pressure Points

If direct pressure does not work and bleeding continues, use pressure points.

Pressure points are an alternate method to control bleeding. Use pressure from your fingers, thumbs, or hands to press on a main artery supplying blood to the wounded area. Use the nearest pressure point located between the heart and the wound. Use pressure points in combination with direct pressure and elevation. Pressure on the artery may help when bleeding is hard to control. This technique is also helpful before you can apply a pressure dressing or where pressure dressings are not readily available. You will know you have located the artery when you feel the pulse. Study the pressure points on the following figure. ***NOTE: If bleeding stops, check and treat for shock. If bleeding continues, use a pressure point to slow or stop bleeding and apply a pressure dressing.***



PRESSURE POINTS

Pressure Dressing

Pressure dressings aid in blood clotting and compress the open blood vessel. If bleeding continues after the application of a field dressing, direct manual pressure, and elevation, apply a pressure dressing.

1. Place a padding of any clean, bulky material on top of the field dressing, directly over the wound. A second field dressing may be used.

WARNING

Do not remove the first field dressing.

2. Place an improvised dressing or cravat over the padding.

3. Wrap the ends tightly around the injured limb, covering the field dressing.

4. Tie the ends together in a nonslip knot. Make the knot tight enough so only the tip of one finger will fit between the dressing and the knot.

CAUTION

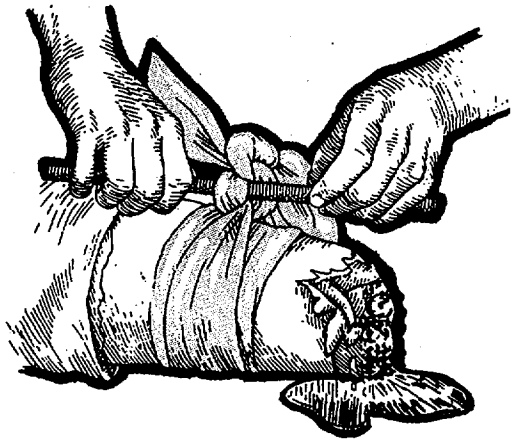
Do not tie so tightly as to cause a tourniquet-like effect. If bleeding stops, check and treat for shock.

5. Apply up to three pressure dressings. If bleeding continues, or if the limb is severed, apply a tourniquet.

Tourniquet

Use a tourniquet only as a last resort. The use of a tourniquet is dangerous. When you apply a tourniquet, you are risking the loss of a limb in order to save a life.

1. Apply the tourniquet on the limb between the wound and the heart. Study the following figure for proper tourniquet application.



2. Place the tourniquet 2 to 4 inches above the injury, not over the wound or fracture. ***NOTE: The band of material used for the tourniquet must be at least 2 inches wide to avoid further injury.***

3. Tie an overhand knot. Then place a short, strong object (like a stick, cleaning rod, or the casualty's bayonet) on top of the knot.

4. Tie another knot over the stick.

5. Twist the stick to stop the bright red bleeding; line the stick up with the arm or leg.

6. Secure the stick so it does not unwind and no further injury results.

7. If possible, mark a "T" and the time you applied the tourniquet on the casualty's forehead. Do not use blood to mark the casualty's forehead.

8. Do not loosen or remove the tourniquet unless a trained medical person tells you to do so.

9. Keep the tourniquet visible.

10. Get medical treatment immediately.

CHAPTER 4

Shock

Depression of the body's vital functions causes shock. It is the body's attempt to shut down systems so it can save energy and repair itself. Sometimes the body goes too far in its shut-down; that's when shock happens. Shock is more likely to develop in severe injuries but may result from very minor injuries. Shock can kill even if the injuries alone would not be fatal.

Signs/Symptoms

Sweaty but cool (clammy) skin
Loss of blood (bleeding)
Paleness of skin
Restlessness, nervousness
Nausea and vomiting
Thirst
Faster than normal breathing
Confusion (not aware of person, place, or time)
Blotchy or bluish skin (especially around mouth and lips)

First Aid

1. Maintain adequate breathing and heartbeat.

2. Stop the bleeding.

3. Position the casualty.
   - Move the casualty to cover if it is available and the situation permits.
   - Lay the casualty on his back unless a sitting position will allow him to breathe easier.
   - Remember: "*IF FACE IS RED, RAISE THE HEAD; IF FACE IS PALE, RAISE THE TAIL.*" Elevate the casualty's feet higher than his heart on a stable

object. Do not elevate feet if he has an abdominal wound, an unsplinted fracture of the leg, or a head injury.

4. Loosen tight clothing at the neck, waist, or ankles unless in a contaminated environment.

5. Keep the casualty from chilling or overheating. Maintain normal body temperature.
   - In cold weather, place a cover over and under him.
   - In hot weather, place him in the shade.

6. Reassure the casualty and keep him calm.

CHAPTER 5

Specific Injuries

WARNING

In an NBC environment, do not increase exposure of the wound(s). Apply dressings over protective clothing.

Head Injuries

Head injuries may be open or closed. In open injuries, there is a visible head wound (such as a cut or tear in the scalp). In closed injuries, there may be no visible wound since the skull is usually intact. If severe, either type of injury may be life-threatening. Casualties may be confused and try to fight you. You may have to restrain the casualty to treat him.

Signs/Symptoms

Evaluate the casualty for the following:

- Staggering walk or dizziness
- Clear or bloody fluid leaking from nose or ear(s)
- Bleeding from scalp or head area
- Deformity of the head
- Black eyes and facial bruises
- Confusion (not aware of person, place, or time)
- Eye (vision) problems (such as unequal pupils)
- Current or recent loss of consciousness
- Paralysis
- Headache
- Drowsiness
- Convulsions or twitches
- Loss of memory
- Breathing problems
- Slurred speech
- Nausea or vomiting

First Aid

1. Always monitor head injuries for the development of any conditions which may require basic lifesaving actions. Such actions include clearing the airway, rescue breathing, CPR, stopping bleeding, and controlling shock.

2. For a head injury, consider the following actions:
   - Do not raise feet.
   - Do not try to clean the wound.
   - Do not remove impaled objects from the head.
   - Do not put unnecessary pressure on the wound.
   - Do not try to push brain matter back into the wound.
   - Do not give casualty anything to eat or drink.
   - Treat severe head injuries and unconscious casualties as a potential neck or back injury.
   - Place a dressing over the injured area.
   - Make a bulky dressing around any object protruding from the wound. Use the cleanest materials available for this dressing.
   - Maintain the casualty's normal body temperature.

3. Evaluate the casualty's level of consciousness. Check every 15 minutes and note changes. Ask—
   "What is your name?"
   "Where are you?"
   "What day is it?"

4. For a wound of the head, do the following—
   - Use the casualty's field dressing. Place it directly over the wound.
   - Wrap the first tail around the head.
   - Wrap the second tail in the opposite direction covering the dressing.

- Tie a nonslip knot and secure the tails so the bandage does not slip off. Do not cover the eyes or ears. The figure below shows proper dressing for a wound of the head.

TAILS OF BANDAGE TIED IN A NONSLIP KNOT IN FRONT OF AND ABOVE THE EAR

- If there is no sign of shock, elevate the head slightly to help decrease pressure.
- ***NOTE: With all dressings, remember to apply the dressing white side (sterile side) down, directly over the wound.***

Eye Injuries

Eyes are very sensitive to injuries such as scratches, bruises, cuts, and burns. Eye injuries are serious due to the possibility of blindness that may result.

Foreign Object in Eye

Signs/Symptoms

Symptoms of an object in the eye include redness of the eye, a burning feeling, pain, headache, and overproduction of tears.

First Aid

- Do not let the casualty rub his eye.
- Do not use any sharp or hard instrument to remove the object.
- Do not use dry cotton around the eye.
- Wash your hands thoroughly before examining the casualty's eye.

1. Pull the lower lid down while the casualty looks up.

2. Inspect the eyeball and the edge and the inside of the eyelid.

3. Dampen the corner of a clean cloth or tissue paper and lift the object gently from the eye.

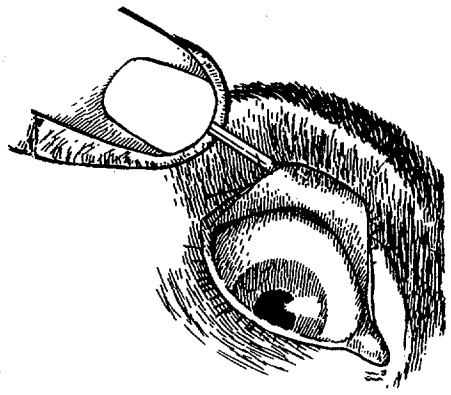
4. If you cannot find the object, it may be under the upper lid. While the casualty looks down, grasp the lashes of the upper lid. Gently pull the upper lid down over the lower lashes. This may dislodge the object if it is on the upper lid. Tear action may also help release the object.

5. If the object is not dislodged or found, you can turn the upper lid inside out as in the figure below.

Place a matchstick (or similar object) on top of the eyelid.

Pull gently up and out while pushing down slightly with the matchstick.

Lift the object from the eye with the corner of a dampened cloth or tissue paper.



Replace the lid by pulling down on the lashes.

6. If you cannot find the object, or if the casualty is still having discomfort, flush the eye with clean water. Turn the casualty's head so that the water flushes away from the other eye.

7. If you suspect an object is embedded in the eye, apply the casualty's dry field dressing and seek medical aid.

Eyelid Injury

First Aid

1. Stop any bleeding with gentle direct pressure.

2. Apply a sterile dressing or the cleanest material you can find. Tape it in place or hold it with a bandage around the head.

Blunt Injury

Signs/Symptoms

The most common result of a blunt injury is a black eye. However, in more serious cases, damage to structures of the eye may result. Bleeding and infection within the eye may occur. A casualty can lose his vision with any eye injury.

First Aid

1. Treat immediately with cold to lessen bleeding and swelling.

2. Seek medical aid.

Penetrating Eye Injury

First Aid

- Do not remove the object.
- Do not wash or flush the eye.

1. Cover both eyes with a loose dressing even if only one is injured. Make sure there is no pressure on the eyes. For an eye with something stuck in it, follow these steps for bandaging:
   - Take a thick dressing or several dressings and cut a hole in the middle so that the bandage does not touch the object. You may also build up several dressings around the eye.
   - Take a paper cup or any object that is wide and tall enough to protect the object without touching the object. Place this over the object.
   - Use a roller bandage or other material to wrap over the cup and around the head so that it is snug but not so tight to cause pain or pressure on the eye.
   - ***Note: Use this bandage method for an eyeball that is protruding from its socket.***

2. Keep the casualty quiet, preferably sitting up or with head elevated.

3. Transport by stretcher to avoid further injury.

4. Seek medical aid immediately.

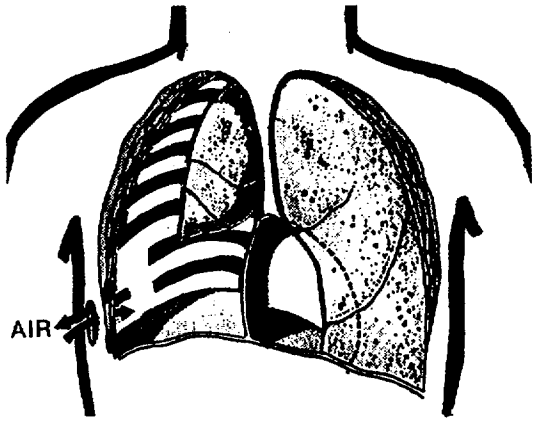
Chest Wounds

Chest wounds are serious and may cause death quickly if not treated. An open chest wound caused by an object penetrating the chest wall may collapse the injured lung. The chest wall has been punctured if you hear a sucking sound.

The casualty's life depends upon how quickly you make the wound airtight.

Signs/Symptoms

The casualty may complain of pain in the chest or shoulder area; he may have difficulty in breathing. His chest may not rise normally when he breathes. The casualty may also cough up blood and have a rapid or a weak heartbeat. Breathing becomes difficult for the casualty because the wound is open.



First Aid

1. Check for both an entry and an exit wound and expose the wound site.

2. Make a seal over the wound with the plastic wrapper from the dressing or any clean material that seals the wound. Place the seal directly over the wound ***as the casualty breathes out.*** Tape the seal on three sides to make a one-way valve.

3. Apply the dressing directly over the seal.

4. Wrap the tails of the dressing around the body and tie them into a nonslip knot over the wound. Pull the tails tight and tie as the casualty breathes out.

5. Position the casualty on the injured side.

Stomach (Abdominal) Wounds

A ruptured abdominal wall and damaged internal organs or large blood vessels create the most serious stomach (abdominal) wounds. You must act quickly to help save the casualty's life.

Signs/Symptoms

Large wounds to the abdomen may expose the intestines or other parts. Support for these parts is given by the muscles of the abdomen. When the muscles are injured, the parts may fall outside the body. Bleeding may be severe and death can occur rapidly.

First Aid

- Do not probe, clean, or try to remove any foreign object(s) from the stomach.
- Do not touch any exposed organs.
- Do not push organs back inside the abdomen.

1. If the bowels or intestines are visible, prevent any further exposure. Place the casualty on his back unless the other wounds prevent such action. Flex the casualty's knees to relax abdominal muscles and any internal pressure.

2. If the dressing wrapper is large enough to extend well beyond the protruding bowel, use it to help cover the wound. Place the inside (sterile side) of the dressing wrapper directly over the wound with a field dressing on top.

3. Tie the legs together with a cravat or strap in a figure eight above the casualty's knees if other injuries permit.

4. When applying the dressing, do not put pressure on the wound or any exposed internal parts. This pressure could cause further problems such as vomiting, ruptured intestines, etc. Tie the dressing tails loosely at the casualty's side, not directly over the wound. Moisten the dressing with clean water only and keep it moist.

5. Pick up any organs that may be on the ground with a clean dressing or the cleanest available material. Place the organs on top of the casualty's stomach. If possible, keep them moist.

Burns

Burns are serious injuries. Shock, dehydration, and infection often accompany burn injuries. Prompt action helps reduce possible further injury and illness. All burns should be evaluated by medical personnel after first aid.

Signs/Symptons

Before starting first aid, you must—

1. Recognize the type of burn:
   - Thermal
   - Electrical
   - Chemical
   - Laser (directed energy)

2. Remove the casualty from the source of the burn.
   - Thermal: smother the fire.
   - Electrical: secure the power and remove the casualty from the source using a nonconductive material such as a dry rope, sheet, blanket, or wooden pole. Do not use metal items. Do not come in direct contact with the casualty until he is removed from the source.
   - Chemical: remove liquids by flushing with as much water as possible. Remove dry chemicals by brushing off loose particles first, then flush completely with water if available. ***Do not use bare hands to brush off chemicals.***
   - Laser: remove the casualty from the source.

3. Evaluate the casualty for conditions requiring basic lifesaving measures.

First Aid

1. Treat the burns. Expose the burn and apply a field dressing or the cleanest material available. If the casualty is conscious and not nauseated, give him sips of water. If possible, mix one teaspoon salt to one quart of water. Give casualty about four ounces (½ cup) in 15 minutes.
   - Do not remove clothing stuck to the burn.
   - Do not break any blisters.
   - Do not cut away or lift clothing in a contaminated environment.
   - Do not decontaminate the skin where blisters have formed.
   - Do not apply grease or ointments to burns.

2. Thermal burns:
   - For thermal burns, cool water is the best treatment for reddened (first-degree burn) or slightly blistered (second-degree burn) skin.

- For severe blisters (second-degree burn), cover with cleanest material available and wet the dressing with cold water.
- When the skin is charred black or white (third-degree burn), cover with a sterile bandage. Third-degree burns usually destroy nerves; the casualty may not feel pain except in the area surrounding the burn.

3. Electrical burns:
   - Check for both an entry and an exit burn.
   - Treat as a thermal burn.

Note: Watch the casualty for signs requiring rescue breathing or CPR.

4. Chemical burns:
   - Flush away liquids with water.
   - Brush away dry chemical particles first. Remove as much chemical as possible, then flush with water. For burns caused by white phosphorus, flush the area with water. Then cover with a wet material, dressing, or mud to exclude the air.
   - After removing the material, treat as a thermal burn.

5. Laser burns:
   - Laser burns often involve eye damage.
   - Cover both eyes with a loose dressing. Make sure there is no pressure on the eyes.
   - Keep the casualty quiet, preferably on his back. Have casualty keep eyes closed and protected from bright light.
   - Transport by stretcher to avoid further injury.
   - Seek medical aid immediately.

6. Monitor for shock and treat, if necessary.

7. Seek medical aid as soon as possible.

Fractures and Splinting Extremities

There are two basic types of fractures:

- Closed fracture: A break in the bone without a break in the overlying skin, as shown in this figure.

- Open fracture: A break in the bone as well as the overlying skin. The bone may come through the skin or an object may go through the flesh and break the bone as shown in these figures.

Signs/Symptoms

Deformity
Pain
Tenderness
Swelling
Bleeding
Protruding bone
Inability to move the injured part
Discolored skin at site of injury

First Aid

Fractures must be splinted or immobilized to prevent razor-sharp edges of the bone from moving and cutting the tissue, muscle, and blood vessels. This helps reduce pain and control shock. It also prevents closed fractures from becoming open fractures. Apply field dressings to open fractures before splinting.

Splints, Padding, Bandages, Swathes, and Slings

Splints may be improvised from boards, poles, sticks, rolled newspapers, cardboard, and anything that is rigid. If nothing is available, tie the fractured area to an uninjured body part such as the casualty's other leg or chest.

Padding may be improvised from jackets, blankets, and even leafy plants.

Bandages to secure splints may be improvised from belts, rifle slings, strips of torn fabric, or wide tape. Do not use narrow materials such as wire or cord to tie splints in place. They may cut off blood supply.

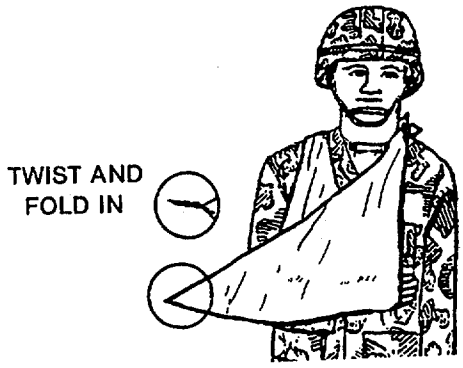
Swathes are any bands used to further secure or immobilize a splinted fracture. Place swathes above and below the fracture site, not on it.

Slings support an injured arm in a bandage suspended from the casualty's neck. Slings may be improvised by using the tail of a shirt or coat or pieces cut from clothing or blankets. A triangular bandage is perfect for a sling. The figures below show you the proper application of a sling:

Place the sling against the casualty's chest. Place the upper end of the sling on the opposite shoulder from the injured arm. Place the injured arm on the sling.

Bring the lower end up on the same side of the neck as the injury. Tie the ends together behind the neck.

Tie the sling so the casualty's hand is higher than his elbow. Point the thumb up. Secure the elbow end of the sling so the fingertips are visible and the arm will not slide out.



Rules for Splinting

Remember: *"SPLINT THEM WHERE THEY LIE."*

1. Evaluate the casualty and watch for conditions which may require lifesaving measures, such as clearing the airway, rescue breathing, CPR, stopping bleeding, and controlling shock.

2. Splint the fractured part without changing the position of the part and before moving the casualty. If the bone is in an unnatural position, do not straighten it. If you must move the casualty without splinting to save his life, such as from a burning building or enemy fire—

- Tie the fractured part to an uninjured part if possible.
- Grasp the casualty firmly but gently.
- Pull him in a straight line or with as little movement to the injured part as possible.

3. Gather splinting materials. Splints must be long enough to reach beyond the joints above and below the fracture. Apply the splint to immobilize the joints above and below the fracture.

4. Use padding between the injured part and the splint.

5. Secure the splint to the injured part with swathes at several points. Tie nonslip knots above and below the fracture, not across the fracture. Tie knots on the side away from the casualty.

6. Use slings or swathes, as necessary, to support and immobilize the injured part.

7. Check the circulation below the injury site both before and after applying the splint. Do not fasten bindings so tight that they cut off circulation. Remove jewelry so possible swelling will not cause further injury. Keep personal items with the casualty.

WARNING

Casualties with fractures to the extremities may show impaired circulation. Signs include numbness, tingling, cold and/or pale to blue skin. Evacuate these casualties as soon as possible. Prompt medical treatment may prevent possible loss of the limb.

8. Apply dressings and splints over protective clothing in an NBC environment.

Upper Extremity Fractures

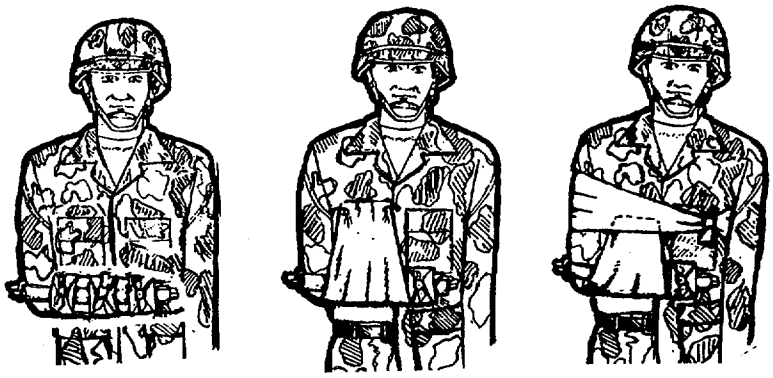
NOTE: Padding is not visible in some of the following illustrations. Apply padding along the injured part for the length of the splint.

Use the chest wall, a sling, and a cravat to immobilize a fractured elbow when elbow is in a bent position.

Apply splints to a fractured elbow with the arm straight. Use the swathe to immobilize the joint (elbow) above the fracture and immobilize the joint (wrist and hand) below the fracture.

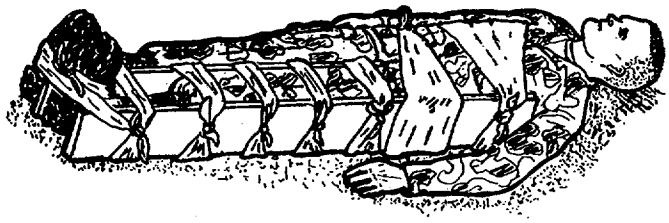
Apply board splints to a fractured forearm or fractured wrist and hand. Use padding in the palm to keep the hand in a natural (cupped) position.

Splint a forearm or wrist with sticks and support it with the tail of the shirt and strips of material.

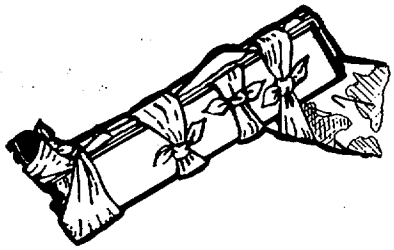


Lower Extremity Fractures

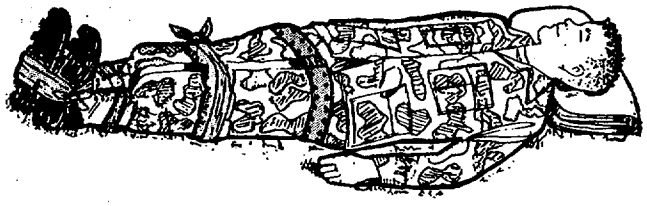
Apply board splints to a fractured hip or thigh.



Apply a splint to a fractured or dislocated knee.



Use the uninjured leg as a splint for the fractured leg (anatomical splint).



Back and Neck Injuries

It is very difficult to tell if a casualty has a back or neck injury. This type of injury can occur if a casualty falls and also if the back or neck is bent in an abnormal direction or position, or is hit by an object. If a casualty cannot move his arms or legs or does not have feeling, you can be reasonably sure that there is a back or neck injury which should be treated as a fracture.

CAUTION

If the back or neck is fractured, bending it can cause the sharp bone fragments to bruise or cut the spinal cord and result in permanent paralysis. Move the casualty only if other dangerous conditions exist. Otherwise wait for medical personnel.

Signs/Symptoms

Signs of a possible back or neck injury are—

Pain or tenderness of the neck or back area

Cuts or bruises in the neck or back area

Inability of the casualty to move (paralysis or numbness)

- Ask the casualty about ability to move.
- Touch the casualty's arms and legs and ask whether he can feel your touch.

Unusual body position

CAUTION

It is often impossible to be sure a casualty has a fractured neck or back. Be suspicious of any head or back injury and treat him as having a fracture rather than chance further harm.

First Aid

Caution the casualty not to move. Evaluate for pain and also determine if he is unable to move any part of his body. Leave him in the position found.

Do not move any part of the body unless there is a need to move him to a safe location.

If lying face-up

Provide support for the arch of the back and immediately immobilize the neck. See page 5-22.

Do not bend the head or neck forward.

Do not raise or twist the head.

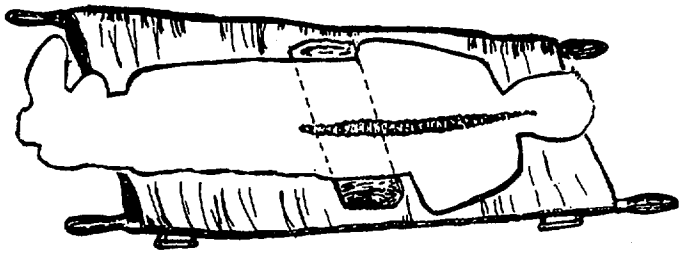
If lying face-down

Use a four-man team to log-roll the casualty onto his back and transport the casualty face-up. See page 5-21.

Preparing Back Injury for Transportation

1. Tie the casualty's wrists together loosely.

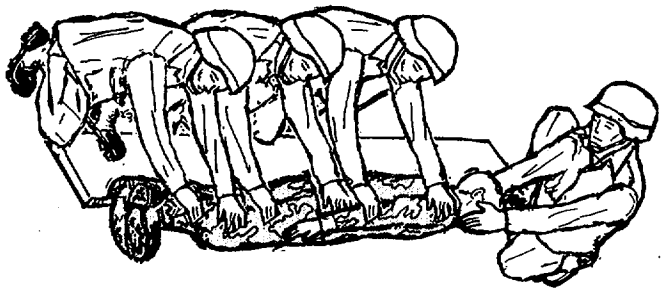
2. Place a blanket on a litter to maintain the natural curve of the back. Roll or fold the blanket 2 to 3 inches high, 8 to 12 inches long, and the width of the patient from side to side as illustrated in the following figure.



3. Tie his feet together to prevent shifting.

4. Using a four-man team, gently lift the casualty onto a litter without bending his spinal column. If possible, slide a board under casualty to support him while lifting.

5. If the casualty is face-down, log-roll onto a board or other support as shown below.

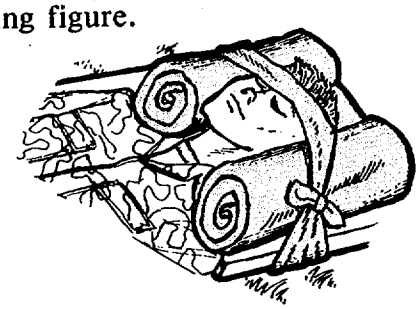


6. Lift casualty and board with blanket onto a litter as above and transport face up.

Preparing A Neck Injury for Transportation

1. Use at least two persons (preferably four) to move the casualty's head and neck in unison.

2. Use a wide board; steady the head and neck as shown in the following figure.



3. Gently slide the casualty onto the board; slip a rolled towel or other cushioned object to provide support under his neck, and immobilize his head and neck.

4. If casualty is face-down, follow the procedure in step 5 on page 5-21.

5. Immobilize the head and neck.

Heat Injuries

Heat injuries result from exposure to extreme environmental heat from the sun or high temperatures. Prevention depends on availability and consumption of water. Prevention also depends on proper clothing and appropriate activity levels. Acclimatization and protection from undue heat exposure are also very important. Identification of high-risk personnel helps both leadership and individuals prevent and cope with climatic conditions. Personnel at risk include basic trainees, troops with previous history of heat injury, overweight Marines, and nonacclimatized personnel. ***NOTE: Do not use salt tablets in the prevention of heat injury. Usually, eating***

field rations or liberal salting of the garrison diet will provide enough salt to replace what you lose through sweating in hot weather.

Heat Cramps

Signs/Symptoms

Heat cramps are caused by an imbalance of chemicals in the body, a result of heavy sweating. The casualty experiences muscle cramps of arms, legs, and stomach. He may also sweat excessively and have extreme thirst.

First Aid

1. Move casualty to a shaded area or improvise shade and loosen his clothing. Do not loosen clothing if in an NBC environment.

2. Slowly give him all the cool water he can tolerate.

3. Seek medical aid if cramps continue.

Heat Exhaustion

Signs/Symptoms

Heat exhaustion is caused by loss of water through sweating without adequate fluid replacement. It can occur in an otherwise fit individual involved in physical exertion in any environment. The signs and symptoms are similar to those which develop when a person goes into shock. The casualty usually experiences heavy sweating with pale, moist, cool (clammy) skin. The casualty may have a normal or even subnormal temperature. Also, he may report loss of appetite, headache, dizziness, and weakness or faintness. Sometimes, a casualty will complain of nausea (with or without vomiting), muscle cramps, urge to defecate, chills, rapid breathing, tingling of hands and feet, and confusion.

First Aid

1. Move the casualty to a cool, shady area or improvise shade and loosen or remove his clothing and boots, except in an NBC environment.

2. Fan the casualty lightly, but avoid chilling the casualty.

3. Have him slowly drink at least one canteen full of water.

4. Elevate the casualty's legs.

5. The casualty must avoid strenuous activity and get rest.

6. Seek medical aid if symptoms continue.

Heatstroke

WARNING

Do not delay medical treatment. Heatstroke is a medical emergency which may quickly result in death.

Signs/Symptoms

A casualty suffering from heatstroke (also called sunstroke) has usually worked in a very hot, humid environment. It is caused by a failure of the body's cooling mechanisms. Inadequate sweating is a major part of the problem. The casualty stops sweating (hot, dry skin). He may experience headache, dizziness, nausea, vomiting, fast but weak pulse and respiration, mental confusion, and seizures. He may suddenly collapse and become unconscious.

First Aid

1. Move casualty to a cool, shady area or improvise shade. Loosen his clothing and remove the outer garments and protective clothing if the situation permits.

2. Immerse him in cool water, if possible; if not, massage his arms and legs with cool water. Pour cool water on him and fan briskly to permit coolant effect of evaporation.

3. If he is conscious, have him slowly drink at least one canteen full of water.

4. Perform any lifesaving measures. Seek medical aid and evacuate as soon as possible. ***NOTE: If heat-related injuries are caused by wearing individual protective equipment, move the casualty to a clean area before treatment. When in an NBC environment, do not loosen or remove the casualty's clothing.***

Cold Injuries

Unprepared Marines exposed to winter temperatures are most likely to receive cold injuries. They can occur even with proper planning and equipment. The cold weather and the role an individual plays in a combat operation influence the likelihood and degree of his injury. His clothing, his physical condition, and his mental makeup also are determining factors. Prevention is the key to avoiding cold injuries. Every Marine must know the hazards of exposure to the cold. You must know the importance of personal hygiene, exercise, care of the feet and hands, and the use of protective clothing. Conditions caused by cold are chilblain, immersion syndrome (immersion foot, trench foot), frostbite, snow blindness, dehydration, and hypothermia.

Chilblain

Signs/Symptoms

Chilblain is caused by repeated prolonged exposure of bare skin at temperatures from 60°F to 32°F or for acclimated, dry, unwashed skin to 20°F. The area may be swollen, red, tender, and hot, with itchy skin. There may be no loss of skin tissue in untreated cases, but continued exposure may lead to infected, ulcerated, or bleeding lesions.

First Aid

Within minutes, the area usually responds to locally applied body heat. Rewarm the affected part by applying firm steady pressure with your hands or placing the affected part under your arms or against the stomach. Do not rub or massage the affected areas. Medical personnel should evaluate the injury. Signs of tissue damage may be slow to appear.

Immersion Foot/Trench Foot

Although included in this section on cold injury, immersion foot/trench foot can occur in tropical environments as well. It is a serious condition which may occur in as little as 24 hours in colder environments. In tropical environments (at temperatures above 50°F), exposure to wet conditions will result in an immersion injury in 48-72 hours. Immersion foot is not limited to just the feet. Any skin area, usually an extremity, that is subjected to damp exposure may be affected.

Signs/Symptoms

Pale, wrinkled skin is a symptom that indicates the need for complete drying out before underlying tissues begin to break down. Once damage to underlying tissues begins, recovery is prolonged. Some cases require recuperation of 1 month or more, depending on the extent of damage. Severe cases have required amputation. Prevention is the key to avoiding injury. Frequent changes into dry boots, socks, and gloves, and exposure of the skin to air and sunshine are effective actions. Affected parts are cold, numb, and painless. As parts rewarm, they may be hot, with burning and shooting pains. In the advanced stage, the skin appears pale with bluish cast, the pulse decreases, and blistering, swelling, heat, bleeding, and gangrene may follow.

First Aid

- Do not massage or moisten the skin.
- Do not expose to extreme direct heat or direct flame.
- Do not apply heat or ice.
- Cover with warm, loose, dry materials.

1. Gradually rewarm the part(s) by exposure to warm air.
2. Protect affected part(s) from trauma and infection.
3. Elevate injured part(s) to relieve swelling.
4. Seek medical aid.

Frostbite

Signs/Symptoms

The body parts most easily frostbitten are the cheeks, nose, ears, chin, forehead, wrists, hands, and feet. Frostbite may involve only the skin (superficial), or it may go below the skin (deep). Deep frostbite is very serious and requires immediate action to avoid loss of the injured part(s). The symptoms are listed progressively from superficial to deep frostbite.

Loss of sensation, or numb feeling in any part of the body
Sudden whitening of the skin of the affected part, followed by a momentary tingling feeling
Redness of the skin in light-skinned Marines; grayish coloring in dark-skinned Marines
Formation of blisters
Swelling of tender areas
Loss of previous feeling of pain in affected area
Pale yellowish, waxy-looking skin
Frozen tissue that feels solid (or wooden) to the touch

First Aid – All Frostbite

- Do not rub the injured part with snow or apply cold water soaks.
- Do not warm the part by massage or expose to open fire. (The casualty cannot feel if he is receiving a burn.)
- Do not use ointments or other medications.
- Do not do anything to the part to increase circulation.
- Do not allow the casualty to have alcohol or tobacco.

First Aid – Superficial Frostbite

1. Keep the casualty warm.

2. Gently rewarm affected part(s) with body heat.

3. Decrease constricting clothing and increase insulation.

WARNING

Do not attempt to thaw deep frostbite. Do not attempt to thaw any part in danger of refreezing.

First Aid – Deep Frostbite

1. Protect part from additional injury.

2. Seek medical treatment as soon as possible.

There is less danger in walking on feet while frozen than after they thaw. Refreezing of a part will cause a loss of that part to the level of the second freeze.

Snow Blindness

Signs/Symptoms

Snow blindness is the effect that glare from an ice field or snow field has on the eyes. It is more likely to occur in hazy,

cloudy weather than when the sun is shining. Glare from the bright sun will cause you to shield your eyes. However, in cloudy weather, you may be overconfident and expose your eyes longer than when the threat is obvious. Pain in the eyes is dangerous because a deep burn has probably already occurred. Eyes may feel scratchy. Watering, redness, headache, and increased pain with exposure to light can occur.

First Aid

1. Have the casualty keep his eyes closed.

2. Cover eyes with a dark cloth and protect from bright light.

3. If necessary, transport by stretcher to prevent further injury.

4. Seek medical aid.

Dehydration

Signs/Symptoms

The symptoms of cold weather dehydration are similar to those found with heat exhaustion. The mouth, tongue, and throat become parched and dry, and swallowing becomes difficult. The casualty experiences loss of appetite, headache, excessive sweating, weakness or faintness, dizziness, nausea, and muscle cramps. The skin is pale, cool, and moist (clammy) to the touch.

First Aid

- Do not give salt tablets.
- Do not give coffee, tea, or alcohol.

1. If not in an NBC environment, keep the casualty warm and loosen clothing.

2. Shelter the casualty from cold and wind.

3. Give the casualty plenty of water or juice.

4. Get prompt medical treatment.

Hypothermia

WARNING

Hypothermia is a medical emergency. Prompt medical treatment is necessary.

Signs/Symptoms

In hypothermia, the body loses heat faster than it can produce it. Shivering is the first sign of hypothermia. The casualty is cold. The pulse is faint or very difficult to detect. Shivering will stop as the deep (core) body temperature continues to drop. The casualty may be drowsy or mentally slow. Movements may be uncoordinated, stiff, or slow. Shock and coma may result as body temperature drops.

First Aid

1. ***Rewarm the casualty evenly and without delay.*** You must provide a heat source; the casualty's body is unable to generate heat. Put the casualty in warm, dry clothes or in a sleeping bag. Use a hot water bottle, electric blanket, blankets heated in an oven, campfire, or another Marine's body to warm the casualty.

2. Keep the casualty dry and protect him from the weather.

3. Gradually give liquids heated to normal body temperature to conscious casualties only.

4. Watch for conditions requiring basic life support actions.

5. Seek medical aid immediately.

Snake and Insect Bites and Stings

Snakebites, insect bites, or stings can cause intense pain and swelling. If not treated quickly and correctly, they can cause serious illness or death. Awareness of the potential sources of injury can reduce or prevent them from occurring. Knowledge and quick first aid action can lessen the severity of injuries from bites and stings and keep the Marine from becoming a serious casualty.

Snakebite

First Aid

1. Get the casualty away from the snake.

2. Remove all rings and bracelets from the affected extremity.

3. Reassure the casualty and keep him quiet. Avoid any activity or exertion.

4. If an ace (elastic) wrap is available, wrap it firmly around the site of the bite. As an alternative, apply light constricting band(s) about 1 to 2 inches away from the bite or at the edge of any swelling. You should be able to insert a finger between band and skin. ***Do not use a tourniquet. Note: If the site of the bite is located on an arm or leg, put one band above and one band below the site. If the site of the bite is located on a hand or foot, put one band above wrist or ankle. Never apply a constricting band to a finger or toe.***

5. Immobilize the affected part at or below heart level as if it were a fracture.

6. Kill the snake, without damaging its head or endangering yourself if possible, and send it with the casualty.

7. Seek medical aid immediately.

Brown Recluse or Black Widow Spider Bite

First Aid

1. Keep the casualty quiet.

2. Wash the area.

3. Apply ice or freeze pack, if available.

4. Seek medical aid.

Tarantula or Ant Bite or Scorpion Sting

First Aid

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 the site of bite(s) or sting(s) is on the face, neck (causing 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 southwestern US desert, keep the casualty as quiet as possible and seek immediate medical aid.

Bee Stings

First Aid

1. If the stinger is present, remove it by scraping with a knife or fingernail. Do not squeeze the venom sac on the stinger; more venom may be injected.

2. Wash the area.

3. Apply ice or freeze pack, if available.

4. If allergic signs/symptoms like shock (see page 4-1) appear, be prepared to perform basic life support measures and seek immediate medical aid.

Human and Other Animal Bites

Human or other land animal bites can cause cuts and bruises. Treat these bites to repair damage to the skin and muscle besides preventing infection and disease. Try to capture or kill the animal (without endangering yourself) for medical examination.

First Aid

1. Stop the bleeding, if any.

2. Clean the wound with soap and water. Rinse thoroughly with water.

3. Cover with a field dressing or the cleanest material available.

4. Seek medical aid.

Marine Animal Bites, Stings, and Punctures

Most marine animals (except sharks and barracuda) will not deliberately attack. The most frequent injuries from these animals take the form of bites, stings, and punctures. Wounds from these marine animals can be very painful, but are rarely fatal.

First Aid – Bites

1. Control bleeding, prevent shock, and give basic life support if needed.

2. Seek medical aid.

First Aid – Stings

1. Remove animal parts if still clinging to casualty. Do not use bare hands.

2. Cover the sting site with diluted ammonia, alcohol, meat tenderizer, or talcum powder.

3. Seek medical aid.

First Aid – Punctures

1. Remove any animal spines if they are still in the casualty. Do not use bare hands.

2. Soak the wounds in hot, not scalding, water.

3. Control bleeding and apply a dressing to the wound.

4. Seek medical aid.

CHAPTER 6

First Aid in a Contaminated Environment

Chemical Casualties

When attacked by chemical agents, you should take the following actions. Specific measures for each kind of chemical agent follow.

1. Stop breathing, put on your mask, give the assigned alarm, and continue the mission.

2. If symptoms of agent poisoning appear, give yourself the antidote or appropriate treatment.

3. Decontaminate by splashing water on your eyes and face (under cover) if necessary, put on additional mission-oriented protective posture (MOPP) gear. Carry out further decontamination procedures as needed.

4. Mission permitting, watch for fellow Marines needing your help. ***NOTE: Typical battle wounds and injuries will most likely occur in addition to the problems that chemical agents present. In an NBC environment, protect the casualty first by masking him. Follow the ABC's of first aid to prioritize your treatment. Treat the most life-threatening situation first.***

Nerve Agents

Nerve agents are among the deadliest chemical agents. When you or another Marine have recognized the signs and symptoms of nerve agent poisoning, you must react quickly. Each Marine receives three autoinjectors of atropine plus two pralidoxime chloride (2 Pam Cl) autoinjectors. In addition, a

pretreatment tablets set will be issued to forces subject to a nerve agent threat. The nerve agent pyrodostigmine pretreatment (NAPP) tablet set contains the pretreatment medication to be used prior to an attack. NAPP, used with atropine and 2 Pam Cl, will increase your chance of survival if you become a nerve agent casualty. Take the tablets according to directions and only when told to do so by your commander.

Early Signs/Symptoms (Self-Aid)

Unexplained runny nose
Unexplained sudden headache
Excessive flow of saliva (drooling)
Tightness of chest, causing breathing difficulties
Muscular twitching around area of exposed or contaminated skin
Stomach cramps
Nausea
Blurred or dim vision

Severe Signs/Symptoms (Buddy Aid)

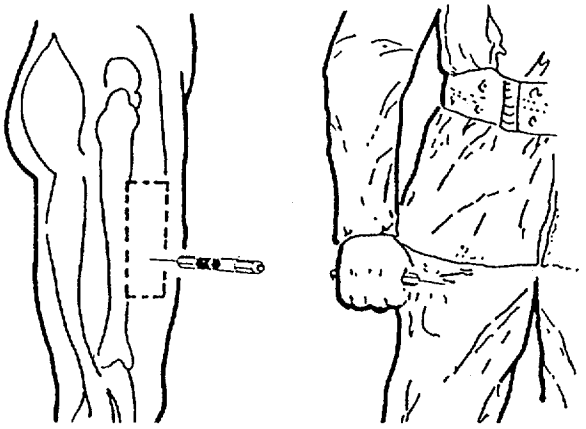
Strange and confused behavior
Gurgling sounds, coughing, or difficulty breathing
Pinpoint pupils
Red eyes with tearing (if agent gets into eyes)
Vomiting
Muscular twitching and general weakness
Loss of bladder or bowel control
Convulsions
Unconsciousness
Breathing stops

Self-Aid

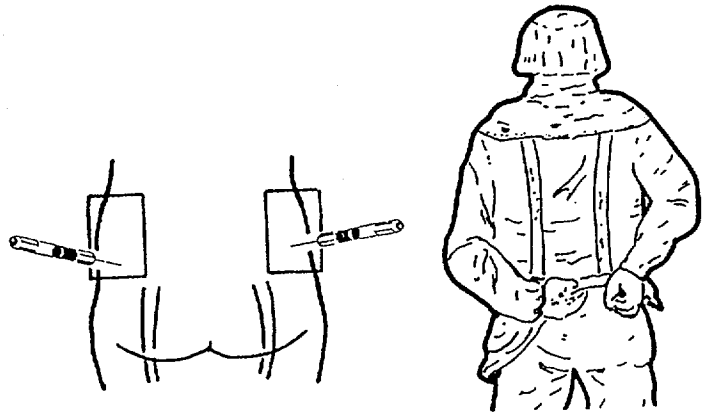
To administer a nerve agent antidote to yourself, do the following:

1. Take immediate steps to protect yourself and warn others. To put on your mask, stop breathing, don mask, clear and seal mask, resume breathing.

2. Administer the first dose of antidote (one atropine and one 2 Pam Cl autoinjector) within 1 minute into your outer thigh muscle. Hold the autoinjectors in place for at least 10 seconds.



Very thin Marines should give the antidote in the upper outer part of their buttocks. Be careful to inject only in the upper outer area because of potential nerve damage. Hold autoinjectors in place for at least 10 seconds.



3. After administering, hook the needle of each autoinjector (one at a time) through the left pocket flap of your protective overshirt.

4. Give yourself a second dose of antidote 10-15 minutes after the first set if the symptoms don't go away or if they come back.

5. Decontaminate your skin as necessary while waiting between kits. Put on remaining MOPP gear.

6. Give the third atropine autoinjector 10-15 minutes after the second set if symptoms recur or are unresolved.

7. Continue the mission. Seek medical aid if symptoms recur or continue.

Buddy Aid

If the casualty is showing severe symptoms and is unable to help himself, administer a nerve agent antidote in the following manner.

CAUTION

Do not kneel. Kneeling on a contaminated surface may force the chemical agent into or through your protective clothing.

1. Take immediate steps to protect yourself and warn others. Put on your mask, give the alarm, give the antidote to yourself and decontaminate your skin, if necessary, and put on your remaining MOPP gear.

2. If the casualty cannot help himself, mask him within 45 seconds.

3. Administer all three doses (3 atropine autoinjectors and two 2 Pam Cl) of the antidote to the casualty immediately and in rapid succession. Give all three doses within 2 minutes. Hold all autoinjectors in place for at least 10 seconds. Inject the antidote into the outer thigh muscle or into the

upper outer part of the buttocks if he is thin. ***NOTE: Use the casualty's antidote kits; do not use your own autoinjectors except on yourself.***

4. Hook all autoinjectors on the left pocket flap of the casualty's protective overshirt.

5. Decontaminate the casualty as necessary.

6. Seek medical aid for the casualty.

Blister Agents

Blister agents act on the eyes, mucous membranes, lungs, and skin. They burn and blister the skin or any other body parts they contact. Even low doses may cause serious injury.

Signs/Symptoms

Lewisite and phosgene oxime cause immediate pain on contact. There is no initial pain upon contact with mustard. Sometimes signs of injury may not appear for several hours after exposure. Swelling and blisters (burns) cause tissue destruction. Blister agents damage the respiratory tract (nose, sinuses, windpipe, and lungs) when inhaled. Exposure to high concentrations of blister agents cause vomiting and diarrhea. Death may occur from prolonged exposure to high concentrations of vapor or from extensive liquid contamination over wide areas of the skin, particularly if you neglect or delay decontamination.

First Aid

1. Decontaminate your skin and use water to flush contaminated eyes immediately.

2. If blisters form, cover them loosely with a field dressing and secure the dressing.

CAUTION

Blisters are actually burns. Do not attempt to decontaminate the skin where blisters have formed.

3. If you have blisters over a wide area of the body, you are considered seriously burned. Seek medical aid immediately.

4. If vomiting occurs, lift the mask and drain it while you close your eyes and hold your breath. Replace, clear, and seal your mask.

Choking Agents (Lung-Damaging Agents)

Choking agents act on the lungs. They cause the lungs to produce large amounts of fluid which leads to pneumonia or death due to dry-land drowning.

Signs/Symptoms

Tears
Dry throat
Coughing
Tightness of chest
Headaches
Choking
Shock
Nausea and vomiting

First Aid

1. Put on your mask immediately.

2. Transport the casualty to an uncontaminated area. Prevent shock.

Blood Agents

Blood agents interfere with use of oxygen in the body. Hydrogen cyanide (AC) and cyanogen chloride (CK) are the primary agents in this group.

Signs/Symptoms

Eye irritation
Nausea
Coughing
Nose or throat irritation
Tightness of chest
Headache
Unconsciousness
Sudden stimulation of breathing

First Aid

1. During any chemical attack, if you get a sudden stimulation of breathing or notice an odor like bitter almonds, put on your mask immediately. ***Speed is essential*** since this agent acts so rapidly that within a few seconds its effects will make it impossible for individuals to put on their masks by themselves. ***Stop breathing until the mask is on if at all possible. This may be very difficult since the agent strongly stimulates respiration.***

2. Get the casualty to fresh air.

3. Get medical aid immediately.

Incapacitating Agents

Generally speaking, an incapacitating agent is any compound which can interfere with your physical or mental performance. There is no special first aid to relieve the symptoms of these agents. Supportive first aid and physical restraint may be needed. If the casualty is stuporous or comatose, be sure that the airway is open. Turn the casualty over on his

stomach with his face turned to one side in case he vomits. Decontaminate with soap and water as soon as possible. Remove weapons and other potentially harmful items from the individuals who show these symptoms. Harmful items include cigarettes, matches, medications, and small items which the casualty could swallow accidentally. An important medical consideration is the possibility of heatstroke caused by the stoppage of sweating. If the temperature is above 78°F, and the situation permits, remove excessive clothing and dampen him to cool him and to prevent dehydration. If he does not improve, give first aid for heatstroke (see page 5-24) and get medical aid immediately.

Incendiary Agents

Incendiaries cause burns. The first aid for these burns is the same as for other thermal burns.

Drench white phosphorus (WP) with water and keep it wet and covered until you can remove it or get it removed from your skin. Do not use grease or oil to smother WP.

Thickened fuel mixtures (napalm) cling to clothing and skin. This means that they have longer contact and produce more severe burns. The heat and irritating gases given off by these combustible materials may cause lung damage.

Particles of metal incendiaries pose special problems. Cool thermite and thermate particles on the skin immediately with water and then remove. Even though thermate particles have their own oxygen supply and continue to burn under water, it helps to cool them. After removing the particles, first aid for these burns is the same as for other thermal burns.

Biological Agent Casualties

Preparedness is the best first aid for a biological agent attack. Basic measures include keeping immunizations current, eating and drinking only from approved sources, and maintaining high sanitation standards. Report any illness promptly to medical personnel.

Toxin Casualties

Toxins usually involve the nervous system, but nausea, vomiting, diarrhea, cramps, and burning distress in the stomach often come before more serious symptoms. Problems with the nervous system develop rapidly. Yellow rain (mycotoxins) also may cause problems with the skin and blood.

Signs/Symptoms

Eye problems
Inability to swallow
Speech difficulty
Muscle coordination
Problems with sense of touch
Dizziness
Severe itching or tingling of the skin
Formation of multiple small, hard blisters
Coughing up blood
Shock (which could result in death)

First Aid

Use decontamination methods to remove the agent if necessary. If you suspect exposure to a toxin agent, seek medical aid immediately.

Nuclear Casualties

There is no direct first aid for casualties of nuclear weapons effects. Treat the symptoms and injuries these casualties show.

CHAPTER 7

Combat Stress

Recognize the signs of combat stress. You may have some of these signs now and then. Some Marines may have many of them. These signs or symptoms are a natural result of the hard work of facing danger under tough conditions.

Physical Signs

Tense (ache, tremble, fumble things)
Jumpy, startled at sudden sounds or movement
Cold sweat, dry mouth
Pounding heart, feel lightheaded
Upset stomach, vomiting
Diarrhea, frequent urination
Haunted (1000-yard) stare
Emptying bowels or bladder at instant of danger

Mental Signs

Anxious, keyed up, worrying
Irritable, griping, swearing
Difficulty paying attention, remembering details
Feeling bad about mistakes or unpleasant tasks or missions
Anger, feeling let down by leaders or others in unit
Awakened by bad dreams
Loss of confidence in self and unit
Uncontrollable grief, tears, or crying for dead or wounded buddy

Self- and Buddy Aid

1. Be calm, in control. Remember that combat stress is a normal response.

2. Focus on team's immediate mission.

3. Expect to continue your duties.

4. Use quick relaxation techniques (for example, take deep breaths, shrug shoulders, among others).

5. Think and talk about succeeding.

6. Stay in touch with the rest of the team. Keep talking.

7. Stay informed. Don't jump to conclusions or believe rumors.

When the tactical mission and safety permits, do the following:

1. Drink, eat, and socialize with your buddies.

2. Dry off, cool down, or warm up, as necessary.

3. Clean up (wash, shave, change, etc.).

4. Try to sleep (3-4 hours, if possible); catnap.

5. Talk about what has happened.

6. Share grief, talk out personal worries.

7. Use quick relaxation techniques to unwind.

8. Keep yourself and your buddy productive when not resting.

NOTE: If signs worsen or if they do not get better with a good rest, tell your leader or corpsman. If a Marine endangers the mission, himself, or others, he must be controlled by restraint or sedation.

CHAPTER 8

Casualty Transportation

WARNING

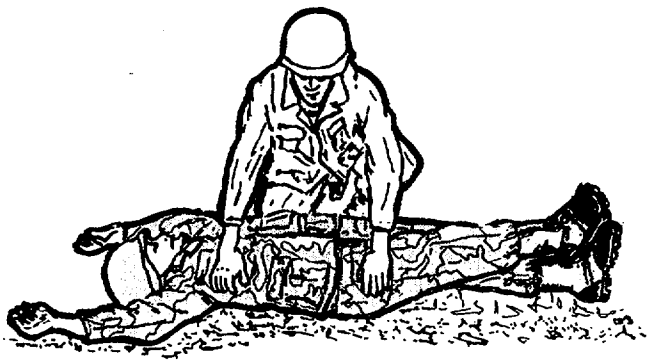
If you suspect a broken neck or back, do not move the casualty unless to save his life. Movement may cause paralysis or death.

One-Man Carries

Fireman's Carry

The fireman's carry is one of the easiest ways for one person to carry another.

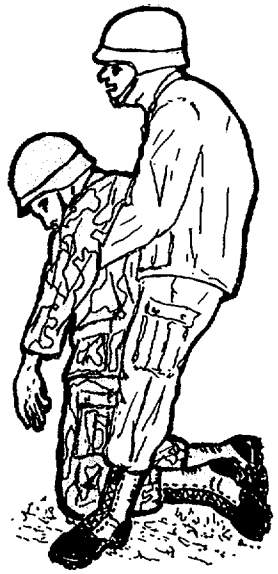
1. First, roll the casualty toward you onto his abdomen. To do this, get on his uninjured side. Place the casualty's arms above his head and cross his far ankle over the ankle closest to you. Place one hand on the far shoulder (underarm) and the other on his far hip or thigh.



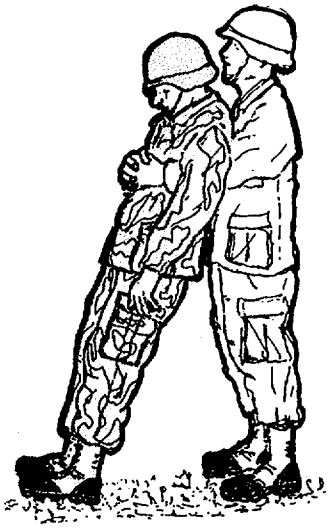
2. Pull him toward you, rolling him onto his abdomen.

3. Then straddle him, extend your hands under his chest and lock them together.

4. Moving backwards, lift the casualty to his knees and then to his feet.



5. Then walk forward and bring him to a standing position but tilted slightly backward. Straighten his legs, and lock his knees.

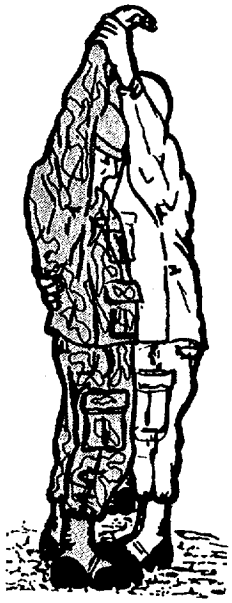


6. Move forward enough to check that his knees are not buckling. ***Note: Some other carries also start with the same procedures described here in steps 1 through 6.***

7. Support him with your left arm, free your right arm, quickly grasp his right wrist, raising his arm high. Pass your head under his raised arm. Let go of his arm as you pass under it.

8. Face the casualty and secure your arms around his waist. Place your right toe between his feet and spread them 6 to 8 inches apart.

9. With your left arm, grasp the casualty's right wrist, then raise his arm over your head.



10. Bend at the waist and knees. Then pull the casualty's arm over and down your left shoulder. This will bring his body across your shoulders. At the same time, pass your right arm between his legs.

11. Place his right wrist in your right hand and place your left hand on your left knee for support in rising.

12. Rise; your left hand is free if needed.

Support Carry

Use this carry for casualties who are able to walk or hop on one leg.

1. Raise from the ground as in fireman's carry up to step 6.

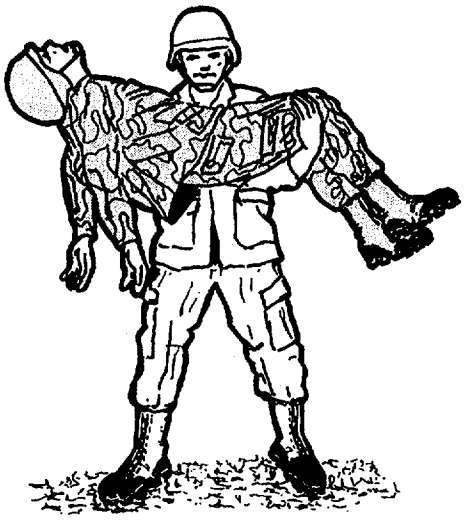
2. Use the hand on the opposite side from the casualty and grasp his nearest wrist. Draw his arm around your neck. Place your other arm around his waist.

Arms Carry

Use this carry for taking the casualty for a short distance or for placing him on a litter.

1. Lift the casualty from the ground to a standing position as in the fireman's carry, up to step 6.

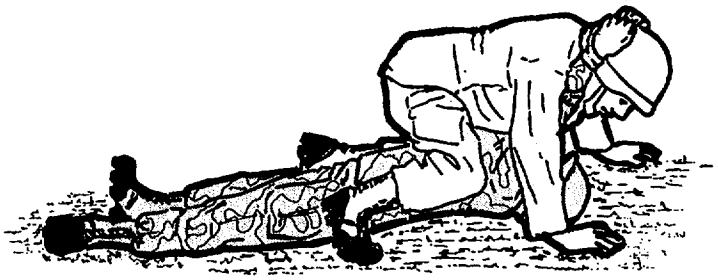
2. Place one arm under the casualty's knees and your other arm around his back and lift. Carry him high to lessen fatigue.



Neck Drag

Use this method of casualty movement in combat.

Tie the casualty's hands together. Straddle the casualty. Loop his arms around your neck. Crawl, dragging the casualty with you. If the casualty is unconscious, protect his head from the ground.



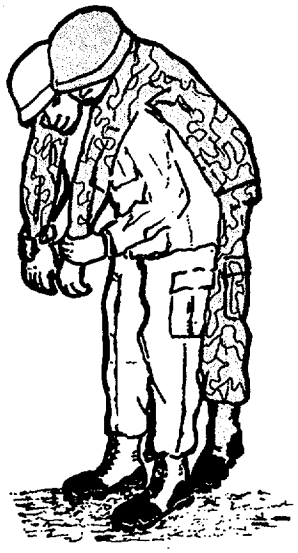
Pack-Strap Carry

Use this carry for moderate distances.

1. Lift the casualty from the ground as in the fireman's carry, up to step 7 (see page 8-1). Move in front of him with your back to him. Support his weight against your back. Grasp his other wrist, and place his arm over your shoulder. ***NOTE: The carrier must hold the casualty's arms in a palms down position to prevent injury.***

2. Bend forward and hoist him as high on your back as possible so his weight is resting on your back.

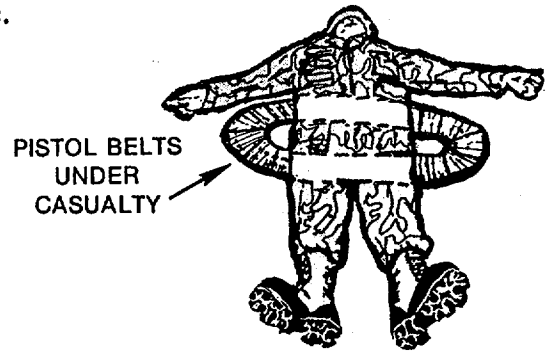
3. Use care in putting the casualty down to avoid injury to your back.



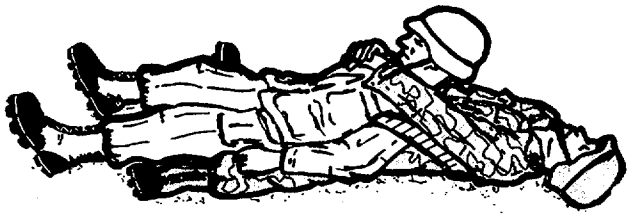
Pistol-Belt Carry

This is a good carry for long distances.

1. Link two pistol belts to form a sling. You can use any other suitable material. Place the pistol belts under the casualty's thighs and lower back so a loop extends from each side.

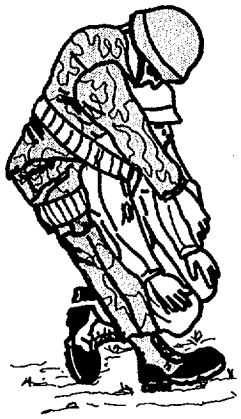


2. Lie between the casualty's legs. Place your arms through the loops. Grasp his hand and trouser leg on his injured side.



3. Roll toward the casualty's uninjured side onto your abdomen, bringing him onto your back. Adjust the sling as necessary.

4. Rise to a kneeling position. The belt will hold the casualty in place.



5. Place one hand on your knee for support and rise to a standing position.

6. The casualty is now supported on your shoulders and your hands are free.

Saddleback Carry (Piggyback Carry)

Use this carry for a conscious casualty only.

Raise the casualty as in fireman's carry, up to step 7 (see page 8-1). Move in front of him keeping your back to him. Have the casualty encircle his arms around your neck. Stoop, raise him on your back, and clasp your hands beneath his thighs.

Pistol-Belt Drag

Use this method of movement for short distances in combat situations.

Join pistol belts (or similar objects) to make a loop. Roll the casualty onto his back, pass the loop over his head, and position it across his chest and under his armpits. Cross the remaining part of the loop and form a figure eight. Lie on your side with your back away from him, resting on your elbow. Slip the loop over your arm and shoulder, turn onto your stomach, and drag him as you crawl.

Two-Man Carries

Two-Man Support Carry

Use this carry for a conscious or unconscious casualty.

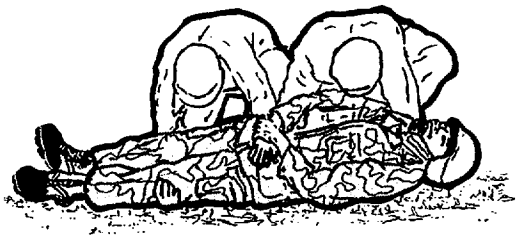
1. Two bearers help the casualty to his feet and support him with their arms around his waist. They grasp his wrists and draw his arms around their necks.

2. When the casualty is taller than the bearers, use this alternate method.

Two-Man Arms Carry

Use this carry for taking a casualty a moderate distance and also for placing him on a litter. To lessen fatigue, the bearers should carry him as high and as close to their chests as possible. ***NOTE: In extreme emergencies when there is no time to obtain a board, this manual carry is the safest for transporting a casualty with a back injury. Use two additional bearers to keep the casualty's head and legs in alignment with his body.***

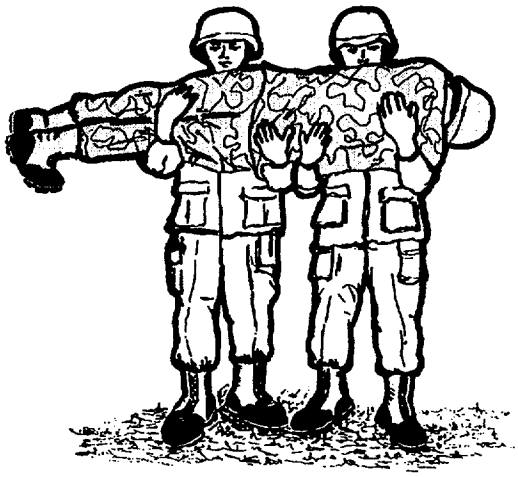
1. Two bearers kneel at one side of the casualty and place their arms beneath his back, waist, hips, and knees.



2. The bearers lift the casualty as they rise to their knees.

3. As the bearers rise to their feet, they turn the casualty toward their chests.

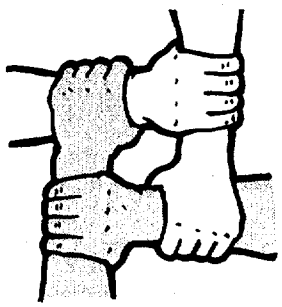
4. They carry him high to lessen fatigue.



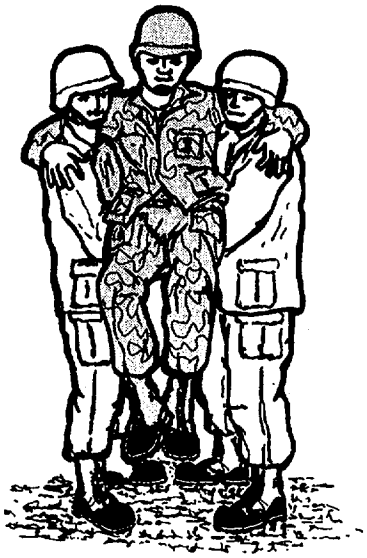
Four-Hand Seat Carry

Use this carry only for a conscious casualty and for moderate distances.

1. Two rescuers form a packsaddle with wrists.



2. The casualty sits on the packsaddle; then he places his arms around the bearers' shoulders for support. After the casualty is seated, the bearers rise to an upright position.



Two-Hand Seat Carry

Use this carry for short distances and for placing on a litter.

Each bearer passes his arms under the casualty's thighs and back and grasps the other bearer's wrists. The bearers then rise, lifting the casualty.

Two-Man Fore-and-Aft Carry

Use this carry for long distances.

1. Place the casualty face up. Facing the casualty, one bearer spreads the casualty's legs, kneels between the legs, and positions his hands behind the casualty's knees.

2. The taller bearer kneels at the casualty's head, slides his hands under the casualty's arms and across his chest. Then he locks his hands together.

3. Bearers rise together, lifting the casualty.

4. One bearer may face away from the casualty.

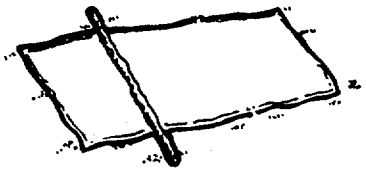
Improvised Litters

An improvised litter is safer than one- or two-man carries and more comfortable for the bearers and the casualty. Use a litter if allowed by the terrain and combat situation. Litters

are made to give a surface upon which the casualty may lie and have grips with which bearers can carry.

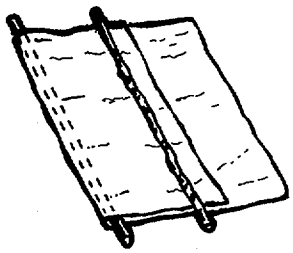
You can use a blanket, poncho, or another large item folded over poles.

1. Open the blanket and lay one pole across it. If using a poncho, pull the hood toward you and lay it flat on the poncho.

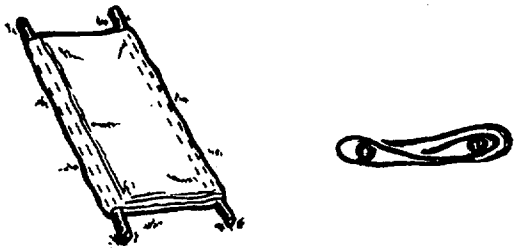


2. Fold one-third of the blanket over the pole.

3. Place the second pole on top of the folded section.



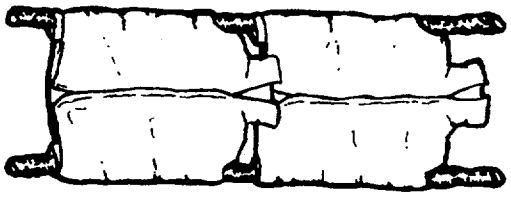
4. Bring the free edge of the blanket over the second pole. If no poles are available, you can roll both sides of the blanket toward the center. Use the rolls to obtain a firm grip when carrying a casualty.



You can insert poles into the sleeves of shirts or jackets.

1. Button two or three shirts. Turn the shirts inside out, leaving the sleeves inside.

2. Pass poles through the sleeves.



WARNING

If you suspect a broken neck or back, do not move the casualty unless to save his life. Movement may cause paralysis or death.

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