

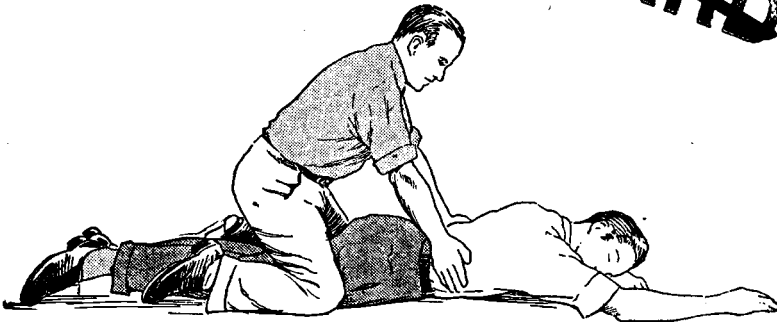
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FIRST ~~DISCARD~~



AID

By

ERNST T. STUHR

Oregon State System of Higher Education
Federal Cooperative Extension Service
Oregon State College
Corvallis

Club Series S-7

4-H Club Growth and Health Project

TABLE OF CONTENTS

	Page
Introduction	3
General Suggestions and Precautions.....	4
Shock	4
Suggested Treatment for Shock.....	5
Precautions in Shock	5
Bleeding (Hemorrhage)	5
Suggested Treatment for External Bleeding.....	6
Suggested Treatment for Nosebleed.....	6
Suggested Treatment for Internal Bleeding.....	6
Wounds (Injuries in Which the Skin is Broken).....	6
Suggested Treatment for Wounds.....	7
Precautions in Cases of Wounds.....	8
Bruises, Sprains, and Fractures (Injuries in Which the Skin is Not Broken)	8
Suggested Treatment for Injuries in Which the Skin is Not Broken	9
Precautions in Injuries in Which the Skin is Not Broken.....	10
Drownings and Suffocations	10
Suggested Treatment in Drownings or Gas Suffocations.....	11
Precautions in Drownings or Gas Suffocations.....	11
Suggested Treatment in Electric Shock.....	11
Precautions in Electric Shock.....	11
Artificial Respiration (Resuscitation)	11
Poisoning	12
General Treatment for Poisoning.....	12
Destruction or Neutralization of Poison.....	12
Burns	12
Suggested Treatment for Burns.....	12
Precautions for Burns	12
Sunstroke	12
Suggested Treatment in Sunstroke.....	13
Precautions in Sunstroke.....	13
Heat Exhaustion	13
Suggested Treatment in Heat Exhaustion.....	13
Frostbites and Freezing.....	13
Suggested Treatment in Frostbites and Freezing.....	13
Precautions in Frostbites and Freezing.....	13
Fainting	13
Suggested Treatment	13
Apoplexy (Paralytic Stroke)	14
Suggested Treatment	14
Epilepsy (Fits)	14
Suggested Treatment	14
Precautions	14
Foreign Body in Eye	14
Suggested Treatment for Foreign Body in Eye.....	14
Foreign Body in Ear	15
Suggested Treatment for Foreign Body in Ear.....	15
First-Aid Cabinets and Packets (Medical Kits).....	15
Summary	15
References and Suggested Guides.....	16

First Aid

By

ERNST T. STUHR

Associate Professor of Pharmacology and Pharmacognosy
School of Pharmacy, Oregon State College

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INTRODUCTION

THE study of first aid calls to our attention some of the many opportunities for serving our fellow men and stimulates us to prepare for such emergencies as may confront us in our daily living. Preparedness for many kinds of emergencies is a duty of all responsible citizens. The emergency which many of us will be called upon to meet is caring for the sick or injured before the arrival of the physician. In addition to learning the principles of first-aid, an individual should try to develop the fundamental qualification of a good first-aid worker—that he can be firm, exact, calm, collected, and observant.

In all first-aid situations there are a few fundamental principles which should become so ingrained into one's mental mechanism that subconsciously the proper and correct treatment is practiced when an emergency presents itself. Time is valuable when an accident occurs and it should not be wasted attempting to find in a book what should be done before determining the procedure. A first-aid worker may have an elaborate first-aid kit but unless he has a calm, reasoning MENTAL kit, he will be of little use.

The individual should remember that in caring for the sick or injured, the aid he is to give is FIRST aid and that he is in no way to encroach upon the duties or responsibilities of the physician. First-aid to the injured may be defined as the care given the victim of an accident before the doctor arrives, very appropriately illustrated by visualizing the period of time which elapses between the accident and the proper medical or hospital attention. It is the FIRST assistance administered by placing the victim in a condition most favorable for further treatment by a physician. Intelligent first-aid may be the margin of safety upon which may depend the future happiness or life of the unfortunate. Prompt, intelligent, and efficient assistance to the sick or injured is an important factor in preserving life—and is essential in avoiding the consequences of delay and neglect.

GENERAL SUGGESTIONS AND PRECAUTIONS

- Be calm. Use common sense. Think before you act. It is better to do nothing than to do the wrong thing. Avoid carelessness.
- Make observations of the situation, and determine the apparent extent of injury.
- For severe cases call or send for a doctor; for minor cases give first-aid treatment and see to it that the patient seeks a doctor.
- Make the patient as comfortable as possible, and insure sufficient air circulation by preventing a crowd from gathering around.
- Have the patient lie down. Do not permit him to stand or sit. Loosen all tight-fitting clothes to facilitate breathing.
- Treat for shock, and keep the patient warm and quiet.
- Apply aromatic stimulant (inhalation) to unconscious person. Never apply liquid stimulants which would cause choking. If no stimulant is available, lower the head.
- Treat most severe wounds first—e.g., severe bleeding, broken bones, et cetera.
- Gently remove clothing from wounds. Do not remove clothing in conventional manner if it will disturb wound; in such case it is advisable to cut or rip along seams of garment and then remove.
- Use **ONLY** sterile (aseptic) materials, antiseptics, and disinfectants on wounds.
- For fractures always place padding between splints and the injured member.
- NEVER ATTEMPT TO MOVE** a person with broken bones until the fracture has been splinted. You may thus prevent compound fractures and further injury to tissue.
- The above considerations would apply to most first-aid situations.

SHOCK

Lowered condition of vital functions, Collapse

Shock is a condition of the body which accompanies injuries. It may exist merely as an emotional reaction from being in an accident or seeing someone hurt. It may also be caused by the receiving of bad news, by fear, anger, or merely by the sight of blood.

Shock or collapse results from a profound depression of the nervous system. Body functions are abnormal. The nervous reaction affects the circulatory system in such a way that the blood rushes to the blood vessels in the abdomen and away from the head and extremities. As a result the severely shocked person may have a pale face, cold, clammy skin, a weak and rapid pulse, irregular or restricted breathing, partly closed eyes, and sometimes unconsciousness. The

shock may vary in intensity. Slight shock may be indicated by a paling of the face and a sudden confused feeling accompanied by a rapid feeble pulse, or the shock may be so severe as to cause death—sometimes without great physical injury. Usually, the greater the injury, the greater the shock.

Suggested treatment for shock—

1. Loosen all tight-fitting clothing.
2. Keep the patient quiet and away from people.
3. Place the patient on his back, head slightly lower than body if his face is pale. This will cause the blood to rush to the head and restore consciousness. Do not lower the head below the level of the body, however, if there is a severe head injury.
4. If the patient is *unconscious*, lower head, apply smelling salts to the nostrils at intervals of once or twice a minute, or permit inhalations of ammonia or any odorous agent.
5. Keep patient warm by covering with blankets, coats, or applying hot water bottles, or other heated objects, but avoid burning the body. Rubbing the arms and legs toward the heart will help to increase the circulation and warm the body.
6. If the patient is conscious, a liquid stimulant may be given provided there is no severe bleeding. The stimulant may be one-half teaspoonful of aromatic spirits of ammonia in one-half glass of water, or it may be a hot drink such as tea or coffee.
7. If patient vomits, place him on one side.
8. If the patient can be moved, remove him to a quiet, airy place and make him as comfortable as possible.

Precautions in shock—

1. Don't excite a shocked person. Don't let him see his wound, especially if there is severe bleeding.
2. Don't let people crowd around him.
3. Don't try to get him to sit up or walk.

Sometimes, however, there may be a condition more serious than shock that must be attended to first. It is useless to treat shock and let a patient bleed to death from a severe wound. Check severe bleeding first and then treat for shock.

BLEEDING

Hemorrhage

The heart is the pump that forces the blood through the circulatory system, which consists of the blood vessels (arteries, capillaries,

veins). Injury to any of these vessels will cause blood to escape from its normal channel and produce bleeding (hemorrhage)—either externally or internally.

Suggested treatment for external bleeding—

IN GENERAL: Apply compresses or tourniquet at pressure points (where the pulse can be felt).

Suggested treatment for nosebleed—

May occur spontaneously or from an injury. Usually stops of own accord.

Apply cold water or ice pack to back of neck and nose, or insert cotton in nostrils, or place an object (wad of paper or twig) under upper lip. Severe or frequent nosebleeds require the attention of a physician.

Suggested treatment for internal bleeding—

1. LUNGS—bloody froth at mouth.
2. STOMACH—abdominal pain and blood vomit.

Keep patient quiet. Apply ice to chest or abdomen. Allow patient to sit and sip cold or ice water. Summon physician.

WOUNDS

Injuries in Which the Skin Is Broken

Wounds are injuries in which the skin is broken. They may be classified under the following four headings:

1. Cuts—a wound made by a sharp, flat instrument, e.g., a knife.
2. Lacerations—a wound made by a blunt instrument, e.g., a hammer.
3. Puncture Wounds—a wound made by a pointed instrument.
4. Poisoned Wounds—wounds made by snake bites, dog and cat bites, insect bites, et cetera.

A cut made by a sharp instrument has an advantage over the other types of wounds in that it has an opportunity for bleeding freely, thereby washing out the bacteria carried in by the instrument inflicting the wound. The bleeding, however, may be so severe as to threaten life, in which case stopping the bleeding is of prime importance. The most serious bleeding is that which comes from a severed artery, characterized by bright red blood spurting out at each beat of the heart. Venous blood on the other hand, flows more smoothly (does not spurt) and is of a darker color. Capillary bleeding is characterized by “seeping or oozing” out of blood.

Suggested treatment for wounds—

1. **HEMORRHAGE FROM AN ARTERY:** Apply pressure with a compress or tourniquet at a point between the wound and the heart. Do not leave the tourniquet on for more than twenty minutes at one time without loosening. Otherwise mortification (death) of limb or part may result.
2. **SMALL CUTS:** Apply antiseptic solution and apply a *sterile* dressing.
3. **LACERATIONS:** Wash with antiseptic solution. Apply *sterile* dressing.
4. **PUNCTURE WOUNDS:** Remember that the wound may be serious even though the break on the surface is very small. This type of wound is favorable for the development of tetanus as the wound becomes sealed, allowing no bacteria to escape and forming a fertile field for their development. Also, there may be internal bleeding. Apply a sterile dressing and get in touch with a physician. If internal bleeding is suspected, keep patient quiet until physician arrives. Lung bleeding can be observed by appearance of froth. Apply cold pack to chest and sip ice water.
5. **POISONED WOUNDS OR BITES:** This type of wound differs from the others in that a quick-acting poison may have entered the wound at the time the wound was inflicted.

SNAKE BITES: Apply tourniquet or compress above the wound to prevent spread of poison through the body. This should be done immediately. Induce wound to bleed freely, *or*,

Cauterize wound with an oxidizing agent (potassium permanganate or strong ammonia) or burn with hot knife or wire, *or*,

Suck wound to remove poison, provided you have no sore or cut on your lip or in mouth, as poison would enter your blood stream and might be fatal to you.

The main object is to restrict the inward flow of poison (constrict internal flow) and to help the outward flow (promote external flow of poison).

The same treatment may be used for bites of dogs, cats, horses, deer, wolves, foxes, rats, mice, or any other animal that may be afflicted with rabies (hydrophobia).

INSECT BITES: The sting of highly poisonous insects like the tarantula and the black widow spider, require the same treatment as for snake bites.

For other insects like the wasp, hornet, and bee, remove the stinger, wash with an antiseptic solution and apply a paste of baking soda and water, or some ammonia.

6. FOREIGN BODIES IN THE SKIN, E.G., SPLINTERS: In case a foreign body has become lodged in the skin, pull it out in a direction opposite to that in which it entered. Exception—fish hooks or other barbed objects.

SPLINTERS: Sterilize the blade of a knife. Insert the blade under the edge of the splinter; place thumb nail over splinter and draw it out. For any deeply imbedded object, or a barbed object, cover wound with a sterile dressing and consult physician. (If splinter is deeply imbedded do not try to remove.) After removing, wash wound with an antiseptic solution and cover with a sterile dressing.

Precautions in cases of wounds—

1. Stop serious bleeding first.
2. Pressure points are indicated where the pulse can be felt.
3. Don't stimulate a freely bleeding person.
4. Elevate bleeding part.
5. Wash wounds only with antiseptic and disinfectant solutions.
6. Dress only with *sterile* gauze—no dressing at all is better than a dirty one.
7. Remove clothing gently from wound. Cut or rip seams of clothing, if necessary, to prevent undue pain or movement.
8. Have all puncture wounds treated by a physician.
9. Treat poisonous wounds quickly. Don't try to kill the snake or spider first.
10. Don't leave a tourniquet on indefinitely. Release every 20 minutes to prevent mortification (death) of limb.
11. Don't use a colored antiseptic on a serious wound as it may hinder the physician in his examination of the patient.
12. Never seal a wound—this invites infection.

BRUISES, SPRAINS, AND FRACTURES

Injuries in Which the Skin Is Not Broken

These injuries include: (1) BRUISES—injury to tissue underlying the skin (ruptured capillaries). (2) STRAINS—an overstretched muscle or ligament. (3) SPRAINS—a pulling and tearing of muscles and ligaments around a joint. The tissue may be torn from the bone and there may be a great deal of rupture of capillaries and blood vessels. (4) FRACTURES (broken bones), (a) Green stick fracture—bone is broken but is not completely separated—similar to an attempt to break a green stick, (b) Simple fracture—fracture in which the

bone has not pierced the skin, (c) Compound fracture—fracture in which the bone has pierced the skin—a combination of fracture and wound. (5) DISLOCATION—separation of the bony parts of a joint, e.g., ball slips out of socket in shoulder joint. Dislocation is visible because of deformity.

Suggested treatment for injuries in which the skin is not broken—

1. BRUISES: Apply cold application to reduce the flow of blood and prevent discoloration. In severe bruises, apply alternate hot and cold compresses.
2. STRAINS: Apply heat and rest.

A "charley horse" is a strained and torn muscle resulting from too sudden a contraction of a muscle that has not been properly warmed up. Never pound an injured muscle. Apply heat to increase the circulation and aid repair. Massage (not too heavy) may help. May use arnica or witch hazel.

Muscle cramps which result from over exertion may be relieved by heat, gentle stroking, and kneading, but not by pounding.

3. SPRAINS: Apply alternate applications of heat and cold. Do not massage severe sprains—you may cause further tearing of the tissue. Bandage firmly to restrict the movement. Swelling usually signifies a sprain rather than a fracture or break.
4. FRACTURES: Use splints to secure support and immobility.

ARM OF LEG FRACTURE: Hold limb gently in approximately the natural position. If patient is to be moved, apply a splint to prevent movement of the injured part. The splint should be long enough to extend beyond the joints above and below the point of fracture. Handle the fracture gently. Avoid making a simple fracture compound. Do not tie retaining strip over point of fracture.

FRACTURE OF PELVIS (HIP) OR VERTEBRA COLUMN (Back): Do not move patient unless absolutely necessary. Splint full length of body. Place on flat stretcher and carry slowly. Use several people to lift patient to stretcher to avoid any movement. To prevent jolting, carriers must be *out of step*.

JAW OF RIB FRACTURE: Bandage in place to prevent movement. For jaw: handkerchief under jaw and tie on top of head. For ribs: cinch tightly about chest.

SKULL FRACTURE: Keep head higher than body to keep blood away from head. Apply cold compresses. If you must

bandage a skull fracture, do not allow a knot to rest directly over the point of fracture.

COLLAR BONE FRACTURE: Symptom: shoulder lowered. Place arm in sling and bandage to body to prevent movement.

COMPOUND FRACTURE: Dress wound with sterile gauze. Proceed as for simple fracture.

5. **DISLOCATIONS:** Reduce minor dislocation if possible and bandage in place. Major dislocations should be reduced by a doctor. To reduce:

SHOULDER: Do not try to reduce. Send for doctor.

HIP: Do not try to reduce. (Splint entire body as for fracture if victim must be moved.)

JAW: Place firm, padded object between the jaws well toward the back of the mouth. This will act as a fulcrum. Lift chin. This will extend capsullary ligament and jaw will return to position. Put padding on teeth to let mouth close gently or some teeth may be broken when the jaws snap together. Do not attempt to reduce if a doctor is available.

FINGERS AND TOES: Take a firm hold and pull.

Precautions in injuries in which the skin is not broken—

1. Don't pound an injured muscle.
2. Don't exercise a "charley horse." It needs rest and heat.
3. Don't knead a severe sprain.
4. Don't handle a simple fracture roughly; you may make it compound.
5. Don't move a person with a fracture without first applying a splint.
6. Treat a compound fracture both as a wound and as a fracture.
7. In applying splints or bandages, do not tie a knot directly over the sensitive portion. Do not place splint in direct contact with injured member, but use padding.
8. Never attempt to set a fracture—this is the duty of a physician.
9. Never attempt to reduce major dislocation; bandage properly and consult a physician.

DROWNINGS AND SUFFOCATIONS

Lack of oxygen (air) either through paralysis of breathing mechanism as in **ELECTRIC SHOCK**, or through inability to obtain oxygen as in **DROWNING**, or through the inhalation of **GASES**, e.g., fumes in mines or sewers, illuminating gas, coal gas, or smoke, carbon monoxide from engines.

Suggested treatment in drownings or gas suffocations—

Remove victim from danger element into open air. Lose no time in starting artificial respiration. Use bystander—to get a doctor, to apply heat to body, and to rub patient's arms and legs toward the heart, thereby stimulating the circulation. After patient has revived, keep him quiet and treat for shock.

Precautions in drownings or gas suffocations—

Remember that every second counts. Start resuscitation at once. Learn to resuscitate by diligent practice under expert guidance. The Red Cross conducts such classes frequently. The prone pressure method of artificial respiration is considered the best.

Suggested treatment in electric shock—

If body is still in contact with live wire, flick the "hot wire" from body by using a piece of DRY wood or remove with rubber gloves or objects.

Precautions in electric shock—

Do not attempt to REMOVE VICTIM BY TOUCHING WITH BARE HANDS. The body is electrified and you will receive shock. Drag or pull body from wire by holding on to clothing with insulated material. Proceed as in Gases or Drowning.

Artificial Respiration (Resuscitation)—

Three steps in prone-pressure method.

1. Place patient (victim) face downward upon the ground or floor with his head (face) on the back of his left hand, so the mouth and nose are off the ground. Right arm well extended.
2. Straddle patient's legs about six inches above knees or straddle one leg, preferably the one on the side toward which the face is turned so you can watch the patient's face. Place the palms of your hands on the small of the back with the fingers just touching his lower ribs. Have your hands on his lower ribs, not on his backbone. Have thumbs close to fingers, all pointing outward.
3. With your arms held straight, swing slowly forward, gradually bearing your weight on the patient. Then swing backward, removing the pressure. Count "2" slowly and repeat operation until patient is revived. Complete movements should be from 12 to 15 per minute.

POISONING

If the poison or symptoms are recognized, administer proper antidote immediately. Promptness is of vital importance. Have an antidote chart available for ready reference and familiarize yourself with the common antidotes, whether physiological, chemical, or mechanical.

General treatment for poisoning (for removal of poison)—

1. Skin and Mucous Membrane: Wash with water or some solvent which will dissolve the poisonous agent.
2. Poisonous Gases: Remove victim from gas supply and apply artificial respiration.
3. Stomach: Wash with water and remove by emetic or stomach pump (tube). Do not use stomach tube if stomach walls are corroded.

Destruction or neutralization of poison—

1. For acids use mild alkalies, e.g., baking soda.
2. For alkalies, use mild acid, e.g., lemon juice, vinegar.
3. Organic poisons (alkaloids, glucosides) use oxidizing agents or precipitants, e.g., dilute solutions of potassium permanganate, tannic acid, et cetera.

BURNS

Burns may be of various degrees of severity from a slight surface scorch which may not blister, to a deep-seated burn involving underlying tissues.

Suggested treatment for burns—

The essential thing is to exclude air. Apply oils such as carron oil, grease (not lubricating oil), starch or flour pastes, or baking soda. Picric or tannic acid solutions. NOTE: If clothing is on fire, extinguish by rolling victim tightly in a blanket or coat to exclude air. If you are entering a smoke-filled room, remember that the air close to the floor contains less smoke than the air above.

Precautions for burns—

In applying oils or dressings, *do not* use cotton as the fibers will stick to the burned area—use gauze.

SUNSTROKE

Sunstroke is due to over stimulation. The patient is unconscious, the face is flushed (red), the pupils dilated, the skin dry (burning), pulse is rapid and strong, breathing is with gasps.

Suggested treatment in sunstroke—

Remove to shade. Apply COLD applications to the face, neck, chest, and armpits to reduce the body temperature, or wrap the body in a wet sheet.

Precautions in sunstroke—

Do not give stimulants. May give cool water but *not* ice water. Do not confuse *sunstroke* with heat *exhaustion*.

HEAT EXHAUSTION

A victim of heat exhaustion shows under stimulation—the opposite of sunstroke. The breathing is shallow, the pulse feeble (weak), the face is pale, the skin is clammy. The patient is easily aroused.

Suggested treatment in heat exhaustion—

Remove to cool place. Do NOT apply cold externally. Give stimulating drinks.

FROSTBITES AND FREEZING

The body whitens as a result of intense (excessive) cold. Feelings and sensations disappear.

Suggested treatment in frostbites and freezing—

Raise the temperature gradually—very slowly. Apply cloth or snow or icy water, then cold water and rub briskly. Give patient a weak, stimulating beverage.

Precautions in frostbites and freezing—

Immediate use of heat may result in mortification of part. TRANSITION FROM COLD TO WARM MUST BE SLOW.

FAINTING

Fainting is a temporary maladjustment of the circulatory system, resulting in unconsciousness, due to insufficient blood supply in head area.

Suggested treatment in fainting—

Lower the head. Rub hands, arms and legs toward the heart to aid circulation. Apply stimulating inhalants.

APOPLEXY

Apoplexy (a paralytic stroke) is a paralytic condition resulting from the rupture of a blood vessel within the cranium. The patient may be partly or totally unconscious.

Suggested treatment in apoplexy—

Lay the patient down, head somewhat elevated. Apply ice packs to head area and summon a physician.

EPILEPSY

Epilepsy (fits) is characterized by a foaming (frothing) at the mouth, accompanied by a jerky thrashing (muscular twitching) of the body, particularly of the arms and legs.

Suggested treatment in epilepsy—

Loosen tight clothing. Patient needs air. Place object in mouth to prevent personal injury from biting tongue, et cetera. Allow epileptic attack to subside. Following attack, allow patient to sleep and summon a physician.

Precautions in epilepsy—

Remove dangerous objects from vicinity of victim to prevent him from hurting himself. Do not stimulate the unfortunate.

FOREIGN BODY IN EYE

Suggested treatment for foreign body in eye—

1. Under Lower Lid: Pull lower lid down. Remove object with a piece of sterile gauze by working it toward the nose.
2. Under Upper Lid: Close eyes tightly. Tears may gather and force the foreign body to edge of lid where it may be wiped away; or,

Pull upper lid down over lower lid several times. This may leave the object on the lower lid; or,

Roll upper lid upward and backward over a match stick. Remove irritating particle with a piece of sterile gauze, or the corner of a clean handkerchief.

A drop of olive oil in the eyes will relieve the smarting.

3. For Wounded Eye: Apply a cold, damp compress and bandage the eye. Do NOT attempt to remove a splinter or any lodged object. Summon a physician.

FOREIGN BODY IN EAR

Suggested treatment for foreign body in ear—

Put a few drops of warm olive oil in the ear and get patient in touch with a physician.

FIRST-AID CABINETS AND PACKETS

(Medical Kits)

Emergency cases and kits containing the necessities for rendering first-aid treatment vary from small pocket sizes to large cabinets designed for factory use. Several states have compensation insurance regulations which prescribe a list of items suggested for kits that governs the selection of cabinet and equipment:

Typical equipment and materials include—

MATERIALS:	Scissors
Absorbent cotton	Splints
Adhesive tape	Tourniquet
Cotton and gauze roller	MEDICINALS:
bandages	Aromatic spirits of ammonia
Finger cots	or smelling salts
Gauze (sterilized)	Boric acid solution
Picric acid gauze	Carron oil
Triangle bandage	Castor oil
EQUIPMENT:	Dilute acetic acid
Applicator sticks	Germicidal solution (antiseptic, disinfectant)
Candle or flashlight	Liquid petrolatum
Eye cups	Mustard, powdered
Forceps	Sodium bicarbonate
Medicine dropper	Tannic acid
Medicine glass	Vaseline
Safety pins	

SUMMARY

Have knowledge of recommended first-aid necessities and their proper application.

Possess technical knowledge (mental equipment) that can be actually applied with aid of crude equipment which may be available.

Preserve life, which may depend on your knowledge of the pressure points to check arterial bleeding.

Know what to do in each emergency and practice these principles before confronted with a disastrous situation embodying possible death of the victim.

Practice mentally the fundamentals essential to minimize injuries and fatalities, which might arise from serious accidents.

Avoid carelessness. Time is valuable but "haste is waste."

Remember that the welfare and comfort of the unfortunate come first.

Always wash wound with antiseptic and disinfectant solutions. *Never wash a wound with water.*

Always assume responsibility of getting patient under doctor's care for final treatment.

Remember that it is usually advisable to call a doctor to the scene of the accident, rather than moving the injured person, thereby preventing further harm.

No mention has been made as to methods of application of the various dressings and bandages. This rightfully is the duty of the physician. The author has at all times sought to treat all situations as first (emergency) treatment—to avoid possible further damage to the injured when proper medical care is not available. The "first-aid" SHOULD NEVER ASSUME THE ROLE OF THE PHYSICIAN.

REFERENCES AND SUGGESTED GUIDES

American Red Cross—"Textbook on First Aid."

Bauer and Black—"A Handbook of First Aid."

Johnson and Johnson—"Johnson's First Aid Manual," "Handbook of First Aid," "First Aid in Outline."

McKesson and Robbins—"First Aid in Emergencies."

U. S. Department of Commerce, U. S. Bureau of Mines—"Manual of First Aid Instruction."

U. S. Public Health Service—"What to Do in Case of Accident."

Cooperative Extension Work in Agriculture and Home Economics

Wm. A. Schoenfeld, Director

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