

## FIRST AID METHODS FOR TREATING THE INJURED.

PREPARED UNDER THE DIRECTION OF THE SURGEON-GENERAL, UNITED STATES  
PUBLIC HEALTH SERVICE.

The United States Public Health Service advises that everyone become familiar with first-aid methods for treating the injured. First aid has been defined as the temporary care of an injured person by simple, commonsense methods, based on principles of medicine and surgery, that may be applied easily by persons not professionally trained in those subjects. *It should be noted that the work of first aid ceases when the injured person has been turned over to the care of a physician.*<sup>1</sup>

When it is remembered that over 28,000 persons are killed in the United States each year by traffic accidents—that is, by automobile, railroad, street car accidents, etc.,—over 13,000 by falls, more than 6000 each by burns and drowning, and more than 27,000 by other accidental means, or a total of more than 80,000 persons killed and over two million additional seriously injured by accidents in the United States each year, the importance of first-aid care is at once obvious. The above does not include the minor injuries, for which there are no statistics at the present time.

The common injuries include wounds with bleeding and possible infections, dislocation and fracture of bones, burns, including those caused by chemicals, and asphyxia, or cessation of respiration. The principles upon which first-aid are based are as follows:

First, cleanliness in caring for all open wounds. Persons administering first aid should be instructed not to touch or put anything on open wounds except a dry sterile compress or bandage compress. A bandage compress, which consists of several thicknesses of sterile gauze sewed to the middle of a strip of muslin, is used to cover all open wounds. Three sizes of compresses are used—large, medium and small. The compress should usually be covered by a protective dressing. A triangular bandage has been found very suitable for this purpose, as it can be adapted to cover any part of the body. The triangular bandage is used either in the open form or folded cravat. In addition to being used to protect the other dressings, it may be used as an improvised tourniquet and to hold splints in place. A triangular bandage may be made from any kind of cloth such as a handkerchief, piece of shirt, or napkin. It has been found, however, that a piece of muslin forty inches square, folded diagonally and cut across the long side, making two triangular bandages, is most satisfactory.

The second principle in first aid is the control of hemorrhage, or bleeding. Hemorrhage from a cut artery flows rapidly in spurts or fine jets, giving little time for the blood to coagulate or clot. The blood is bright red. Blood from a vein,

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<sup>1</sup> EDITOR'S NOTE.—Attention is called to the fact that unscrupulous persons have taken advantage of kindly acts to secure damages from those whose sympathies and humanity persuaded them to give aid. The charges in the cases in mind were technical and not all persons adhere to the truth when their desire for money gets the better of them. Members of the A. PH. A. will find reference to cases in May JOURNAL, A. PH. A., page 485. A firm, known to the writer, had a related experience many years ago in which permanent injury was alleged but fortunately (disastrously for the plaintiff and his attorneys) the attempted deception was uncovered by a special jury of physicians. The comment is made so that pharmacists will be guarded in their actions.

being under less pressure flows steadily, but it may be rapid if from a large vein. It is dark in color. Bleeding from small arteries can often be controlled by direct pressure, but it is generally best to apply a tourniquet immediately, between the wound and the heart. Bleeding from a vein can usually be stopped by simply pressing a pad of sterile gauze over the wound and then elevating the part, having the patient lie down. Anything that makes the heart beat faster increases hemorrhage; hence in all cases of severe bleeding the patient should be kept in a recumbent or semi-recumbent position and as quiet as possible.

The third principle is the restoration of breathing after electric shock, apparent drowning, and poisoning by gases, as by carbon monoxide gas or illuminating gas. This treatment is by artificial respiration. Any method of artificial respiration may be used. For the ordinary person rendering first aid, the Schaefer, or prone pressure, method is the simplest and is not as tiresome as some of the other methods. Recently a conference was held at which representative of the United States Public Health Service, the United States Bureau of Mines, the American Red Cross, and other national organizations were present for the purpose of deciding upon a uniform technique. This technique is very simple and anyone can learn it in a short time. It is as follows:

(a) Lay the patient on his belly, one arm extended directly overhead, the other arm bent at elbow and with the face turned outward and resting on hand or forearm so that the nose and mouth are free for-breathing.

(b) Kneel, straddling the patient's thighs with your knees placed at such a distance from the hip bones as will allow you to place the palms of your hands on the small of the patient's back with your fingers resting on the ribs, the little finger just touching the lowest rib, with your thumb and fingers in a natural position, and the tips of your fingers just out of sight.

(c) With your arms held straight, swing forward slowly so that the weight of your body is gradually brought to bear upon the patient. Your shoulders should be directly over the heel of your hand at the end of the forward swing. Do not bend your elbows. This operation should take about two seconds.

(d) Now immediately swing backward so as to completely remove the pressure, thus returning to the first position.

(e) After two seconds, swing forward again. Thus repeat deliberately 12 to 15 times a minute the double movement of compression and release, a complete respiration in four or five seconds.

(f) Continue artificial respiration without interruption until natural breathing is restored or until a physician declares the patient is dead.

(g) As soon as this artificial respiration has been started and while it is being continued, an assistant should loosen any tight clothing about the patient's neck, chest, or waist. Keep the patient warm. Do not give any liquids whatever by mouth until the patient is fully conscious.

(h) To avoid strain on the heart when the patient revives, he should be kept lying down and not allowed to stand or sit up. He should be given some stimulant, such as one teaspoonful of aromatic spirit of ammonia in a small glass of water or a hot drink of coffee or tea. The patient should be kept warm.

(i) Resuscitation should be carried on at the nearest possible point to where the patient received his injuries. He should not be moved from this point until he is breathing normally of his own volition and then moved only in a lying position. Should it be necessary to move the patient before he is breathing normally, resuscitation should be carried on during the time that he is being moved. A brief return of natural respiration is not a certain indication for stopping the resuscitation. Not infrequently the patient, after a temporary recovery of respiration, stops breathing again. The patient must be watched and if natural breathing stops, artificial respiration should be resumed at once.

(j) In carrying out resuscitation it may be necessary to change the operator. This change must be made without losing the rhythm of respiration. By this procedure no confusion results at the time of change of operator and a regular rhythm is kept up.

The fourth principle relates to dislocations and fractures of bones, which are treated by immobilization in a comfortable position, and a natural one if practicable, care being taken not to move the injured part unnecessarily. Well-padded splints are held in place by cravat bandages.

Fifth, burns are treated, after removal of the clothing, by use of sterile or sterile picric acid gauze and an outer dressing, as a triangular bandage, to hold the gauze in place and exclude the air. The exclusion of air is important. Precautions of cleanliness should be observed as stated for open wounds.

Sixth, shock, or vital depression, which accompanies all injuries to some degree, is treated by keeping the patient lying down at rest; keeping him warm by covering him with blankets or clothing, using hot water bottles, hot bricks, or similar means, aiding circulation by rubbing the extremities towards the heart, but not away from it; and by the use of common stimulants, as hot coffee or aromatic spirit of ammonia.

Seventh, transportation may be necessary to get an injured man to a place of safety, or to a more comfortable location, or to get him to a hospital and a physician. The methods vary with conditions, but the principle of transporting him so that he will suffer no further injury is important, whether he is transported on a stretcher or by one, two, three, or more persons.

In summarizing, the most important thing in the care of the injured person is *Prevention*—the reduction of accidents to a minimum by education and legislation. But as this minimum can never be zero, it is well to bear in mind the fundamental principles in first aid care, which are as follows:

1. Asepsis or cleanliness in caring for open wounds.
2. Control of hemorrhage by pressure and position of injured part.
3. Treatment of shock by keeping patient at rest and warm and by giving simple stimulants.
4. Artificial respiration in asphyxia, electric shock, combined with the use of pure oxygen in carbon monoxide cases.
5. Asepsis in treatment of burns; protection from air if this can be done with aseptic method; antisepsis and some relief of pain by use of picric acid gauze.
6. Immobilization of dislocations and fractures.
7. Transportation by methods that will not increase the extent of the injury.

In addition to the benefits gained by the early care of the injured, first aid has been found actually to tend to lower accidents by making people more careful.

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#### POISON IVY REMEDIES.

Through the medium of the U. S. Department of Agriculture the press has been informed of the effectiveness of potassium permanganate as a treatment for ivy poisoning—a 1 per cent solution is applied. The *Science News* of recent date, has given publicity to a preventive formula devised by Dr. James B. McNair, of the Field Museum, Chicago, consisting of a

5 per cent solution of ferric chloride in a 50-50 mixture of water and glycerin. This is to be washed on all exposed parts of the skin and allowed to dry there before going where the poison ivy and related weeds grow. The iron salt combines with the poisonous principle of the ivy, and changes it into a harmless, non-poisonous compound.