TRAINING BULLETIN

FIRST AID

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INTRODUCTION

Police officers are called to the scene of all types of emergencies. In your everyday work, you are often required to handle incidents involving injuries caused by vehicle accidents, shootings, stabbings and poisonings. Although you will seldom be required to apply first aid for a long period of time while waiting for an ambulance, occasions may arise in which your knowledge and application of first aid can mean the difference between life and death to an injured person.

Section 217 of the California Health and Safety Code requires police officers to meet certain standards in first aid proficiency (including cardiopulmonary resuscitation). Accordingly, the Department's In-Service Training Unit provides each member with an hour of cardiopulmonary resuscitation training each year and a multi-media refresher course in first aid every three years. As a police officer, you are morally, ethically, and legally required to maintain a proficiency in first aid techniques to enable you to fulfill your obligation to protect and sustain life. Moreover, an improper application of first aid techniques could conceivably result in a civil action against you and the Department.

This bulletin presents first aid techniques recommended by the American Red Cross as well as information obtained from such agencies as the AMA, the American Heart Association, and the California League for the Handicapped. It includes descriptions of emergency situations which can lead to the death of victims when quick action is not taken.

TRAUMATIC SHOCK

Traumatic shock often follows serious injury. It is a depressed condition of many bodily functions due to failure of blood circulation. It is one stage in the process of dying. When injury occurs, the body tries to provide enough blood to all of the vital internal organs by constricting the blood vessels in the skin and extremities. In trying to maintain the supply of blood to the body Organs$_1$ the heart may beat faster than normal yet the pulse may be weak because the heat muscles themselves are not receiving enough blood to function normally.

A primary symptom of shock in its first stage is a weak, rapid pulse (over 100 beats per minute). The constriction of blood vessels in the skin and extremities results in the classic visible sign of shock: pale or bluish skin. If the victim has dark skin, this will show itself through the color of the skin under the fingernails or through the color of the mucous membranes on the inside of the mouth or under the eyelids. Along with the change of color, the skin becomes cold to the touch and clammy or moist. Nausea, vomiting, perspiration, weakness and faintness may also be present.

In the later stages of shock, the victim becomes apathetic or unresponsive. The pupils of his eyes may be dilated widely, and the blood vessels near the surface of his skin may be mottled (which indicates a very low level of blood pressure). If untreated, he will lose consciousness and die.

Shock is not always an obvious condition and occasionally a person suffering from it will show few of its early symptoms. He may be anxious and agitated or he may appear alert and cheerful, readily answering your questions. He may even insist that medical attention is unnecessary.

Nevertheless, this person may suddenly collapse or even die as the result of shock. In one case, a pedestrian who had been struck by a vehicle appeared quite normal during the investigation of the accident at the scene. He stated that he had merely been bruised and did not need medical assistance. The following morning, Departmental investigators were advised that the man had died; although his injuries had not been critical, the man died from shock.

Statistics show that many persons who die following serious injury do so as a direct result of shock; therefore, you should assume that the victim of any serious injury may be suffering from this condition.

Treatment of Shock Victims. Keep the victim lying down. Keep the victim lying down. Cover him with a blanket to preserve his body heat and elevate his legs so that they are slightly higher than his head. This will allow gravity to assist in keeping more blood in the vital organs.

You should not move a victim if he has suffered an injury to his head or chest or if he has difficulty breathing. Protect him and keep him warm until the ambulance arrives.

BLEEDING

Many assignments handled by the police involve severe bleeding. This emergency occurs more often than any of the others described in this bulletin. There are approximately six quarts of blood in the average male adult. When a large blood vessel has been severed, a victim can lose a quart or more of blood in a minute -- a loss sufficient to cause death.

Severe bleeding must be stopped immediately. It can usually be controlled by one of two methods: (1) digital pressure directly on the wound or on the circulatory pressure points of the body or (2) application of a tourniquet.

Direct and Digital Pressure. Direct pressure with a pad on a bleeding wound will control most external bleeding. It may be necessary to elevate a bleeding limb while the pressure is applied (fig. 1). A firm, even pressure should be applied directly on the wound. If blood soaks through the pad, another pad should be placed over the first one and the pressure continued. Coagulation of the blood at the wound site should occur within approximately six minutes and may help to stop the bleeding.

In cases of more extensive bleeding, direct pressure may not be sufficient to stem the flow of blood. In such cases, digital pressure should be applied to the body's circulatory pressure points while continuing direct pressure to the wound if possible. To apply digital pressure means, simply, to stop the flow of blood through the artery carrying blood to the wound by compressing the artery between your fingers and a bony area of the body. For example, finger pressure on the brachial artery in the upper arm against the underlying bone (fig. 2) will diminish the flow of blood to the lower arm below the pressure point. Similarly, pressure with the fingers or the heel of your hand on the femoral artery on either side in the mid-groin area against the underlying pelvic bone (fig. 3) will help to diminish bleeding in the leg.
Tourniquets. The Red Cross warns that tourniquets are dangerous, rarely required, and used far too often. It states that a tourniquet should not be used "except in critical emergencies" and that

"The decision to apply a tourniquet is in reality a decision to risk sacrifice of a limb in order to save a life." It should only be used when other methods have failed.

Application of a tourniquet, such as a bandage on a belt twisted with a stick, will usually arrest serious bleeding. It should be placed on the limb between the wound and the trunk of the body. Once applied, it should be released only by a physician who is prepared to control the hemorrhage and replace the blood loss. When you have applied a tourniquet, make certain that the hospital staff will be told of it, because continued interference with the blood supply to an injured limb can result in gangrene or other complications.

Internal Bleeding. Internal bleeding is manifested by a weak, rapid pulse, cool clammy skin, nausea, and often by vomiting, perspiration, weakness, faintness and unconsciousness. Additionally, blood may flow from the nose and mouth, although there is no visible injury to these organs. When these symptoms are present, bleeding may be occurring in the lungs, stomach or brain. All cases of internal bleeding urgently need medical help. The only first aid that can be applied while waiting for an ambulance is to provide some measure of comfort to the victim. Cover him, keep him warm, and take other steps to prevent further shock. Use a pillow, coat or blanket to raise the victim's head and shoulders if he has difficulty breathing. Do not give him anything to eat or drink. Turn his head to the side or down slightly to help expel blood or vomit if necessary.

Wounds. Police officers frequently come into contact with persons suffering from gunshot or knife wounds. The damage caused by these wounds may be slight or may be so extensive that there is no possibility of saving the victim's life. If the wound is extensive, you must consider the possibility of injury to internal organs and internal bleeding.

One of the most frequently encountered wounds received from gunshots or knife attacks is the penetrating chest wound. These wounds are extremely dangerous, regardless of whether any internal organs are damaged. When an object penetrates the chest wall, nature's "pressurizing" system is disrupted and the lungs begin to collapse. If first aid measures are not taken immediately, the victim will be asphyxiated. Fortunately, lung collapse can usually be prevented by merely "sealing" the puncture wound so that proper air balance can be maintained.

When you determine that a person has received a penetrating chest wound, IMMEDIATELY check his body to ensure that no other wounds are present and then seal the wound with any available material. The palm of your hand or the victim's hand can be used to seal the wound if you have nothing else available. A handkerchief, tie, rag or any other piece of material can be used, as long as the puncture can be made airtight. Remember, it is not important that the dressing be clean and sterile--what is important is that the wound be sealed as rapidly as possible!

When the wound is covered tightly, roll the victim onto his wounded side. This will allow the uninjured lung to continue functioning and will allow the blood flowing from the chest wound to pool in that portion of the chest cavity which has already been damaged. Make certain that pressure is maintained on the wound to keep it sealed and that ambulance attendants arriving at

the scene are aware of the nature of the wound so that they may properly position the victim for transportation to the hospital.

Another common wound received during knife attacks is the ~ lash wound to the lower abdomen. This wound, like the penetrating chest wound, requires immediate first aid, particularly if the intestines are exposed. The intestines are extremely susceptible to the drying effect of the air$_1$ and should be covered with a moist cloth. If a moist cloth is not available, the intestines should be covered with a dry cloth to reduce the amount of air reaching them. Do not attempt to push exposed intestines back into the body.

STOPPAGE OF BREATH AND CIRCULATION

Normal breathing rates are as follows: 16 to 17 times per minute for adults, 20 to 21 times per minute for children, and 22 to 25 times per minute for infants.

Sudden death is a sudden and unexpected cessation of normal breathing and ~ Among its common causes are:

- heart attacks,
- drowning,
- electric shock,
- hypersensitivity to insect bites or to such drugs as penicillin and digitalis
- natural or monoxide gas poisoning,
- drug poisoning or overdose (heroin, morphine, or barbiturates),
- asphyxia from such caused as suffocation in a plastic bag or an abandoned refrigerator, and
- choking or strangling; i.e., any obstruction of the windpipe (the airway or trachea by a foreign body.

Two Definitions of Death. Clinical death occurs at the moment a person's heart stops beating and his breathing ceases. At this time a physician can legally sign a death certificate when a patient is suffering from, for example, a terminal cancer. Physiological death occurs some four to six minutes later when the higher centers of the central nervous system lose their viability. As this happens, irreversible changes take place in the cells of the brain and the possibility of a return to normal existence (already severely impaired) diminishes to the vanishing point.

When sudden death strikes a person in normal health, resuscitation depends on the use made of the four to six minute interval which falls between the clinical and the physiological deaths. The

urgency of re-establishing the oxygenation of the body (i.e., ventilation and circulation) within this grace period cannot be over emphasized.

The techniques of cardiopulmonary resuscitation are designed to prevent physiological death They function in three ways: to open the windpipe, to provide air, and to provide circulation.

Recognizing the Emergency When you are called to a scene where someone has undergone sudden death, you must decide what measures are necessary to save the victim[1]s life and how to obtain additional medical aid.

Whenever doubt exists as to how long the victim's heart and breathing have stopped, you should give the victim the benefit of the doubt. (A physician can decide later whether to persevere with an attempted resuscitation or to abandon it.)

You must determine whether the victim needs artificial ventilation or artificial ventilation and artificial circulation combined (see below), and then you must immediately begin to apply the appropriate methods. After you begin resuscitation, you must arrange for additional medical help without interrupting your efforts to save the victim. The best method of artificial respiration (ventilation) is that given by the Fire Department resuscitator unit. You should request the Communications Section to dispatch a resuscitator unit, and ambulance, or a physician at once.

Determining the Necessary First Aid. You must determine whether an unconscious victim needs artificial ventilation alone or artificial ventilation and artificial circulation.

a) Breathing. Although the victim may be completely clothed, you should be able to see whether breathing has stopped. You should also listen and feel for the movement of air at the mouth and nose of the victim because there may be movement of the chest and abdomen even though the airway is obstructed -- the mere appearance of breathing is not conclusive.

b) Circulation. You should immediately examine the pulse of the neck (carotid) or groin (femoral) artery by touch. Each normally has a strong pulse, and if you cannot find the pulse, circulation is insufficient. In addition, a quick observation of the pupils will show whether they are normal or dilated. If the pupils are dilated when exposed to light, the brain is not receiving oxygen.

When there is no breathing and the pulse is below normal or the eyes are dilated, or when all of these conditions are present, there is an immediate need for artificial ventilation.

Artificial Ventilation (Mouth-to-Mouth Technique).

Note: This method supersedes the old prone pressure Shafer method, the Sylvester arm-lift method, and the Holgier-Nielson arm-lift and back pressure method.

To administer artificial ventilation (mouth-to-mouth artificial respiration), the following steps must be taken:

1. Quickly wipe out any foreign matter visible in the victim's mouth, including dentures or material which may have accumulated during drowning. Use your fingers or a cloth wrapped around your fingers.

2. Tilt the victim's head back to provide an unobstructed airway (see fig. 4).

3. Pull or push the victim's jaw into a "jutting-out" position (see fig. 5).

4. If the victim is an adult, pinch his nostrils shut, cover his mouth with your own and blow vigorously into his lungs three to five times. If the victim is a small child, place your mouth tightly over his mouth and nose and blow gently the same number of times. Then quickly feel for a pulse at the carotid artery. If there is a pulse, blow vigorously into an adult victim's lungs once every five seconds (about 12 times a minute) until the victim breathes on his own. If the victim is a small child, blow gently into his lungs every three seconds (about 20 times a minute).

5. If after you blow into the victim's lungs three to five times, you do not find a pulse at the carotid artery, external cardiac compression must also be started immediately (see below, Artificial Circulation).

Correct positioning of the victim's head and jaw is extremely important. If positioning is improper, you will find it impossible to blow your breath into the victim's lungs. If head and jaw positions are correct and you are still unable to force your breath into the victim's lungs, consider the possibility that foreign matter is lodged deep inside the victim's throat. You may be able to dislodge such foreign matter from the throat of an adult by placing him on his stomach and slapping him sharply between the shoulder blades. Small children should be suspended upside down momentarily or placed across your legs with their head down and then slapped sharply on the shoulder blades.

Artificial Circulation (External Heart Compression). Place the victim on a solid surface, such as floor or a firm piece of ground. Position yourself at either side of the victim but do not straddle him. Position yourself over him in such a way that you can apply 80 to 120 pounds of pressure by pushing down hard with your entire body weight. Place the long axis of one of your hands parallel to the victim's sternum and lace your other hand over it for added pressure. The pressure should be transmitted through the heel of your hand in contact with his breastplate; your fingers should not touch the victim's chest wall. (Children require less pressure and only the heel of hand should be used. The method of treatment for infants is to use the pressure of two fingers of one hand at the center of the breastplate).

Apply heavy, firm pressure. Squeeze the heart between the breast plate and the spine, and force the blood out of the heart. (The breastplate should usually be pushed one and a half to two inches in toward the spine for adults, one to one and a half. for children, and 3/4 of an inch for infants.) Hold the breastplate down about a half-second and then release it. This allows the chest to return to its normal position while suction draws blood' back into the heart. You must pump the heart at the following rates:

- adults -- 60 to 80 times per minute.

- children -- 80 to 120 times per minute, and

- infants --100 to 120 times per minute.

Slower rates of artificial circulation do not help. It is important to let your back and body weight do the work of compressing the victim's chest. Unless you do, the energy required to maintain the necessary rate of speed will rapidly fatigue you.

> Note: Artificial ventilation is always supplied in conjunction with artificial circulation, as described in the next two sections.

Artificial Ventilation and Circulation By One Person. If you are alone with a person who suffers cardiac arrest, you should perform the following steps:

1. immediately ventilate the lungs rapidly three times;

2. apply manual heart compression fifteen times;

3. then, quickly ventilate the lungs twice;

4. apply manual heart compression fifteen times;

5. then repeat this cycle continuously (two breaths, fifteen compressions).

This cycle, in spite of its apparent emphasis on circulation, has been demonstrated to provide adequate ventilation and circulation. As soon as possible, another person should assume one of these duties.

Artificial Ventilation and Circulation by Two People. When two rescuers are involved, they should:

1. immediately ventilate the victim's lungs rapidly three times;

2. provide uninterrupted manual heart compression 60 to 80 times per minute; and

3. interpose ventilation once between each five heart compressions.

The Effectiveness of Resuscitation. The following events occur as (or if) resuscitation takes effect:

1. the victim's dilated pupils will contract;

2. his color will improve; and

3. a pulse will be felt in the carotid or femoral artery with each compression of the heart.

You should not pause in resuscitation to look for these signs. A second or third party, if present, should look for them. If the resuscitation succeeds, normal breathing may resume. But while the victim waits for an ambulance to arrive, his pulse and respiration should be watched constantly because repeat episodes of cardiac arrest are common.

In these situations, remember that you are the heart and lungs of the victim. You can keep him within the gray area between clinical and physiological death. Your efforts may allow him to see tomorrow, but you must know what to do and you must do it immediately.

THE CAFE CORONARY

The Hemlich maneuver is a recently developed technique for dealing with the "cafe coronary," i.e. strangulation at the dinner table caused by a bolus of food struck in the windpipe. (The name derives from the frequency with which such accident occur in public restaurants.) When the accident takes place, the victim suddenly chokes, turns blue, and dies within minutes. He can neither speak nor help himself, and bystanders frequently confuse the symptoms with a heart attack. The cafe coronary kills some 3,900 people each year.

The Hemlich maneuver is a simple first aid technique which uses a sudden, forceful compression of the lungs to increase the air pressure within the trachea and larynx in order to eject the bolus and enable the victim to resume normal breathing.

To perform the Hemlich maneuver (shown in fig. 6):

1. Stand behind the victim and put both arms around him just above his belt line, allowing his head, arms, and upper torso to hang forward.

2. Then, grasping your own right wrist with your left hand, press rapidly and strongly into the victim's abdomen. This forces the diaphragm upward, compresses the lungs, and expel the bolus.

3. Repeat the process several times if necessary.

If the victim is lying on his back, sit astride him and suddenly press both hands -- one on top of the other --forcefully, with a quick upward thrust, into his upper abdomen. The Hemlich maneuver can also be applied with no loss of effectiveness when the victim is seated and you can easily reach around the back of his chair.

There is no risk in applying the Hemlich maneuver in cafe coronary situations because the will die in minutes unless aided. Since its introduction in 1974, the Hemlich maneuver has also been used to save the lives of children and victims of drowning. All reports of incidents in which it has been applied properly say it has been successful.

If the Hemlich maneuver does not. show immediate results and the victim loses consciousness, it may be necessary to try the extraction method. Apply this method as follows:

(1) Tilt the head back. Grasp the tip of the tongue with a napkin to get a firm grip; pull it forward as far as possible.

(2) Use your index and middle fingers as a pair of tweezers.

(3) Grasp the obstruction and pull it out.

This should not be attempted while the victim is conscious because he will resist it, and there is a very real possibility that he will bite off his tongue or injure your fingers. When he loses consciousness, however, he will relax and his resistance to extraction will lessen. If the extraction method fails, return to the Hemlich maneuver.

POISONING

Police officers frequently respond to emergency situations in which poisoning has occurred or is suspected. In such incidents, each moment that first aid is delayed can result in additional injury to the victim. Some poisons cause no symptoms until absorbed into the body through the digestive tract, while others (generally caustics such as lye and strong acids) also injure the lining of the food passages by blistering and burning the mouth, lips, tongue and throat. Other symptoms of poisoning include nausea, vomiting, difficulty in vision, headache, convulsions and unconsciousness.

The following factors should be considered in determining whether a person has been poisoned: (1) information from the victim or a witness, (2) sudden pain or illness in a previously healthy person, (3) burns about the lips and mouth or a revealing breath order, and (4) the presence of a poison container.

First Aid in Poisoning Cases. When you determine that you are dealing with a case of poisoning, don't overlook obvious first aid techniques. If you discover the poison container and the antidote appears on the label and is readily available, administer it as directed. The objective in any treatment for poisoning is to dilute the poison as quickly as possible and then, except in certain instances, to induce the victim to vomit. While waiting for an ambulance, you can help to dilute the poison in a conscious victim by encouraging him to drink large amounts of fluid - four or more glassfuls for adults. Water is usually readily available for this purpose. Milk can and should be used if it is available because of its ability to protect the lining of the digestive tract and its tendency to slow the absorption of poison into the system. Vomiting may be induced by placing a finger or spoon down the victim's throat until he gags or by adding a small amount of milk of magnesia or baking soda to the liquid used to dilute the poison. Continue giving fluids to the victim until he vomits and induce vomiting again if it appears that poison remains in the stomach.

Liquids should not be given to a person who is unconscious because of the danger of choking and asphyxiation.

Do not induce vomiting for the following poisons:

- strong acids: carbolic acid, toilet cleaners, rust removers;
- strong alkalis: lye, household bleach, drain cleaners;
- petroleum derivatives: kerosene, gasoline, furniture polish;
- strychnine: rat poison.

Do not induce vomiting when the victim is suffering from convulsions or exhaustion.

In these situations the poison in the stomach should be diluted but with less fluid so vomiting is not induced. To neutralize strong acids, give the victim a glass of water followed by milk of magnesia or a baking soda solution, then give milk olive oil or eggwhite to protect the lining of the digestive tract. To neutralize strong alkalis in the stomach, give the victim a glass of water followed by small amounts of vinegar or lemon juice.

If the poison container has been located, send it to the hospital with the victim: it will assist medical personnel in identifying the poison, estimating the dose taken and determining the proper antidote to be administered. If the poison is not known, send a sample of the vomit. You may be of further assistance by telephoning the receiving hospital and advising the emergency room so that it will be prepared to treat the case immediately.

RESCUES

Drowning and Water Rescues. Rescuing a drowning person is extremely hazardous and many would-be rescuers have become victims themselves. In many cases, rescues can be effected without actually entering the water, since most drownings -occur near the shore. You may be able to extend a pole, length of rope or a garment to the victim, or you may be able to hold onto an object on the shore and extend your arm or leg to him to effect the rescue. If the victim is too far from the shore for these measures, you might wade into the water and extend a plank, board or similar object to help keep him afloat while you get additional help.

You should attempt to rescue a person by swimming out to him only when there are no other means available. Before entering the water you should remove your jacket and most of your clothing. If possible, keep your shoes on to protect your feet from sharp objects. When entering the water, be careful not to strike underwater objects. If possible, tie a rope around your waist and have it tended by another person and use a spare tire for support when entering the water. You can push the tire ahead of you as you swim and the victim will then have additional support when you reach him. The spare tire in your patrol car is ideally suited for keeping a person afloat, as it will support several hundred pounds in the water. Recently, during the rescue of a woman from the waters of Lake Merritt, a spare tire was used to support the weight of two officers and the victim while returning to shore.

Rescue from an Automobile. Summon aid from the Fire Department Automobile Rescue Team (ART) and call an ambulance so that all the equipment necessary for a complete rescue may be set in motion. Minimize the fire hazard by moving all spectators to a safe distance. GASOLINE IS EXTREMELY HAZARDOUS. Make sure none gets on your clothes.

To give incapacitated victims immediate care or to protect them from a potential fire, they must often be removed from an auto before fire or ambulance personnel arrive. Such rescues must be effected without causing additional injuries.

To enter an automobile, try all of its doors. If it is necessary to remove a person from the front seat through a rear door, lift him out by grasping his clothing at the shoulder seams (make sure the seat belt is off), then lift him under the arms. If doors cannot be opened, remember that sometimes the front windshield can easily be removed.

If the victim cannot be removed, attempt to administer first aid, if needed, where he is.

Rescue from a burning building. Should you discover a fire, contact radio immediately, give your location, and request the assistance of the Fire Department. Then:

1. Determine whether the building is likely to be inhabited, and where people are likely to be located. Nationally, most people who die in home fires are found in the upper rear rooms of their homes.

   Be alert for the presence of an invalid. For the past fifteen years the Fire Department has conducted a safety program in which houses are marked with the letter "I" to indicate the presence of an invalid. This letter is made from red Scotch Lite reflective tape and is six or seven inches long and one inch wide. It can usually be found near the house number by the front door. Parenthetically, you should be aware of the presence on your beat of hospitals, convalescent hospitals, sanitariums, and similar institutions which should be given special help during fires and other emergencies when invalids cannot care for themselves.

2. Enter to search and rescue. Select the easiest method of entry: break a windowpane and reach through to open a door from the inside, rather than attempt to kick down a sturdy door. If you enter through a window, break it with your foot, the butt of your revolver, or your hands wrapped in clothing or anything else that is available.
3. STAY LOW. Remember that heat and smoke rise. If you crawl on the floor you will avoid the heat and smoke and you will be able to see across the floor quite clearly even when the room is filled with smoke. Firemen commonly report that, when they enter a smoke-filled room on all fours, they find people walking around. These people have inhaled the smoke. Don't stand up because they are standing--you will have to rescue them momentarily when they collapse.

4. To search a room that may be filled or filling with smoke:

Feel the door to see whether the room is on fire before you open the door. Feel how high on the wall the heat is--is there sufficient crawling/breathing space?

Close the door behind you.

REMEMBER WHERE THE DOOR IS. YOU WILL NEED TO GET OUT. If you become confused, retrace your steps immediately.

Walk around the perimeter of the room, keeping one hand on the wall at all times. If you stay near the wall, and the heat and smoke become untenable, you will be able to find a window to knock out for fresh air. Never try to go to the center of a room you cannot see; objects in the center may trap you.

5. Should a victim's clothing or hair be on fire, remove him to a safe area and beat out the flames with your hands by rolling him on the ground or by smothering the flames with a rug or a blanket.

6. Remove incapacitated victims by using the carries shown in figures 7 through 12, as needed.

   The carry shown in figure 7 shows how to move a victim when it is essential to pul1 him to safety without bending or twisting his neck or the trunk of his body. Figures 8 and 9 show carries which can be used when it is necessary for you to keep one hand free. The advantage of the carry shown in figure 10 is that it removes the weight of the victim from your upper back and puts it on your hips and legs. The carry shown in figure 11 can be used to move an unconscious victim when it is necessary to keep low; the victim's hands can be kept around your neck by putting handcuffs on them. Figure 12 shows a variation of the carry in figure 7 which can be used when it is necessary to keep low. (This carry can also be used to affect a rescue under gunfire).

Should you need to escape from a burning building, seek an outside wall. For example, in an old hotel, go into one of the rooms. Close the door and seal it with wet towels or blankets if they are available. Stay low, get to a window, open it and call the attention of passersby to your plight. Hang a blanket or a sheet from the window as a rescue signal to the Fire Department.

If you must crawl through a smoky area, you may get some protection from fumes by holding a cloth in front of your face. Most people killed in fires die from the toxic fumes given off by burning objects, rather than by being burned to death. Because smoke can overcome you rapidly, even in a small, easily controlled fire, always keep your own escape clearly in mind.

When you return to your vehicle, report to the Communications Section as much as you know about the fire: the condition of rescued victims (whether any of them need an inhalator, for example), whether other people are thought to be still inside, whether the fire may spread to other buildings, and other details as needed.

OTHER FIRST AID EMERGENCIES

Bleeding, stoppage of breath, poisoning and shock are usually the most serious first aid problems encountered. You may, however, be required to administer first aid in a variety of emergency situations, such as those listed below:

Heart Attacks. Heart attacks are a major cause of death in this country and over nine million people are affected by heart conditions. As a police officer, you may come into contact with persons who have heart disease or who are suffering from heart attacks. Symptoms of heart disease include shortness of breath, chest pains, bluish colored lips or fingernails or a chronic cough and swelling of the ankles. Acute heart attacks; present two principa1 symptoms in addition to chronic symptoms: 1) extreme shortness of breath and (2) pain. The pain is usually located in the chest but may spread down into the left arm or into the head or neck.

All persons who have suffered apparent heart attacks should be examined by a physician and immediate ambulance service should be requested. When breathing has stopped, cardio-pulmonary resuscitation should be administered as previously described. While waiting for an ambulance, a conscious patient should be allowed to assume that position which is most comfortable for him.

Unconsciousness. Departmental policy requires that all unconscious persons shall be transported to a hospital by ambulance.

This procedure must be followed even though it may appear that the unconsciousness has been caused only by excessive drinking. A strong possibility of a more serious injury exists whenever unconsciousness is present.

For ease of memory, unconsciousness can be divided into three categories: red, white, and blue.

> Red unconsciousness, caused by heat stroke or hypertension, is characterized by a red face and a strong pulse. You should keep the victim quiet, loosen his clothing and keep him lying down with his head and shoulders slightly raised.
>
> A pale face and weak pulse are symptomatic of a person in the state of white unconsciousness which can be caused by shock or head injury. Keep the victim warm and quiet. If he, has not suffered a head injury, he should be placed in a prone position with his head lower than the rest of his body.
>
> Blue unconsciousness presents a different and more immediate problem. The blue appearance of the skin is caused by a lack of oxygen in the blood. Breathing may be shallow or may have ceased. If breathing has stopped, request that the Communications Section dispatch a resuscitator unit and begin cardiopulmonary resuscitation at once.

Emergency Childbirth. Although you may never be called upon to deliver a child, the possibility is always present. The first action you should take when at the scene where a mother is about to give birth to a child is to call for an ambulance.

Labor and delivery are normal functions which nature tends to complete successfully; delivery depends on natural processes rather than on actions by the attendant. In most situations where childbirth occurs, the birth of the baby is a fairly rapid, uneventful process due to the mother's expulsive efforts.

You should not hurry a normal delivery by pulling on the child's head. Prepare to receive the baby with a clean towel or emergency blanket and have other towels or blankets available for wrapping the baby and for compressing any lacerated areas of the mother's vaginal opening. After the delivery, a water bag may cover the baby's face. Should this occur, strip off the covering with your fingers. If the umbilical cord is wrapped around the baby's neck, gently unwind it. Hold the baby upside down for 30 to 60 seconds immediately after birth to allow drainage of secretions from the child's nose and throat. If the child does not cry during his first minute of life and no respiration is noted, check the baby's mouth with your finger to make sure the tongue or some foreign material is not blocking the air passage. Cardiopulmonary resuscitation should be started immediately and continued at the rate of one gentle breath per second. If the baby chokes, cease respiration efforts and hold his head down and begin stroking his neck toward the chin with your finger; this may help to remove any mucous in his throat. Resuscitation should be continued until the baby starts to gasp, cough or make it's own respiratory efforts. A simultaneous gentle rhythmic compression of the infant's chest with two fingers of one hand over the breastbone will aid in improving the heart action (which should be 100 to 120 beats per minute).

Place the baby on the mother's abdomen to keep it warm. Do not attempt to remove the white grease-like material on the baby's body or to cut the umbilical cord. Occasionally, the placenta - or afterbirth - is not expelled by the mother after the birth of the child. When it has been expelled, however, it should be preserved for examination by a physician.

Convulsions in Very Young Children. Many parents become distraught when they observe their own children experiencing a convulsion. They often panic and call the Police Department. When you respond to this type of assignment, remain calm and do not manifest alarm to the child or his parents. Request immediate ambulance service if the child is convulsing.

Convulsions occur in many childhood diseases, such as tonsillitis, whooping cough, scarlet fever, pneumonia and meningitis. If a child has been previously healthy and is on a good diet, the most likely cause is an infection resulting from high fever. Low blood calcium, lead poisoning, concussion or lack of oxygen have also been known to cause convulsions. The length of convulsions can vary from several seconds to many minutes or they may recur repeatedly with muscle spasms and twitching being the usual signs. While waiting for the ambulance, keep the child warm to avoid a chill but do not cover him excessively.

Epileptic Convulsions. Epilepsy is a disorder of the nervous system. Epileptics are subject to sporadic attacks of unconsciousness. A petite mal seizure may last for only a second and may not even be noticed. A grand mal seizure, however, may involve a fall or convulsions of the entire body. A violent attack usually subsides within a few minutes but the afflicted person may be injured by striking against objects or by biting his tongue. Seizures are particularly common among indigent persons, alcoholics, and others who have not had medical attention.

The different forms of epilepsy reveal themselves through characteristic seizure patterns. Petit mal usually involves a blank stare, rapid blinking of the eyes, incontinence, and stumbling. It lasts from 5 to 25 seconds. In a grand mal seizure, the body stiffen as the muscles contract, and if the victim is standing, he may fall. Then the body goes through a 3 to 5 minute series of contractions before becoming limp. The victim will probably become incontinent and, when he recovers, will be very sleepy. (Some people have "auras" (warnings) which tell them they are about to have a seizure. If a person warns you he is about to have a seizure, make him lie on the ground away from objects that might hurt him.) In a Jacksonian epileptic seizure, one side of the body, an arm, a leg, or a combination of these will begin a series of contractions. The victim cannot control the contractions, but he does not lose consciousness and he usually knows how to help himself. Let him tell you what he needs. Psychomotor epilepsy seizures can last from one minute to several hours. The symptoms include chewing, staring, confusion, fear, and rage. The victim may begin walking aimlessly without regard for what is in his way. Some victims pick at or take off their clothing. Keep a victim of psychomotor epilepsy confined until the seizure wears of f so that he will not hurt himself.

The Contra Costa-Alameda Epilepsy League, affiliated with the Epilepsy Association of America, recommends that the following first aid measures be taken when a person is observed to be in epileptic convulsion:

1. Keep calm; the person is usually not suffering or in danger.

2. Help the person to a safe place but DO NOT restrain his movements; loosen any tight clothing he may be wearing.

3. If the person is unconscious, gently turn him on his side with his face turned downward after the seizure has subsided.

4. DO NOT put anything between the person's teeth.

5. Do not give him anything to drink.

6. Stand by until the person has fully recovered consciousness and from the confusion that sometimes follows a seizure.

7. Let him rest if he feels tired, then encourage him to go about his regular activities.

8. If the victim is a child, notify his parents or the people who are responsible for him at the time of the seizure.

It is rarely necessary to call a doctor or an ambulance to aid an epileptic. If the person demonstrates that he can care for himself or can be cared for by other responsible persons, no further assistance is necessary. On rare occasions, however, an epileptic seizure may be a symptom of an underlying disease, such as a brain hemorrhage, which requires immediate medical evaluation. If a seizure lasts longer than three minutes (with the exception of

psychomotor epilepsy) or if the pupils of the victim's eyes are not of the same size, medical help should be obtained immediately.

Electric Shock. Police officers are often the first persons on the scene when electric wires are down as a result of storms, wind, or accidents. In approaching these incidents, remember that you can be severely shocked or electrocuted by relatively low voltage wires (110-220 volt wires) as well as by high-tension lines carrying thousands of volts. There is no "safe" voltage. Notify the Communications Section immediately so that a P. G. & E. repair crew can be dispatched to the scene to cut the power off. Do not assume that a fallen wire lying inert on the ground is safe to touch. Automatic devices at power company substations are designed to re-energize some wires which have shorted out by touching the ground or each other for short periods of time. Wires that have been broken but are not touching the ground remain “hot” and are extremely dangerous. YOU SHOULD NOT APPROACH CLOSER THAN SIX FEET TO FALLEN OR DANGLING WIRES and should advise onlookers to keep their distance from downed wires and metal highway dividers or fences. Set up barricades as necessary.

If you see a person receiving a shock, the first action necessary is to stop the shock. You cannot touch the person without receiving the shock yourself; to break him free you have to jar him or push him loose without touching him. Use a non-conductor, such as a board, tree branch, or rubber tire. Once the victim is free, treat him for cardiac arrest by beginning cardiopulmonary resuscitation. This must be continued until the victim reaches the hospital.

A vehicle will be energized when struck by a fallen wire. Its occupants are safe as long as they remain inside. If they must get out of the vehicle, tell them to leap free in such a way that no part of their bodies or clothing touch the vehicle and the round at the same time.

PG&E employees are trained to administer specific first aid procedures (including cardiopulmonary resuscitation) to other PG&E. employees who fall victim to electric shock. In addition, the company has emergency arrangements with contract ambulances, doctors and hospitals in the area and prefers to be completely self-sufficient in the matter of attending to its own personnel in cases of accidental electric shock. Therefore, you should cooperate with PG&E personnel at the scene of an electrical shock incident involving their employees and should accede to their wishes in the matters of first aid and transportation.

Insulin Reaction and Diabetic Coma. Diabetes is a disease characterized by an excess of sugar in the blood and urine, hunger, and thirst. Insulin is administered to diabetics to enable them to metabolize sugar. Insulin reaction occurs when a diabetic ingests or injects too much insulin. Fortunately, most diabetics learn to regulate their insulin dosages quite well. Mild reactions occasionally occur, and with prolonged physical exertion or failure to eat, a more severe reaction can result. As the reaction progresses the person becomes unsteady and uncoordinated and he may talk without reason or logic, acting much like an intoxicated person. He may become extremely weak and convulsions and unconsciousness may occur. If the reaction is not reversed the person will eventually die. You should consider the possibility of insulin reaction whenever you encounter a person who is confused, stuporous, or unconscious and there is no other reason to account for the trouble.

If a diabetic suffering an insulin reaction is conscious, he may be able to explain his condition to you, but this is not always the case. Diabetics often carry identification or a "Medic Alert" tag which explains their illness (see fig. 13).

When you find a diabetic suffering from insulin reaction, if he can swallow, give him a small amount of candy, soft drinks, fruit juices, or other sweets. The reason for this is that adding sugar to the blood stream helps to metabolize (or burn up) the excess of insulin. The diabetic should have medical assistance as soon as possible.

But a diabetic in need of insulin may go into a diabetic coma (sometimes known as "insulin shock"). This results from the presence of too much sugar in his blood stream, and is characterized by abdominal pain and a breath odor which is very similar to the smell of fingernail polish remover (acetone). The person suffering from insulin shock loses consciousness and goes into a coma in a very short time. Death will result unless immediate medical assistance is obtained.

BE FAMILIAR WITH MEDICAL ALERT BRACELETS:

CONCLUSION

A thorough knowledge and application of first aid techniques will assist you in performing your duties and fulfilling your obligations to citizens of the community and in addition, could conceivably save the life of another police officer or a member of your own family.

This bulletin does not encompass the entire field of first aid. It reviews and emphasizes those techniques applicable to common emergency situations involving life or death.