

## 1. INDUSTRIAL SAFETY

The Industrial Security is the system of obligatory dispositions that take the prevention and limitation of risks as an object, as well as the protection against accidents capable of producing hurts to the persons, to the goods or to the environment derived from the industrial activity or from the utilization, functioning and maintenance of the facilities or equipment and from the production, use or consumption, storage or react of the industrial products.

The safety is an attitude, a "mental" condition, which must take up office and sustain so much in the behavior during the work, since in the home and the street.

## 2. FIRST AID

Habitually we know as the first aids some procedures and basic technologies that can be used to attend to a sick or rough person up to the arrival of the sanitary services of emergency. These procedures can save the life or do that his injury or problem is less serious thanks to an early attention.

There exist different cases in which we can use measures of the first aids as hemorrhages, poisoning, burns, heat strokes, insolation, bites, sprains, fractures and other emergencies.

On the basis of the magnitude of the problematics, the first aids qualify in two types:

The First emergent aids or emergencies: that involve the attention of situations that vital danger exists for the rough one. Such it is the case of cardiorespiratory unemployment, asphyxiation, shock, hemorrhages and poisoning.

The first not emergent aids: In that it does not exist before such danger of great magnitude. Some examples of this attention can be an abdominal pain or a fracture of arm.



## 2.1 BASIC INSTRUCTIONS

- Always keep calm, even if we are in a situation of risk, we must always keep calm, so that the other person does not panic.
- It is important that before proceeding with any technique mentioned in this manual, we must ensure that professional help is on the way, since in most cases it is necessary. □ The head of the person who needs help must be positioned at the same level of his trunk, except when there is a respiratory disease.
- If nausea or vomiting occurs, turn your head to the side to avoid aspiration.
- Stimulant drugs, alcohol, or food should not be administered.
- We must not get away from a person if she is dying, very sick or seriously injured. Although we cannot do anything, we must continue talking to the victim and hold his hand, should never feel alone.

## 3. CASES

### 3.1 PUNCTURE WOUNDS

A wound, also known as laceration, is a break or opening in the skin. Puncture wound is that produced by a sharp object such as a needle, a scalpel, and fragments of bones or teeth that penetrate the skin. One of the main concerns with these injuries is the risk of infection. The cut can be deep, smooth or indented. It can be close to the surface of the skin or affect deep tissues, such as tendons, muscles, ligaments, nerves, blood vessels or bone.

Regardless of the depth or object with which it was caused, the wound must be disinfected. This is one of the most common accidents in the mechanics workshop due to the tools that are handled.



- a) In the case of minor cuts, the following steps must be followed: the assistant must wash his hands in order to prevent an infection, then he will precede to wash the wound with water and a mild soap. Pressure will be applied on the wound to prevent further bleeding. Finally apply a bacterial ointment and a clean bandage that does not stick to the wound. If the wound is the result of an animal bite, is very extensive, or deep, or if bleeding is abundant, call immediately to emergency or take the injured to a health effector.
- b) Learning to recognize a serious head injury and administer basic first aid can save someone's life. In case of head injury either mild or severe. Get medical help immediately if the person becomes very sleepy, behaves abnormally, has a severe headache or stiff neck, has pupils (the central and dark part of the eye) of different sizes, is unable to move an arm or a leg, loses consciousness, even briefly, vomits more than once.

Then follow the following steps:

- Check the respiratory tract, respiration and circulation of the person. If necessary, start mouth-to-mouth breathing and CPR.
- If the breathing and heart rate are normal, but the person is unconscious. Stabilize the head and neck by placing your hands on both sides of the person's head.
- Stop any bleeding, pressing firmly with a piece of clean cloth over the wound. If the injury is severe, be careful not to move the person's head. If the blood soaks the fabric, do not remove it. Place another piece of cloth on top of the first one.
- If you suspect a head fracture, do not apply direct pressure to the bleeding site or remove any residue from the wound. Cover the wound with a sterile gauze dressing.
- If the person is vomiting, turn the head, neck and body to the side as a unit to prevent drowning. This even protects the spine, since it must always be assumed that it is injured in the case of a head injury. Children often vomit once after a head injury. This may not be a problem, but call your

doctor for additional guidance.

- Apply ice packs to inflamed areas.

### 3.2 EYE INJURIES

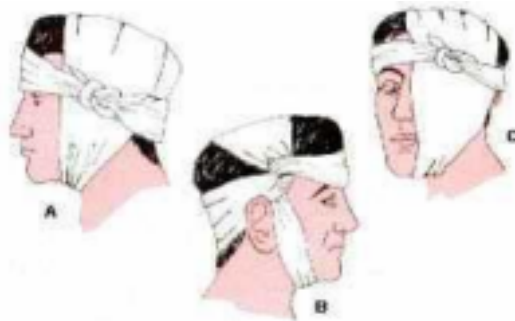
a) Foreign object in the eye:

- The first thing we should do is reassure wounded and wash our hands well.
- The next thing to value is the body that has been introduced into the eye. If it is a simple eyelash, a fiber cloth, some paper ... it is easy to extract it with a simple eye wash or trying to catch it with the tip of a handkerchief.

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- To wash the eye, you must tilt the head on the side of the affected eye, hold the eyelids well and apply a jet of serum or water, so that the foreign body is dragged. Use warm water.
- When the foreign body is something metallic, glass or something that has been able to ulcerate the cornea, the best thing you can do is cover the eye with gauze and some tape, prevent him from touching it and take it to a health center where it will be extracted, qualified professionals and with special material. They will also assess the wound in case you should use, after extraction, some type of medication, eye drop, ointment, etc.



b) Exposure to chemical substances:

- As always, wash your hands and prepare yourself for a good eye wash. You should reassure him and turn his head on the side of the affected eye, hold his eyelids well and place his eye under the tap of a tap, at least 10 to 15 minutes. Yes, it is very annoying for him, but it is absolutely essential that you do a good wash in the first minutes after the exhibition.
- You can call the National Center of Toxicology and give them the appropriate indications, depending on the polluting product.
- The best thing you can do after washing is to cover it, and with the label of the product or its

packaging, take it to a health center to be treated.

### 3.3 FRACTURES

A fracture is usually identified by the following symptoms: severe pain at the fracture site, sensitivity to palpation, partial immobility of the injured limb, functional disability, in some cases hemorrhage.

To immobilize a fracture it is necessary to follow the steps mentioned below:

- Respecting the position of the fracture, the two joints closest to the fracture will be stopped with a splint.
- The splint will be placed underneath and another above the fracture.
- Do not tighten too much to avoid proper circulation.

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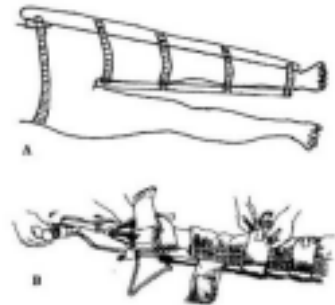
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#### Cases:

- a) Immobilization of the arms. For safety, the arms should be attached to the table before moving the patient, the palms of the hands inward (attached to the body), fastened with a strap over the forearms.



- b) Immobilization of lower limbs. It is a device that is used to immobilize the fractures of the legs. A rescuer holds the injured limb, while the other places the splint (take its measurement by the non-injured limb), the upper padded ring fits precisely under the buttocks, two of the fixing straps should be above the knee and two below the knee. The clothing is cut and removed to expose the injured site and heal the wounds; The limb is gently lifted keeping it held and tractioned, then the splint is slipped below the limb and the padded upper ring is adjusted.



- c) If the ankle is going to be bandaged, it is first held at a 90 ° angle, the suede is wrapped with the bandage once, the bandage is slowly started around the arch of the foot, it is continued around the ankle and foot forming a number eight, moving towards the heel below and towards the calf above the eight; The bandage should cover the entire foot and end



several inches above the ankle. Remove the shoe, do not support the foot, immobilize with splints on both sides of the ankles and finally transfer to a specialized center.

d) In case of suffering a lesion in the spine, it must immobilize completely in neutral position until discarding lesion by RX or MRI CT.



### 3.4 BURNS

If you suffer a burn:

- a) Minor burns, which include first-degree burns and most second-degree burns, can be treated at home. Avoid exposing the affected area to the sun:
- The first thing to do is remove all the clothing that covers the affected area (if you have rings and / or wristbands also remove them).

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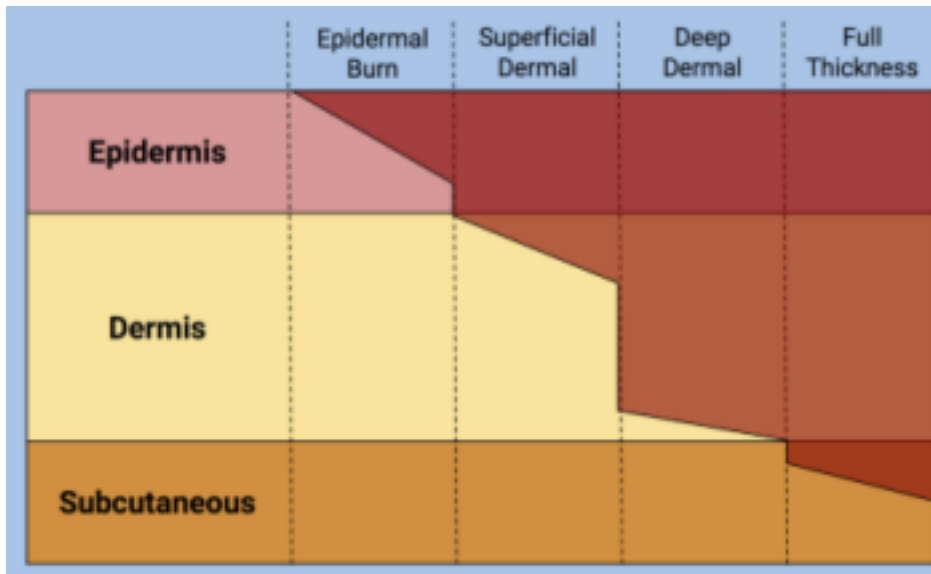
- Immerse the burn in fresh water or let the water run gently on it for 10 minutes, this will decrease pain and inflammation.
- If the burn is extensive, cover it loosely with sterile gauze or a clean cloth. Do not cover the burn firmly. Do not use cotton or ointments.
- Twice a day, gently wash minor burns with a mild, fragrance-free liquid soap. If the burn causes you a lot of pain you can take ibuprofen or acetaminophen following the instructions on the label.



b) In case of major burns, it is very important to call 911. It is recommended that you do the following

actions while waiting for the arrival of the ambulance:

- Cover the burn with a cloth or towel moistened with cool water (not cold) • Do not remove your child's burned clothes
- Do not break blisters that have formed
- Ointments, sprays or other substances other than water.



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### 3.5 CHEMICAL BURNS

If you have swallowed a chemical that could be toxic or that could cause burns to the throat and esophagus, call your local Poison Center immediately for information on treatment. When you call, have the chemical container with you, so that you can read the label of the contents to the employee who treats you.

Most chemical burns on the skin are treated first by rinsing the chemical with a large amount of water at room temperature to remove it from the body, but not all chemicals are treated in this way, for this reason it is vital to know with what substance the burn occurred to know how to treat it.

a) Chemical burns that are rinsed with water:

- Let the water run over the area for at least 20 minutes.
- Do not use a strong jet of water, as it may damage the burned area.
- Have the person with the burn remove the chemical if he or she can do so.
- Put on gloves to protect yourself from the chemical, if you have to eliminate it.
- As you wash the area, remove all clothing or jewelry on which the chemical has fallen. • If



you still have a burning sensation in the area after 20 minutes, rinse it again with running water for 10 to 15 minutes.

- Hydrofluoric acid is rinsed with a large amount of water and treated with calcium gluconate. Immediate medical attention is needed.

b) Chemical burns that are not rinsed with water:

- Carbolic acid or phenol does not mix with water, so use isopropyl alcohol (to rub) first to remove the chemical from the skin and then rinse it with water. If you do not have alcohol available, rinse with plenty of water. Do not rinse the eye with alcohol.
- Sulfuric acid is rinsed with a mild, soapy solution if the burns are not severe. Sulfuric acid feels hot when water is added to the acid, but it is better to rinse the area and not leave the acid on the skin.
- Dry powder, such as quicklime, is first removed by shaking or brushing it because adding water can produce a liquid that burns. Once the powder has been removed, rinse with water for 20 minutes.
- The metallic compounds are covered with mineral oil.



### 3.6 ELECTRICAL BURNS

An electrical burn is more serious than the affected skin surface looks like. They are mainly caused by having contact with an energy driver without the use of appropriate protective equipment.

The first steps that must be taken when a person comes into contact with an electrical source are the following:

- Have someone call 911 or other emergency services.
- Do not touch the person who received the electric shock with your hands.
- Unplug the appliance or turn off the main power switch.
- Try to remove the person from the power source, if you cannot turn off the main switch.

Do this only if you can do it safely as follows:

- Stand on a dry surface, such as a rubber entrance mat or a stack of papers or books. Make sure you are not standing in or near the water.
- Use a dry wooden object, such as a broomstick, to push the person away from the electrical source. Do not use anything wet or metal.
- Check if the person responds to touch or speech after separating it from the electrical source. Electric burns can affect the electrical activity of the heart and cause changes in the heartbeat.



If the person does not respond, begin cardiopulmonary resuscitation (CPR).



### 3.7 HEAT STROKE

Heat stroke happens when the body fails to regulate its own temperature and body temperature continues to rise, often reaching 104 ° F (40 ° C) or more. Signs of insolation that progress rapidly include: Loss of consciousness for more than a few seconds, seizures, signs of moderate to severe difficulty breathing, confusion or anxiety, rapid heart rate, sweating, flushed skin, severe vomiting or diarrhea.

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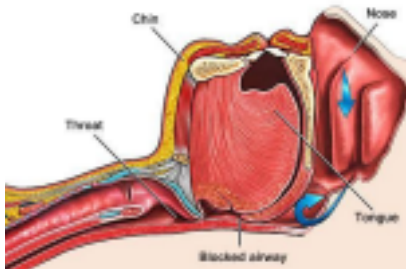
Heat stroke is a medical emergency. Even if treatment is received immediately, it can be deadly or cause serious long-term complications. After calling 911 you should do the following:

- Take the person to a cool place, away from direct sunlight.
- Remove unnecessary clothing from the person and place it on his / her side.
- Cool the person's entire body with cold water using a sponge or spraying and fan the person to help lower the body temperature.
- Apply ice packs on the largest surface of the body possible.
- If you have stopped breathing, start with rescue breathing.
- Do not give aspirin or acetaminophen to reduce a high body temperature that can occur with heat stroke.
- If the person is awake and alert enough to swallow, give fluids (from 1L to 2L in the course of 1 to 2 hours to hydrate). You may have to help so you do not choke.



### 3.8 SUFFOCATION

Asphyxia is due to the fact that air cannot reach the lungs, because something obstructs the respiratory tract and oxygen does not reach the blood. You have different ways of proceeding if you are involved in this situation.



## 4. TECHNIQUES

### 4.1 THE HEILMICH MANEUVER

The Heimlich maneuver is a series of abdominal compressions under the diaphragm, it is recommended for a person who is drowning with a piece of food or some object.

According to the Heimlich maneuver. Asphyxiation occurs when the person in question cannot speak, cough or breathe. An obstruction of the respiratory tract can cause loss of consciousness, and even death. When it is used it is necessary to make sure that we are not using too much force, because it would cause damage to the ribs, or internal organs. This maneuver is the only method recommended by the American Heart Association and the Red Cross to help in case we are presented with suffocation.



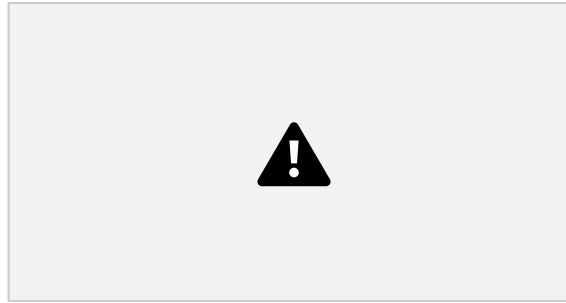
## 4.2 MOUTH-TO-MOUTH RESUSITATION

1. Make sure the person is lying on a flat surface. Look through the mouth and throat to make sure the airway is clear. If there is an object present, try sweeping it with your fingers (use disposable surgical gloves if available). Apply the Heimlich maneuver if it is not successful and the object blocks the airway. If vomiting occurs, turn the person sideways and sweep the mouth with two fingers. Do not put your finger in your mouth if the person is stiff or has an attack.
2. Tilt your head back slightly to open the airway. Press up on the jaw to pull it forward.

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3. Pinch the closed nostrils with the thumb and forefinger. Place your mouth tightly over the person's mouth. Use a mouthpiece if one is available. Take two quick breaths and see if the person's chest rises.
4. Releases the nostrils. Look for the chest of the person who falls when exhaling. Listen to the sounds of breathing. Feel the person's breath on your cheek. If the person does not start to breathe on their own, repeat the procedure.



### **4.3 CARDIOPULMUNARY RESUSCITATION**

1. Survey the person on a flat, firm surface.
2. Locate next to the person's neck and shoulders.
3. Put the palm of your hand in the center of the person's chest, between the nipples, put the other hand under the other, keep your elbows straight, and place your shoulders directly in your hands.
4. Apply the strength of your torso, (not your arms) when you press directly down (compressions) on the chest to about 6 centimeters. Press hard with a speed of 100 to 120 compressions per minute.
5. If you have never received CPR courses, continue with chest compressions until there are signs or movement of the person until you have professional help. If you have already had CPR training, continue checking the airways, and giving mouth-to-mouth breathing.

