

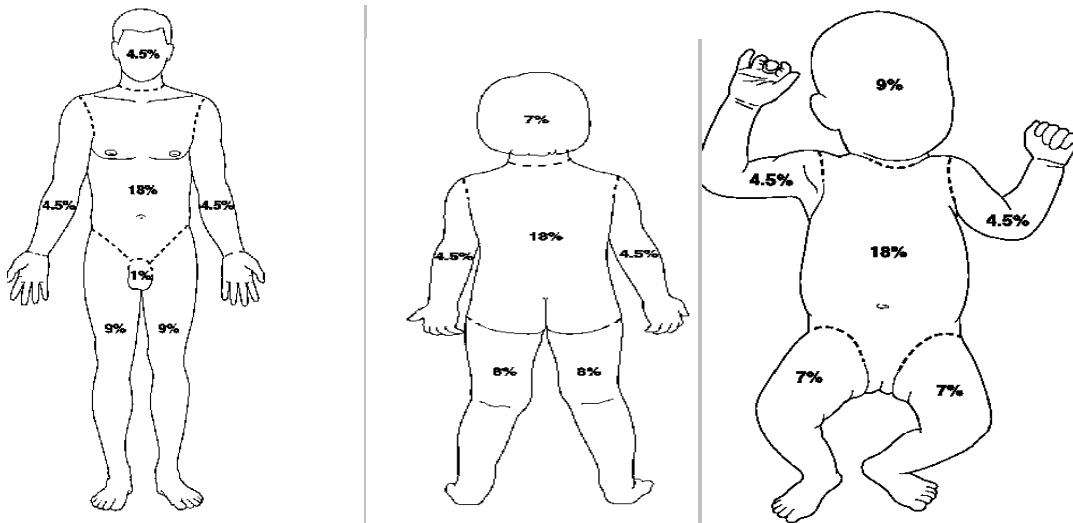


Burns

There are various types of burns encountered by EMDs. The most common are thermal burns which are caused by exposure to a heat source, chemical burns which are burns from an acid or lye compound and electrical burns from an electrical source. The size and severity of the burn usually determines the level of emergency represented by a particular incident.

Burns are classified as first, second or third degree. The levels refer to the depth of tissue damage caused by the burn. First degree burns are sunburn-like burns. These burns are usually superficial, have little to no long term damage as a direct result and affect mainly the epidermis (the first layer of skin). First degree burns usually show symptoms similar to sunburn. The skin will be dry, red and painful. There may also be some swelling and peeling of skin. Second degree burns (also known as partial thickness burns) affect the epidermis and the dermis (second layer of skin) and can result in blistering. The skin will be moist with some discoloration and very painful. Third degree burns (or full thickness burns) affect all layers of the skin and the underlying tissue. Third degree burns, typically, leave the skin feeling dry and leathery with some discoloration. While third degree burns are the most severe and cause the most damage, because of the extensive damage to the underlying tissue and nerves, the patient may have little pain.

The size of a burn is determined by the total body-surface area affected. Measuring is performed in multiples of nine. This method of measuring burns is called the "Rule of Nines." The arms each represent about nine percent of total body area. The torso represents thirty-six percent of total body surface area, with eighteen percent for the front and eighteen percent for the back. The head accounts for 9 percent, and the legs are 18 percent each.



Always assume electrical burns are more severe than they appear. This is because internal burns may be present between the point of contact with the electricity and where the electricity exited the patient. Patients with electrical burns may be unconscious. If so, have the caller check for signs of cardiac arrest and provide CPR instructions as appropriate.

Patients with facial burns should be monitored closely for possible airway complications. The EMD must determine if anything is still burning and if so, advise the caller to evacuate the dangerous area, if it is safe to do so. In cases of burns that occur in enclosed areas, be aware of the possibility of carbon monoxide or other toxic poisoning or inhalation.

Some typical pre-arrival instructions for burn victims will include monitoring and maintaining the patient's airway, especially if the patient is unconscious. Cool small burns with clean water. Small burns are defined as burns that affect ten percent or less of the total body area. If the patient is still burning, have the caller attempt to extinguish the fire with water or roll the patient in a blanket, if it is safe to do so. Do not remove burnt clothing. Removing burnt clothing may cause additional tissue damage when the skin, which is now fused to the clothing, begins to peel off with the burnt clothing. This can also cause open wounds which will lead to greater injury for the patient.

Do not apply anything to the burned area. Have the caller keep the burned area clean and keep the patient covered. Continuously flush burns caused by household-chemicals with water until help arrives. Caution the caller to be aware of electrical hazards if an electrical burn is reported, especially if water is present. Warn the caller to not touch the patient if they are still in contact with an electrical source.

Treat the patient for shock by controlling any bleeding. Lay the patient on their left side except in spinal injury situations. Maintain the patient's body

temperature and in cases of industrial-chemical exposure, contact HAZ-MAT resources according to your local HAZ-MAT procedures.

Instruct the caller to not give the patient anything to eat or drink. In cases of internal burns from a caustic ingestion from an acid or lye, advise the caller to give the patient water to dilute the chemical, if possible. Have the caller call back if the patient's condition changes before help arrives. Always refer to your agency's policies for these types of calls.

Electrical, chemical, thermal burns and scaldings are the most common burns in children. The rule of nines is not an accurate way to measure the burned surface area of children under eight years old. In these cases, measure the burn size by assuming the palm of the child's hand is approximately 1 percent of their body surface area then estimate the number of "hands" needed to cover the burn.

Scald burns common to toddler aged children, frequently cause more extensive damage than a similar burn in an adult or older child because the skin is thin. Scald burns that blister initially like a second degree burn may in fact be third degree or "full thickness" burns.

In addition to the size and depth of the burn, several other factors affect the severity of burns in children. The age of the child will be a contributing factor in severity. Typically the outcome will be worse for children under two years old. The location of the burns on the body are also significant. Burns to the hands, face and perineum (which is the portion of the body extending from the anus to the genitals) may require specialized care. As mentioned before, burns to the face may indicate burns to the airway as well. Certain underlying medical conditions may become a factor in burn severity, these include diabetes, heart conditions and immune suppression.

Some burn incidents may require further action on the part of the EMD. Burns associated with injuries or acquired during an injury – such as a motor vehicle accident – may require further medical treatment by the EMD for such things as bleeding control or fracture stabilization. Also burns that may be intentional – such as in abuse – will require the EMD to notify law enforcement and possibly some type of child protective services. Refer to your agencies policies regarding these types of situations,

If a flame or explosive burn occurred within a closed space, the patient must be carefully evaluated for the possibility of injury to the respiratory tract. Signs include singed nasal hairs or soot in the sputum (spit). Symptoms include coughing, wheezing, hoarseness and noisy or rapid breathing. Children with thermal injuries to the airway may have rapid swelling which may result in partial or even complete airway obstruction and may need early and aggressive airway management by skilled providers.

These are just an example of some of the questions you can ask to obtain important information and some of the pre-arrival instructions you can use to treat the victim. Always follow your locally approved EMD Guidecards as designed and refer to your policies and procedures.

By Bob Smith, APCO Institute EMD Program/Operations Manager

Resources and Helpful Websites

- APCO Institute Emergency Medical Dispatch Basic Student Manual
- www.apcoinstitute.org (APCO Institute)

Quiz

CDE Article – Burns

Name: _____ Date: _____

Agency: _____

Address: _____

Phone: _____

Fax: _____

Email: _____

1. The three most common types of burns are thermal, chemical and:
 - a. Eclectic
 - b. Archaic
 - c. Cryptic
 - d. Electric

2. The method used to determine the size of a burn is called:
 - a. Maslow's Theory
 - b. The principle of trauma
 - c. The rule of nines
 - d. Pavlov's canine process

3. The scale to rate the depth of a burn is:
 - a. A, B & C type
 - b. 1st, 2nd & 3rd degree
 - c. Simple, gross & faulty style
 - d. Early, medium & full depth

4. Scald burns common to toddler aged children, frequently cause more extensive damage than a similar burn in an adult or older child.
 - a. True
 - b. False

5. It is permissible to remove the patient's burnt clothing
 - a. True
 - b. False