

RULE OF NINES

The rule of nines assesses the percentage of burn and is used to help guide treatment decisions including fluid resuscitation and becomes part of the guidelines to determine transfer to a burn unit.

An adult who has been burned, the percent of the body involved can be calculated as follows:

- Head = 9% (front = 4.5%, back = 4.5%)
- Chest (front) = 9%
- Abdomen (front) = 9%
- Upper/mid/low back and buttocks = 18%
- Each arm = 9% (front = 4.5%, back = 4.5%)
- Each palm = 1%
- Groin = 1%
- Each leg = 18% total (front = 9%, back = 9%)

As an example, if both legs (18% x 2 = 36%), the groin (1%) and the front chest and abdomen were burned, this would involve 55% of the body.



Burns are injuries to the tissues caused by heat, friction, electricity, radiation, or chemicals. Such injuries cause the breakdown of body proteins, death of cells, loss of body fluids, and edema.

Five factors will help you to determine the severity of a burn:

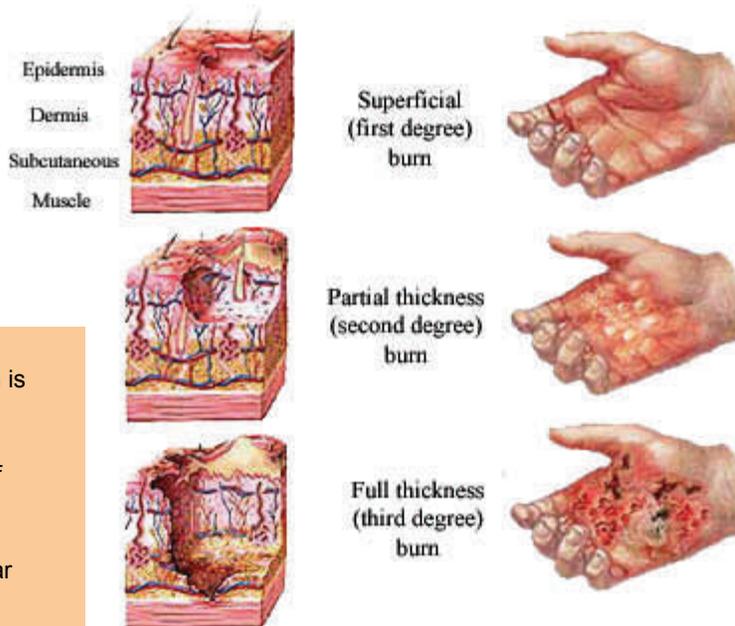
1. What is the depth of the burn?
2. What is the extend of the burn?
3. Are any critical areas (face, upper airways, hands, feet, genitalia, circumferential burns) involved?
4. Are there any preexisting medical conditions or injuries?
5. Is the patient < 5 years or > 55 years?

Parkland Formula for Treating Burn Victims

For burn victims, fluid resuscitation is critical within the first 24 hours. The amount of fluid resuscitation can be determined from the percentage of body surface area (%BSA) involved. "Rule of 9's" can estimate the %BSA.

The Parkland Formula is as follows.
Fluid for first 24 hours (ml) = 4 ml of NS X Patient's weight in kg X %BSA burned

Afterwards, the first 1/2 of this amount is delivered in the first 8 hours, and the remaining 1/2 is delivered in the remaining 16 hours.



Burns vary depending on the cause, the intensity, and the body parts involved. They are classified by depth, based on the severity of the tissue damage:

- A **Superficial** (first-degree) burn causes redness and swelling in the outermost layers of skin called the epidermis.
- A **Partial thickness** (second degree) burn involves redness, swelling, and blistering. The damage extends beneath the epidermis to the deeper layers of skin, the dermis.
- A **Full thickness** (third degree) burns, destroys the entire depth of skin, causing significant scarring. Damage also may extend to the underlying fat, muscle, or bone. **Third-degree burns require immediate medical attention.**

The severity of a burn is judged by the extend of body surface area (BSA) involved as well as the depth of the burn.

Classification of Burns in Adults:

- **Critical Burns**
 - Full thickness involving hands, feet, face, upper airways, genitalia, or circumferential burns of other areas
 - Full thickness burns covering > 10% TBSA
 - Partial thickness burns covering > 30% TBSA
 - Burns associated with respiratory injury (smoke inhalation or inhalation injury)
 - Burns complicated with fractures
 - Burns on pt < 5 yo or > 55 yo that would be classified as "moderate" on young adults.
- **Moderate Burns**
 - Full thickness involving 2% - 10% TBSA excluding hands, feet, face, upper airways, genitalia.
 - Partial thickness burns covering 15% to 30%
 - Superficial burns covering > 50% TBSA
- **Minor Burns**
 - Full thickness covering < 2% TBSA
 - Partial thickness burns covering < 15% TBSA
 - Superficial burns covering < 50% TBSA

Classification of Burns in Infants & Children:

- **Critical Burns**
 - Full or Partial thickness covering > 20% TBSA
 - Burns involving hands, feet, face, airway or genitalia
- **Moderate Burns**
 - Partial thickness burns covering 10% to 20% TBSA
- **Minor Burns**
 - Partial thickness burns covering < 10% TBSA

RULE OF PALM

The palm method is a tool whereby the size of the patients palm is used as an indicator for specific percentage of TBSA.

The surface area of a patients palm equals approximately 1% of TBSA.

This method is particularly useful where the burn has an irregular shape or has a scattered distribution.