

### What are burns caused by?

- Burns are injury caused by direct damage to tissue from exposure to:

1. Sun
2. Chemicals
3. Thermal (e.g.. Fire or burning liquids)
4. Electricity

### Thermal Burns

#### MOST COMMON

Due to exposure to dry heat (flames) or moist heat (steam, hot liquids)

Severity depends on how hot it was and how long it was in contact with skin.

### Chemical Burns

Dangerous chemicals are found in homes and businesses.

Acid, chem. to unclog sinks, cement, cleaners

May cause local tissue damage or system tox.

### NURSING IMPLICATIONS

Remove chemical from contact with the skin ASAP

1. Remove nonadherent clothing.
2. Flush chem from wound ASAP.

### Electrical Burns

### Electrical Burns (cont)

**Myoglobinuria** due to Rhabdo. {Damaged muscles release **myoglobin** and damaged RBCs release **hemoglobin** → Myo & Hemo block tubules. → AKI, acute tubular necrosis.

Myoglobinuria indicated w/ dark urine.

→ Rhabdo > Myoglobinuria > AKI & ATN

→ Monitor Urine output (Kidney Function) \_\_\_\_\_ ✓ Adequate U/O during emergent phase: 0.5 to 1 mL/kg/hr \_\_\_\_\_ -

\_\_\_\_\_ ✓ IV Fluids

*Renal failure can occur in **full-thickness burns as well***

→ Metabolic Acidosis

Metabolic acidosis due to cellular hypoxia and increasing breakdown in renal and hepatic function. Can lead to shock or death. ✓ Can treat w/ IV sodium bicarbonate.

### Classification of Burn Injury:

Depth of burn                      % of TBSA

Location                              Assoc. Injuries

Pre-existing

### Degrees of burns (depth of burn damage)

#### 1st Degree (superficial)

affects the top layer of the skin (epidermis)

#### 2nd Degree (partial-thickness)

can be superficial or deep partial-thickness affecting various layers of the dermis.

#### 3rd Degree (Full-thickness)

all skin layers are damaged along with the hair follicles, sweat glands, and nerves.

#### 4th Degree (deep full-thickness)

worst of all. All layers are destroyed but it extends to the muscles, bone, and ligaments... all sensation of pain is gone.

**Eschar** is another name for full-thickness nonviable burn tissue.

Lund-Browder chart (more accurate)

Rule of Nines (Used for initial assessment)

### Risks with locations of burns

#### Face, neck, circumferential torso

-May interfere w/ **gas exchange**. (Leathery eschar, edema) - **Circumferential extremity** burns can impair fusion distal to the injury. (**Monitor Pulses**)

#### Hands, feet, joints

-Limit mobility and function.

#### Ears, nose, buttocks, perineum

-High risk for **infection**

### Risks with Preexisting Health Issues:

Pre-ex. heart, lung, or chronic diseases                      - contribute to poorer prognosis

DM & Peripheral vascular disease                      - high risk for delayed healing

### Prehospital & Emergency Care

#### 1. Scene safety is a priority.

#### 2. Remove from source of burn and stop burning process.

- Flushing wounds w/ copious amounts of water minimize depth of injury.

#### 3. Wrap in dry, clean sheet or blanket.

- This **prevents wound contamination** and **provides warmth**. Moist dressing can reduce pain but may cause **hypothermia**.

#### 4. Pt. may have other injuries that are priority over burn!

#### 5. EMS must fully explain injuries.

- Any hazardous chemicals involved or any **Traumatic injuries** (e.g., fall)

### Stages of Burn Assessment/Care

**"Iceberg effect"** {Severity is diff to determine since most damage occurs under the skin.

**Priority: Manage Airway**

**Affects & Assessments...**

→ ♥ Heart

♥ Life threatening dysrhythmias or Cardiac Arrest.... ✓ **Heart monitor**

→ Muscles and Bones

**Fractures.** Electrical current can cause muscle contractions strong enough to fracture long bones and vertebrae \_\_\_\_\_ - \_\_\_\_\_ ✓ **Stabilize Cervical Spine** to prevent further injury. ✓ Assessment of **extremity movement** will provide baseline data.

**Rhabdomyolysis:** Muscle tissue breakdown that results in the release of a protein (myoglobin) into the blood which can damage kidney

→ Kidney Failure



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1.	24-48 hours.	
<b>Emergent/Resuscitative Phase</b>		
2. <b>Acute Phase</b>	48-72 hours/-wound starts to heal.	Starts w/ diuresis - Ends w/ closure of wound
3. <b>Rehab Phase</b>	May be years.	Begins w/ wound closure - ends w/ patient at highest level of functioning.

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