

## BURNS

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### **Information Needed:**

- Type and source of burn: explosion, chemicals, electrical, steam, smoke or toxic fumes
- Complicating factors: exposure in enclosed space, total time exposed, drugs or alcohol
- Medical history: cardiac or respiratory disease, circulatory problems, etc.
- Physical Exam: presence or absence of sputum, singed nasal hairs, and quality of voice

### **Objective Findings:**

- Evidence of inhalation injury or toxic exposure, i.e. carbonaceous sputum, hoarseness, or singed nasal hairs
- Measure the extent of the burn including the depth, full or partial thickness and the total body surface area (TBSA) affected. As a guide, the surface area covered by the patient's palm equals one percent of his TBSA.
- Identify entrance/exit wounds if electrical or lightning strike
- Identify associated trauma from explosion, electrical shock, or fall

### **General Burn Treatment:**

- Routine Medical Care
- Stop the burning process
- Early intubation for patients with evidence of significant inhalation injury or respiratory distress
- Should not delay transport to appropriate facility, if feasible
- Continuous cardiac monitoring: treat dysrhythmias according to appropriate protocols
- Consider IV access (avoid burned skin but use if necessary)
- Consider pain management if indicated, see Adult Pain Assessment protocol
- Consider morphine sulfate 2 - 5 mg slow IVP for discomfort. May repeat morphine in 2-5 mg increments q 5 minutes or more up to 20 mg.
- If unable to establish an IV up to 5 mg of morphine sulfate may be administered IM. May repeat in up to 5 mg increments q 10 minutes to a max of 20 mg.
- Prior to the administration of morphine sulfate, and prior to each repeat dose, the patients pain and vital signs should be reassessed. The patient must have a SBP>90 mmHg, respirations>12, and awake to report pain.

### **Treatment (Thermal):**

- Remove jewelry and non-adhered clothing. Do not break blisters.
- Cover affected body surface
  - If <10% of body surface, cover with sterile, moist saline dressing
  - If >10% TBSA, cover with sterile or clean dry sheet
- Use sheets/blankets to prevent hypothermia if burns are extensive
- Transport to appropriate facility (see Precautions and Comments)
- For major burns, establish IV or IO access, preferably in unburned skin
- If partial or total thickness >10% TBSA give 250 – 1000 ml NS
- Monitor lung sounds

### **Treatment (Chemical):**

- Follow decontamination and HazMat procedures if indicated
- Provide routine medical care as soon as it is safe to do so
- Brush off dry powder if present
- Remove any contaminated or wet clothing (including underwear)
- Irrigate with copious amounts of saline or water
- Transport to appropriate facility

### **Treatment (Electrical):**

- Routine medical care
- Moist dressing on exposed, injured area
- Transport to appropriate facility
- Continuous cardiac monitoring: treat dysrhythmias according to appropriate protocols

### **Precautions and Comments:**

- Depth of burn:
  - Superficial = 1<sup>st</sup> degree (skin red but intact with pain)
  - Partial thickness = 2<sup>nd</sup> degree (severe pain with blisters)
  - Full thickness = 3<sup>rd</sup> degree (no sensation in burned skin)

### **Major burns are defined as:**

- >10% of TBSA partial or full thickness burn
- Burns to critical areas : face, hands feet or genitalia, perineum, or major joints
- Electrical burns or lightning injury
- Chemical burns
- Respiratory burns
- Burns associated with trauma
- Contact receiving facility physician for further fluid orders, assistance with destination decision, or further morphine orders if needed
- Inhalation injuries may cause delayed but severe airway compromise. Be prepared for early intubation

- Do not apply ice or ice water directly to skin surfaces as additional injury may result
- Consider presence of associated multisystem trauma if patient presents with signs or symptoms of hypovolemia. See Trauma Protocol for associated trauma
- Document the total IV fluid administered on the PCR and provide this in report to the receiving hospital

**Transportation:**

- Patients with minor burns should be transported to the closest appropriate hospital
- Patients with a combination of burns and trauma should be transported to the appropriate Trauma Center
- Patients with suspected partial (>10%TBSA), or full thickness burns, electrical burns or partial/full thickness burns of critical areas (hands, face, or perineum) should be transported to the appropriate burn receiving hospital: St. Francis Hospital ED (Bothen Burn Center) or Santa Clara Valley Medical Center
- Patients with symptoms of respiratory burns (cough, sore throat, wheezing, stridor, or hoarse voice) should be transported to the closest receiving hospital. Carefully observe patients with signs (soot in the mouth or singed nasal hair) of potential respiratory burns for any symptoms of respiratory burns