



ORANGE COUNTY EMERGENCY MEDICAL SERVICES  
BASE HOSPITAL TREATMENT GUIDELINES

#: BH-P-095  
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Org. Date: 04/01/2017  
Revise Date: 10/01/2019

BURN (THERMAL, ELECTRICAL, CHEMICAL) – PEDIATRIC

BASE GUIDELINES

1. Determine ALS Standing Order treatments/procedures rendered prior to base hospital contact. Use ALS standing order as guidelines for treatment or procedures not initiated prior to Base Hospital/CCERC contact.
2. Consider routing patient to Emergency Receiving Center with Burn Unit if any of the following major burn criteria are met:

**Mechanism of Injury**

- Suspected inhalation injury (patients burned in an enclosed space, patients with facial burns, hoarseness, dyspnea, soot in mouth, carbonaceous sputum, singed nasal hairs).
- Electric burns (including lightning injury).
- Chemical burns (including acids and bases).

**Physiological alteration:**

- Burns that involve the face, hands, feet, genitalia, perineum, or major joints.
- Circumferential burns.
- Patients with a pre-existing medical condition that may complicate management or prolong recovery (e.g. diabetes, renal failure, cardiac or pulmonary disease).

**Total Burn Surface Area (TBSA):**

- Second degree burns > 10% total body surface area (TBSA).
- Any area that appears to be a third degree burn.

3. Monitor cardiac rhythm in electrical burns for rhythm disturbances.
  4. For continued pain and systolic BP > 80, give or repeat:
    - ▶ **Morphine 0.1 mg/kg IV/IM**
      - Maximum single dose 5 mg
      - Maximum total dose 10 mg
- OR

ALS STANDING ORDER

1. For any burn injury occurring in an enclosed space or with smoke generated at the site:
  - ▶ High-flow Oxygen by mask or nasal cannula (direct or blow-by) as tolerated.
2. Apply cooling measures if burn still "hot".
3. For wheezing or suspected smoke inhalation:
  - ▶ **Albuterol, continuous nebulization of 6 mL (5 mg) concentration** as tolerated.
4. For severe pain, systolic BP > 80: **Base contact required (CCERC preferred) if ≤ 2 years of age**
  - ▶ **Morphine sulfate: 0.1 mg/kg IV/IM**, may repeat once after 3-5 minutes for continued pain (maximum single dose 5 mg and maximum total dose 10 mg)
  - OR
  - ▶ **Fentanyl 2 mcg/kg IN/IV/IM**, may repeat once after 3 minutes for continued pain (maximum single dose 50 mcg and maximum total dose 100 mcg)
5. For blood pressure ≤ 80 or signs of shock:
  - ▶ Establish IV access
  - ▶ Infuse **20 mL/kg Normal Saline bolus** (maximum 250 mL), may repeat twice to maintain perfusion.
6. Contact Base Hospital/CCERC (pediatric base preferred) for Burn Unit destination if any of the following burn criteria are met:
  - Mechanism of Injury**
    - Suspected inhalation injury (patients burned in an enclosed space, patients with facial burns, hoarseness, dyspnea, soot in mouth, carbonaceous sputum, singed nasal hairs).
    - Electric burns (including lightning injury).
    - Chemical burns (including acids and bases).

Approved:

*Carl Schultz, MD*

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BASE GUIDELINES

▶ Fentanyl 2 mcg/kg IV/IM/IN

- Maximum single dose 50 mcg
- Maximum total dose 100 mcg

Avoid administration in areas of burned skin.

5. Suspected carbon monoxide poisoning due to smoke inhalation from burning plastics or petroleum products

▶ Hydroxocobalamin 70 mg/kg IV/IO over 15 minutes (maximum 5 g) (refer to PR-130 for mixing instruction).

ALS STANDING ORDER

Physiological alteration:

- Burns that involve the face, hands, feet, genitalia, perineum, or major joints.
- Circumferential burns.
- Patients with a pre-existing medical condition that may complicate management or prolong recovery (e.g. diabetes, renal failure, cardiac, or pulmonary disease).

Total Burn Surface Area (TBSA):

- Second degree burns > 10% total body surface area (TBSA).
- Any area that appears to be a third degree burn.

TREATMENT GUIDELINES:

**Suspected carbon monoxide poisoning (closed space burn, smoke inhalation, chemical fires):**

- Pulse oximetry O<sub>2</sub> saturation will be inaccurate due to inability of pulse oximeter to differentiate between carbon monoxide and oxygen.

**Chemical Burns:**

- Brush away any remaining dry chemical.
- Irrigate burn wound and surrounding skin with copious and continuous water or saline flush to dilute and remove as much residual chemical as possible.

**Note:** Some chemicals are activated by water/fluids and might worsen the burn or create hazardous fumes; e.g. sodium, phosphorus, acetyl bromide, aluminum carbide, silicon tetrachloride.

**Electrical Burns:**

- Electrical burns may often appear insignificant while causing marked muscle and soft tissue damage. Cardiac irritability may occur with electrical burns.
- Any burn from high voltage greater than 110 volts alternating current in a pediatric burn victim should be transported with ALS escort and cardiac rhythm monitoring as tolerated by child.

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