

# St. Joseph Regional Burn Center

(260) 425-3570

## Recommendations for Treatment of Burn Victims

### Introduction

Point of entry into the St. Joseph Regional Burn Center's healthcare delivery system typically begins with the EMS or an agency referral. If patients are stable and have no other suspected injuries, they may be admitted directly to the center. **To expedite care for burn patients, the center should be notified at (260) 425-3570 as soon as a patient referral becomes a possibility.** Patients transferred to the center from the field will be admitted through St. Joseph Hospital's emergency department and will be evaluated by an emergency physician in the ED. A burn surgeon will then assume care for the patient.

The following burn-care protocol can be initiated in any ED.

### Primary Assessment

Like all trauma patients, initial assessment of burn patients includes evaluation of the airway, breathing and circulation. Standard ATLS protocol should be utilized. Other injuries usually take precedence over burn wounds.

### Hypothermia

Burn patients are at risk for hypothermia, especially burned children. Check the patient's temperature frequently. Cover the patient with dry, clean sheets, then blankets. Do not apply ice or moisture or any topical microbial agent.

### Respiratory Injury

Types of respiratory injury include:

**Direct thermal injury** to the upper respiratory tract, or supraglottic area, is manifested by early facial, lip and upper airway edema or by hoarseness. Airway edema typically increases over the first 18 hours.

**Smoke inhalation** injury occurs in closed space environments, causing tracheobronchitis and chemical pneumonitis. Maximal effects from these injuries are generally not seen for three to five days.

**Carbon monoxide poisoning** is manifested by increased carboxyhemoglobin levels. ABGs and oxygen saturation by pulse oximetry generally are normal. Prompt treatment with 100% O<sub>2</sub> by mask should be initiated if carbon monoxide poisoning is probable. Give O<sub>2</sub> until a definitive diagnosis is made.

### Intubation

Early nasal-endotracheal intubation should be considered for burns associated with:

1. Closed-space environment
2. Progressive facial and lip edema
3. Hoarseness
4. Carbonaceous sputum
5. History of unconsciousness
6. Inadequate respiration despite O<sub>2</sub> mask delivery
7. Long (> 30 minutes) transport times predicted

### IV Fluid Resuscitation

Required by patients with > 20% TBSA burned or > 15% TBSA burned in children. Lactated ringers is the solution of choice in adults; D5LR for children.

Fluid resuscitation requirements:

$$\frac{\% \text{ TBSA burned} \times \text{kg.} \times 3 \text{ mL.}}{2} = \text{total infused during the first 8 hours post burn}$$

For large burns (> 35% TBSA), call the center for instruction.

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## Genitourinary

An indwelling bladder catheter is recommended in patients receiving IV fluids  $\geq$  200 cc/hr to facilitate resuscitation and titration of fluids.

## Gastrointestinal

A nasogastric tube is suggested for burn patients with  $>$  20% TBSA burns. Gastric contents should be aspirated as much as possible. This procedure is **always needed** if the patient is intubated.

## Oxygenation

Administer oxygen to all patients until suspicion of carbon monoxide poisoning or inhalation injury is eliminated. Initial treatment should consist of 100% O<sub>2</sub> delivery by mask in nonintubated patients.

## Pain Control

Pain should be addressed early in the patient assessment. Morphine IV is the drug of choice, delivered in incremental doses.

## Wound Covering

No ointments or creams should be used prior to the burn surgeon's assessment of the wound. Clean, dry sheets and/or blankets are sufficient.

Never apply ice to a burn wound.

**To treat chemical burns**, remove contaminated clothing then brush dry chemicals from the skin. Flush the burned area with copious amounts of water. Irrigate the eyes copiously with eye irrigant or saline, if necessary. Healthcare workers should always wear gloves while treating chemically burned patients.

## Infection Control

Prophylactic antibiotics are not generally recommended, unless given for concomitant injuries such as open fractures or penetrating wounds. All patients with  $>$  20% TBSA burns should receive a tetanus booster. In the previously immunized patient, tetanus prophylaxis should be determined by the patient's immunization status.

## Escharotomy

Incision of constricting burn eschar may be life or limb saving. Circumferential constriction of the chest or abdomen restricts respiration. Circumferential constriction of an extremity restricts blood flow. Signs of peripheral circulatory compromise are cyanosis of the extremity, impaired capillary refill, paresthesias and deep tissue pain. Remove rings and bracelets from circumferentially burned extremities. For additional instruction, call the center.

## Follow-Up Care

The center's nurse can make a follow-up appointment to the Outpatient Burn Clinic for any patient who is released from the ED following treatment.

## Referral to the Burn Center

The American Burn Association and the American College of Surgeons recommend the following criteria for burn center referrals:

1. Partial thickness burns greater than 10% TBSA
2. Burns that involve the face, hands, feet, genitalia, perineum, or major joints
3. Third-degree burns in any age group
4. Electrical burns, including lightning injuries
5. Chemical burns
6. Inhalation injury
7. Burn injury in patients with pre-existing medical disorders that could complicate management, prolong recovery, or affect mortality.
8. Any patient with burns and concomitant trauma (such as fractures) in which the burn injury poses the greatest risk of morbidity or mortality. In such cases, if the trauma poses a greater immediate risk, the patient may be stabilized in a trauma center before being transferred to a burn center. Physician judgment is necessary in such situations in conjunction with the regional medical control plan and triage protocols.
9. Burned children in hospitals that do not have qualified personnel or equipment to care for children.