

EMERGENCY TREATMENT

OF BURNS

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JOSEPH M. STILL
BURN CENTERS, INC.

PROVIDING SERVICES AT

DOCTORS
HOSPITAL
Joseph M. Still Burn Center

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IMMEDIATE EMERGENCY BURN CARE

1. Treat according to ACLS or ABLS protocol.
2. Use airway and C-Spine precautions.
3. Stop the burning process.

AIRWAY MANAGEMENT

1. Administer high-flow 100% oxygen to all burn patients. Be prepared to suction and support ventilation as necessary.
2. If an inhalation injury is suspected, consider intubation. Burns sustained in an enclosed space are more likely to result in an inhalation injury. Other indications of an inhalation injury include:
 - + Dark or reddened oral and/or nasal mucosa.
 - + Burns to the face, lips or nares; singed eyebrows; and/or singed nasal hairs.
 - + Carbon or soot on teeth, tongue or oral pharynx.
 - + Raspy, hoarse voice or cough.
 - + Stridor or inability to clear secretions may indicate impending airway closure.
 - + Mental status changes.

855-863-9595

OUR PROVIDERS ARE AVAILABLE 24/7 FOR
CONSULTATIONS, REFERRALS & TRANSFERS.

FLUID RESUSCITATION

» FLUID RESUSCITATION FIRST 24 HOURS

- + Pre-hospital setting:
 - < 5 years 125 mL/hr
 - 6-12 years 250 mL/hr
 - ≥ 13 years 500 mL/hr
- + In the Emergency Department:
 - (2-4 mL Ringer's Lactate \times kg body weight \times TBSA)/16 = hourly infusion rate
 - Calculate fluids from time of accident.

A Adult ≥ 13 2 mL
C Child < 13 3 mL
E Electrical 4 mL

For TBSA >20%, consider placing Foley catheter to accurately measure urine output. Consult Burn Center if urine is black/brown/red or < 1 mL/kg/hr.

» PERCENT AND DEPTH OF BURN

- + **First-degree burns:**
 - Are marked by red, pink or darkened skin.
 - Are painful and warm to touch.
 - No blisters or skin sloughing present.
 - Not included in TBSA calculation.
- + **Second-degree burns:**
 - Are moist, reddened, blistered and painful to touch.
 - Blanch to touch.
 - Are at risk of developing into a third-degree burn. Regularly reassess second-degree burns to ensure the injury has not converted to a third-degree burn.
- + **Third-degree burns:**
 - Are dry/tight/leathery, brown/tan/waxy or pearly white.
 - Are devoid of blanching or capillary refill.
 - Are relatively pain-free, lacking blisters and may initially appear as second-degree.
 - Need skin grafting to heal.
- + **Fourth-degree burns:**
 - Have a charred appearance.
 - Extend below the dermis and subcutaneous fat into the muscle, bone or tendon.

TRAUMA WORK-UP PER ATLS PROTOCOL

» OBTAIN PATIENT HISTORY

- + How was patient burned? Enclosed space? Any deaths at scene?
- + When did it happen?
- + Are there concomitant injuries? Rule out associated trauma.
- + Are there chemical burns — What was the agent? Concentration? Obtain Material Safety Data Sheets.
- + PMH/PSH? Allergies? Medications? Last Tetanus? Drug/alcohol history?
- + When was the patient's last meal?

» PAIN MANAGEMENT

- Give all pain medications via IV. Provide morphine sulfate (if not contraindicated) in the following proportions:
- + **Adults:** 4-8 mg IV every 2-4hr PRN.
 - + **Children:** Titrate IV by weight (0.05-0.1 mg/kg/dose) or consult Burn Center surgeon.
 - + Do not use ice, iced normal saline or iced water as a comfort measure.

» WOUND CARE MEASURES

- + Remove all clothing, diapers, jewelry, metal and restrictive garments.
- + Consult the Burn Center concerning circumferential burns of the extremities or thorax. Escharotomies are occasionally necessary at the referring facility.
- + Assess the 5 Ps (pain, pallor, paralysis, paresthesia and pulselessness).
- + Elevate HOB and burned extremities to decrease swelling.
- + Wound debridement usually not necessary.
- + Apply sterile, dry dressings for transport.
- + Do not apply ice, ointments or creams.
- + Maintain body heat — wrap in blankets, prevent unnecessary exposure.

» OTHER INTERVENTIONS

- + Labs: CBC, PT, PTT, fibrinogen, ABG with CK, lactic acid, carboxyhemoglobin, myoglobinuria and electrolytes.
- + X-ray: CXR and areas of suspected trauma.
- + Insert NG tube and decompress stomach if nausea and vomiting are present, patient is intubated, TBSA >20% and/or transport by air.
- + Keep patient NPO.
- + Monitor patient's vital signs and peripheral pulses every 15 minutes.

AMERICAN BURN ASSOCIATION'S

GUIDELINES FOR BURN PATIENT REFERRAL

- These guidelines are designed to be used to aid in clinical decision-making. If you have sustained a burn injury, please seek medical advice from a medical professional.
- Local and regional infrastructure, resources and relationships may determine the necessity and timeliness of burn center referral.
- These guidelines are not meant to be definitive care recommendations. They may facilitate building the proper referral network within the local healthcare community.

THIRD-DEGREE (FULL-THICKNESS) BURNS:

» IMMEDIATE CONSULTATION WITH CONSIDERATION FOR TRANSFER

- + Full-thickness burns
- + Partial-thickness $\geq 10\%$ TBSA
- + Any deep partial- or full-thickness burns involving the face, hands, genitalia, feet, perineum or over joints
- + Patients with burns and other comorbidities
- + Patients with concomitant traumatic injuries
- + Poorly controlled pain

THIRD-DEGREE (FULL-THICKNESS BURNS):

» **CONSULTATION RECOMMENDATION**

- + Partial-thickness burns <10% TBSA
- + All potentially deep burns of any size

INHALATION INJURY

» **IMMEDIATE CONSULTATION WITH CONSIDERATION FOR TRANSFER**

- + All patients with suspected inhalation injury

» **CONSULTATION RECOMMENDATION**

- + Patients with signs of potential inhalation such as facial flash burns, singed facial hairs or smoke exposure

PEDIATRICS (≤14 YEARS OR <30 KG)

» **IMMEDIATE CONSULTATION WITH CONSIDERATION FOR TRANSFER**

- + All pediatric burns may benefit from burn center referral due to pain, dressing change needs, rehabilitation, patient/caregiver needs or non-accidental trauma

CHEMICAL INJURIES

» **IMMEDIATE CONSULTATION WITH CONSIDERATION FOR TRANSFER**

- + All chemical injuries

ELECTRICAL INJURIES

» **IMMEDIATE CONSULTATION WITH CONSIDERATION FOR TRANSFER**

- + All high-voltage ($\geq 1,000\text{V}$) electrical injuries
- + Lightning injuries

» **CONSULTATION RECOMMENDATION**

- + Low-voltage (<1,000V) electrical injuries should receive consultation and consideration for follow up in a burn center to screen for delayed symptom onset and vision problems

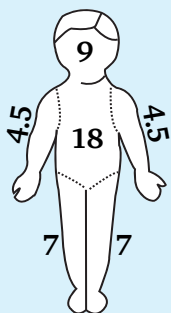
TOTAL BURN SURFACE AREA (TBSA)

PERCENT PER AGE

AREA	0-1 YEAR	1-4 YEARS	5-9 YEARS	10-14 YEARS	15 YEARS	ADULT
HEAD	19	17	13	11	9	7
NECK	2	2	2	2	2	2
ANTERIOR TRUNK	13	13	13	13	13	13
POSTERIOR TRUNK	13	13	13	13	13	13
LEFT BUTTOCK	2.5	2.5	2.5	2.5	2.5	2.5
RIGHT BUTTOCK	2.5	2.5	2.5	2.5	2.5	2.5
GENITALIA	1	1	1	1	1	1
RIGHT UPPER ARM	4	4	4	4	4	4
LEFT UPPER ARM	4	4	4	4	4	4
RIGHT LOWER ARM	3	3	3	3	3	3
LEFT LOWER ARM	3	3	3	3	3	3
RIGHT HAND	2.5	2.5	2.5	2.5	2.5	2.5
LEFT HAND	2.5	2.5	2.5	2.5	2.5	2.5
RIGHT THIGH	5.5	6.5	8	8.5	9	9.5
LEFT THIGH	5.5	6.5	8	8.5	9	9.5
RIGHT LOWER LEG	5	5	5.5	6	6.5	7
LEFT LOWER LEG	5	5	5.5	6	6.5	7
RIGHT FOOT	3.5	3.5	3.5	3.5	3.5	3.5
LEFT FOOT	3.5	3.5	3.5	3.5	3.5	3.5

Only second, third and fourth-degree burns are included in TBSA.

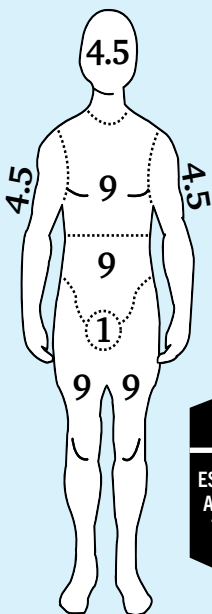
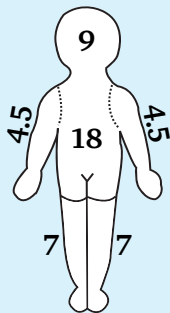
TBSA BY PERCENTAGE



0-9
YEARS

FOR EACH
YEAR OVER ONE:

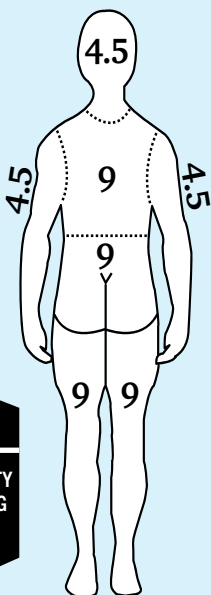
SUBTRACT
1% FROM THE
HEAD, ADD 0.5%
TO EACH LEG



AGE
10
AND
OVER

FOR ALL AGES:

ESTIMATE SPOTTY
AREAS BY USING
THE PATIENT'S
PALM AS 1%



MEASURE FROM BASE OF THE PALM TO TIPS OF FINGERS

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