Thermal Burn

History
- Type of exposure (heat, gas, chemical)
- Inhalation injury
- Time of Injury
- Past medical history and Medications
- Other trauma
- Loss of Consciousness
- Tetanus/Immunization status

Signs and Symptoms
- Burns, pain, swelling
- Dizziness
- Loss of consciousness
- Hypotension/shock
- Airway compromise/ distress could be indicated by hoarseness/ wheezing

Differential
- Thermal / Chemical / Electrical Burn Injury
  - Superficial
    - (1st Degree) red – painful
    - (Don't include in TBSA)
  - Partial Thickness
    - (2nd Degree) blistering
  - Full Thickness
    - (3rd Degree) painless/charred/leathery skin
- Radiation injury
- Blast injury

Assess Burn / Concomitant Injury Severity

< 5% TBSA 2nd/3rd Degree Burn
No inhalation injury, Not Intubated, Normotensive
GCS 14 or Greater
Minor Burn

5-15% TBSA 2nd/3rd Degree Burn
Suspected inhalation injury or requiring intubation for airway stabilization
Hypotension or GCS 13 or Less
(When reasonably accessible, transport to a Burn Center)
Serious Burn

>15% TBSA 2nd/3rd Degree Burn
Burns with Multiple Trauma
Burns with definitive airway compromise
(When reasonably accessible, transport to a Burn Center)
Critical Burn

- Airway Protocol(s) AR 1, 2, 3, 5, 6 ***as indicated***
- Multiple Trauma Protocol TB 6 ***if indicated***
- Remove Rings, Bracelets, Constricting Items
- Dry Clean Sheet or Dressings
- IV / IO Access Protocol UP 6
  Consider 2 IV sites if ≥ 15 % TBSA

TBSA estimate at ≥ 20%

NO

A **Normal Saline**
Or
Lactated Ringers
(if available)
0.25 mL/kg x (%TBSA) / hr
for up to the first 8 hours.
(More info below*)

YES

A **Normal Saline**
Or
Lactated Ringers
(if available)
Age: ≤ 5 = 125 mL/hr
Age: 6–14 = 250 mL/hr
Age: ≥ 15 = 500 mL/hr

Formula example:
70 kg patient with 15% TBSA

0.25 *x* 70 kg = 17.5
17.5 *x* 15 = 263 mL/hr

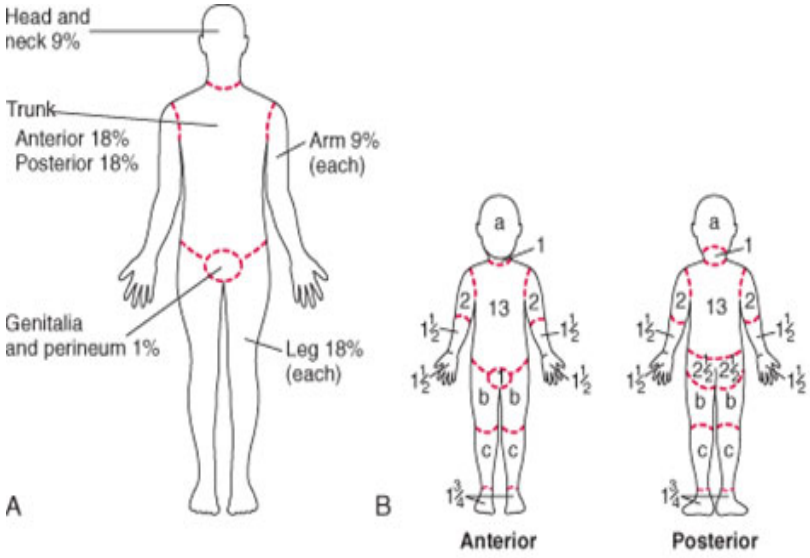
- Pain Control Protocol UP 11 ***if indicated***
- Carbon Monoxide / Cyanide Protocol TE 2 ***if indicated***
- Monitor and Reassess
- **Rapid Transport** to appropriate destination using Trauma and Burn: EMS Triage and Destination Plan

Notify Destination or Contact Medical Control

Lactated Ringers preferred over Normal Saline. Use if available, if not change over once available.

Trauma and Burn Protocol Section

Thermal Burn



Relative percentage of body surface area (% BSA) affected by growth

	Age				
Body Part	0 yr	1 yr	5 yr	10 yr	15 yr
a = 1/2 of head	9 1/2	8 1/2	6 1/2	5 1/2	4 1/2
b = 1/2 of 1 thigh	2 3/4	3 1/4	4	4 1/4	4 1/2
c = 1/2 of 1 lower leg	2 1/2	2 1/2	2 3/4	3	3 1/4

Rule of Nines

- Rarely find a complete isolated body part that is injured as described in the Rule of Nines.
- More likely, it will be portions of one area, portions of another, and an approximation will be needed.
- For the purpose of determining the extent of serious injury, differentiate the area with minimal or 1st degree burn (superficial) from those of partial (2nd) or full (3rd) thickness burns.
- For the purpose of determining Total Body Surface Area (TBSA) of burn, include only Partial (2nd) and Full Thickness (3rd) burns. Report the observation of other superficial (1st degree) burns but do not include those burns in your TBSA estimate.
- Some texts will refer to 4th 5th and 6th degree burns. There is significant debate regarding the actual value of identifying a burn injury beyond that of the superficial, partial and full thickness burn at least at the

Estimate spotty areas of burn by using the size of the patient's palm as 1 %

Trauma and Burn Protocol Section

Pearls

- **Recommended Exam: Mental Status, HEENT, Neck, Heart, Lungs, Abdomen, Extremities, Back, and Neuro**
- **Green, Yellow and Red In burn severity do not apply to the Start / JumpStart Triage System.**
- **Airway considerations:**
  - **Singed nasal hairs, facial burns, and/or carbonaceous sputum are not absolute indications for intubation in a burn patient.**
  - **Utilizing non-rebreather face mask as well as NIPPV procedure are acceptable as tolerated.**
- **Critical or Serious Burns:**
  - **> 5-15% total body surface area (TBSA) 2nd or 3rd degree burns**
  - **3rd (full thickness) degree burns > 5% TBSA for any age group**
  - **Circumferential burns of extremities**
  - **Electrical or lightning injuries**
  - **Suspicion of abuse or neglect**
  - **Inhalation injury**
  - **Chemical burns**
  - **Burns of face, hands, perineum, or feet**
  - **Require direct transport to a Burn Center. Local facility should be utilized only if distance to Burn Center is excessive or critical interventions such as airway management are not available in the field.**
- Burn patients are trauma patients, evaluate for multisystem trauma.
- Assure whatever has caused the burn is no longer contacting the injury. (Stop the burning process!)
- Circumferential burns to extremities are dangerous due to potential vascular compromise secondary to soft tissue swelling.
- Burn patients are prone to hypothermia - never apply ice or cool the burn, must maintain normal body temperature.
- Evaluate the possibility of geriatric abuse with burn injuries in the elderly.
- Do not administer IM pain injections to a burn patient. IM dosing is variable in burn patients and may result in over or under dose.