

Burns

We would like to review a few key points to aid in the treatment and transport of a burn victim. We have also provided some great You Tube video links suggested by the American Burn Association and information by The Western States Burn Center at Northern Colorado Medical Center in Greeley, Colo.

1. **About the burn:** Note the time, type (ie: thermal, chemical, electrical), body surface area, and that the burning process has been stopped. Remember, provider safety comes first.
2. **Fluids:** Pre-hospital field resuscitation - Start two large bore IVs and initiate Lactated Ringers (LR) and remember, you may go through burned skin! Initially do not worry about calculating %TBSA (Total Body Surface Area) burned. For children younger than age six, administer 125 ml/hour; for ages seven-13, administer 250 ml/hour; and for 14 and older, administer 500 ml/hour.
Upon arrival at the hospital, administer 2 ml x %TBSA burn x kg weight for second and third degree burns ONLY. Fifty percent of this volume is given in the first eight hours from the time of injury (not the Emergency Department arrival time or IV start time). The second 50 percent of this volume is given over the next 16 hours. Do not bolus unless indicated (shock). Place a Foley catheter to ensure accurate measurement of urinary output. Achieve a urine output of 0.5 ml/kg/hour for adults and 1 ml/kg/hour for children. Electrical burns will require a greater urine output of 1.0-1.5 ml/kg/hour. See PDF attachment for 24-hour fluid resuscitation for infants and children.
3. **Pain Control:** Please be generous with narcotics (closely monitor hemodynamics). These patients will require increased amounts of narcotics.
4. **Preparation of burn patients prior to Air Link transport:** Remove all clothing and jewelry. Cover the area with DRY, STERILE, NON-ADHESIVE dressings (OR sterile surgery drapes work great). Ensure patency of IVs and Foley catheter. Remember, burn patients are at great risk for airway edema and compromise due to the administered fluids and burns involving the face, head, neck, or chest. Keeping these patients warm is a very critical part of their transport to a burn center. Use warmed IV fluids. **PLEASE DO NOT PLACE ANY CREAMS OR SOAKED DRESSINGS ON WOUNDS.**
5. Early intervention and transfer is key. **Call Regional West Medical Transfer Center (Air Link Dispatch) at 800.252.2215.** To arrange emergent patient transfer to the Western States Burn Center at North Colorado Medical Center, call 866.806.6262.
6. Please follow the links below and included attachments for additional care practices, education, and reference charts.

<https://www.youtube.com/user/UWDeptSurgery/videos>

<http://www.ameriburn.org/BurnCenterReferralCriteria.pdf>

AIR LINK
REGIONAL WEST

4021 Avenue B | Scottsbluff, NE 69361 | 1.800.252.2215



SECONDARY SURVEY

- Head-to-toe evaluation and history to include circumstances surrounding injury as well as past medical history
- Place NGT if TBSA>20% and/or if intubated
- Administer small doses of IV analgesia
- Check tetanus status and administer if unknown or >5 years from last booster.
- Do NOT administer antibiotics prophylactically – ok if clinical observation of infection.

Transfer Criteria – American Burn Association recommended transfer criteria to a burn center

- >10% TBSA partial thickness burns
- Burns to face, hands, feet, genitalia, perineum or major joints
- Third degree burn of any size (will require grafting)
- Electrical burns including lightning injury
- Chemical burns
- Inhalation injury
- Burn injury in a patient with pre-existing medical disorders that could complicate management
- Any patient with burns and concomitant trauma in which the BURN injury poses the greatest threat. If the trauma poses greatest threat, patient should be initially stabilized at a trauma center before transfer to a burn unit
- Burned children in hospitals without qualified personnel or equipment for care of children
- Burn injury in a patient who will require special social, emotional or long-term rehabilitative intervention

management of

THE BURN PATIENT

ADAPTED FROM THE AMERICAN BURN ASSOCIATION 2011 GUIDELINES

BURN PATIENTS ARE TRAUMA PATIENTS**PRIMARY SURVEY****Airway – 100% humidified oxygen to all patients**

- Factors in deciding to intubate include (but not limited to):
 - Stridor
 - Extensive face burns
 - Risk for significant edema
 - Difficulty swallowing
 - Hoarseness
 - Significant changes in voice
 - Concern over patient's ability to maintain airway – for transport, mental status changes, large amount narcotics, fatigue
- Intubate – performed by the most experienced person using the most appropriate route

Breathing – Check for bilateral breath sounds

- Confirm placement of endotracheal tube – if applicable
- Rule out pneumothorax/hemothorax – treat accordingly
- Watch for ventilation problems with circumferential burns to trunk. May need chest escharotomy. CONTACT BURN CENTER.



Banner Health

North Colorado
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Western States Burn Center

For consultation and patient transfer call:

1-866-806-6262**www.bannerhealth.com**

1801 16th Street • Greeley, Colorado

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Circulation – Assess pulse & heart rate

- Place one large bore IV if <30% TBSA or two IVs if >30% TBSA – may go through burned skin!!
- Suture or secure both for transport
- Measure pulses in all extremities, burned and non-burned
- Indications of pending compartment syndrome include:
 - Decreased sensation
 - Progressive diminution of pulses (have same person do Doppler checks)
 - Slow capillary refill
 - Firmness of extremity/pain with movement of extremity
 - NOTE:** Patient may need escharotomies **PRIOR** to transport for eschar compartment syndrome CONTACT BURN CENTER

Disability – Most burn patients are initially alert and oriented. If not, consider associated injury, CO poisoning, hypoxia, head trauma or other medical conditions

- Neuro assessment tools:
 - GCS or
 - AVPU: Patient is alert, responsive to verbal stimuli, to painful stimuli or unresponsive

Exposure/Environment – Remember to protect yourself first, especially with suspected chemical or electrical injury!

- STOP the burning process. If present when flame extinguished, may cool the burn with cool water for 3-5minutes
- Remove all clothing AND jewelry!!
- Maintain patient's temperature
- Use warm IV fluids
- Cover with dry sheets

Fluid Resuscitation

- In the field, begin initial fluid resuscitation: Lactated ringers (LR)
- <6 years of age: 125ml/hour
 - If <10kg, use D5 LR
- 7-13 years of age: 250ml/hour
- >14 years of age: 500ml/hour
- DO NOT BOLUS unless indicated (shock)

Adult

Monitor resuscitation:

- Foley catheter when >20%TBSA
- Goal UOP: 0.5ml/kg/hour (30-50ml/hour)
- If UOP <30ml/hour, increase current infusion rate by 20%. Check UOP hourly

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- If red urine, goal UOP 1.0-1.5ml/kg/hour (75-100ml/hour)

Children (<40kg)

Monitor resuscitation:

- Foley catheter when >20%TBSA
- Goal: 1ml/kg/hour
- If <1ml/kg/hour, increase current infusion rate by 20%. Check UOP hourly
- If >1ml/kg/hour, decrease current infusion rate by 20%. Check UOP hourly
- If red urine, goal UOP 2.0-3.0ml/kg/hour
- Check blood sugar every 2 hours

24 Hour Estimated Fluids

- Once patient is at site of definitive care, continue fluid resuscitation for first 24 hours after burn: LR
- Adult: 2ml x %TBSA burn x kg weight
- Child (<40kg): 3ml x % TBSA burn x kg weight
 - (<10kg, use D5 LR)
- Electrical with red urine:
4ml x %TBSA burn x kg weight
- Will need approximately one half total volume in first eight hours from time of burn injury
- Titrate hourly infusion rate to stay within urine output guidelines

Burn Wound Management

- Assess burn depth and extent by mapping the Total Body Surface Area (TBSA) burned using Lund Browder Chart or Rule of Nines, 2nd and 3rd degree burns only
 - First Degree Burn = sunburn – do not include in mapping!
 - Second Degree Burns = epidermis and part of dermis
 - ♦ Skin red with blisters
 - ♦ Surface is moist and blanches with touching
 - ♦ Sensation intact and often painful
 - Third Degree Burns = full thickness burns
 - ♦ Skin is white, charred
 - ♦ No sensation
 - ♦ Leathery feel to skin
- If transferring to burn unit, cover with clean, dry sheet & thermal insulating blanket prior to transport
- DO NOT place in wet dressings
- Remember to re-evaluate hourly for possible escharotomies
 - Check pulses in all extremities
 - Watch ventilation in circumferential chest burns

PRIMARY SURVEY

Airway – 100% humidified oxygen to all patients

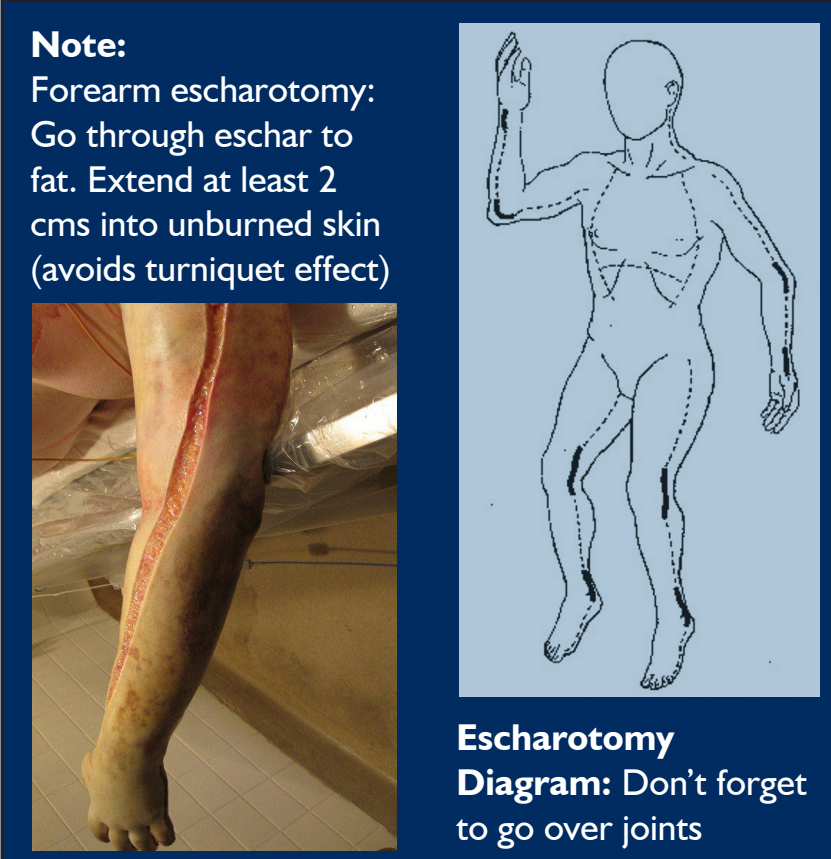
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- DO NOT place in wet saline dressings
- Remember to re-evaluate pulses hourly. If they decrease, call burn center
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Depth of Injury

	First Degree	Second Degree	Third Degree
Appearance	Red	Pink or mottled red	Pearly white, charred, or parchment-like; thrombosed vessels
Surface	Dry or very small blisters	Bullae or moist, weeping surface	Dry and inelastic
Sensation	Painful	Painful	Generally numb



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