



MANAGEMENT OF BURNS IN A DISASTER SETTING

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Burns are very labor intensive, even small numbers of patients with burns can quickly overwhelm local resources. Even if you've never cared for a burn patient, adhering to the standard principles of trauma management (Airway, Breathing, Circulation, Disability, Exposure/Environment) will be beneficial.

PREPARATION

Environmental Readiness:

- Warm up trauma bay
- Prepare equipment
- Gather warming devices

Staff Readiness:

- Mental preparation
- Review resources

TBSA REVIEW

- Total Body Surface Area estimation is difficult to do accurately prior to debridement.
- TBSA is crucial to acute burn management - guides referral to burn centers, fluid resuscitation parameters, and resources.
- Consider burn provider consultation using telemedicine when possible.

RESOURCE ALLOCATION

In a disaster with limited resources, priority should be given to patients with:

- Burns >20% TBSA (adults)
- Burns >10% TBSA (children)
- Associated trauma and blood loss.

Oral rehydration therapy may be considered if IV access is unavailable for:

- Up to 20% TBSA
- Some patients with up to 40% TBSA
- Sips every 5 mins, at least 4 cups/hr (1 liter). Wait 20 mins after vomiting.

TREATING A BURN PATIENT

Trauma always takes precedence. Burn patients don't typically develop shock within 60 minutes from time of injury unless there are associated injuries.

PRIMARY SURVEY

AIRWAY	BREATHING	CIRCULATION	DISABILITY	EXPOSURE/ ENVIRONMENT
<ul style="list-style-type: none"> • Patent? • Protecting airway? • Inhalation injury? • Facial burns with edema? • >20% total body surface area? 	<ul style="list-style-type: none"> • Listen & observe breath sounds • Inspect chest wall for burn and other injuries • Start 100% oxygen non-rebreather 	<ul style="list-style-type: none"> • Pulse and heart rate • Check blood pressure <ul style="list-style-type: none"> ◦ Hypotension? ◦ Remember ATLS • If burn >20% TBSA, administer IV fluid at the following rate 	<ul style="list-style-type: none"> • Level of consciousness <ul style="list-style-type: none"> ◦ GCS usually 15 initially (unless associated trauma or airway issues) 	<ul style="list-style-type: none"> • Remove clothing and jewelry • Maintain temperature - keep warm & dry.

SECONDARY SURVEY

- Re-assess A-B-C's and neurological status
- Full head to toe exam
- Determine depth and percent of Total Body Surface Area (TBSA) injured
- SAMPLE history (Signs/symptoms, Allergies, Medications, Past illnesses, Last oral intake, Events leading up to present illness).
- Calculate Burn Fluid Resuscitation rate for a 24-hr period adjusting for urine output (U/O) hourly.
 - Formal resuscitation is typically not required for burns <10% TBSA

- ≤5 years: 125 ml/hr
- 6-12 years: 250 ml/hr
- ≥13 years: 500 ml/hr

Adults and Children 13+
(2ml x kg x TBSA%) / 16
(U/O 0.5ml/kg/hr. or 30-50 ml)

Infants & Children <12
(3ml x kg x TBSA%) / 16 plus
D5LR at maintenance rate
using 4/2/1 rule.
(U/O 0.5 – 1ml/kg/hr. or 30ml
if over 30kg)

Electrical Injury:
(4ml x kg x TBSA%) / 16
Titrate LR to maintain a U/O of
30-50/hr. in adults or
1ml/kg/hr. in a child
If evidence of red pigment:
adults U/O 75-100ml / hr. ,
pediatrics 2ml/kg/hr. until
urine clears

TRIAD OF DEATH

Validated factor in morbidity and mortality in burn patients. Keep patients warm and dry to minimize the risk.

1. Hypothermia
 - a. Frequent pathophysiological consequence of burn injuries
2. Excess lactic acid production in the presence of hypothermia
3. Hypothermic coagulopathy often follows

The associated training video to this document was published on 07/16/2024. The training can be viewed on Youtube at Mountain Plains RDHRS. The MPRDHRS JIT Learning Series is funded by Award Number 6 HITEP200043-01-03 from the Administration for Strategic Preparedness and Response (ASPR). This information is not meant to be a substitute for medical professional advice, diagnosis, or treatment.

References: <https://ameriburn.org/wp-content/uploads/2020/03/austere-guidelines-just-in-time-training.pdf>,
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