



A silhouette of a person standing on a mountain ridge, looking out over a vast, hazy landscape. The person is positioned in the center, with their back to the camera. The background shows rolling hills and mountains under a soft, hazy sky. The overall tone is dark and atmospheric.

ACUTE MANAGEMENT OF BURN AND ELECTRICAL TRAUMA

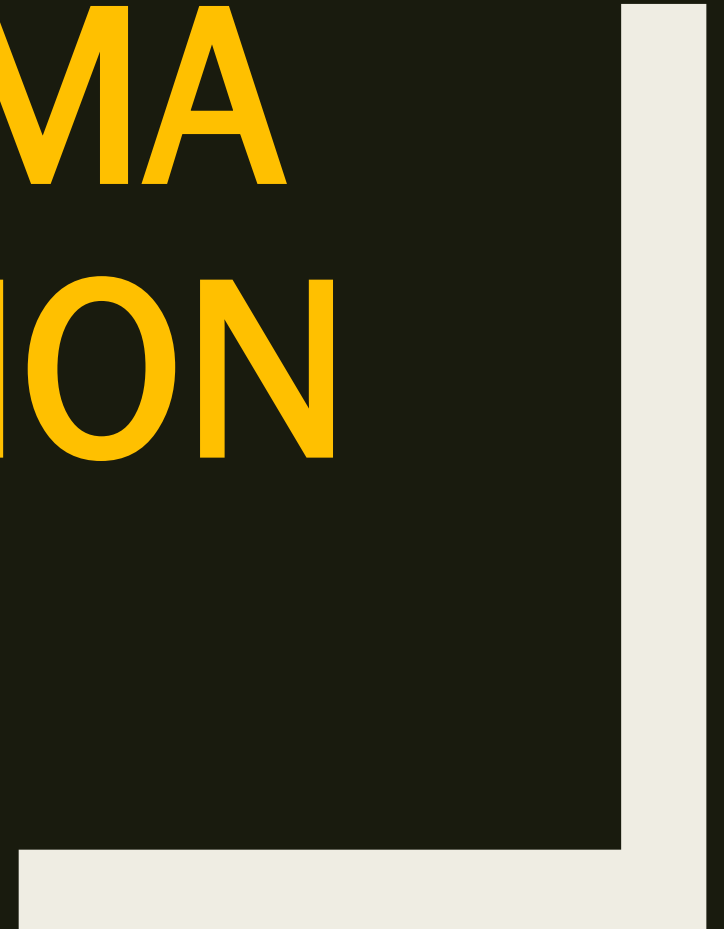
EPIDEMIIOLOGY



RISK FACTORS



BURN TRAUMA CLASSIFICATION



BOX 18.1 Burn injuries that should be referred to a burn unit

- Partial-thickness burns >10% TBSA and patients requiring burn shock resuscitation
- Burns that involve the face, hands, feet, genitalia, perineum, or major joints
- Deep partial-thickness burns and full-thickness burns in any age group
- Circumferential burns in any age group
- Electrical burns, including lightning injury
- Chemical burns
- Burns with a suspicion of inhalation injury
- Burns of any size with concomitant trauma or diseases that might complicate treatment, prolong recovery, or affect mortality
- Diseases associated with burns such as toxic epidermal necrolysis, necrotizing fasciitis, staphylococcal scalded child syndrome, etc., if the involved skin area is 10% for children and elderly and 15% for adults or any doubt of treatment
- Burned children in hospitals without qualified personnel or equipment for the care of children

(Modified from: American Burn Association.)

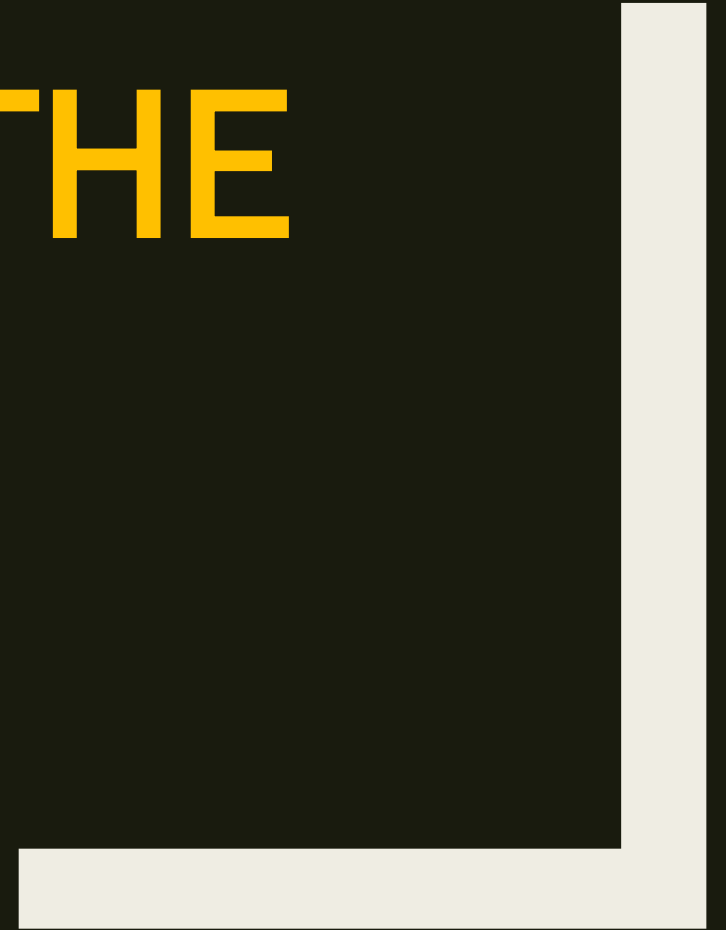
Table 18.2 Clinical presentation of thermal burn wounds

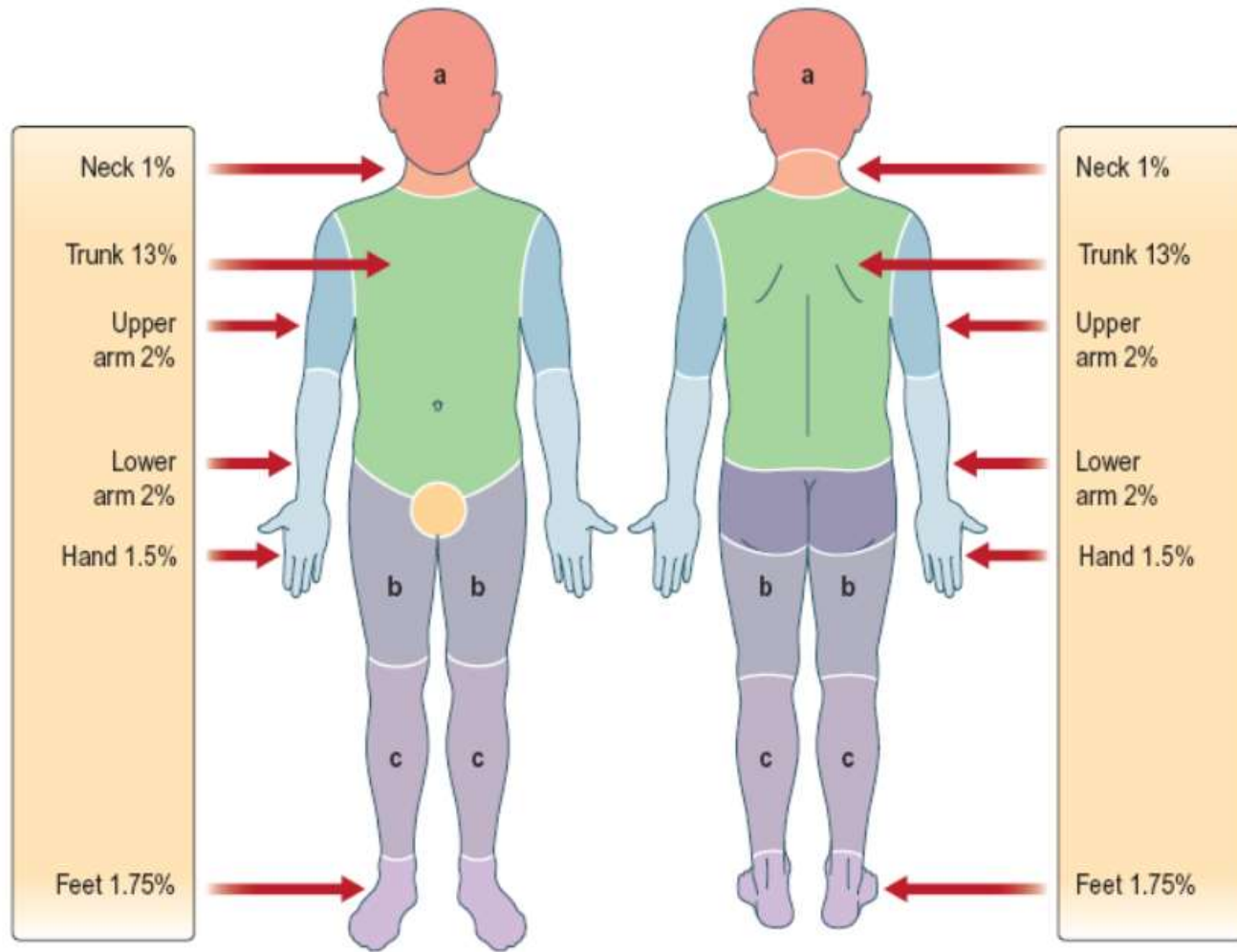
Depth of burn	Skin involvement	Examples	Signs	Sensation	Self-healing capacity	Skin healing time	Visible scarring
Epidermal burn	Epidermis	Brief flame or flash; Sunburn	Dry and red, blanches with pressure, no blisters	Tender and painful when exposed to air.	Excellent with use of occlusive dressing	Within 7 days	Unusual
Superficial partial-thickness burn	Epidermis and part of the papillary dermis	Scald (spill or splash), short flash	Pale pink with fine blistering, blanches with pressure	Very painful	Excellent with proper management.	Within 14 days	Can have color match defect. Low to moderate risk of hypertrophic scarring
Deep partial-thickness burn	Epidermis, the entire papillary dermis down to reticular dermis	Scald (spill), flame, oil or grease	Dark pink to blotchy red, capillary refill sluggish to none. In child, may be dark lobster red with mottling	May be painful or reduced/absent sensation	Should not be left to heal by itself, but instead should probably be submitted to surgery	14 to over 21 days	Moderate to high risk of hypertrophic scarring
Full-thickness burn	Entire thickness of the skin and possibly deeper	Scald (immersion), flame, steam, oil, grease, chemical, high-voltage electricity	White, waxy or charred, no blisters, no capillary refill. May be dark lobster red with mottling in child	Insensate	No healing capacity and as such should always be submitted to surgery	Never. Replaced by scar and contracture	Yes.

ACUTE BURN TRAUMA MANAGEMENT



QUANTIFYING THE BURN SIZE





Body part	0 yr	1 yr	5 yr	10 yr	15 yr	Age
	<i>relative % of body surface area</i>					
a = 1/2 of head	9 1/2	8 1/2	6 1/2	5 1/2	4 1/2	
b = 1/2 of thigh	2 3/4	3 1/4	4	4 1/4	4 1/2	
c = 1/2 of lower leg	2 1/2	2 1/2	2 3/4	3	3 1/4	

Fig. 18.9 Estimation of burn size with the Lund and Browder method. Body surface area calculations in children must account for unique pediatric body proportions, here with the Lund and Browder method.

FLUID RESUSCITATION



Table 18.5 Fluid resuscitation formulae

Formula	Electrolyte	Colloid	Glucose
Colloid formulae			
Brooke	Lactated Ringer's at 1.5 mL/kg/% TBSA burn	0.5 mL/kg/% TBSA burn	2 L 5% dextrose
Evans	0.9% NaCl at 1 mL/kg/% TBSA burn	1 mL/kg/% TBSA burn	2 L 5% dextrose
Slater	Lactated Ringer's 2 L/24 h	Fresh frozen plasma at 75 mL/kg/24 h	2 L 5% dextrose
Crystalloid formulae			
Modified Brooke's	Lactated Ringer's at 2 mL/kg/% TBSA burn		
Parkland	Lactated Ringer's at 4 mL/kg/% TBSA burn	20–60% estimated plasma volume	Titrated to urinary output of 30 mL/h
Hypertonic saline formulae			
Hypertonic saline solution (Monafo)	Maintain Urine output at 30 mL/h Fluid contains sodium 250 mmol/L		
Modified hypertonic (Warden)	Lactated Ringer's + 50 mmol/L NaHCO ₃ for 8 h to maintain UO at 30–50 mL/h Lactated Ringer's to maintain UO at 30–50 mL/h beginning 8 h post-burn		
Dextran formula (Demling)	Dextran 40 in saline at 2 mL/kg/h for 8 h Lactated Ringer's titrated to maintain urine output at 30 mL/h	Fresh frozen plasma at 0.5 mL/kg/h for 18 h beginning 8 h post-burn	



THANK YOU