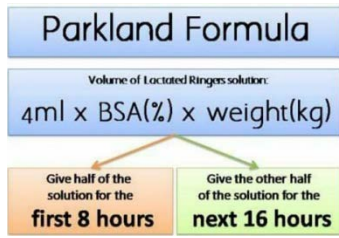


Disaster Preparedness

Burn Care: Initial Management



Context: All burns cause severe fluid loss and increase risk of infection. Early fluid resuscitation is critical in early management.

Current: The Parkland Formula is a tried and true method to estimate initial fluid needs for burn victims.^{1,2}

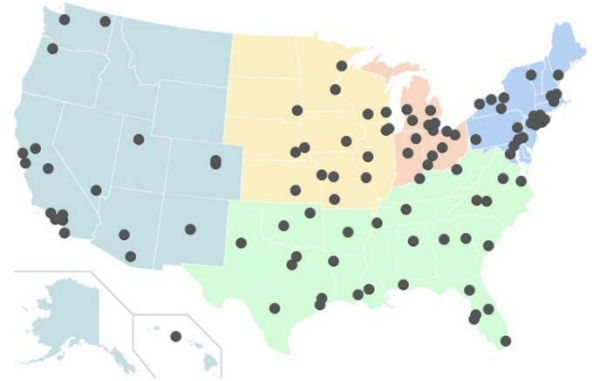
Cutting Edge: Be aggressive with fluids. For example, a 100 kg patient with burns on 10% of their body (one arm) would need 4 L in the first 8 hours.

Burn Care: Subsequent Management

Context: After initial resuscitation, IV fluids can be adjusted to ensure at least 0.5mL/kg/hr of urine output.

Current: Multi-disciplinary care is optimal, including hospitalists, surgery (for possible debridement or skin grafting), physical and occupational therapy (for range of motion to prevent contractures of involved joints), nutrition, and wound care.

Cutting Edge: Burn centers are scarce resources in much of the country,² leaving hospitalists to care for these patients while pursuing or awaiting transfer. Push hard to transfer: burns involving hands, feet, or genitals; third degree burns; electrical or chemical burns; or those with concurrent inhalational injury.



Inhalational Injury

Context: Inhalation damage is graded from zero (no significant airway injury) to 4 (massive airway injury) based on direct visualization of the upper airways.⁴ Inhalational injury is the leading cause of death from fires and may be present with or without significant skin surface injury.

Current: Smoke inhalation is a polytoxin exposure potentially involving numerous toxic chemicals depending on the fuel source of the fire.

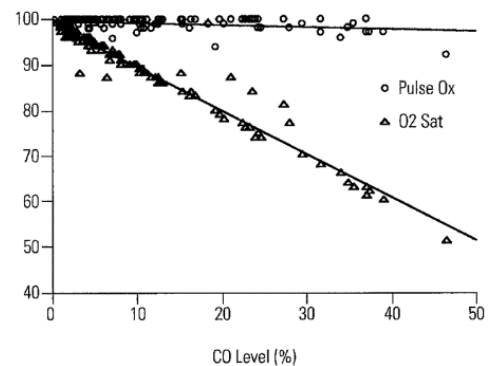
Cutting Edge: Many synthetic polymers release cyanide when burned. Severely elevated lactate (ie, above 10) highly suggests cyanide toxicity and warrants consideration of hydroxocobalamin.

Carbon Monoxide Exposure

Context: CO binds tightly to heme, reducing oxygen dissociation from hemoglobin and impairing oxygen delivery to tissues.

Current: Even in severe CO poisoning with tissue ischemia, pulse oximetry remains normal.⁵

Cutting Edge: Poison Control is available nationwide to provide real-time, remote toxicology consultation to anyone in need. The national number is: 800-222-1222.



References:

1. Disaster Management and Emergency Preparedness Course Student Manual. Chapter 8. Pathophysiology and patterns of Injury: Burns. American College of Surgeons. Second Edition. 2018
2. Image from: MedicTests.com
3. Image from: Ameriburn.org
4. Li Y, et al. Inhalation Injury Grading Using Transfer Learning Based on Bronchoscopy Images and Mechanical Ventilation Period. Sensors. 2022; 22(23):9430
5. Bozeman WP, et al. Confirmation of the Pulse Oximetry Gap in Carbon Monoxide Poisoning. Annals of Emergency Medicine. 1997; 30(5):608