BURNS

Burns can be caused by direct thermal injury, exposure to caustic chemicals, and contact with electrical sources. Factors to be considered when treating burn patients include the nature of the burn, whether the patient was in an enclosed space, the source of the burn, the patient's history, the duration of the contact, and the temperature of the thermal agent. Always protect providers from exposures to hazardous materials. **NEVER ATTEMPT TO REMOVE PATIENT FROM AN IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH) ENVIRONMENT UNLESS TRAINED, CERTIFIED, AND PROPERLY EQUIPPED. NEVER PLACE YOURSELF OR YOUR CREW IN DANGER.** Decontamination, if necessary, should be done by appropriate certified personnel.

A. Perform **Initial Treatment / Universal Patient Care Protocol** and follow the proper protocol for medical management based on clinical presentation.

B. Stop the burning process:

1. **Thermal burns:** Irrigate the burned area with tepid water (sterile, if possible) to cool skin. **DO NOT** attempt to wipe off semisolids (grease, tar, wax, etc.). **DO NOT** apply ice. Dry the body when the burn area is ≥ 10% BSA to prevent hypothermia.

2. **Dry chemical burns:** Brush off dry powder and irrigate with copious amounts of tepid water (sterile, if possible) for 20 minutes. Continue en route to the hospital.

3. **Liquid chemical burns:** Irrigate the burned area with copious amounts of tepid water (sterile, if possible) for 20 minutes. Continue en route to the hospital.

C. If signs of respiratory involvement are present, such as facial burns, singed face or nasal hairs, swollen, sooty, or reddened mucous membranes, or patient was in a confined space and/or unconscious, assume inhalation injury and treat per **Inhalation Injury Protocol 6304.**

D. Remove clothing from around burned area, but **DO NOT** remove/peel off skin or tissue. Remove and secure all jewelry and tight fitting clothing.

E. Assess the extent of the burn using the **Rule of Nines** and the degree of burn severity.

F. **Minor Burns**:

1. Cover with clean dressing.

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2. Consider application of cool/moist compress.

3. Notify **Medical Command** and transport. 

G. **Major Burns:**

1. Cover with clean dry dressing.

2. **In consult with medical command**, establish transport mode (ground vs. air) considering transport to burn center. 

H. **Thermal Burns:**

1. Cool water immersion of minor localized burns may be effective if accomplished in the first few minutes after a burn.

2. Cover extensive partial and full thickness burns with a dry, sterile dressing. Keep the patient warm and treat per **Shock / Hypoperfusion Protocol 6108.**

3. Use soft, non-adherent dressings between areas of full thickness burns, such as between the fingers and toes, to prevent adhesion.

I. **Electrical Injuries:**

1. Assure scene safety and notify appropriate agencies to mitigate the hazard.

2. Commonly occurring with electrical injuries are long bone fractures, cardiac dysrhythmias, and neurological deficits. Victims of lightning strikes may be in cardiac arrest, but frequently can be resuscitated quickly after intubation and assisted ventilations.

3. Assess for multiple entrance and exit wounds.

4. Cover wounds with clean dressings as required.

5. In consultation with **Medical Command,** establish mode (ground vs. air) and destination of transport, including consideration of transport to a burn center. 

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J. **Chemical Burns:**

1. Attempt to identify substance from labels, data sheets, or other personnel on-scene, but **DO NOT** delay treatment or transport during this process.

2. Request additional resources, as needed (ERG, Haz Mat Team, etc.).

3. Contact **Medical Command** with the nature of the substance. **Medical Command** shall notify WV Poison Control for further information as required.

4. Avoid self-contamination by using protective clothing and gloves.

5. Decontaminate grossly by removal of excess chemical.

6. Common chemicals that cause burns:

   a. **Phenol** is a gelatinous caustic used as an industrial cleaner. It is difficult to remove because it is insoluble in water. Use alcohol, which may be found in areas where Phenol is regularly used, to dissolve the product. Follow removal with irrigation using large volumes of cool water.

   b. **Dry Lime** is a strong corrosive that reacts with water. It produces heat and subsequent chemical and thermal injuries. Brush dry lime off the patient gently, but as completely as possible. Then rinse the contaminated area with large volumes of cool to cold water.

   c. **Sodium** is an unstable metal that reacts destructively with many substances, including human tissue and water. Decontaminate the patient quickly with gentle brushing.

   d. **Riot Control Agents** (Mace, Pepper Spray, etc.) cause intense irritation of the eyes, mucous membranes, and respiratory tract. Treatment is supportive and most patients recover in 10 - 20 minutes of exposure to fresh air. If necessary, irrigate the patient's eyes with Normal Saline if you suspect the agent remains in the eyes.

   e. **Hydrofluoric Acid** is a common corrosive that reacts with water. It produces heat and subsequent chemical and thermal injuries resulting in extreme pain to the affected areas. Cover the wound and avoid contact with water.

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7. Flush with large amounts of water. Precaution: Certain substances such as heavy metals may cause further burning if flushed with water. If in doubt about flushing, contact **Medical Command**. If eyes are involved, flush for at least 20 minutes.

Minor Burns Criteria	Major Burns Criteria
1. Superficial and partial thickness: Adult <18%, Child <9% 2. Full thickness <2%. 3. Does not meet major burn criteria 3 thru 6.	1. Superficial and partial thickness: Adult >18%, Child >9% 2. Full thickness >2%. 3. Partial or full thickness of: face, neck, hands, feet, genitalia 4. Suspected or positive airway involvement. 5. Electrical burns. 6. Circumferential burns or associated injuries.