EL DORADO COUNTY EMS AGENCY
PREHOSPITAL PROTOCOLS

please see signature on file
EMS Agency Medical Director

Effective: July 1, 2015
Reviewed: July, 2021
Revised: May 2022

BURNS - ADULT

Basic Life Support

EMT

ABCs / ROUTINE MEDICAL CARE –

- Stop burning process. Remove all adjacent clothing and jewelry.
- Place in position of comfort
- Assess airway and support ventilation with appropriate airway adjuncts as indicated.
- Apply oxygen if pulse oximetry <94% or signs of hypoperfusion or respiratory distress
- Apply 100% NRB oxygen if suspect carbon monoxide poisoning

BURN CARE:

Thermal Burns:

- Stop the burning process with water or saline, if indicated.
- Use dry sterile burn dressings to avoid hypothermia.
- Cover patient with sterile burn sheet(s) and blanket(s) to preserve body heat.

Caustic and Chemical Burns:

- Wear appropriate PPE and consider the presence of hazardous materials.
- Remove source of burn and all of the patient's clothing, then for:
    - **Liquid Substances (acids, alkalis):** Flush with copious amounts of water. Do not scrub.
    - **Dry Chemicals:** Brush powders off then flush with copious amounts of water (Exception: dry lime, metallic sodium or lithium).
    - **Electric Burns:** Assure patient is disconnected from electric source. Electric Burns may produce extensive internal damage not outwardly visible. For this reason, all patients suffering from an electric burn should be placed on cardiac monitor**.** For arrhythmias following electrical burns, refer to appropriate protocol.

CPAP – Consider for patients with respiratory distress.

CONTACT BASE: Consider early notification to notify of case and determine destination and disposition if not clear.

DISPOSITION – *Burn patients **do not generally need to be transported** directly to a burn center. Burned trauma triage patients should be transported as per Trauma Policy (trauma triage takes priority over burn – significant airway issues from either, go to the nearest ED.)*

LOSOP

EMT working under Local Optional Scope

AIRWAY: Airway adjuncts, BVM and SGA placement if indicated – note: SGA is not definitive treatment for stridor or tracheal injury from burn or smoke.

GLUCOSE LEVEL ASSESSMENT - Via finger stick. Treat per protocol/formulary as indicated.

Advanced Life Support

Paramedic

CARDIAC MONITOR – Prioritize in case of electrical burn.

AIRWAY:

- Consider early intubation if evidence of airway burns.
- Monitor ETCO2

GLUCOSE LEVEL ASSESSMENT - Via finger stick or venipuncture. Treat per protocol/formulary

NORMAL SALINE – establish warm IV or IO. If partial or total thickness burns > 10% TBSA, give fluid challenge 1000-2000 mL NS, reassess and repeat if indicated. After boluses, adjust normal saline rate to adhere to Parkland formula.

PAIN MANAGEMENT – refer to Pain Management Protocol

FOR BRONCHOCONSTRICTION:

> **Nebulize:** 5 mg albuterol and 0.5 Mg Ipratropium (Atrovent) in 3 mL normal saline). **Do not repeat Atrovent.**
>
> If symptoms persist, repeat single dose of **ALBUTEROL 5 mg** in 3 mL normal saline.

FOR STRIDOR secondary to airway burns:

> **NEBULIZED EPINEPHRINE 1:1,000 (1mg/mL) – 5 mL (5 mg**) via nebulizer given over 10 minutes. Repeat q 10 minutes as indicated.

FOR VISIBLE AIRWAY OBSTRUCTION secondary to airway burns:

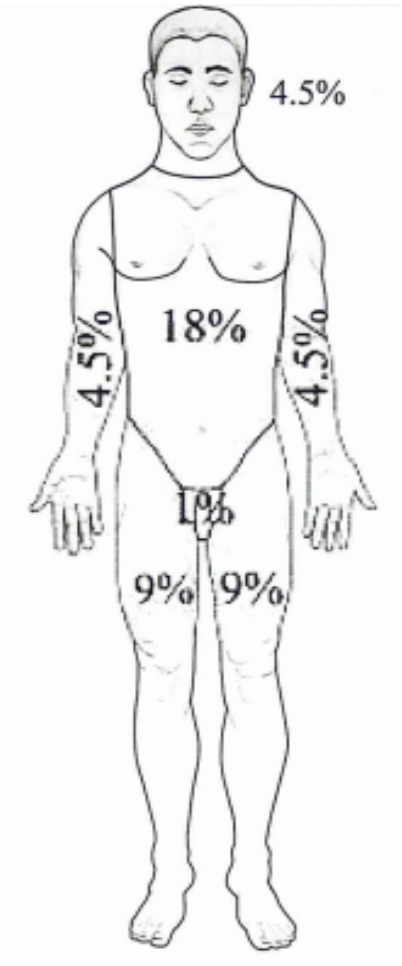
References: Formulary, Albuterol, Atrovent, Normal Saline, Hypoglycemia

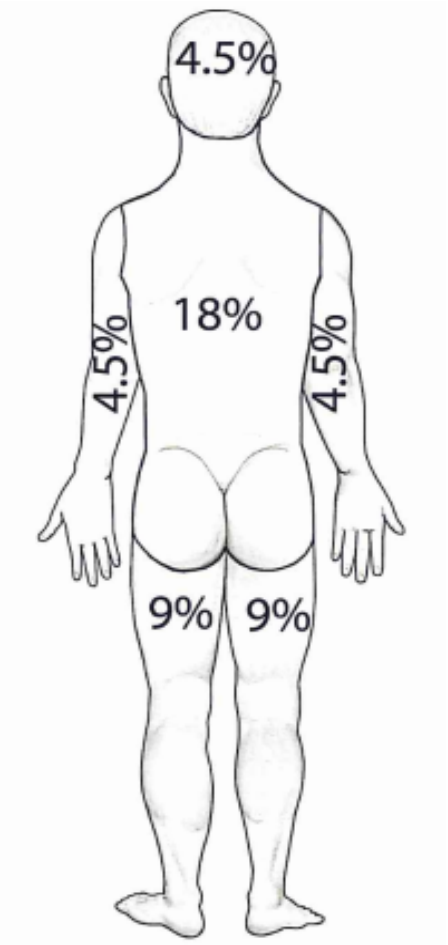
CONSIDER IM EPINEPHRINE – See airway obstruction policy

CONSIDER AIR AMBULANCE or rapid ground transport to closest ED for:

- **Facial burns, oral burns, or airway involvement (consider need for RSI)**
- **Unable to establish IV/IO access in significant (> 25% TBSA) burns**

Adult Rule of Nines Chart:





References: Formulary, Albuterol, Atrovent, Normal Saline, Hypoglycemia

BURNS – PEDIATRIC

Basic Life Support

EMT

ABCs / ROUTINE MEDICAL CARE –

- Stop burning process. Remove all adjacent clothing and jewelry.
- Place in position of comfort
- Assess airway and support ventilation with appropriate airway adjuncts as indicated.
- Apply oxygen if pulse oximetry <94% or signs of hypoperfusion or respiratory distress
- Apply 100% NRB oxygen if suspect carbon monoxide poisoning

BURN CARE:

Thermal Burns:

- Stop the burning process with water or saline, if indicated.
- Use dry sterile burn dressings to avoid hypothermia.
- Cover patient with sterile burn sheet(s) and blanket(s) to preserve body heat.

Caustic and Chemical Burns:

- Wear appropriate PPE and consider the presence of hazardous materials.
- Remove source of burn and all of the patient's clothing, then for:
    - **Liquid Substances (acids, alkalis):** Flush with copious amounts of water. Do not scrub.
    - **Dry Chemicals:** Brush powders off then flush with copious amounts of water (Exception: dry lime, metallic sodium or lithium).
    - **Electric Burns:** Assure patient is disconnected from electric source. Electric Burns may produce extensive internal damage not outwardly visible. For this reason, all patients suffering from an electric burn should be placed on cardiac monitor. For arrhythmias following electrical burns, refer to appropriate protocol.

CONTACT BASE: Consider early notification to notify of case and determine destination and disposition if not clear or outside of protocols.

DISPOSITION: *Burn patients* ***do not generally need to be transported directly to a burn center****. Burn patients with partial or full thickness circumferential, hand/finger, facial, genital or TBSA>10% may be best served at a burn center directly – Contact Base Hospital Medical Control.*

Burn patients meeting trauma triage criteria should be transported as per Trauma Policy (trauma triage takes priority over burn – critical airway issues from either burn or trauma go to the nearest Emergency Department).

References: Formulary, Albuterol, Atrovent, Normal Saline, Hypoglycemia

Air ambulance should be considered and launched early for concerning pediatric patients.

Pediatric air ambulance burn or trauma triage patients are best served by a pediatric trauma center if the time to destination is not markedly extended compared to the closest level 3 Trauma Center – Contact Base Hospital Medical Control.

LOSOP

EMT working under Local Optional Scope

AIRWAY: Airway adjuncts, BVM and SGA placement if indicated – note: SGA is not definitive treatment for stridor or tracheal injury from burn or smoke.

GLUCOSE LEVEL ASSESSMENT - Via finger stick. Treat per protocol/formulary as indicated.

Advanced Life Support

Paramedic

AIRWAY –

- Airway adjuncts, BVM and SGA placement if indicated – note: SGA is not definitive treatment for stridor or tracheal injury from burn or smoke.
- Monitor ETCO2

GLUCOSE LEVEL ASSESSMENT - Via finger stick or venipuncture. Treat per protocol/formulary as indicated.

Hypoglycemia in pediatrics is defined as:		
Neonate	< 1 month:	(blood glucose ≤ 50 mg/dL)
Infant/child	>1 month:	(blood glucose ≤ 60 mg/dL)

VASCULAR ACCESS - establish warm IV or IO.

FOR PARTIAL OR TOTAL THICKNESS BURNS >10% TBSA, HYPOTENSION OR SHOCK:

NORMAL SALINE BOLUS – 20ml/kg, reassess and repeat if indicated.
Initiate/Transition to Parkland formula after bolus(s)
See Pediatric Shock Protocol and make base contact for ongoing hypotension or evidence of shock

References: Formulary, Albuterol, Atrovent, Normal Saline, Hypoglycemia

PAIN MANAGEMENT: refer to pain management protocol

FOR BRONCHOCONSTRICTION (also see bronchospasm protocol):

Consider DUONEB (2.5 mg albuterol and 0.5 Mg Ipratropium (Atrovent) in normal saline). **Do not repeat Duoneb.**

If symptoms persist, initiate continuous **ALBUTEROL 2.5 mg** in 3 mL normal saline (Max. 15 mg/hr).

FOR STRIDOR secondary to airway burns:

NEBULIZED EPINEPHRINE 1:1,000 (1mg/mL) – 0.5mL/kg (Max single dose of 5mL) via nebulizer over 10 minutes. For doses less than 3mL dilute with NS to 5mL to allow for nebulization (May repeat q 10 minutes).

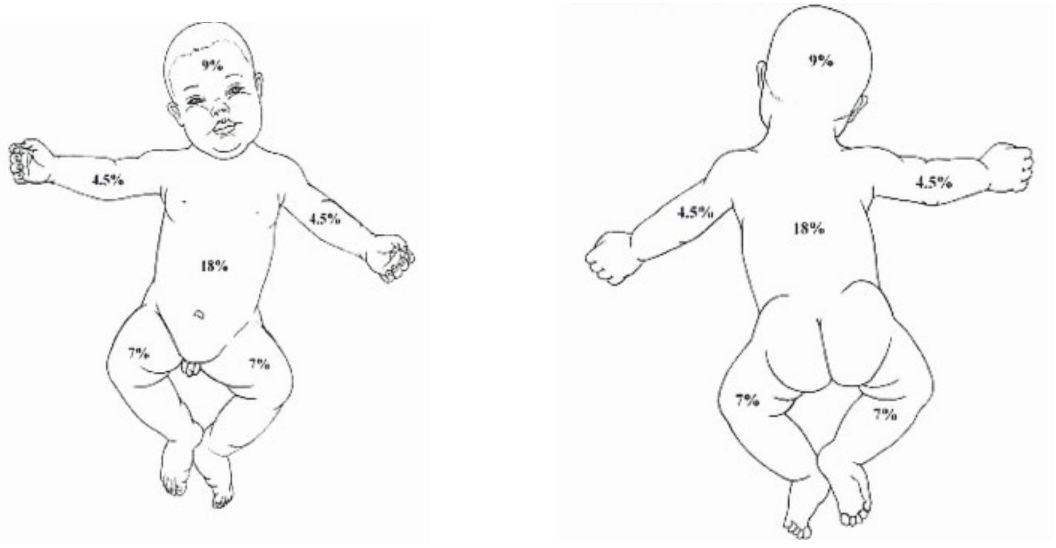
CONTACT BASE for disposition if not clear

DISPOSITION - *Burn victims should be transported to the closest trauma center (level I, II, or III). Burns in combination with serious trauma should be transported to a pediatric trauma center. Burn victims **do not necessarily need to be transported** to a burn center for initial care.*

Consider utilizing an air ambulance or rapid ground transport to closest ED for:

- **Airway involvement (consider need for RSI)**
- **Facial Burns (consider possible airway involvement)**
- **Unable to establish IV/IO access in significant (> 25% TBSA) burns**

Pediatric Rule of Nines Charts:



References: Formulary, Albuterol, Atrovent, Normal Saline, Hypoglycemia

Parkland Formula (NOTE: the 20ml/kg bolus - if indicated - comes before Parkland rate):

% Burn	10kg	20kg	30kg	40kg	50kg	60kg	70kg	80kg	90kg	100kg
10	25	50	75	100	125	150	175	200	225	250
20	50	100	150	200	250	300	350	400	450	500
30	75	150	225	300	375	450	525	600	675	750
40	100	200	300	400	500	600	700	800	900	1,000
50	125	250	375	500	625	750	875	1,000	1,125	1,250
60	150	300	450	600	750	900	1,050	1,200	1,350	1,500
70	175	350	525	700	875	1,050	1,225	1,400	1,575	1,750
80	200	400	600	800	1,000	1,200	1,400	1,600	1,800	2,000
90	225	450	675	900	1,125	1,350	1,575	1,800	2,025	2,250
20ml/kg	200	400	600	800	1,000	1,200	1,400	1,600	1,800	2,000

This table represents the fluid recommended in the first hour (1/8 of the initial 8 hour dose) by the Parkland formula.

The second dose, administered over the second 16 hours, is equal to the amount given in the initial dose.

The final/bottom represents the amount of a 20mL/kg bolus

References: Formulary, Albuterol, Atrovent, Normal Saline, Hypoglycemia