

Initial Date: 10/1/2014
Revised Date: 11/17/2025

Section 2-4

General Crush Injury

Purpose:

This protocol should be considered when the patient has been entrapped at the scene for more than one hour, one or more full extremities trapped by an object capable of causing a crush injury, including machinery, dirt, rock, and rubble.

Crush Syndrome:

Should be suspected in patients with entrapment/compression of greater than one hour, especially when a large muscle mass/group is involved. Treatment of the patient at risk for Crush Syndrome **should begin before the patient is removed when practical.**

Treatment:

1. Follow **General Trauma-Treatment Protocol**, identify and treat life threats.
2. Pediatric patients (≤ 14 years of age) follow dosing below, albuterol use for crush injury does not appear on the MI MEDIC.
3. Assess for signs of Compartment Syndrome or Crush Syndrome.
4. Use tourniquet as indicated (see **Tourniquet Application-Procedure Protocol**).
5. Administer oxygen to patient if environment allows.
6. Beginning immediately prior to release from entrapment and continued until after extrication, administer albuterol by continuous nebulization. (Per MCA selection may be EMT skill).

Nebulized **albuterol** administration
 EMT

- a. Adults and Pediatrics: **Albuterol** may be continued to a maximum dose of 20 mg (eight 2.5/3ml nebulizers).
8. Establish large bore IV(s) and/or IO (refer to **Vascular Access and IV Fluid Therapy-Procedure Protocol**) and administer fluid bolus prior to removal of patient, when practical.
 - a. Adults: 1 liter IV/IO wide open followed by 500-1,000 mL/hr
 - b. Pediatrics: 20 ml/kg IV/IO wide open followed by 10/mL/kg/hr
 9. Treat patient pain per **Pain Management-Procedure Protocol**.
 10. Initiate cardiac monitoring and assess for hyperkalemia, i.e., wide QRS or peaked T waves. Monitor continuously for changes.
 11. If extrication is prolonged, hyperkalemia is suspected (peaked T waves, widened QRS, hypotension), or the patient proceeds to cardiac arrest, administer calcium chloride:


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a. Administer **calcium chloride**

i. Adults: 1 gm slow IVP over 5 minutes

 ii. Pediatrics: 20 mg/kg slow IVP over 5 minutes, max dose 1 gram over 5 minutes

12. Perform repeated 12-Lead ECG, if conditions allow. (Per MCA selection, may be a BLS or Specialist procedure) follow **12 Lead ECG-Procedure Protocol**

Medication Protocols

Albuterol, Calcium Chloride