## Crush Injury/Syndrome

<table>
<thead>
<tr>
<th>ADULT</th>
<th>PEDIATRIC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLS Procedures</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ALS Standing Orders</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Crush Syndrome

**ADULT**
- Initiate 2nd IV/IO access
- **Normal Saline**
  - IV/IO bolus – 1 Liter
  - Caution with cardiac and/or renal history
- **Sodium Bicarbonate**
  - IV/IO mix – 1 meq/kg
  - Added to 1st Liter of Normal Saline
- **Albuterol**
  - Nebulizer – 5 mg/6 mL
  - Repeat as needed
- **Morphine** – Per Policy 705 - Pain Control
- Release compression
- Monitor for cardiac dysrhythmias
- For cardiac dysrhythmias:
  - **Calcium Chloride**
    - IV/IO – 1 g over 1 min

**PEDIATRIC**
- Initiate 2nd IV/IO access if possible or establish IO
- **Normal Saline**
  - IV/IO bolus – 20 mL/kg
  - Caution with cardiac and/or renal history
- **Sodium Bicarbonate**
  - IV/IO mix – 1 meq/kg
  - Added to 1st Liter of Normal Saline
- **Albuterol**
  - Patient less than 30 kg
    - Nebulizer – 2.5 mg/3 mL
    - Repeat as needed
  - Patient greater than 30 kg
    - Nebulizer – 5 mg/6 mL
    - Repeat as needed
- **Morphine** – Per Policy 705 - Pain Control
- Release compression
- Monitor for cardiac dysrhythmias
- For cardiac dysrhythmias:
  - **Calcium Chloride**
    - IV/IO – 20 mg/kg over 1 min

### Communication Failure Protocol

**Crush Syndrome**
- Initiate 2nd IV/IO access if possible or establish IO
- **Normal Saline**
  - IV/IO bolus – 1 Liter
  - Caution with cardiac and/or renal history
- **Sodium Bicarbonate**
  - IV/IO mix – 1 meq/kg
  - Added to 1st Liter of Normal Saline
- **Albuterol**
  - Nebulizer – 5 mg/6 mL
  - Repeat as needed
- **Morphine** – Per Policy 705 - Pain Control
- Release compression
- Monitor for cardiac dysrhythmias
- For cardiac dysrhythmias:
  - **Calcium Chloride**
    - IV/IO – 1 g over 1 min

**Base Hospital Orders only**

**For continued shock**
- Repeat Normal Saline
  - IV/IO bolus – 1 Liter

### For persistent hypotension after fluid bolus:

**ADULT**
- Epinephrine 10 mcg/mL
  - 1 mL (10 mcg) q 2 minutes, slow IV/IO push
  - Titrate to SBP of greater than or equal to 90 mm/Hg

**PEDIATRIC**
- Epinephrine 10 mcg/mL
  - 0.1 mL/kg (1 mcg/kg) q 2 minutes, slow IV/IO push
  - Max single dose of 1 mL or 10 mcg
  - Titrate to SBP of greater than or equal to 80 mm/Hg

Consult with ED Physician for further treatment measures

### Additional Information:

- Refer to VCEMS Policy 735 for additional information on preparing push dose epinephrine solution. Potential Crush Syndrome – Continuous crush injury to torso or extremity above wrist or ankle for 2 hours or less.
- Crush Syndrome – Continuous crush injury to torso or extremity above wrist or ankle for greater than 2 hours.
- If elderly or cardiac history is present, use caution with fluid administration. Reassess and treat accordingly.
- Dysrhythmias are usually secondary to Hyperkalemia. ECG monitor may show: Peaked T-waves, Absent P-waves, widened QRS complexes, bradycardia
- Calcium Chloride and Sodium Bicarbonate precipitate when mixed. Strongly consider starting a second IV (if feasible) for administration of Calcium Chloride

---

**Effective Date:** March 1, 2019  **Date Revised:** January 10, 2019
**Next Review Date:** January 30, 2021  **Last Reviewed:** January 10, 2019

[VCEMS Medical Director]