



## Crush Injury/Crush Syndrome

### **Aliases**

Compartment syndrome

Crush

### **Patient Care Goals**

1. Recognizing traumatic crush injury mechanism
2. Minimize systemic effects such as rhabdomyolysis, hyperkalemia, acute kidney injury

### **Patient Presentation**

#### **Inclusion criteria**

Traumatic crush mechanism of injury

Non-traumatic injuries that may cause compartment syndrome include prolonged immobilization, prolonged compression of the torso/limbs, electrical injury, or burns

#### **Exclusion criteria**

None noted

### **Patient Management**

#### **Assessment**

1. Identify any severe hemorrhage
2. Assess airway, breathing, and circulation
3. Evaluate for possible concomitant injury (e.g., fractures, solid organ damage, or spinal injury)
4. Monitor for development of compartment syndrome (pain out of proportion to clinical exam, tense swelling, pain with passive stretch, muscle weakness, absent pulses, paresthesias)

#### **Treatment and Interventions**

1. The treatment of crushed casualties should begin as soon as they are discovered
2. If severe hemorrhage is present, see [Extremity Trauma/External Hemorrhage Management Guideline](#)
3. Establish IV access. IV fluids should be administered prior to releasing the crushed body part. Administer 1000 mL normal saline (NS) bolus. Avoid lactated Ringer's solution as it contains potassium. Crush injury without adequate fluid resuscitation develops into crush syndrome
4. For significant crush injuries or prolonged entrapment of an extremity, consider sodium bicarbonate 1 mEq/kg (maximum dose of 50 mEq) IV bolus over 5 minutes
5. Attach cardiac monitor. Obtain/interpret 12-lead EKG, if available. Carefully monitor for dysrhythmias or signs of hyperkalemia before and immediately after release of pressure and during transport (e.g., peaked T waves, wide QRS, lengthening QT interval, loss of P wave)
6. For pain control, consider analgesics [See [Pain Management Guideline](#)]
7. Consider the following post extrication
  - a. Continued resuscitation with normal saline (500–1000 mL/hr for adults, 10 mL/kg/hr for children)
  - b. If EKG suggestive of hyperkalemia or if findings of hyperkalemia, administer IV fluids and consider administration of: