



4302

Traumatic Injuries

## Treatment Protocol



Last Reviewed: October 4, 2022

Last Revised: July 1, 2023

## BLS Patient Management

- **Establish, maintain, and ensure cervical spine stabilization, as clinically indicated, when NSAID criteria is met**

- Neuro deficits
- Spinal Tenderness
- Altered Mental Status
- Intoxication
- Distracting Injury

*\*\*\*The long backboard (LBB) is an extrication tool and should only be used to facilitate patient transfer to the stretcher. It is not intended, or appropriate, to use a LBB to achieve or maintain spinal stabilization. Judicious application of the LBB for purposes other than extrication require that the benefits outweigh the risks of application. If the LBB is used, patients should be removed as soon as soon as is safe and practical\*\*\**

- **Establish, maintain, and ensure**

- A. A patent and easily managed airway. Use manual maneuvers (head-tilt / chin-lift or jaw thrust), oropharyngeal suction and/or airway adjuncts (OPA / NPAs) as clinically indicated
- B. Adequate respirations and tidal volume. Use a mouth-to-mask device or bag valve mask (BVM), when clinically indicated. Rescue ventilations via a BVM require the use of a manometer. Waveform / digital capnography is required when paramedics are present
- C. Controlled bleeding. Use direct pressure and/or pressure dressing(s) and/or tourniquet(s) and/or hemostatic dressing(s), as clinically indicated

- **Oxygen**

As clinically indicated. Titrate to maintain, or increase, SpO<sub>2</sub> to a minimum of 94%. A range of 88-92% is acceptable for patients with a history of COPD

- Position the patient supine to meet physiologic requirements: Avoid Trendelenburg or elevating legs for shock. If the patient is pregnant, transport her in left lateral position

## ALS Patient Management

- Interpret and continuously monitor ECG, vital signs and SpO<sub>2</sub>
- Establish, maintain, and ensure bilateral, large bore IV and/or IO access for emergency stabilization and/or as clinically indicated

Establish IV/IO access during transport of the non-entrapped, transport ready critical trauma patient

Consider the need for additional sites as clinically indicated

- **If the patient presents with**

Signs and symptoms of tension pneumothorax:

- Air hunger
- Chest pain
- Compromised cardiac output (hypotension, hypoxemia, tachycardia, etc.)
- Elevated hemithorax without respiratory movement
- Neck vein distension
- Respiratory distress
- Unilateral absence of breath sounds
- Cyanosis (late sign)
- Tracheal deviation away from the side of the injury (late sign)

**AND**

rapidly progressing respiratory distress unrelieved by less invasive means

**THEN**

**Perform unilateral chest decompression**

- Preserve the patient's body heat by covering them with warm blankets
- Attach ECG leads to the patient when a paramedic is present
- **For suspected traumatic brain injury**  
Increase ventilatory rate for unequal / fixed and dilated pupils and extensor posturing / no motor response:  
**Adult:** 20 breaths per minute  
**Child:** 25 breaths per minute  
**Infant:** 30 breaths per minute
- **For impaled object(s)**  
Support and stabilize object(s) in place. Remove only if the object interferes with airway patency or with chest compressions
- **For flail chest**  
Assist ventilations as clinically indicated. Do not stabilize the flail segment by sandbagging, splinting, and/or swathing
- **For eye injury / injuries**  
Irrigate with saline as clinically indicated. Apply protective rigid shields bilaterally. Position the patient as clinically indicated to meet physiologic requirements
- **For avulsed tooth / teeth**  
Handle the tooth / teeth by the crown. Do not touch any part of the tooth that normally exists below the gum line. In the alert and cooperative patient, attempt to replace the tooth in its socket. If unable, wrap in a milk or normal saline soaked gauze sponge and transport with the patient
- **For wound care**  
Control bleeding using direct pressure and/or pressure dressing(s) and/or tourniquet(s) and/or hemostatic dressing(s), as clinically indicated  
  
Dress and bandage abrasions, lacerations, avulsions, punctures and/or penetrations as clinically indicated  
  
Dress an open pneumothorax with an occlusive dressing. Briefly remove ("burp") to release pressure when signs of a tension pneumothorax appear

- **If the patient is in cardiac arrest with known/suspected torso trauma or with a presentation suggesting spontaneous pneumothorax**

**THEN**

**Perform bilateral chest decompression**

- **For pain associated with acute traumatic injury or injuries**  
Adults: Fentanyl 50 mcg (1 mL) slow IV/IO push or IM/IN. Patient's systolic BP must be greater than or equal to 90 mmHg at the time of administration. **MAY REPEAT ONCE, IN 5-10 MINUTES, DEPENDENT ON PAIN SEVERITY, TO A MAX OF 100 MCG.**

Pediatrics: Fentanyl 1 mcg / kg slow IV/IO push or IM/IN. **MAY REPEAT ONCE. ADDITIONAL ADMINISTRATIONS REQUIRE A BASE HOSPITAL ORDER (BHO).** For assistance with accurate dosing, refer to the REMSA PMDR or REMSA app.

Adults: Ketamine 0.3 mg / kg IVPB. Infuse in 50-100 mL Normal Saline, administer over 5 minutes. **MAY REPEAT ONCE. ADDITIONAL ADMINISTRATIONS REQUIRE A BASE HOSPITAL ORDER (BHO).**

**\*\*OR\*\***

Ketamine 0.5 mg / kg IN. **MAY REPEAT ONCE. ADDITIONAL ADMINISTRATIONS REQUIRE A BASE HOSPITAL ORDER (BHO).**

**THE MAX SINGLE DOSE FOR EITHER ROUTE IS 30 MG.**

**ADMINISTRATION OF KETAMINE TO PEDIATRIC PATIENTS IS NOT PERMITTED.**

- **For suspected hyperkalemia associated with crush injuries**  
Adults: Normal Saline 250 mL IV/IO bolus. **MAY REPEAT AS CLINICALLY INDICATED TO A MAX ADMINISTRATION OF 2 L.**

Pediatrics: Normal Saline 20 mL / kg IV/IO bolus. Use a volume control administration set for accurate dosing. **MAY REPEAT AS CLINICALLY INDICATED.** For assistance with accurate dosing, refer to the REMSA PMDR or REMSA app.

<p>Dress evisceration(s) with saline soaked dressing(s). Do not intentionally replace evisceration</p> <p>Dress injured genitalia with saline soaked dressing(s), applying direct pressure to control bleeding</p> <ul style="list-style-type: none"> <li>• <b>For fracture(s) or dislocation(s)</b> Assess distal neurovascular functions using PMS (pulse, motor, sensation) before and after manipulation, manual stabilization and/or splinting. <p>Manually stabilize and/or splint fractures and dislocations as found and as clinically indicated. Rinse exposed bone with saline and dress with saline soaked gauze sponge(s) or non-adherent dressing(s). Do not intentionally allow exposed bone to retract and do not intentionally reduce dislocation</p> <p>Using gentle traction, return grossly angulated extremity fractures to the anatomic position as clinically indicated</p> <p>Stabilize and/or splint mid-shaft femur fractures using a traction splint as clinically indicated</p> <p><b>CONTACT A SINGLE BASE HOSPITAL FOR ANY FRACTURE OR DISLOCATION WITH NEUROLOGICAL AND/OR VASCULAR COMPROMISE</b></p> <ul style="list-style-type: none"> <li>• <b>For amputation(s)</b> Rinse amputated body part(s) with normal saline then wrap with saline soaked dressing(s). Place in a bag. Keep part(s) cool but don't place directly on ice</li> <li>• <b>For pain management</b> Apply disposable cold pack(s) as clinically indicated for pain associated with a traumatic injury or injuries</li> <li>• <b>For traumatic arrest</b> Follow REMSA Treatment Protocol #4405 (Cardiac Arrest)</li> </ul> </li></ul>	<ul style="list-style-type: none"> <li>• <b>ADULTS AND PEDIATRICS: INITIAL AND REPEAT ADMINISTRATIONS OF ALBUTEROL, CALCIUM CHLORIDE, AND SODIUM BICARBONATE FOR SUSPECTED HYPERKALEMIA ASSOCIATED WITH CRUSH INJURIES REQUIRES A BASE HOSPITAL ORDER (BHO)</b> <u>Adults and pediatrics:</u> Albuterol 2.5 mg / 3 mL (one pouch), nebulized.</li> </ul> <hr/> <p><u>Adults:</u> Calcium Chloride 1 gm (10 mL) IVPB.</p> <p><u>Pediatrics:</u> Calcium Chloride 20 mg / kg IVPB. For assistance with accurate dosing, refer to the REMSA PMDR or REMSA app.</p> <p><u>Adults and pediatrics:</u> Infuse in 50-100 mL normal saline, administer over 10 minutes.</p> <hr/> <p><u>Adults:</u> Sodium bicarbonate 50 mEq (50 mL) IV/IO push.</p> <p><u>Pediatrics:</u> Sodium bicarbonate 1 mEq / kg IV/IO push. For assistance with accurate dosing, refer to the REMSA PMDR or REMSA app.</p> <hr/> <ul style="list-style-type: none"> <li>• <b>For traumatic injuries within three (3) hours with signs and symptoms of hemorrhagic shock with systolic BP less than 90 mmHg</b></li> </ul> <p><b>**OR**</b></p> <p><b>Significant hemorrhage with heart rate greater than or equal to 120</b></p> <p><b>**OR**</b></p> <p><b>Uncontrolled bleeding despite tourniquet application</b> <u>Adults:</u> Tranexamic Acid (TXA) 1 gm (10 mL) IVPB. Infuse in 50-100 mL normal saline, administer over 10 minutes.</p> <p><b><u>ADMINISTRATION OF TRANEXAMIC ACID (TXA) TO PEDIATRIC PATIENTS IS NOT PERMITTED.</u></b></p>
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#### Patient Disposition

<ul style="list-style-type: none"> <li>• Attempt to limit scene time to ten (10) minutes or less when Trauma Triage Criteria has been met. Do not delay transport with nonessential treatment of non-entrapped, transport ready, critical trauma patients</li> <li>• <b>CONTACT A SINGLE TRAUMA BASE HOSPITAL FOR: ANY CRITICAL TRAUMA PATIENT OR MASS CASUALTY / MASS PATIENT INCIDENT (MCI / MPI),</b></li> <li>• <b>CONTACT A SINGLE BASE HOSPITAL FOR: ANY PATIENT THAT HAS BEEN SEXUALLY ASSAULTED OR INCIDENTS WHEN LAW ENFORCEMENT REQUESTS AN "OK TO BOOK" EXAM</b></li> </ul>
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