

GENERAL TRAUMA MANAGEMENT

UPDATED 9/2024

ALL PROVIDERS / EMT

- Treat any penetrating trauma per the *Penetrating Trauma Guideline*.
- Focused history and physical exam
- Continuous cardiac monitoring, ETCo₂, pulse oximetry, and blood pressure (MAP)
- Pediatric lowest acceptable systolic blood pressures are:
 - Birth to 1 month = 60mmHg,
 - 1 month to 1 year = 70mmHg,
 - 1 year to 10 years is = 70mmHg + (age x 2)
 - Over 10 years = 90mmHg.
- **Key Considerations**
 - Scene times should be as short as possible for severely injured patients with a goal of <5 minutes. Perform required procedures enroute to the trauma center.
 - In patients with **penetrating traumatic arrest and time of injuries <15 minutes, initiate immediate transport and continue all interventions enroute.**
 - Transport is highly suggested in cases of trauma involving pediatrics and pregnant patients.
 - Severely injured trauma patients should be transported to an appropriate trauma center, as per the *Field Trauma Triage Guideline*.
- **Primary Survey:**
 - Hemorrhage Control:
 - Assess for and stop severe hemorrhage
 - Consider TXA administration within 1 hour of injury and hemorrhagic shock is present.
 - Airway:
 - Assess airway patency, ask patient to talk to assess stridor and ease of air movement
 - Evaluate for injuries that may lead to airway obstruction including unstable facial fractures, tooth injuries, expanding neck hematoma, blood or vomitus in the airway, facial burns/inhalation injury
 - Evaluate mental status for ability to protect airway (AVPU= "P" or "U" or GCS <8). These patients will require airway protection.
 - Breathing:
 - Assess respiratory rate and pattern, symmetry of chest wall movement, and presence of breath sounds bilaterally
 - Tension Pneumothorax S/S: Chest injury with hypotension (<MAP 65), narrowed pulse pressure, hypoxia, tachycardia, absent breath sounds, tracheal deviation, and/or JVD
 - Needle thoracostomy: The 4th intercostal space at the anterior axillary line is the **preferred** location
 - Insert needle until lack of resistance is felt and/or rush of blood or air. Consider adding a 10cc syringe to aid in verifying air and preventing too deep of insertion.
 - Circulation:
 - Assess vital signs / check for radial pulse
 - If pelvis is unstable (uncontrolled hemorrhage, significant mechanism, or suspected pelvic involvement with hypotension and an unknown bleeding source), consider pelvic binder to stabilize pelvis
 - Reassess any prior tourniquet applications.
 - Expose wound and determine if tourniquet is needed
 - Replace improvised tourniquets if necessary
 - If needed, replace any tourniquets that are placed over clothing to directly on skin.

- If not needed, replace tourniquet with hemostatic or pressure dressings
 - Obtain IV/IO access and begin fluid resuscitation as needed
 - Fluid resuscitation up to 1 liter NS/LR or target MAP >65 and/or SBP 90
 - **Disability** (quick neurologic evaluation):
 - Assess pupils, motor movement of extremities, and mental status (AVPU)
 - In cases of increased ICP or TBI:
 - Refer to **Head Injury “Traumatic Head Injury”** guideline
 - Maintain oxygen saturation >94%
 - Maintain SBP >110 mmHg with a MAP of 80 mmHg
 - Elevate head of bed to 30 degrees if there is no C-spine injury suspected
 - In cases of active herniation, refer to hyperventilation guide in head injury protocol
 - **Exposure/Environment:**
 - Rapid evaluation of entire body (including back) to assess for injuries
 - Prevent hypothermia by removing wet clothing, providing passive rewarming, and use of warmed IV fluids (if fluids indicated)
- **Blunt Trauma Management-** If mechanism of injury includes blunt trauma, manage accordingly based on anatomy involved
 - **Head/Neck-** Stabilize and determine cervical, thorax, and lumbar spine stability. Address open wounds with bandages, pressure, and hemostatic dressings. Elevate the head of bed to 30* if there are no contraindications
 - **Extremities-** Identify if pulse, motor, and sensory are present. Stabilize the extremity and control any bleeding with bandaging, pressure, hemostatic gauze, or tourniquet.
 - **Chest-** Auscultate lung sounds and visualize if any flail segments are present. Consider needle decompression if tension pneumothorax is suspected. Stabilize flail chest utilizing pressure and positive pressure ventilation.
 - **Abdominal/Pelvis-** Stop any bleeding utilizing bandaging, pressure, and hemostatic gauze. Consider pelvic binder placement (uncontrolled hemorrhage, significant mechanism, or suspected pelvic involvement with hypotension and an unknown bleeding source)
- **Withholding and Termination of Resuscitative Efforts**
 - Resuscitative efforts may be withheld for trauma patients with the following injuries:
 - Decapitation
 - Hemitorporectomy (Transection of trunk)
 - Dependent lividity or signs of rigor mortis
 - **Blunt and penetrating trauma (with signs of life):** Goal is a scene time of < 5 minutes and rapid transport to nearest trauma facility. Continue all resuscitative efforts throughout transport.
 - **Blunt traumatic arrest:** Upon arrival on scene in patients with blunt traumatic arrest, a slightly longer scene time of 15 minutes may be required for resuscitative efforts. If no return to spontaneous circulation is achieved, contact medical control for approval to terminate resuscitation.
 - **Penetrating traumatic arrest >15 minutes:** Contact medical control to discuss termination of resuscitative efforts.
- Treat pain per the **Pain Management Guideline.**
- Treat anxiety per the **Behavioral Emergencies Guideline**

ADULT

AEMT

- Vascular access and begin fluid therapy
- Consider Supraglottic Airway

PARAMEDIC

- Advanced airway management
- **Tranexamic Acid (TXA)**
 - **2g in 100ml NS/LR IV/IO infusion over 10 minutes**
- Suspected Tension Pneumothorax:
 - Immediate needle decompression
 - Insert <14g needle at 4th ICS along the anterior-axillary line (triangle of safety)
 - **SIGNS INCLUDE-**
 - Penetrating trauma with shock
 - Hypotension (<MAP 65)
 - Narrowed pulse pressures
 - Hypoxia
 - Tachycardia
 - Absent breath sounds
 - Tracheal deviation
 - JVD
- Traumatic Arrest
 - Consider bilateral needle decompression based on mechanism of injury

PEDIATRICS

Pediatric dose should never exceed adult dose

AEMT

- Vascular access and begin fluid therapy
- Consider Supraglottic Airway

PARAMEDIC

- Advanced airway management
- **Tranexamic Acid (TXA)**
 - **Contact OLMC**
- Suspected Tension Pneumothorax:
 - Immediate needle decompression
 - Insert <14g needle at 4th ICS along the anterior-axillary line (triangle of safety)
 - **SIGNS INCLUDE-**
 - Penetrating trauma with shock
 - Hypotension (<MAP 65)
 - Narrowed pulse pressures
 - Hypoxia
 - Tachycardia
 - Absent breath sounds
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