



Trauma

Assessment

Pediatric Pearls:

- Use pediatric dosing of medications or electrical therapy for a pediatric patient < 37 kg and as defined by the PEDIA Tape.
- Fluids and Medication titrated to maintain a SBP >70 + (age in years x 2) mmHg
- Hypotension: (SBP < 70+ 2x Age in years)

Signs & Symptoms:

- **M**assive Hemorrhage
- **A**irway
- **R**espirations (decompression)
- **C**irculation (IV, TXA)
- **H**ypothermia / Head injury
- **P**ain
- **A**ntibiotics
- **W**ound Care
- **S**plinting

Differential:

- Respiratory failure
- Foreign body airway obstruction
- Hypovolemia
- Trauma
- Tension pneumothorax
- Hypothermia
- Toxins or Overdose
- Hypoglycemia
- Acidosis
- Acute MI or PE

Clinical Management Options

P	P	P	P	P	P
L	L	L	L	L	L
1	2	3	4	5	6

- Control external hemorrhage and apply [tourniquet](#)(s) as necessary, including junctional tourniquets if needed and available.
 - [Wound packing \(junctional/extremity\)](#) with pressure dressing as appropriate and apply Quick Clot Combat Gauze if available
 - BLS airway management
 - Place occlusive dressing/chest seal over open pneumothorax
 - Evaluate for [spinal motion restriction](#)
 - Assess GCS score
 - Apply [pelvic binder](#) if appropriate
 - Keep patient supine and warm
 - Administer [oxygen](#) to targeted SpO₂
 - Bandage/[splint](#) injuries as appropriate for patient condition
 - Declare [Trauma Alert / Activation](#) if appropriate for patient condition
 - If evidence of brain herniation, then initially hyperventilate the patient 20-24 breaths per minute. Then titrate ventilation rate to Adult & Pediatric ETCO₂ 30-35mmHg
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- 12-lead [placement](#) and [acquisition](#)
 - [ETCO₂](#) assessment
 - [Acetaminophen](#) or [Ibuprofen](#) for musculoskeletal and/or joint pain/injury
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- [Vascular access](#)
 - Adult: [Isotonic Crystalloid](#) IV bolus 250 mL if patient shows signs of shock
 - Adult: Fluid bolus with [isotonic crystalloid](#) as needed; Pediatric 20 ml/kg as needed
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- [Tranexamic Acid \(TXA\)](#)
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- [Needle decompression](#) of the chest as indicated
 - Advance airway management
 - Pain management – [Fentanyl](#) and/or [Ketamine](#) as indicated.
 - If Adult Spinal Shock – [Norepinephrine \(Levophed\)](#) Infusion titrated to MAP ≥ 65
 - [Epinephrine](#)
 - [Ultrasound](#) for EFAST exam.
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- [Simple Thoracostomy](#)
 - Blood Product Transfusion and [Calcium Chloride](#)
 - Ceftriaxone or Cefepime for contaminated wounds
 - [Field Amputation](#) as required
 - [Escharotomy](#) as indicated for ventilation compliance

Consult Online Medical Control As Needed



Trauma

GCS

Eyes Open	Best Verbal	Best Motor
4 – Eyes Open	5 – Oriented	6 – Obeys Commands
3 – To Voice	4 – Confused	5 – Localizes Pain
2 – To Pain	3 – Inappropriate	4 – Withdraws from Pain
1 - None	2 – Incomprehensible	3 – Pain-Flexion
	1 - None	2 – Pain-Extended
		1 - None

Pearls:

- Refer to drug formulary charts for all medication dosing for both adults and pediatric patients.
- Consider Chest Decompression with signs of sock and diminished/absent breath sounds. If patient arrests, then immediately perform bilateral decompression.
- See Regional Trauma Guidelines for criteria when declaring trauma alert. Record "Trauma Alert" in ePCR.
- Minimize Scene time. If patient meets Trauma Alert criteria, then interventions should be performed enroute.
- Severe bleeding from an extremity not rapidly controlled by direct pressure may necessitate the application of a tourniquet.
- Permissive hypotension (target fluid resuscitation to MAP 55-65) should be used in the absence of neurologic injury, pregnancy, hypertensive history, and age \leq 45 years old. If suspected neurologic injury maintain Adult SBP \geq 90mmHg.
- Hypotension is devastating to neurologic injury and should be aggressively treated.
- MAP calculation [(2 x diastolic) + systolic] divided by 3
- Peripheral neurovascular status should be document on all extremity injuries and before and after splinting procedures. Same for neuro status before and after extrication, placement for LSB and before/after transport.
- In amputations, time is critical. Transport and notify medical control immediately, so that the appropriate destination can be determined.
- Hip dislocations and knee and elbow fracture / dislocations have a high incidence of neuro-vascular compromise.
- Urgently transport any injury with vascular compromise.
- Blood loss may be concealed or not apparent with extremity injuries.
- Lacerations should be evaluated for repair as soon as possible after injury.
- If evidence of brain herniation (blown pupil, Cushing's reflex, rapid decline in GCS, or bradycardia) and in absence of capnometer, hyperventilate the patient 20 – 24 breaths per minute. If available titrate to: Adult and Pediatric ETCO₂ 30 - 35 mmHg. ETCO₂ < 30 is associated with poor neurologic outcomes.
- Increased intracranial pressure (ICP) may cause hypertension and bradycardia (Cushing's Response).
- If hypotension consider spinal shock or additional occult injury as source.
- Consider Altered Mental Status guideline.
- The most important item to monitor and document is a change in the level of consciousness and GCS.
- Consider Restraints if necessary for patient's and/or personnel's protection per the Restraining Procedure.
- Any document loss of consciousness, prolonged confusion or mental status abnormality should be evaluated by a physician ASAP.