**Notes/Definitions**

- Early signs of shock include: tachycardia, delayed cap refill > 2 seconds, pallor, anxious or irritable, tachypnea, cool skin.
- Late signs of shock include: hypotension, unresponsive or somnolent, mottled extremities, worsening tachycardia, tachypnea.

## Base Hospital Contact if meets Trauma Criteria

## BLS Interventions

- Refer to BLS Standing Orders (SO-B-001).
- Apply cervical collar and /or spinal motion restriction as applicable.

**Initial Assessment**

xABCDE Assessment: Prioritize life-threatening hemorrhage and shock recognition.

- **(X) Exsanguinating Hemorrhage Control**
  - Immediately apply direct pressure to control bleeding. Scalp hemorrhage can be life threatening.
  - Use of hemostatic dressings indicated for deep wounds or junctional areas.
  - Apply tourniquet 2 to 4 inches above injury in the setting of life-threatening injury.
  - If bleeding is uncontrolled with single tourniquet, apply 2nd tourniquet proximally to the first.
  - Reassess dressings and tourniquets after patient movement.
- **(A) Airway**
  - Ensure patent airway and dislodge any airway obstruction.
  - Ensure proper positioning for adequate ventilation and suction as needed. Pediatric patients are to be transported securely in a size appropriate restraint system (e.g. Neo-mate, Pedi-mate, car seat, etc.) if available.
  - Consider insertion of nasopharyngeal airway (NPA) or oropharyngeal airway (OPA) per SO-FR-004 and SO-FR-005.
  - Consider BVM for moderate to severe distress, apnea, agonal respirations, or altered mental status with hypoventilation or hypoxia despite maximal supplemental O2.
- **(B) Breathing**
  - Assess vital signs, including pulse oximetry
  - Administer supplemental oxygen as necessary to maintain SpO2 ≥ 95%.
  - Apply vented chest seal to sucking chest wound or large open chest wall injury
- **(C) Circulation**
  - Aggressively control external hemorrhage

- Assess for signs and symptoms of shock:
  - Early signs: tachycardia, delayed cap refill > 2 seconds, pallor, AMS (anxious / irritable), tachypnea, cool skin.
  - Late signs: hypotension, AMS (somnolence / unresponsive), mottled extremities, worsening tachycardia and tachypnea.

- **(D) Disability**
  - Apply cervical collar for spinal cord protection
- **(E) Environmental**
  - Reduce heat loss by removing wet clothing and drying the patient
  - Cover the patient with warm, dry insulating material covered with a barrier
  -

## ALS Interventions

- Assess Pediatric Assessment Triangle (PAT)
  - General appearance: tone, interactiveness, consolability, look / gaze, speech / cry
  - Work of breathing: retractions, nasal flaring, abnormal airway sounds, positioning
  - Circulation to skin: pallor, mottling, cyanosis
- When BLS airway management cannot maintain adequate ventilation or oxygenation and criteria met, consider:
  - Supraglottic airway insertion for ≥ 50 kg (PR-135)
  - Endotracheal intubation for > 36 kg (PR-030)
- For chest trauma with unilateral decreased or absent breath sounds and **hypoxia**, assess for signs of a tension pneumothorax. Signs include acute respiratory distress, respiratory arrest, circulatory collapse (hypotension, poor perfusion), distended neck veins.
  - If chest seal previously applied remove the dressing, allow air to escape and reapply dressing.
  - **Contact Base Hospital** for an order for needle decompression (needle thoracostomy) (refer to PR-065).
  - **Base Hospital Order** required in all pediatric needle decompressions except in setting of an MCI, remote rescue, tactically unstable scene, or late signs of shock. Provide documentation for these settings if base order not obtained.
- If wheezing, administer:

  ► **Albuterol 6 mL (5 mg)** continuous nebulization for ages 31 days and older.

  **OR**

  ► **Albuterol 3 mL (2.5 mg)** continuous nebulization for ages 0 - 30 days.
- Apply capnography (EtCO2) as tolerated.

  - Maintain EtCO2 between 35 and 45 mmHg
  - If EtCO2 > 50, ensure proper positioning for adequate ventilation and suction as needed.
  - Revaluate need for advanced airway.
- Obtain the patient's estimated weight utilizing an approved pediatric length-based resuscitation tape.
- Obtain IV / IO if applicable.
- If hypotensive (refer to Vital Sign table below), administer:
  - ► **Normal Saline 20 mL / kg** (maximum dose 250 mL)
    - For continued hypotension, may repeat the same dose twice for total of three boluses.
- Initiate cardiac monitor as needed. Interpret, monitor, and document rhythm.
- Assess GCS. Use pediatric GCS for patients aged ≤ 2 years (refer to B-02).
- Treat for pain choosing one of the following to administer:
  - ► **Fentanyl 2 mcg / kg IN / IV / IM** (maximum single dose 50 mcg IV / IM or 100 mcg IN)
    - **Base Hospital Order** required for age < 2 years old.
    - Do not exceed a total dose of 100 mcg.
    - May repeat once after 3 minutes.
    - Hold if hypotensive.
  - ► **Morphine sulfate 0.1 mg / kg IV / IM** (maximum single dose 5 mg)
    - **Base Hospital Order** required for age < 2 years old.
    - Do not exceed a total dose of 10 mg.
    - May repeat once after 3 minutes.
    - Hold if hypotensive.
  - ► **Ketorolac 0.25 mg / kg IV / IO / IM** (maximum single dose of 15 mg) once
    - *Contraindicated in ages less than 2 years old and designated trauma center patients.*
- For nausea or vomiting in patients age ≥ 4 years old with intact airway reflexes, administer:
  - ► **Ondansetron (Zofran) 4mg ODT** once

## Transport Considerations

- **Base Hospital Contact required** (CCERC preferred) for patients meeting trauma criteria (refer to OCEMS Policy 310.30 or 310.31). ALS transport to the most appropriate Trauma Center as directed by the Base Hospital.
- **Base Hospital Contact required** (CCERC preferred) for all hypotensive hemorrhage cases for Trauma Center triage consideration. ALS transport to destination as directed by the Base Hospital.
- ALS providers may determine ALS or BLS level of transport to the nearest, most appropriate ERC

for patients not meeting trauma center criteria. ***If any ALS intervention performed (i.e. administration of medications) ALS transport is required.*

## Additional Considerations

### Specific Injury Management

Amputation

- Control hemorrhage as stated above.
- Dress stump with sterile dressing.
- Wrap amputated part in sterile dry material, place in sealed container, then place container in ice.
- Do not allow tissue to directly contact ice or water.

Evisceration

- Cover with large saline-moistened sterile dressing.
- Do not replace abdominal contents.

Impaled Objects

- Stabilize in place.
- Remove only if interfering with airway management or CPR.

Orthopedic Injury

- If angulated and pulseless: gently attempt alignment unless resistance or severe pain occurs.
- If angulated with pulse present: splint in position.
- Open fractures: cover with moist sterile dressing; do not reduce.
    - Exception: traction splint for femur fracture can be reduced.
- Document distal neurovascular status before and after splinting. Always note presence or absence of peripheral pulses and sensation.
- May place cold packs over splinted fractures sites for comfort.

Airbag Deployment

- For eye irritation, brush off any powder around upper face.
- Remove contact lenses if present.
- Irrigate with water or normal saline continuously throughout transport.

Eye Injury

- Cover both eyes loosely.
- Avoid pressure on globe.
- Position upright if tolerated and if spinal motion restriction not required.

- Consider Traumatic Brain Injury (TBI) if altered.

Head Injury

- Maintain airway and assist ventilation as needed.
- Provide supplemental oxygen to maintain SPO2 > 94%.
- Reassess mental status.
- Avoid hypotension or hypoxemia.

## Base Hospital Considerations

- Patients meeting trauma triage criteria (OCEMS Policy 310.30 or 310.31) should be routed to the nearest open OCEMS designated Trauma Center.
- Trauma victim designation is determined by the Base Hospital.
- For chest trauma with unilateral decreased or absent breath sounds and **hypoxia**, assess for signs of a tension pneumothorax. Signs include acute respiratory distress, respiratory arrest, circulatory collapse (hypotension, poor perfusion), distended neck veins.
  - ▶ **Order a needle decompression** (needle thoracostomy) per OCEMS PR-065:
    - Patient weight ≤ 40 kg use 1.25 inch, 16-gauge catheter over needle
    - Patient weight > 40 kg use an adult decompression needle (minimum 2.5-inch length)
- For hemorrhagic shock related to blunt or penetrating trauma not greater than 3 hours, order:
  - ▶ **TXA 15 mg / kg IV / IO** infusion over 10 minutes (max dose 1 gm) once
    - Refer to OCEMS PR-XXX.
    - Notify Trauma Center of the TXA administration.

**Cross References:**
SO-B-001 BLS Standing Orders
Procedure B-002 Glasgow Coma Scale (Score)
SO-FR-004 Oropharyngeal Airway (OPA)
SO-FR-005 Nasopharyngeal Airway (NPA)
PR-030 Endotracheal Intubation (including EtCO2)
PR-135 Supraglottic Airway Device Placement – Adult / Adolescent
PR-065 Needle Thoracostomy – Pediatric
PR-XXX Tranexamic Acid For Bleeding Management
Policy 310.30 Trauma Triage
Policy 310.31 Trauma Triage Algorithm

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