

**I. General Considerations**

- A. Major trauma often cannot be stabilized or well managed in the field and requires prompt surgical intervention.
  - B. Scene times should be kept to a minimum. Accordingly, much of the physical exam and initiation of treatment such as intravenous lines should be carried out in the ambulance en route to the hospital.
  - C. Rapid extrication (placement of a cervical collar, if indicated, and movement onto a long board) should be carried out expeditiously.
  - D. Always assess the mechanism of injury.
  - E. If the patient sustained penetrating trauma (e.g., stab or gunshot wound), look for exit wound.
  - F. Patients with the following conditions must be expeditiously moved into the trauma system to maximize the likelihood of survival. On scene field measures should be limited to the initial assessment, rapid trauma assessment, BLS, CPR, placement of a cervical collar if indicated, placement on a long board, rapid extrication if indicated, airway maneuvers as outlined below, and chest injury management as outlined below. Other treatment and assessment should be carried out en route to the hospital.
    - 1. Cardiac arrest secondary to trauma
    - 2. Suspected pericardial tamponade post trauma
    - 3. Major chest injury-
      - a. suspected tension pneumothorax post trauma
      - b. open or sucking chest wound
      - c. suspected flail chest
    - 4. Severe blood loss
    - 5. Uncontrollable hemorrhage
    - 6. Rapidly distending abdomen
    - 7. Severe facial injury with airway compromise
    - 8. Unconsciousness post trauma
    - 9. Shock post trauma
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**II. History**

Perform a focused history and physical exam with particular attention to:

- A. Mechanism of injury
  - B. Speed
  - C. Restraints (e.g., lap and shoulder belts, car seat)
  - D. Protective devices (e.g., helmet, air bags)
  - E. Loss of consciousness
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**III. Physical Examination**

- A. Perform an initial assessment.
- B. Perform a focused history and physical exam with particular attention to:
  - 1. Inspect the head:
    - a. Are raccoon's eyes or bruising behind the ear noted?
    - b. Is the head normal appearing or crushed?
    - c. Are the pupils round, regular and reactive to light?
    - d. Is there fluid from the ears or nose?
  - 2. Inspect the neck:
    - a. Are there signs of cervical deformity or tenderness over the spine?
    - b. Is the trachea midline?
    - c. Are the neck veins distended?

- d. Are there signs of trauma/bruising/puncture wounds?
  - e. Is there a feeling of Rice Krispies® under the skin (subcutaneous emphysema)?
  - f. Does there appear to be an expanding hematoma?
  - g. Does the voice box appear crushed?
  - h. Can the patient speak? Does it sound normal?
3. Inspect the chest:
- a. Are there signs of trauma - bruising, puncture wounds?
  - b. Does the chest rise symmetrically?
  - c. Is the patient breathing with only the diaphragm?
  - d. Is there evidence of a flail segment (paradoxical movement)?
  - e. Is there a feeling of Rice Krispies® under the skin (subcutaneous emphysema)?
  - f. Assess the breath sounds if trained to do so.
  - g. Are cardiac tones muffled?
4. Examine the abdomen:
- a. Are there signs of bruising or puncture wounds?
  - b. Does it appear distended?
  - c. Does light touch cause the patient pain anywhere?
5. Examine the pelvis:
- a. Are there signs of bruising or puncture wounds?
  - b. Is there pain, movement or instability with gentle pelvic compression?
6. Examine the back and spine:
- a. Are there signs of bruising or puncture wounds?
  - b. Is there deformity or tenderness?
7. Examine the extremities:
- a. Is the patient able to move all extremities?
  - b. Is there evidence of posturing (abnormal flexion or abnormal extension)?
  - c. Do the extremities have good distal pulses, capillary refill and can the patient feel you touch them?
  - d. Are there signs of trauma (e.g., point tenderness, swelling, deformity, angulation)?
8. If penetrating trauma, type and size of weapon.
9. Inspect the surroundings quickly before departing the scene.

**Paramedic**

- A. Monitor the cardiac rhythm. If the patient is in cardiac arrest after blunt trauma and asystole is confirmed in more than one lead, medical direction may order no further treatment.

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**IV. Treatment**

**Basic**

- A. Establish an airway, maintain as indicated with regard to possible spinal injury, suction as needed.
- B. Administer high concentration oxygen.
- C. Place a cervical collar on patient.
- D. Control external hemorrhage.

- E. Chest wound management:
  - 1. If a flail segment is causing respiratory compromise, place IV fluid bag, sand bag or appropriate material on flail segment.
  - 2. If open or sucking chest wound is noted, apply 3 sided occlusive dressing.
- F. Place patient on a backboard. *If signs of shock are present, seek medical direction regarding use of PASG.*
- G. If available, EMTs may inflate PASG as a splint (i.e., to splinting pressure) for a fractured pelvis or multiple lower extremity fractures by standing order.
- H. Splint injured extremities while en route to the hospital.

**Intermediate**

- I. Initiate 2 large bore (18 gauge or larger) IVs en route and infuse up to 1000 cc of crystalloid solution in an adult if signs of shock are present (restlessness, anxiety, confusion, BP <90 mm Hg systolic with tachycardia > 120 beats/minute) *then seek medical direction for the infusion rate and consideration of further fluid administration.* In a child, infuse 20 cc/kg of body weight of a crystalloid solution and re-evaluate.
- J. **If the patient is in respiratory arrest**, secure the airway using an advanced airway device with in-line stabilization.

**Paramedic**

- K. As needed, intubate endotracheally with in-line stabilization or *perform cricothyrotomy per medical direction.*
- L. *If tension pneumothorax is suspected, medical direction may order needle chest decompression.*
- M. If an IV line cannot be established readily in a child, initiate an intraosseous (IO) infusion.
- N. Consider use of nitrous oxide or narcotic pain management of medical direction's choice.