

## Trauma II

### Assumptions

The student is familiar with the basic anatomy and physiology of the circulatory, respiratory, excretory, and central nervous systems. The student will review the pertinent anatomy of the organs and organ systems pertinent to trauma.

### Goals

The student will be able to describe the diagnosis and management of the most common blunt and penetrating trauma injuries.

### Objectives

Describe the diagnosis and management of the following conditions:

1. Define hemodynamically unstable patients
  - a. Blunt Trauma
    - 1) Describe physical findings, radiographic imaging and indications for:
      - a) Emergency thoracotomy  
*\*Refer to Trauma 1 module within this Curriculum.*
      - b) Operative thoracotomy
      - c) Exploratory laparotomy
      - d) Angiographic embolization/stabilization/extraperitoneal packing of pelvis
      - e) Resuscitative Endovascular Balloon Occlusion of Aorta (REBOA)  
*\*Refer to Trauma 1 module within this Curriculum.*
    - b. Penetrating Trauma
      - 1) Describe physical findings, radiographic imaging and indications for:
        1. Emergency thoracotomy  
*\*Refer to Trauma 1 module within this Curriculum.*
        2. Operative thoracotomy
        - c) Emergent neck exploration
        - d) Exploratory laparotomy
        - e) Emergent extremity tourniquet/exploration
        - f) Angiographic embolization/stabilization
        - g) REBOA  
*\*Refer to Trauma 1 module within this Curriculum*
  2. Define hemodynamically stable patients
    - a. Describe significant physical findings and laboratory/radiographic investigations and management for the following most common injuries:
      - 1) NEUROLOGIC
        - Traumatic Brain Injury
        - Blunt cerebrovascular injury (BCVI)
        - Spine fracture
        - Spinal cord injury
      - 2) THORAX
        - Rib fractures
        - Pneumothorax
        - Tension pneumothorax  
*\*Refer to Trauma 1 module within this Curriculum*
        - Hemothorax  
*\*Refer to Trauma 1 module within this Curriculum*

Trauma II (continued)

Objectives (continued)

- Pulmonary contusion
- Flail chest
- Aortic injury
- 3) ABDOMEN/PELVIS
  - Solid organ injury
  - Hollow viscus
  - Pelvic fracture
  - Bladder
- 4) EXTREMITY
  - Fracture/dislocation
  - Vascular compromise
  - Compartment syndrome

Problems

1. A 27-year-old female, status post, gunshot wound to abdomen presenting with GCS 15, bp 80/40, heartrate 130, and respiratory rate 30.
  - Describe initial priorities during patient assessment.
  - Describe initial blood tests and radiographic imaging.
  - Describe initial fluid management.
  - Describe need for surgical intervention.
2. A 45-year-old male, status post, pedestrian struck by vehicle presenting with GCS 8, bp 110/70, heartrate 110, and respiratory rate 8.
  - Describe initial priorities during patient assessment.
  - Describe initial blood tests and radiographic imaging.
  - Describe initial fluid management.
  - During secondary exam, found to have an unstable left knee and pulseless left foot.
    - Describe how to evaluate and manage left lower extremity.
3. A 35-year-old female, status post, motor vehicle crash who was an unrestrained driver found 50 feet from car. GCS 15, bp 80/40, heartrate 120, and respiratory rate 24.
  - Describe initial priorities during patient assessment.
  - Describe initial blood tests and radiographic imaging.
  - Describe initial fluid management.
  - During secondary survey, patient found to be pregnant, likely third trimester.
    - How would pregnancy change management?

Skills

1. Basic airway management
  - \*Refer to the [ACS/ASE Medical Student Simulation-based Surgical Skills Curriculum \(Year 2 - Module 1\)](#).
2. Tourniquet application

Trauma II (continued)

**Skills** (continued)

3. Venous puncture/IV access  
\*Refer to the [ACS/ASE Medical Student Simulation-based Surgical Skills Curriculum \(Year 1 - Module 7\)](#).
4. Cervical collar application
5. Arterial puncture  
\*Refer to the [ACS/ASE Medical Student Simulation-based Surgical Skills Curriculum \(Year 1 - Module 7 and Year 3 – Module 1 and 4\)](#).
6. Intraosseous IV  
\*Refer to the [ACS/ASE Medical Student Simulation-based Surgical Skills Curriculum \(Year 3 - Module 7\)](#).

**Teaching Hints**

1. TEAM (Trauma Evaluation and Management) program from the American College of Surgeons is available for use with video scenarios (<https://www.facs.org/quality-programs/trauma/atls/team>).
2. Trauma scenarios may be used for team based learning and crises resource management training.

**Prevention**

1. Discuss the methods for preventing hypothermia in patients.
2. Discuss the use of Personal Protection Equipment and Universal Precautions.
3. Discuss the indications and management of DVT Prophylaxis and Gastrointestinal Prophylaxis.

**Special Considerations**

1. Discuss the implications of the following conditions on trauma evaluation and management:
  - a. Pregnancy
  - b. Pediatric trauma
  - c. Geriatrics and frailty
  - d. Jehovah's Witness
  - e. Trauma brain death (definition and implications)