

Trauma I

Assumptions

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

Goals

The student will be able to formulate the initial evaluation, assessment, and management of a trauma patient.

Objectives

1. Discuss the basic principles of triage.
2. Describe the priorities and sequence of the primary survey of a trauma patient (ABCDE).
 - a. Evaluate the **A**irway and describe indications and options for securing the airway.
 - b. Assess **B**reathing and describe evaluation and management of:
 - 1). Tension pneumothorax
 - 2). Hemothorax
 - 3). Sucking chest wound
 - c. Describe the evaluation of **C**irculation.
 - 1). Define hemodynamic instability and describe indications for:
 - a) Emergency thoracotomy
 - b) Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA)
 - 2). Distinguish between different types and classes of shock
**Refer to the Shock module within this Curriculum.*
 - 3). For hemorrhagic shock, describe:
 - a) differential diagnosis
 - b) diagnostic modalities
 - c) appropriate intravenous access and monitoring
 - 4.) Determine appropriate initial fluid resuscitation of a trauma patient.
 - 5). Describe indications for blood transfusion and massive transfusion protocol.
 - d. Describe how to assess **D**isability.
 - 1). Define the Glasgow Coma Score.
 - 2). Describe the pupillary exam relevant to trauma.
 - e. Apply principles of **E**xposure and Environmental Control
 - 1). Describe how to prevent hypothermia.
 - 2). Describe how to apply a pelvic binder and tourniquet.
 - 3). Describe basic principles of decontamination.
3. Describe ongoing resuscitation and coagulopathy of a trauma patient.
**Refer to the Shock module within this Curriculum.*
4. Describe the priorities and sequence of the secondary survey and detailed exams of the:
 - a. Head
 - b. Face
 - c. Neck
 - d. Chest
 - e. Abdomen
 - f. Pelvis
 - g. Back
 - h. Rectal

Trauma I (continued)

Objectives (continued)

- i. Genitalia
 - j. Neurologic
 - k. Extremities
5. Describe how to perform a tertiary survey.
 6. Describe how to assess the level of disability utilizing a team based approach.
 7. Describe alcohol screening and brief intervention for trauma patients.
 8. Describe the components of a safe discharge.

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.
3. A 35-year-old female, status post, motor vehicle crash who was an unrestrained driver found 50 feet from car, presenting with 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
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).

Trauma I (continued)

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 crisis resource management training.

Prevention

1. Describe injury prevention and social determinants of traumatic injury.

Special Considerations

1. Describe the impact of the following entities on resuscitation:
 - a. Pediatric trauma (fluid resuscitation strategies)
 - b. Trauma during pregnancy
 - c. Hypothermia
 - d. Electrocution
 - e. Burn

**Refer to the Skin and Soft Tissue module within this Curriculum.*