

**UNIT TERMINAL OBJECTIVE**

- 4-2 At the completion of this unit, the EMT-Enhanced student will be able to utilize the assessment findings to formulate a field impression and implement the treatment plan for the patient with hemorrhage or shock.

**COGNITIVE OBJECTIVES**

At the completion of this unit, the EMT-Enhanced student will be able to:

- 4-2.1 Describe the epidemiology, including the morbidity, mortality and prevention strategies for shock and hemorrhage. (C-1)
- 4-2.2 Discuss the various types and degrees of hemorrhage and shock. (C-1)
- 4-2.4 Discuss the assessment findings associated with hemorrhage and shock. (C-1)
- 4-2.5 Identify the need for intervention and transport of the patient with hemorrhage or shock. (C-1)
- 4-2.6 Discuss the treatment plan and management of hemorrhage and shock. (C-1)
- 4-2.7 Discuss the management of external and internal hemorrhage. (C-1)
- 4-2.8 Differentiate between controlled and uncontrolled hemorrhage. (C-3)
- 4-2.9 Differentiate between the administration rate and amount of IV fluid in a patient with controlled versus uncontrolled hemorrhage. (C-3)
- 4-2.37 Synthesize assessment findings and patient history information to form a field impression for the patient with hemorrhage or shock. (C-3)
- 4-2.38 Develop, execute, and evaluate a treatment plan based on the field impression for the hemorrhage or shock patient. (C-3)

**AFFECTIVE OBJECTIVES**

None identified for this unit.

**PSYCHOMOTOR OBJECTIVES**

At the completion of this unit, the EMT-Enhanced student will be able to:

- 4-2.40 Demonstrate the assessment of a patient with signs and symptoms of hypovolemic shock. (P-2)
- 4-2.41 Demonstrate the management of a patient with signs and symptoms of hypovolemic shock. (P-2)

**DECLARATIVE**

- 1) Pathophysiology, assessment, and management of hemorrhage
  - a) Hemorrhage
    - i) Epidemiology
      - (1) Incidence
      - (2) Morbidity/ mortality
      - (3) Prevention strategies
    - ii) Pathophysiology
      - (1) Location
        - (a) External
          - (i) Controlled
          - (ii) Uncontrolled
        - (b) Internal
          - (i) Trauma
          - (ii) Non-trauma
            1. Common sites
            2. Uncommon sites
          - (iii) Controlled
          - (iv) Uncontrolled
      - (2) Anatomical type
        - (a) Arterial
        - (b) Venous
        - (c) Capillary
      - (3) Timing
        - (a) Acute
        - (b) Chronic
      - (4) Severity
        - (a) Amounts of blood loss tolerated by
          - (i) Adults
          - (ii) Children
          - (iii) Infants
      - (5) Physiological response to hemorrhage
        - (a) Clotting
        - (b) Localized vasoconstriction
      - (6) **Assessment**
        - (a) **Early or compensated**
          - (i) **Tachycardia**
          - (ii) **Pale, cool skin**
          - (iii) **Diaphoresis**
          - (iv) **Level of consciousness**
            1. **Normal**
            2. **Anxious or apprehensive**
          - (v) **Blood pressure maintained**
          - (vi) **Narrow pulse pressure**
            1. **Pulse pressure is the difference between the systolic and diastolic pressures, i.e., pulse pressure = systolic - diastolic**
            2. **Pulse pressure reflects the tone of the arterial system and is more sensitive to changes in perfusion than the systolic or diastolic alone**



- (i) Types
    1. Isotonic solutions
    2. Hypertonic solutions
    3. Synthetic solutions
  - (ii) Rate of administration
    1. External hemorrhage that can be controlled
    2. External hemorrhage that cannot be controlled
    3. Internal hemorrhage
      - a. Blunt trauma
      - b. Penetrating trauma
  - (c) Pneumatic anti-shock garment (PASG)
    - (i) Effects
      1. Increased arterial blood pressure above garment
      2. Increased systemic vascular resistance
      3. Immobilization of pelvis and possibly lower extremities
      4. Increased intra-abdominal pressure
    - (ii) Mechanism
      1. Increases systemic vascular resistance through direct compression of tissues and blood vessels
      2. Negligible autotransfusion effect
    - (iii) Indications
      1. Hypoperfusion with unstable pelvis
      2. Conditions of decreased SVR not corrected by other means
      3. As approved locally, other conditions characterized by hypoperfusion with hypotension
      4. Research studies
    - (iv) Contraindications
      1. Advanced pregnancy (no inflation of abdominal compartment)
      2. Object impaled in abdomen or evisceration (no inflation of abdominal compartment)
      3. Ruptured diaphragm
      4. Cardiogenic shock
      5. Pulmonary edema
  - (d) **Recognize the need for** Needle chest decompression of tension pneumothorax to improve impaired cardiac output
  - (e) Recognize the need for expeditious transport of suspected cardiac tamponade for pericardiocentesis
- (3) **Fluid Management**
- Controlled external bleeding with signs & symptoms of shock**
  - Uncontrolled external and/or internal bleed with signs & symptoms of shock**
  - Traumatic Cardiac Arrest**
  - (4) Non-pharmacological interventions
  - (5) Transport considerations
    - (a) Indications for rapid transport
    - (b) Indications for transport to a trauma center
    - (c) Considerations for air medical transportation
  - (6) Psychological support/ communication strategies