

Roles And Responsibilities

Cognitive Objective:

- 1) Explain the term “ethics”. (C-2)
- 2) Explain the term “Professional”. (C-2)
- 3) Give an example of a “health care professional”. (C-2)
- 4) Describe the role of the Oregon Office of Public Health EMS and Trauma Section. (C-2)
- 5) Describe the differences between ethical behavior and legal requirements and how they pertain to EMT-Intermediates on and off duty. (C-2)
- 6) Identify whether a particular activity is unethical and/or illegal. (C-1)
- 7) Describe the importance of EMT-Intermediate involvement in public education. (C-1)
- 8) Describe continuing education requirements for EMT-Intermediates. (C-1)

Emergency Pharmacology

Cognitive Objectives:

- 1) Identify the common sources of drug information. (C-1)
- 2) Discuss the standardization of drugs and how they are classified. (C-2)
- 3) Differentiate among the chemical, generic, and trade names of a drug. (C-2)
- 4) List the four main sources of drug products. (C-2)
- 5) Explain the special consideration in drug treatment with regard to pregnant, pediatric and geriatric patients. (C-3)
- 6) Discuss the EMT-Intermediate’s responsibilities and scope of management pertinent to the administration of medications. (C-2)
- 7) List and describe liquid, solid, and gas drug forms. (C-2)
- 8) List and differentiate routes of drug administration. (C-2)
- 9) Differentiate between enteral and parenteral routes of drug administration. (C-3)
- 10) Review the specific anatomy and physiology relevant to pharmacology. (C-3)
- 11) Describe mechanisms of drug action, drug-response relationship, factors altering drug responses, drug interactions, predictable and unpredictable drug responses. (C-2)
- 12) Discuss considerations for storing drugs. (C-2)
- 13) List and describe the drugs which an EMT-Intermediate may administer. (C-2)
- 14) Explain procedures and measures to ensure security of controlled substances. (C-2)

- 15) In a given scenario formulate a pharmacologic management plan including medication administration. (C-5)

Venous Access And Medication Administration

Terminal Objectives

The EMT-Intermediate will be able to safely and precisely access the venous circulation and administer medications.

Cognitive Objectives

- 1) Review the relevant peripheral vascular anatomy. (C-1)
- 2) Calculate basic mathematical problems utilized in pharmacology (C-3)
- 3) Apply formulas as a basis for performing drug calculations. (C-3)
- 4) Calculate oral and parenteral drug dosages for all emergency medications administered to adults, infants, and children. (C-3)
- 5) Discuss the role of medical direction in medication administration. (C-2)
- 6) Discuss legal aspects affecting medication administration. (C-2)
- 7) List the Rights of Medication Administration. (C-1)
- 8) Describe medical asepsis and the differences between clean and sterile techniques. (C-2)
- 9) Describe use of antiseptics and disinfectants. (C-2)
- 10) Explain the use of universal precautions and body substance isolation (BSI) procedures when administering a medication. (C-1)
- 11) Explain the indications, contraindications, equipment needed, technique utilized, precautions and general principles of peripheral venous cannulation and intraosseous needle placement and infusion. (C-3)
- 12) Explain the indications, contraindications, equipment needed, techniques utilized, precautions, and general principles of administering medications by the inhalation route, and oral route. (C-3)
- 13) Explain the equipment used and the procedure for the administration of parenteral medications. (C-3)
- 14) Define the different forms and measurements of oral medications. (C-1)
- 15) Compare and contrast each parenteral route of medication administration. (C-6)
- 16) Explain the procedure for the administration of medications through the subcutaneous, intramuscular and intravenous routes. (C-2)

- 17) Describe the equipment needed, techniques utilized, precautions, and general principles for obtaining a blood sample. (C-2)
- 18) Describe disposal of contaminated items and sharps. (C-2)
- 19) Integrate pathophysiological principles of medication administration with patient management. (C-4)

AIRWAY MANAGEMENT

Cognitive Objectives

- 1) Identify the anatomy and physiology of the upper and lower airways. (C-1)
- 2) Discuss the role of the medulla and chemoreceptors in the control of ventilation. (C-2)
- 3) Describe the normal arterial partial pressures of PaO₂, PaCO₂, and pH, explaining their significance and relationship to respiratory compromise and/or disease. (C-3)
- 4) Associate respiratory volumes and capacities in relationship to the need for assisted ventilations in the following medical presentations. (C-3)
 - a) Asthma
 - b) Pulmonary edema
 - c) COPD
- 5) Discuss the specific observations and physical findings to be evaluated in patients with respiratory complaints. (C-3)
- 6) Summarize specific observations and physical findings commonly found in patients presenting in respiratory and/or cardiac arrest. (C-5)
- 7) Discuss the basic principles of airway management. (C-5)
- 8) Describe the indications for suctioning and identify rigid and flexible suction catheters and the indications for their use. (C-3)
- 9) Determine the indications and contraindications for the use of the pharyngeal/esophageal airway device (PEAD) (C-4)
- 10) Determine the advantages and disadvantages of using the pharyngeal/esophageal airway device (PEAD). (C-4)
- 11) Explain under what situations the PEADs may be removed in the prehospital setting. (C-3)

AIRWAY DISEASE

Cognitive Objectives

- 1) Discuss the physiology of ventilation and respiration as it pertains to airway disease. (C-5)
- 2) Identify common pathological events that affect the pulmonary system. (C-2)
- 3) Explain how effective assessment is critical to clinical decision-making in the airway management of the respiratory distress patient. (C-5)
- 4) Explain how hypoxic patients affect assessment and decision-making. (C-4)
- 5) Determine the general approach, patient assessment, and management priorities for patients who are complaining of dyspnea. (C-4)
- 6) Discuss normal and abnormal assessment findings associated with airway disease. (C-4)
- 7) Compare various airway and ventilation techniques used in the management of airway disease. (C-4)
- 8) Discuss the pharmacological preparations that EMT-Intermediates use for the management of airway disease. (C-4)
 - a) Albuterol
 - b) Atrovent
 - c) Epi 1:1000
 - d) Combi-vent
 - e) Lasix
- 9) Review the equipment used during the physical examination of patients with complaints associated with airway diseases and conditions. (C-1)
- 10) Describe the epidemiology, pathophysiology, assessment findings and management for the following respiratory diseases and conditions. (C-5)
 - a) Asthma
 - b) Chronic bronchitis
 - c) Pneumonia
 - d) Pulmonary edema
 - e) Pleural effusion
 - f) Congestive heart failure (covered in greater extent in cardiac section).
 - g) ARDS
- 11) Differentiate between critical life threatening, potentially life-threatening, and non life-threatening patient presentations. (C-3)

Cardiac Emergencies

Cognitive Objectives

1) The blood

- a) List the 5 functions of blood. (C-1)
- b) Describe the physical characteristics of blood, including the composition and function of plasma, erythrocytes, hemoglobin, leukocytes, and platelets. (C-2)
- c) Summarize the process of blood clotting. (C-3)
- d) Distinguish the factors that limit clot formation and prevent clotting. (C-3)
- e) Cite examples of clotting disorders. Give reasons for each condition.
 - i) Thrombotic and embolic conditions (C-2)
 - ii) Thrombocytopenia (petechiae) (C-2)
 - iii) Hemophilia (C-2)

2) The blood vessels

- a) Describe the structure of blood vessel walls. (C-2)
- b) Describe the structure and function of the arterial system. (C-2)
- c) Describe the structure and function of a capillary bed. (C-2)
- d) Describe the structure and function of the venous system. (C-2)
- e) Trace the pathway of a drop of blood through the body. (C-3)
- f) Name and give the location of the major arteries and veins in the systemic circulation. (C-1)

3) The heart

- a) Describe the size and shape of the heart and indicate its location and orientation in the thorax. (C-1)
- b) Name the covering of the heart. (C-1)
- c) Describe the structure of the heart wall. (C-1)
- d) List the structure and function of the four heart chambers. Name each chamber and provide the name and general route of its associated great vessel(s). (C-1)
- e) Name the heart valves and describe their location, function, and mechanism of operation. (C-2)
- f) Name the major branches of the coronary arteries and describe their distribution. (C-2)
- g) Differentiate between cardiac and skeletal muscle in terms of their intrinsic properties and tissue structure. (C-3)

- h) Name the components of the conduction system of the heart and trace the conduction pathway. (C-1)
 - i) Summarize the electrophysiology of membrane potential, sodium channels, potassium channels, calcium channels, depolarization, repolarization, refractory periods, and electrolyte roles in cardiac function. (C-2)
 - j) Describe the timing and mechanical events of the cardiac cycle. (C-2)
 - k) Discuss how ions, nerves and hormones influence the electrophysiology and mechanics of the cardiac cycle. (C-2)
 - l) Explain how the body regulates stroke volume, cardiac output, heart rate, preload, afterload, and blood pressure. (C-2)
- 4) Physiology of Circulation and Perfusion
- a) Define blood flow, blood pressure and resistance. (C-1)
 - b) List and describe the factors that influence blood flow in the body. (C-2)
 - c) Describe how blood pressure is regulated. (C-3)
 - d) Explain the role of cardiac cell feedback loops; baroreceptors, chemoreceptors, sympathetic and parasympathetic innervation and response in the regulation of cardiac output and blood pressure. (C-3)
 - e) Explain how capillary sphincters control local blood flow and nutrient exchange at the cell. (C-2)
 - f) Explain the relationship between vasoconstriction, vasodilation, and blood pressure. (C-3)
 - g) List examples of shock and identify which mechanisms of cardiac output and blood pressure are impaired or impacted. (C-2)
- 5) Assessment of chest pain
- a) Identify the cardiac and non-cardiac causes of chest pain. (C-1)
 - b) Identify the traumatic and non-traumatic causes of chest pain (C-1)
 - c) Outline the specific elements to include in the following aspects of a cardiovascular assessment: (C-3)
 - i) Scene assessment
 - ii) Initial assessment
 - iii) Focused history
 - (1) OPQRST
 - (2) Associated symptoms
 - (3) Dyspnea
 - (a) Exertional

- (b) Orthopnea
 - (c) Cough
- iv) Past medical history
 - (1) Baseline assessment
 - (2) Medications
 - (3) Risk factors
- v) Physical Assessment
 - (1) Inspection
 - (2) Auscultation
 - (3) Palpation
- d) Describe the components of the focused history as it relates to the patient with cardiovascular compromise. (C-3)
- e) Identify the elements of the SHOPS mnemonic as part of a chest pain assessment. (C-1)
- 6) EKG interpretation
 - a) Explain the purpose of EKG monitoring and its limitations. (C-2)
 - b) Specify patient situations when monitoring is indicated. (C-2)
 - c) Identify the operational aspects of EKG monitoring and defibrillator devices. (C-2)
 - d) Describe correct electrode placement for monitoring. (C-2)
 - e) Correlate EKG graph lines with the heart rate. (C-3)
 - f) Define the common terms used in EKG analysis including isoelectric line, duration, segment, complex and interval. (C-1)
 - g) Given a diagram of a normal electrocardiogram tracing, name the individual waves and intervals represented. (C-1)
 - h) Discuss the normal findings of each wave and interval of a typical EKG and indicate the events represented by each element of the EKG. (C-2)
 - i) Describe a systematic approach to the analysis and interpretation of cardiac rhythms. (C-3)
 - j) Interpret various rhythms found within the following categories of dysrhythmias
 - i) Narrow complex bradyrhythmias (C-4)
 - ii) Wide complex bradyrhythmias (C-4)
 - iii) Narrow complex tachyrhythmias (C-4)
 - iv) Wide complex tachyrhythmias (C-4)
 - v) Premature complexes (C-4)
 - vi) Cardiac arrest (C-4)
 - k) Identify the primary mechanisms responsible for producing cardiac dysrhythmias. (C-1)

- l) Outline the assessment for dysrhythmias and discuss the general treatment approach to dysrhythmias per ACLS guidelines. (C-2)

7) Cardiac Chest Pain Profiles

- a) Describe the pathophysiology of angina pectoris. (C-3)
- b) Differentiate between the signs and symptoms of stable angina and unstable angina. (C-3)
- c) Describe the pathophysiology of myocardial infarction. (C-3)
- d) Differentiate the characteristics of angina pectoris and acute myocardial infarction. (C-3)
- e) Identify the most common complications of an acute myocardial infarction. (C-3)
- f) Identify atypical presentations possible (particularly in females) in a patient having an acute myocardial infarction. (C-2)
- g) Identify the primary hemodynamic changes and the anticipated clinical presentation of a patient with a suspected acute myocardial infarction. (C-4)
- h) Describe the causes of and pathophysiology associated with congestive heart failure. (C-3)
- i) Define pulmonary edema and describe its relationship to left ventricular failure. (C-3)
- j) Define and explain the significance of pulmonary edema and dependent edema. (C-3)
- k) Differentiate between the chronic and acute clinical presentation of a patient with congestive heart failure. (C-3)
- l) Formulate a patient treatment plan for the patient in acute congestive heart failure. (C-5)
- m) Determine the most commonly used physician-prescribed drug classes in the management of chronic congestive heart failure. (C-2)
- n) Based on the pathophysiology and evaluation of the patient with chest pain, list the anticipated clinical problems according to their life-threatening potential. (C-6)
- o) Correlate abnormal findings in assessment with clinical significance in the patient with cardiovascular presentations. (C-3)
- p) Interpret the signs and symptoms of the patient with chest pain, CHF, MI, angina, acute aortic aneurysm, hypertensive emergency, and cardiac arrest. (C-2)
- q) Differentiate between critical life-threatening, potentially life-threatening and non-life-threatening patient presentations with the use of critical thinking scenarios. (C-3)

8) Emergency cardiovascular care

- a) Outline the drug profiles for the prehospital treatment of cardiac chest pain including their mechanism of action, indications, precautions, side effects, contraindications, and dosing regimen. (C-2)
- b) Specify the measures that may be taken to prevent or minimize complications in the patient suspected of myocardial infarction. (C-3)

- c) Explain the current ACLS algorithms for bradycardia and acute pulmonary edema (C-3)
- d) Explain the “window of opportunity” as it pertains to reperfusion of a myocardial injury or infarction and list the characteristics of an eligible patient. (C-2)

9) Cardiac arrest

- a) Distinguish the unique characteristics of manual, automatic, semi-automatic and internal defibrillators. (C-1)
- b) Define and explain the importance of defibrillation. (C-3)
- c) Summarize the contraindications and precautions for defibrillation. (C-1)
- d) Identify the signs of cardiac arrest and describe the importance of confirming cardiac arrest prior to initiating defibrillation. (C-2)
- e) Describe the safety considerations involved in defibrillation. (C-2)
- f) Describe correct pad /paddle placement for analysis and defibrillation. (C-2)
- g) Define and describe the pathophysiology of cardiac arrest. (C-2)
- h) Outline the sequence for the ACLS universal algorithm for cardiac arrest. (C-1)
- i) Describe the dysrhythmias seen in cardiac arrest. (C-2)
- j) Explain the current ACLS algorithms for the following:
 - i) VF/pulseless VT (C-3)
 - ii) PEA (C-3)
 - iii) Asystole (C-3)
- k) Determine the following drug choices for cardiac arrest including their indications, contraindications, side effects, route of administration, and dosages: (C-4)
 - i) Antiarrhythmic (e.g., Amiodarone, Lidocaine)
 - ii) Anticholinergic (e.g. Atropine)
 - iii) Sympathomimetics (e.g. Epinephrine)
 - iv) Antidiuretic, antihemorrhagic (e.g. Vasopressin)
- l) Explain the steps involved in the confirmation of asystole. (C-1)
- m) Identify circumstances and situations where resuscitation efforts would not be initiated. (C-3)
- n) Identify communication and documentation protocols with medical direction and law enforcement used for termination of resuscitation efforts. (C-3)

10) Special considerations in cardiac arrest

- a) Identify causes of sudden cardiac arrest in children. (C-1)
- b) Explain the use of defibrillation with children. (C-2)
- c) Identify the differences between adult and child defibrillation. (C-2)
- d) Indicate the joules used in pediatric defibrillation. (C-1)

- e) Explain the current ACLS guidelines for recognition and management of the following: (C-3)
 - i) Hypothermia
 - ii) Trauma
 - iii) Recreational drug use

11) Vascular Disorders

- a) Explain the pathophysiology and risk factors of an arterial aneurysm. (C-1)
- b) Recognize and describe the signs and symptoms of dissecting thoracic or abdominal aneurysm. (C-3)
- c) Describe the significance of unequal blood pressure readings in the arms. (C-2)
- d) State the symptoms and consequences of chronic hypertension. (C-2)
- e) Identify the risk factors and precipitating causes of a hypertensive emergency. (C-1)
- f) Explain the signs and symptoms of a hypertensive emergency. (C-3)
- g) Determine the drugs of choice for hypertensive emergencies including their indications, precautions, contraindications, side effects, route of administration and dosages. (C-3)

Altered Mental Status

Cognitive Objectives

- 1) Identify the following structures in the brain: (C-1)
 - a) Medulla
 - b) Pons
 - c) Midbrain
 - d) Brain stem
- 2) State the functions of the nervous system. (C-1)
- 3) Name the divisions of the nervous system. (C-1)
- 4) Describe the types of nerves. (C-1)
- 5) Describe the role of polarization, depolarization, and repolarization in nerve impulse transmission. (C-2)
- 6) Identify the components of the central nervous system. (C-1)
- 7) Describe the role of the central nervous system. (C-1)
- 8) Define the Reticular Activating System. (RAS) (C-1)
- 9) Describe the role of the Reticular Activating System as it pertains to AMS. (C-1)
- 10) State the function of the meninges and cerebrospinal fluid. (C-1)
- 11) Identify the divisions of the autonomic nervous system and define their functions. (C-1)

- 12) State the function of the hormones of the pancreas. (C-1)
- 13) Describe how glucose is converted to energy during cellular respiration. (C-1)
- 14) Describe the response of insulin and glucagon to altered levels of glucose. (C-2)
- 15) Describe the pathophysiology of diabetes mellitus. (C-2)
- 16) Describe the mechanism of ketone body formation and its relationship to ketoacidosis. (C-2)
- 17) Correlate abnormal findings in assessment with clinical significance in the patient with a diabetic emergency. (C-2)
- 18) Generalize the pathophysiology of non-traumatic neurologic emergencies. (C-3)
- 19) Explain the pathophysiology, epidemiology, assessment findings and management of the following: (C-2)
 - a) Stroke, intracranial hemorrhage
 - i) CVA – brain attack
 - (1) Occlusive
 - (a) Embolic stroke
 - (b) Thrombotic stroke
 - (2) Hemorrhagic
 - b) TIA
 - c) Seizures
 - i) Generalized – tonic/clonic
 - ii) Partial
 - iii) Others
 - d) Diabetes
 - i) Hypoglycemia
 - ii) Hyperglycemia
 - iii) DKA
 - (1) Differences from HHNK
 - e) Drugs
 - i) Barbiturates
 - ii) Narcotics
 - iii) Hallucinogens
 - iv) Depressants (including alcohol)
 - f) Non-specific coma
 - g) Altered level of conscious/syncope/weakness/headache
 - h) Infections

- i) Meningitis
 - ii) Encephalitis
- 20) Correlate abnormal findings in assessment with clinical significance in the patient with CVA/TIA, diabetes, drug overdose, seizures, and infections. (C-3)
- 21) Interpret the signs and symptoms of the patient with CVA/TIA, diabetes, drug overdose, seizures, and infection. (C-2)
- 22) Demonstrate the management of CVA/TIA, diabetes, drug overdose, epilepsy, and infections. (C-2)
- 23) Apply the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with altered mentation. (C-3)
- 24) Develop a patient management plan based on field impression in the patient with altered mentation. (C-3)
- 25) Determine the need for rapid intervention and transport of the patient with non-traumatic emergencies. (C-3)
- 26) Determine the class, mechanism of action, contraindications/cautions, interactions, adverse reactions of the following: (C-4)
- a) Naloxone hydrochloride
 - b) Hypertonic glucose
 - c) Glucagon

Trauma

Cognitive Objectives

- 1) List and the components of the trauma system in the State of Oregon. (C-1)
- 2) Explain the role of and the differences between the levels of trauma centers in Oregon. (C-2)
- 3) Describe the criteria for transport to a trauma center. (C-2)
- 4) Describe the criteria and procedure for air medical transport. (C-2)
- 5) Define energy and force as they relate to trauma. (C-1)
- 6) Define the laws of motion and energy and understand the role of increased speed has on injuries. (C-2)
- 7) Define the role of kinematics as an additional tool for patient assessment. (C-2)
- 8) Describe the organ collisions that occur in blunt trauma and vehicular collisions. (C-1)
- 9) Describe each type of vehicular collision and list the injuries that would potentially result from each impact. (C-1)

- 10) Determine the effects of various restraint systems on energy transfer and injury patterns in motor vehicle crashes. (C3)
- 11) Explain motion and energy considerations of mechanisms other than motor vehicle crashes. (C-2)
- 12) Explain the kinematics of penetrating injuries. (C-2)
- 13) List specific injuries and their causes as related to interior and exterior vehicle damage. (C-1)

Hemorrhage and Shock

Cognitive Objectives

1. List the causes of hemorrhage and state examples of medical and traumatic causes for hemorrhage. (C-1)
2. Review the various types of hemorrhage. (C-2)
3. Generalize the body's response to various stages of blood loss. (C-3)
4. Explain how pediatric and geriatric patients tolerate varying stages of hemorrhage differently. (C-2)
5. Review the components of perfusion including cardiac output, blood pressure regulation and capillary dynamics. (C-2)
6. Outline the differences between aerobic and anaerobic metabolism as they relate to the amount of energy production and the production of waste products. (C-1)
7. Categorize traumatic and medical causes of shock by the impaired mechanism(s) of perfusion. (C-2)
8. Describe the body's physiologic response to changes in perfusion. (C-2)
9. Differentiate between the pathophysiology of compensated and decompensated shock. (C-2)
10. Describe the effects of decreased perfusion at the capillary level. (C-2)
11. Discuss the cellular ischemic phase related to hypovolemic shock. (C-2)
12. Discuss the capillary stagnation phase of hypovolemic shock. (C-2)
13. Discuss the capillary washout phase related to hypovolemic shock. (C-2)
14. Differentiate between the assessment findings of compensated and decompensated shock. (C-3)
15. Differentiate the assessment findings for hypovolemic, cardiogenic, distributive, obstructive and neurogenic shock. (C-3)
16. Explain the general principles involved in shock management. (C-2)

17. Discuss the physiologic changes associated with the pneumatic anti-shock garment (PASG). (C-2)
18. Discuss the indications and contraindications for application and inflation of the PASG. (C-2)
19. Integrate the principles of pathophysiology into the assessment of hemorrhage or shock. (C-5)
20. Synthesize assessment findings and patient history information to form a field impression for the patient with hemorrhage or shock. (C-5)
21. Develop, execute, and evaluate a treatment plan based on the field impression for the hemorrhage or shock patient. (C-5)
22. Differentiate between the treatment strategies for hypovolemic, cardiogenic, distributive, obstructive, neurogenic and hypovolemic shock. (C-3)

Burns

Cognitive Objectives

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

1. Describe the epidemiology, including incidence, morbidity/mortality, risk factors, and prevention strategies for the patient with a burn injury. (C-2)
2. Describe the anatomy and physiology pertinent to burn injuries. (C-2)
3. Describe the local and systemic complications of a burn injury. (C-2)
4. Identify and describe the depth classification of burn injuries, including the superficial burn, a partial thickness burn, a full thickness burn, and other depth classifications described by local standing orders. (C-2)
5. Identify and describe methods for determining body surface area percentage of a burn injury including the "Rule of Nines," the "Rule of Palms," and other methods described by local standing orders. (C-3)
6. Identify and describe the severity of a burn including a minor burn, a moderate burn, a severe burn, and other severity classifications described by local standing orders. (C-2)
7. Differentiate criteria for determining the severity of a burn between a pediatric patient and an adult patient. (C-3)
8. Discuss the factors that impact the determination of burn severity. (C-2)
9. Outline the general assessment and management of a thermal burn injury. (C-1)
10. Discuss mechanisms of burn injury and conditions associated with various burn injuries. (C-2)

11. Explain the indications, precautions, contraindications and dosing for morphine sulfate, nalbuphine and ketorolac. (C-3)
12. Explain the pathophysiology, assessment findings and management considerations for thermal burns, inhalation injuries and electrical burns. (C-2)
13. Formulate a field impression and implement the management plan for a thermal burn, an inhalation burn, and an electrical burn. (C-3)

Thoracic Trauma

Cognitive Objectives

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

- 1) List the types of thoracic injuries found in blunt and penetrating trauma. (C-1)
- 2) Discuss the anatomy and physiology of the organs and structures related to thoracic injuries. (C-2)
- 3) Associate respiratory volumes and capacities in relationship to the need for assisted ventilations in the following chest trauma presentations. (C-3)
 - a) Chest wall injuries
 - b) Hemothorax
 - c) Pneumothorax
 - d) Tension pneumothorax
 - e) Pulmonary contusion
 - f) Myocardial contusion
 - g) Pericardial tamponade
- 4) Discuss the general pathophysiology involved in thoracic injuries. (C-2)
- 5) Discuss the assessment findings associated with thoracic injuries. (C-2)
- 6) Predict thoracic injuries based on mechanism of injury. (C-3)
- 7) Discuss the general management considerations for thoracic injuries. (C-2)
- 8) Explain the need for rapid intervention and transport of the patient with thoracic injuries. (C-3)
- 9) Discuss the epidemiology, pathophysiology, assessment findings and management of the following chest wall injuries: (C-2)
 - a) Rib fracture
 - b) Flail segment
 - c) Sternal fracture
- 10) Discuss the epidemiology, pathophysiology, assessment findings and management of the following pulmonary injuries: (C-3)

- a) Simple pneumothorax
- b) Open pneumothorax
- c) Tension pneumothorax
- d) Hemothorax
- e) Hemopneumothorax
- f) Pulmonary contusion

11) Discuss the epidemiology, pathophysiology, assessment findings and management of the following cardiac injuries: (C-2)

- a) Pericardial tamponade
- b) Myocardial contusion

12) Discuss the epidemiology, pathophysiology, assessment findings and management of the following: (C-2)

- a) Aorta dissection/rupture
- b) Traumatic asphyxia

13) Differentiate between thoracic injuries based on assessment and history. (C-3)

14) Formulate a field impression based on the assessment findings. (C-3)

15) Develop a patient management plan based on the field impression. (C-4)

Head Trauma

Cognitive Objectives

- 1) Identify primary and secondary brain injury. (C-1)
- 2) Describe the signs and symptoms of hypoxia in TBI. (C-2)
- 3) Discuss the effects of hypotension on the TBI patient. (C-2)
- 4) Calculate an accurate GCS score. (C3)
- 5) Differentiate between flexor/decorticate and extensor/decerebrate posturing. (C-2)
- 6) Identify pre-hospital signs of herniation. (C3)

Pediatrics

Cognitive Objectives

At the completion of this module, the EMT-Intermediate student will be able to:

- 1) Identify the growth and developmental characteristics of infants and children. (C-2)
- 2) Explain anatomy and physiology characteristics of infants and children. (C-3)
- 3) Outline differences in adult and childhood anatomy and physiology. (C-3)
- 4) Describe techniques for successful assessment of infants and children. (C-3)
- 5) Identify the common responses of families to acute illness and injury of an infant or child. (C-1)
- 6) Describe techniques for successful interaction with families of acutely ill or injured infants and children. (C-1)
- 7) Discuss pediatric patient assessment. (C-2)
 - a) Assessment triangle
 - b) Other assessment tools
- 8) Identify “normal” age group related vital signs. (C-2)
- 9) Discuss the appropriate equipment utilized to obtain pediatric vital signs. (C-2)
- 10) Determine appropriate airway adjuncts for infants and children. (C-3)
- 11) Discuss complications of improper utilization of airway adjuncts with infants and children. (C-3)
- 12) Discuss appropriate ventilation devices for infants and children. (C-3)
- 13) Discuss complications of improper utilization of ventilation devices with infants and children. (C-3)
- 14) Discuss age appropriate vascular access sites for infants and children. (C-2)
- 15) Discuss the appropriate equipment for vascular access in infants and children. (C-2)
 - a) Large-bore
 - i) 18ga
- 16) Identify complications of vascular access for infants and children. (C-1)
- 17) Define respiratory distress. (C-3)
- 18) Define respiratory failure. (C-3)
- 19) Define respiratory arrest. (C-3)
- 20) Describe the epidemiology, including the incidence, morbidity/ mortality, and risk factors for respiratory distress/ failure in infants and children. (C-1)
- 21) Discuss the pathophysiology of respiratory distress/ failure in infants and children. (C-3)

- 22) Discuss the assessment findings associated with respiratory distress/ failure in infants and children. (C-3)
- 23) Discuss the management/ treatment plan for respiratory distress/ failure in infants and children. (C-3)
- 24) List the indications for placement of an oral gastric tube for infants and children. (C-1)
- 25) Differentiate between upper and lower airway obstruction. (C-2)
- 26) Describe the epidemiology, including the incidence, morbidity/ mortality, and risk factors for croup in infants and children. (C-1)
- 27) Discuss the pathophysiology of croup in infants and children. (C-2)
- 28) Discuss the assessment findings associated with foreign body aspiration in infants and children. (C-2)
- 29) Discuss the management/ treatment plan for foreign body aspiration in infants and children. (C-2)
- 30) Describe the epidemiology, including the incidence, morbidity/ mortality, and risk factors for epiglottitis in infants and children. (C-2)
- 31) Discuss the pathophysiology of epiglottitis in infants and children. (C-2)
- 32) Discuss the assessment findings associated with epiglottitis in infants and children. (C-2)
- 33) Discuss the management/ treatment plan for epiglottitis in infants and children. (C-3)
- 34) Describe the epidemiology, including the incidence, morbidity/ mortality, and risk factors for asthma/bronchiolitis in infants and children. (C-2)
- 35) Discuss the pathophysiology of asthma/bronchiolitis in infants and children. (C-2)
- 36) Discuss the assessment findings associated with asthma/bronchiolitis in infants and children. (C-2)
- 37) Discuss the management/ treatment plan for asthma/bronchiolitis in infants and children. (C-3)
- 38) Describe the epidemiology, including the incidence, morbidity/ mortality, and risk factors for pneumonia in infants and children. (C-2)
- 39) Discuss the pathophysiology of pneumonia in infants and children. (C-2)
- 40) Discuss the assessment findings associated with pneumonia in infants and children. (C-2)
- 41) Discuss the management/ treatment plan for pneumonia in infants and children. (C-3)
- 42) Describe the epidemiology, including the incidence; morbidity/ mortality, and risk factors for foreign body lower airway obstruction in infants and children. (C-2)
- 43) Discuss the pathophysiology of foreign body lower airway obstruction in infants and children. (C-2)

- 44) Discuss the assessment findings associated with foreign body lower airway obstruction in infants and children. (C-2)
- 45) Discuss the management/ treatment plan for foreign body lower airway obstruction in infants and children. (C-3)
- 46) Discuss the common causes of shock in infants and children. (C-2)
- 47) Evaluate the severity of shock in infants and children. (C-3)
- a) Epidemiology,
 - b) Incidence,
 - c) Morbidity/ mortality,
 - d) Risk factors
- 48) Differentiate the assessment findings associated between compensated, and decompensated shock between infants, children and adults. (C-2)
- 49) Discuss the management/ treatment plan for shock in infants and children. (C-3)
- 50) Identify the major classifications of pediatric cardiac rhythms. (C-2)
- 51) Describe the epidemiology, including the incidence, morbidity/ mortality, and risk factors for cardiac dysrhythmias in infants and children. (C-2)
- 52) Discuss the pathophysiology of cardiac dysrhythmias in infants and children. (C-2)
- 53) Discuss the assessment findings associated with cardiac dysrhythmias in infants and children. (C-2)
- 54) Discuss the management/ treatment plan for cardiac dysrhythmias in infants and children. (C-3)
- 55) Describe the epidemiology, including the incidence, morbidity/ mortality, and risk factors for tachydysrhythmias in infants and children. (C-2)
- 56) Discuss the pathophysiology of tachydysrhythmias in infants and children. (C-2)
- 57) Discuss the assessment findings associated with tachydysrhythmias in infants and children. (C-2)
- 58) Discuss the management/ treatment plan for tachydysrhythmias in infants and children. (C-3)
- 59) Describe the epidemiology, including the incidence, morbidity/ mortality, and risk factors for bradydysrhythmias in infants and children. (C-2)
- 60) Discuss the pathophysiology of bradydysrhythmias in infants and children. (C-2)
- 61) Discuss the assessment findings associated with bradydysrhythmias in infants and children. (C-2)
- 62) Discuss the management/ treatment plan for bradydysrhythmias in infants and children. (C-3)
- 63) Discuss the primary etiologies of cardiopulmonary arrest in infants and children. (C-2)
- 64) Discuss basic cardiac life support (CPR) guidelines for infants and children. (C-2)
- 65) Identify appropriate parameters for performing infant and child CPR. (C-2)
- 66) Integrate advanced life support skills with basic cardiac life support for infants and children. (C-3)

- 67) Describe the epidemiology, including the incidence, morbidity/ mortality, and risk factors for seizures in infants and children. (C-2)
- 68) Discuss the pathophysiology of seizures in infants and children. (C-2)
- 69) Discuss the assessment findings associated with seizures in infants and children. (C-2)
- 70) Discuss the management/ treatment plan for seizures in infants and children. (C-3)
- 71) Describe the epidemiology, including the incidence, morbidity/ mortality, and risk factors for hypoglycemia in infants and children. (C-2)
- 72) Discuss the pathophysiology of hypoglycemia in infants and children. (C-2)
- 73) Discuss the assessment findings associated with hypoglycemia in infants and children. (C-2)
- 74) Discuss the management/ treatment plan for hypoglycemia in infants and children. (C-3)
- 75) Describe the epidemiology, including the incidence, morbidity/ mortality, and risk factors for hyperglycemia in infants and children. (C-2)
- 76) Discuss the pathophysiology of hyperglycemia in infants and children. (C-2)
- 77) Discuss the assessment findings associated with hyperglycemia in infants and children. (C-2)
- 78) Discuss the management/ treatment plan for hyperglycemia in infants and children. (C-2)
- 79) Identify common lethal mechanisms of injury in infants and children. (C-1)
- 80) Discuss anatomical features of children that predispose or protect them from certain injuries. (C-2)
- 81) Describe aspects of infant and children airway management that are affected by potential cervical spine injury. (C-2)
- 82) Identify infant and child trauma patients who require spinal immobilization. (C-1)
- 83) Discuss the pathophysiology of trauma in infants and children. (C-2)
- 84) Discuss the assessment findings associated with trauma in infants and children. (C-2)
- 85) Discuss the management/ treatment plan for trauma in infants and children. (C-3)
- 86) Discuss the assessment findings and management considerations for pediatric trauma patients with the following specific injuries: head/neck injuries, chest injuries, abdominal injuries, extremities injuries, burn injuries. (C-3)
- 87) Define child abuse. (C-1)
- a) See state web page
 - i) <http://www.oregon.gov/DHS/children/index.shtml>
- 88) Define child neglect. (C-1)
- a) See above
- 89) Describe the epidemiology, including the incidence, morbidity/ mortality, and risk factors and reporting requirements for abuse and neglect in infants and children. (C-1)

- 90) Discuss the assessment findings associated with abuse and neglect in infants and children. (C-1)
- 91) Discuss the management/ treatment plan for abuse and neglect in infants and children. (C-3)
- 92) Define sudden infant death syndrome (SIDS). (C-1)
- 93) Discuss the parent/ caregiver responses to the death of an infant or child. (C-1)
- 94) Describe the epidemiology, including the incidence, morbidity/ mortality, and risk factors for SIDS infants. (C-1)
- 95) Discuss the pathophysiology of SIDS in infants. (C-1)
- 96) Discuss the assessment findings associated with SIDS infants. (C-2)
- 97) Discuss the management/ treatment plan for SIDS in infants. (C-3)

Geriatrics

Cognitive Objectives

At the completion of this lesson, the EMT-Intermediate student will be able to:

- 1) Describe dependent and independent living environments. (C-1)
- 2) Identify local resources available to assist the elderly and discuss strategies to refer at-risk patients to appropriate community services. (C-1)
- 3) Discuss assessment techniques of the elderly patient. (C-2)
 - a) GEMS assessment diamond
- 4) Describe communication strategies used to provide psychological support. (C-3)
- 5) Discuss expected physiological changes associated with aging. (C-3)
- 6) Discuss problems with mobility in the elderly. (C-3)
- 7) Discuss problems with continence and elimination. (C-3)
- 8) Discuss pathophysiology changes associated with the elderly in regards to drug distribution, metabolism, and elimination. (C-3)
- 9) Discuss the impact of polypharmacy, dosing errors, medication non-compliance, and drug sensitivity on patient assessment and management. (C-3)
- 10) Discuss the assessment and management of the elderly patient with complaints related to the following body systems: (C-3)
 - a) Respiratory
 - b) Cardiovascular
 - c) Nervous
 - d) Endocrine

- e) Gastrointestinal
- 11) Describe the assessment of nervous system diseases in the elderly, including (C-3)
 - a) Cerebral vascular disease
 - b) Delirium, dementia
 - c) Alzheimer's disease
 - d) Parkinson's disease
 - 12) Discuss the assessment of an elderly patient with gastrointestinal problems, including GI hemorrhage and bowel obstruction. (C-3)
 - 13) Discuss the normal and abnormal changes with age related to toxicology. (C-3)
 - 14) Discuss the assessment of the elderly patient with complaints related to toxicology. (C-3)
 - 15) Describe the assessment and management of the elderly patient with toxicological problems. (C-3)
 - 16) Discuss the assessment and management of the patient with environmental considerations. (C-3)
 - 17) Discuss the normal and abnormal changes of the musculoskeletal system with age. (C-3)
 - 18) Discuss the assessment and management of the elderly patient with complaints associated with trauma. (C-3)
 - 19) Discuss the general management of the elderly patient. (C-3)
 - 20) Describe common psychological reactions associated with aging. (C-2)
 - a) Anxiety
 - b) Depression
 - c) Suicidal tendencies
 - d) Substance abuse

Environmental

Cognitive Objectives

At the completion of this module, the EMT-Intermediate student will be able to:

- 1) Define "environmental emergency." (C-1)
- 2) Identify risk factors most predisposing to environmental emergencies. (C-1)
- 3) Identify environmental factors that may cause illness or exacerbate a pre-existing illness. (C-1)
- 4) Identify environmental factors that may complicate treatment or transport decisions. (C-1)
- 5) List the principal types of environmental illnesses. (C-1)
- 6) Identify normal, critically high and critically low body temperatures. (C-1)

- 7) Describe several methods of temperature monitoring. (C-1)
- 8) Identify the methods of heat loss. (C-2)
- 9) Describe the body's compensatory process for over heating. (C-2)
- 10) Describe the body's compensatory process for excess heat loss. (C-2)
- 11) Explain the common forms of heat and cold disorders. (C-2)
- 12) List the common predisposing factors associated with heat and cold disorders. (C-1)
- 13) List the common preventative measures associated with heat and cold disorders. (C-1)
- 14) Define heat illness. (C-1)
- 15) Identify signs and symptoms of heat illness. (C-1)
- 16) List the predisposing factors for heat illness. (C-1)
- 17) List measures to prevent heat illness. (C-1)
- 18) Relate symptomatic findings to the commonly used terms: heat exhaustion, and heat stroke. (C-3)
- 19) Discuss the role of fluid therapy in the treatment of heat disorders. (C-1)
- 20) Differentiate among the various treatments and interventions in the management of heat disorders. (C-3)
- 21) Integrate the pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient who has dehydration, heat exhaustion, or heat stroke. (C-3)
- 22) Define hypothermia. (C-1)
- 23) List predisposing factors for hypothermia. (C-1)
- 24) List measures to prevent hypothermia. (C-1)
- 25) Identify differences between mild and severe hypothermia. (C-1)
- 26) Describe differences between chronic and acute hypothermia. (C-1)
- 27) List signs and symptoms of hypothermia. (C-1)
- 28) Correlate abnormal findings in assessment with their clinical significance in the patient with hypothermia. (C-3)
- 29) Discuss the impact of severe hypothermia on standard BCLS and ACLS algorithms and transport considerations. (C-1)
- 30) Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient who has either mild or severe hypothermia. (C-3)
- 31) Define near drowning. (C-1)

- 32) Discuss the complications and protective role of hypothermia in the context of near-drowning. (C-1)
- 33) Correlate the abnormal findings in assessment with the clinical significance in the patient with near drowning. (C-3)
- 34) Differentiate among the various treatments and interventions in the management of near drowning. (C-3)
- 35) Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the near-drowning patient. (C-3)
- 36) Integrate pathophysiological principles of the patient affected by an environmental emergency. (C-3)
- 37) Differentiate between environmental emergencies based on assessment findings. (C-3)
- 38) Correlate abnormal findings in the assessment with the clinical significance in the patient affected by an environmental emergency. (C-3)
- 39) Develop a patient management plan based on the field impression the patient affected by an environmental emergency. (C-3)