

**New York State Department of Health
Bureau of Emergency Medical Services**

**EMT-Intermediate
Curriculum Overview**

I. PREPARATORY

A. Foundations of the EMT-Intermediate

This unit covers, in an overview format, the most significant aspects of the following topics: EMS Systems/Role and Responsibilities, Medical Direction, Well-Being (including body substance isolation), Illness and Injury Prevention, Medical/Legal Issues, and Ethical Issues.

B. Overview of Human Systems/Roles and Responsibilities

This overview of human systems includes the major aspects of anatomy and physiology including body organization, anatomical terminology, cell transport mechanisms, metabolism, and tissue types. All body systems are discussed with, emphasis on the nervous and cardiac systems. Basic fluid and electrolyte information is also included.

C. General Pharmacology

This unit is a review of General Pharmacology unit of the New York State EMT-Basic curriculum (Lesson 4-1). It will include medications which may be carried on the ambulance and medications the EMT-Intermediate may assist the patient with administering in the field.

D. Intravenous Access

This unit is designed to teach safe and precise venous access. Medical direction is discussed in this unit relative to medical/legal aspects of invasive procedures and medication administration.

Medical asepsis, body substance isolation (BSI) procedures for intravenous access, and disposal of contaminated items and sharps, are included in the module. The discussion of venous access includes equipment and preparations used for obtaining peripheral and central venous routes, as well as indications, precautions, procedures, and general principles. The section on enteral and parenteral medication administration, and administering medications by inhalation, includes equipment and preparations, indications, techniques, precautions, procedures, and general principles. The unit discusses the purposes for obtaining a blood sample, then lists equipment and preparations, locations from which to draw a sample, procedures, and complications.

II. AIRWAY MANAGEMENT AND VENTILATION

This unit is designed to teach how to establish and/or maintain a patent airway, and oxygenate and ventilate a patient. The fact that each of these topics occupies a separate unit emphasizes their significance.

The unit reviews the anatomy and physiology of the respiratory system and presents the upper and lower airways, differences in the pediatric airway, and lung/respiratory volumes in detail.

Other topics include:

ventilation and respiration, measurement of gases, and causes of decreased oxygen concentrations in the blood.

The discussion of the pathophysiology of airway obstruction (laryngeal spasm and edema, aspiration, etc.) helps the student understand its negative impact on a patient's condition. Airway management includes assessment, manual maneuvers, adjunctive equipment (oral and nasal airways, endotracheal tube, lighted stylet and multilumen airways), and procedures (orogastric/nasogastric decompression, orotracheal/nasotracheal intubation, digital intubation).

Other topics include extubation, pediatric endotracheal intubation, and considerations for special situations (stomas, facial injuries, etc.).

The section on oxygenation identifies oxygen sources, delivery equipment and devices, and special considerations for patients with stoma. Various suctioning devices, adjunctive equipment, and techniques are also described.

Ventilation includes recognition and identification of respiratory compromise, techniques, and adjunctive equipment. The discussion of ventilation covers basic ventilation adjuncts (bag-valve-mask and pocket mask), the automatic transport ventilator, cricoid pressure, and ventilating pediatric patients and patients with stomas.

III. PATIENT ASSESSMENT

A. History Taking

This unit is designed to teach the students a more complete approach to history taking. The SAMPLE and OPQRST mnemonics are presented as standardized methods for gathering a history. This section focuses on components of the patient history, current health status of the patient, techniques of history taking, and gathering information about the present illness. A section also emphasizes techniques to overcome special challenges including silence; overly talkative patients; anxiousness; angry and hostile patients; intoxication, crying, or depressed patients; sexually attractive or seductive patients; confusing behavior or history; limited intelligence; language barriers; hearing problems; and blind patients.

B. Techniques of Physical Exam

This unit provides the core material necessary for conducting a patient assessment. Comprehensive techniques of physical examination are presented by anatomical regions: skin, head, eyes, ears, nose, throat, neck, chest, abdomen, genitalia, posterior body, and extremities. Other topics discussed include mental status, general survey, vital signs and neurologic exam.

Each anatomical section discusses specific techniques of physical examination, including sections on inspection, auscultation, palpation, and percussion, with special considerations for how and what to examine in each body area or system. The units focus on normal findings, but significant abnormal findings are also identified. The unit aims, by ensuring that the students can understand and identify "normal findings", to make certain that they will be more capable of identifying "abnormal findings". Students must be taught the proper techniques of physical examination in order to apply the appropriately to the process of patient assessment. As an example, when a student determines the need to examine the head as a part of the detailed examination, they already will have learned the proper techniques of examining the head and understand the normal findings. Thus, the student is provided the proper tools to conduct a physical examination and extract what is most important based on the condition of the patient, while maintaining a holistic understanding.

C. Patient Assessment

The terminology and phases of assessment have been standardized to those of the EMT-Basic curriculum. However, the content is more comprehensive in some areas, such as the detailed physical exam. The components of patient assessment are scene size-up, initial assessment, focused history and physical exam for both the medical and the trauma patient, detailed physical exam, and on-going assessment.

The scene size-up focuses primarily on keeping the EMT-Intermediate safe. Information presented in the earlier Well-Being of the EMT-Intermediate section is reinforced in this section presenting the need to establish body substance isolation and scene safety as one of the first priorities when arriving at a scene. Other components include determining the mechanism of

injury or nature of illness, the number of patients, and whether any additional resources are required.

The initial assessment is designed to identify any immediately life threatening injuries or conditions, primarily those affecting the airway, breathing, or circulation status of the patient. These injuries or conditions must be managed immediately when found since they will lead to sudden or continuous deterioration, and potentially the death of the patient. A general impression is a quick scan of the body conducted to determine any obvious life threats that require immediate management, such as a large sucking chest wound or an arterial bleed. A baseline mental status is established, followed by assessment of the airway, breathing, and the circulation, the latter includes skin color, temperature, condition, and any major bleeding that may not have been identified in the general impression. Based on the information collected, a priority status is established that drives decisions regarding further assessment and expeditious transporting.

The focused history and physical examination is designed to identify all other injuries or conditions. It is divided into separate sections for trauma and medical patients. Trauma patients with a significant mechanism of injury or altered mental status will require a rapid trauma assessment designed to identify all other life threats such as intra-abdominal bleeding, chest wounds, head injury, and any other immediately life-threatening conditions. The rapid trauma assessment is a systematic head-to-toe exam employing techniques of inspection, palpation, auscultation, and percussion. Like the initial assessment, management for the life threats found in the rapid trauma assessment is conducted as the conditions or injuries are found. If the patient is responsive and does not have a significant mechanism of injury, a focused exam is conducted on the specific area of injury. The student must refer back to the techniques of physical exam to determine the most appropriate methods of examination. History and baseline vital signs are obtained as part of the assessment.

The focused history and physical exam for the medical patient is based on the patient's level of responsiveness. In the responsive patient, the history is conducted as a priority, followed by physical examination of the areas of complaint and related body systems. A rapid medical assessment, (similar to the rapid trauma assessment) is performed on the unresponsive medical patient, followed by history gathering. Baseline vital signs are obtained for both assessments.

The detailed physical exam is based on the patient's condition and the time until arrival at the health care facility. The detailed exam will use the information presented in the Techniques of Physical Exam unit to identify all other injuries or conditions related to the patient's chief complaint; this exam may be used to determine a differential field impression of the patient, and to provide direction for further treatment. The detailed physical exam is a thorough, head-to-toe exam concentrating on anatomical regions and specific body systems. It can also be used to focus in more detail on a specific anatomic area or body system.

The ongoing assessment is used to reassess critical functions such as airway, breathing, circulation, mentation, and baseline vital signs. Interventions are assessed for proper function of equipment and effectiveness of care administered. Determinations for further intervention can be made from the information collected. Any additional patient complaints are assessed and managed during this phase.

D. Clinical Decision Making

This unit provides the EMT-Intermediate with a process for clinical decision making, using the assessment findings to form a field impression and develop an emergency care plan. The process of clinical decision making includes these components: concept formation, data interpretation, application of principle, evaluation, and reflection on action. Fundamental elements of critical thinking are discussed, and applied to emergency medical assessment and management. The six "Rs" provide a conceptual approach to patient management and encompass many of the previously learned units. The six "Rs" are: Read the patient, Read the

scene, React, Reevaluate, Revise the management plan, and Review performance at run critique.

E. Communications

This section provides an overview of the various components of the communications system that an EMT-Intermediate may encounter. After a general introduction to the communications model and its importance when providing emergency medical services, the unit outlines systems communications including technical components. The systems section also provides information about public safety access points, and regulatory agencies that affect EMS communications. The remainder of this section outlines the phases and importance of dispatch and procedures for effective communication.

F. Documentation

This unit introduces and discusses the importance and various uses of documentation. It emphasizes collection of and reporting of relevant data such as incident times, medical orders, pertinent negatives, oral statements made by the patient, and use of support services and mutual aid. Elements of a properly written EMS report, and different methods that may be used to write narratives are presented. The unit also includes issues dealing with special situations, revision or correction, and inappropriate documentation.

IV. TRAUMA

A. Trauma Systems and Mechanism of Injury

This unit discusses trauma systems and mechanism of injury. It covers the principles of kinematics as a basis for enhancing patient assessment. To assist in predicting the likelihood of injuries based on the mechanism. Trauma systems, trauma centers, and transport considerations are updated. The unit includes detailed discussion of energy, how energy exchange occurs, and its relationship to blunt and penetrating injuries by body system and cavity. The unit conforms to principles presented in current trauma life support training programs.

B. Hemorrhage and Shock

This unit is expanded from the previous EMT-Intermediate curriculum. Hemorrhage and shock (including hypovolemic, distributive, cardiogenic, spinal neurogenic, and spinal) are covered. Shock management, which previously only covered PASG and limited intravenous fluids, is expanded. Needle chest decompression is also now discussed.

C. Burns

This unit teaches pathophysiological and systemic complications of burn injuries, and considerations for assessment and management. The unit explores specific burn injuries including the thermal, inhalation, chemical, electrical, and radiation burns. Epidemiology of each burn injury is discussed, including incidence, mortality and morbidity statistics, risk factors, and prevention strategies. A review of anatomy and physiology specific to the burn identifies compromising problems. The many features of assessing a burn injury include types, mechanisms, and severity of burns; signs and symptoms; classification of burn depth; factors affecting prognosis and management; and other considerations. Burn injury management includes supportive care (safety, airway, oxygenation, ventilation, etc.) and allows for local EMS protocols in selection of pharmacological agents, non-pharmacological procedures, and transportation considerations. Communication strategies provide psychological support for the patient and others.

D. Head, Thoracic & Abdominal Trauma

This lesson integrates pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the trauma patient with suspected head and/or facial injuries. The section discusses epidemiology; detailed anatomy and related physiology of the head, face, and central nervous system (CNS) structures; assessment techniques and

findings; differential field impressions; and field management of each impression. Helmet types, purposes, and removal techniques are also discussed. New to this revision is greatly increased anatomy and pathophysiology of head, face, and CNS, as well as current treatment techniques for suspected brain injuries.

The thoracic trauma unit begins with epidemiology, mechanism of injury, and anatomy and physiology of injuries to the thorax. General pathophysiology, assessment findings, and management of the patient with chest trauma are next, followed by specific injuries. Specific injuries include: chest wall injuries (rib fractures and flail chest), pulmonary injuries (pneumothorax, hemothorax, hemo-pneumothorax, and pulmonary contusion), myocardial injuries (contusion, rupture, and pericardial tamponade), and vascular injuries, and other injuries of the thorax. For each specific injury, the pathophysiology, assessment, and management are included. Management techniques included in this unit are needle decompression and elective intubation.

This lesson integrates pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with suspected abdominal trauma. The lesson accomplishes this through the discussion of epidemiology of abdominal trauma, detailed anatomy and physiology of related structures, assessment, and field management techniques. Specific areas covered are solid and hollow organs, abdominal vascular structures, and pelvic injuries. Psychomotor skills covered and/or needed for completion of this lesson include physical assessment skills and the use of the PASG. Detailed and increased discussion of abdominal anatomy and physiology, and assessment techniques are new to this revision.

E. Trauma Practical Laboratory

This is a psychomotor session designed to enable the student to demonstrate practical skills of managing trauma patients. Included are assessment and management of hemorrhage (internal and external) and shock (compensated and decompensated), and the patient with chest trauma, musculoskeletal trauma, soft tissue injury or spinal injury.

V. AUTOMATED EXTERNAL DEFIBRILLATION (AED)

VI. ASSESSMENT-BASED MANAGEMENT

This section first identifies and discusses components of effective assessment, including accurate information and how to obtain it, factors affecting assessment and decision making, and the choreography of patient assessment and management. The unit covers prehospital provider attitude, uncooperative patients, tunnel vision, and labeling as well as scene issues and manpower considerations. Following these components is a discussion of what to take to the patient's side, and which equipment may be optional. The material addresses general approach to the patient and how to present patient information to others. The last section of this unit reviews common chief complaints in patient simulation format, allowing the EMT-Intermediate to assess a patient, make decisions relative to interventions and transportation, and practice various team roles.

VII. CLINICAL AND FIELD EDUCATION

PSYCHOMOTOR SKILLS

The student must demonstrate the ability to safely perform endotracheal intubation.

The student should safely, and while performing all steps of each procedure, successfully intubate at least 5 live patients.

The student must demonstrate the ability to safely gain venous access in all age group patients.

The student should safely, and while performing all steps of each procedure, successfully access the venous circulation at least 15 times on live patients of various age groups.

The student must demonstrate the ability to effectively ventilate unintubated patients of all age groups.

The student should effectively, and while performing all steps of each procedure, ventilate at least 10 live patients of various age groups.

PATHOLOGIES

The student must demonstrate the ability to perform a comprehensive assessment on trauma patients.

The student should perform a comprehensive patient assessment on at least 20 trauma patients.

COMPLAINTS

The student must demonstrate the ability to perform a comprehensive assessment, formulate and implement a treatment plan for an injured patients.

The student should perform a comprehensive patient assessment, formulate and implement a treatment plan on at least 10 adult trauma patients..

The student should perform a comprehensive patient assessment, formulate and implement a treatment plan on at least 4 pediatric trauma.

TEAM LEADER SKILLS

The student must demonstrate the ability to serve as a team leader in variety of prehospital emergency situations.

The student should serve as the team leader for at least 20 prehospital emergency responses.

XI. FIELD INTERNSHIP (SUMNATIVE EVALUATION)

The final ability to integrate all of the didactic, knowledge, psychomotor skills, and clinical instruction into the ability to serve as an entry-level AEMT is measured during the field internship phase of the program. The field internship is not an instructional, but rather an evaluative, phase of the program. The field internship should occur toward the end of the program, with enough of it coming after the completion of all other instruction to assure that the student is able to serve as an entry-level AEMT. During the field internship, the student should be under the close supervision of an evaluator.

Field internship must occur within an emergency medical service, which demonstrates medical accountability. Medical accountability exists when there is good evidence that the EMS provider is not operating as an independent practitioner, and when field personnel are working either under direct medical control of on-line physicians or in a system utilizing standing orders where timely medical audit and review provide quality improvement.

Quality improvement is also a required component of EMS training. The role of medical direction is paramount in assuring the provision of highest quality out-of-hospital care. Medical directors should work with individuals and systems to review out-of-hospital cases and strive to achieve a sound method of continuous quality improvement.