

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

**EMT-Critical Care Technician
Curriculum Overview**

I. PREPARATORY

A. Foundations of the EMT-Critical Care Technician

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. Emergency Pharmacology

This unit provides foundation material in pharmacology including names and sources of drugs, drug classification, sources of information about drugs, drug legislation, schedules of controlled drugs, and standardization of drugs. Other topics include general properties of drugs, drug forms, routes of drug administration, interactions, and drug storage. Special considerations in drug therapy for pregnant patients, pediatrics, and geriatrics are also discussed.

The EMT-Critical Care Technician scope of pharmacologic management addresses issues such as personal responsibility for safe and therapeutically effective drug administration, and legal, moral, and ethical responsibilities.

A review of the autonomic nervous system, essential to understanding the mechanism of action of drugs is included. Pharmacokinetics and pharmacodynamics are integrated. The material presents components of a standardized drug profile (indications, contraindications, dosages, etc.) and specific drugs are listed in the curriculum. These include: acetylsalicylic acid (aspirin), adenosine, atropine, bronchodilators, 50% dextrose, diazepam, epinephrine (1:1,000), epinephrine (1:10,000), furosemide, lidocaine HCL 2%, morphine sulfate, naloxone, and nitroglycerin. As a general rule, EMS systems identify specific drugs for EMT-Critical Care Technician use. Each system establishes its protocols for delivery of prehospital emergency pharmacology.

D. Venous Access and Medication Administration

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

Mathematical principles and equivalents in pharmacology are important to understanding the science of drug calculations ("med math"). Methods for calculating dosages include those for intravenous parenteral medications, intravenous infusions, and administration of oral medications. Methods for calculating doses for infants and children are discussed.

Medical asepsis, body substance isolation (BSI) procedures for medication administration, 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 different routes of medication administration discussed are oral, topical, inhalations, gastric tube, rectal, endotracheal, intradermal, subcutaneous, intramuscular, intravenous, intraosseous, percutaneous, and intravenous infusion ("piggyback"). 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-Critical Care Technician safe. Information presented in the earlier Well-Being of the EMT-Critical Care Technician 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 vitals 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-Critical Care Technician 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-Critical Care Technician 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-Critical Care Technician 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 pathophysiologic 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. MEDICAL

The medical sections within the new EMT-Critical Care Technician curriculum are expansions from the previous curriculum, which focuses primarily on airway management and the assessment and management of shock. The new curriculum encompasses many of the current medical emergencies encountered by the practicing EMT-Critical Care Technician .

A. Respiratory Emergencies

General respiratory assessment findings, pathology, and pharmacological preparations are covered in the opening lectures. The unit discusses identification and management of seven specific conditions: bronchial asthma, chronic bronchitis, emphysema, pneumonia, pulmonary edema, spontaneous pneumothorax, and hyperventilation syndrome. The EMT-Critical Care Technician will use epinephrine, nitroglycerine, furosemide, morphine sulfate and nebulized beta-2 drops when indicated for these diseases. (Teaching of the management of these diseases requires instruction in Emergency Pharmacology, Medication Administration, and Airway and Ventilation prior to this unit.)

B. Cardiovascular Emergencies

This section begins with an introduction to the epidemiology of coronary artery disease and to cardiovascular anatomy and physiology including electrophysiology. It describes assessment of the cardiac patient and presents information necessary to interpret ECGs. Assessment of the patient with chest pain, and management of cardiac arrhythmia's, follow. Other cardiovascular conditions discussed include pulmonary edema, hypertensive emergencies, and cardiogenic shock. Cardiac arrest is also discussed, as well as the issues of when not to resuscitate, and terminating of resuscitation.

C. Diabetic Emergencies

This section provides the EMT-Critical Care Technician with the knowledge and skills needed to manage a patient experiencing a diabetic emergency. The curriculum discusses diabetes mellitus, diabetes ketoacidosis, hypoglycemia, and hyperglycemia. Each illness then is addressed in terms of epidemiology, pathophysiology, assessment findings, and management.

D. Allergic Reactions

This section provides the EMT-Critical Care Technician with the ability to formulate a field impression and manage a patient with an allergic reaction. The section begins with an introduction that includes a review of anatomy and terminology, pathophysiology of an allergic reaction including routes of entry, common allergens and a description of the allergic response. After this, the typical assessment findings are covered. The section concludes with a discussion of management of the allergic reaction, based on the assessment findings.

E. Poison/Overdose

This section provides the EMT-Critical Care Technician with the ability to formulate a field impression and manage a patient with an accidental or intentional poisoning or overdose. After a general introduction to toxicology, assessment, and management, the student receives information on appropriate personal equipment and scene safety awareness. The use of poison control centers is discussed. Next, routes of absorption, anatomy and physiology, assessment and general management considerations are covered. The section provides specific toxicology, assessment, and management information is provided for cholinergics, anticholinergics, narcotics/opiates, carbon monoxide, psychiatric medications, bites and stings.

F. Neurological Emergencies

This section consists of a general overview of neurological emergencies, as well as specific illness and injury information. The general physiology material discusses alterations in cognitive systems, cerebral homeostasis, and motor control. Central nervous system disorders are also addressed. The general assessment portion includes patient history, physical exam, and ongoing assessment for neurological emergencies. Lastly, the management segment covers airway and

ventilatory support, circulatory support, pharmacological interventions, nonpharmacological interventions, transport considerations and psychological support.

After the general introduction, detailed information is provided for four categories of neurological illnesses or injuries: 1) stroke and intracranial hemorrhage, 2) transient ischemic attack, 3) epilepsy and seizure and 4) nonspecific coma, altered level of consciousness, syncope, weakness, and headache. This material covers the epidemiology, pathophysiology, assessment findings, and management of these conditions. This section concludes with an integration strategy to permit the EMT-Critical Care Technician to develop a management approach based on the chief complaint or problem.

G. Non Traumatic Abdominal Emergencies

This section provides a foundation for assessing and managing a patient with non-traumatic pain. First, the section defines the acute abdomen and provides a review of anatomy and physiology. Second, the general pathophysiology of abdominal pain is discussed. This includes bacterial contamination, chemical irritation, peritoneal inflammation, bleeding, obstruction and other causes of abdominal pain. The section then presents assessment findings gathered in the initial assessment, history (including OPQRST), and focused physical exam. The last topic is management of the patient, including the consideration for MAST.

H. Environmental Emergencies

This topic includes a discussion of pathophysiology, assessment and management of heart disorders, cold disorders, and near drowning. The topic also includes a section on "locale-specific" environmental emergencies including local issues such as diving emergencies, altitude illness and localized cold injuries. The section ends with discussions of integration, reviewing the impact of the environment on human metabolism, assessment findings in patients with environmentally induced illness, and patient management.

I. Behavioral Emergencies

This section provides an overview of normal and abnormal behavior before it addresses behavioral emergencies. Behavior is introduced as how a person acts, and further detail is provided on behavioral emergencies, including epidemiology and common misconceptions. This section then covers the pathophysiology, assessment, and management of behavioral emergencies. The pathophysiology section identifies three causes of behavioral emergencies: 1) biological and organic, 2) psychological, and 3) socio-cultural.

The primary concern in the assessment segment is the safety of the provider and patient. In addition, the EMT-Critical Care Technician is taught how to perform an initial assessment, focused history, and physical exam while remaining cognizant of the patient's affect and potential for violence. The section also presents information on language, mood, appearance, hygiene, dress, and motor activity. The management portion focuses on treating existing medical problems while reinforcing provider safety. Medico-legal and transport considerations are also outlined.

J. Gynecological Emergencies

This unit begins with a review of female reproductive anatomy and physiology, covering menstruation, ovulation, and menstrual and ovarian cycles. Assessment findings of the patient with a gynecology emergency follow, including obstetrical history, physical examination and general management principles. Specific gynecology emergencies presented cover the pathophysiology, assessment, and management of pelvic inflammatory disease, ectopic pregnancy, vaginal bleeding, traumatic abdominal pain, and sexual assault.

VI. SPECIAL CONSIDERATIONS

A. Obstetrical Emergencies

This unit provides an understanding of the anatomy and physiology of pregnancy, and of labor and delivery. Normal and abnormal delivery are discussed, as well as trauma in the obstetrical patient, abdominal pain, excessive vaginal bleeding, ectopic pregnancy, toxemia and other complications of pregnancy. This section also provides a discussion of childbirth preparation, normal delivery, abnormal delivery, and post-delivery care for the mother and baby.

B. Neonatal Resuscitation

This new unit on the recently born infant significantly expands the information on treatment strategies and specific situations. These include meconium stained amniotic fluid, apnea, diaphragmatic hernia, and bradycardia (both of which have high mortality rates), premature infants, and respiratory distress. Hypoglycemia, which has serious ramifications, is also discussed. A new section on common birth injuries covers aspects of mechanical and anoxic trauma, and the serious effects that result.

C. Pediatrics

The section on pediatrics, largely reworked, includes the objectives, priorities, assessment procedures, and treatment protocols of the Emergency Medical Services for Children project (EMSC). This unit reinforces information from the neonatology section that discusses the physical, cognitive and emotional development. The anatomic and physiological unit is a succinct review of previous material. The assessment section is more complete including a transition phase from initial assessment to the focused history. This is an important distinction that alerts the EMT-Critical Care Technician to give the child time to become familiar with the EMT-Critical Care Technician if the presenting condition permits it. General management of the airway is divided into basic and advanced sections. Specific pathophysiologic problems include respiratory compromise, shock, dysrhythmias, seizure, hypoglycemia, hyperglycemia, infection, and poisoning and toxic exposure. The section on pediatric trauma is guided by the latest edition of the American College of Surgeons ATLS program. Child abuse and neglect, and a new section on infants and children with special needs, conclude the unit.

D. Geriatrics

This new unit addresses the special needs of the elderly. Included are sections on demographics, the effect of aging on body systems, altered physiology, multiple co-existing diseases, nonspecific and atypical presentations, limitations of mobility, self-care, and the marked influence of the social system. The unit emphasizes an understanding of the changes that the aging process brings about in physical structure, body composition, and organ function, which will be a fundamental knowledge base in maintenance of life support functions. The section also covers the special health care problems of the elderly, and their complications in treatment: diabetes, hearing and visual impairment, hypertension, arthritis, and cardiovascular disease.

E. Ambulance Operations

What makes out of hospital care different from nursing or medical practice is the field environment and the need to bring care TO the patient in that environment. Rather than an easy stroll to the bedside, the foundation of pre-hospital care is need to bring good patient care to "bad places". A common assumption of many programs is that EMS operations will be taught to the EMT-CC by their agency. While this may be true for some special operations, the EMT-Critical Care Technician must be trained to at least an awareness level in all of the field environments they will encounter.

VII. 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-Critical Care Technician to assess a patient, make decisions relative to interventions and transportation, and practice various team roles. The following patient presentations are included: chest pain, cardiac arrest, abdominal pain, GI bleeding, altered mental status, dyspnea, syncope, trauma, allergic reactions, bites, envenomation, and pediatric situations.

VIII. CLINICAL AND FIELD EDUCATION

Clinical education represents the most important component of AEMT education since this is where the student learns to synthesize cognitive and psychomotor skills. To be effective, clinical education should integrate and reinforce the didactic and skills laboratory components of the program. Clinical instruction should follow sound educational principles, be logically sequenced to proceed from simple to complex tasks, have specific objectives, and be closely supervised and evaluated. Students should not be simply sent to clinical environments with poorly planned activities and be expected to benefit from the experience.

The ability to serve in the capacity of an entry-level AEMT requires experience with actual patients. This process enables the student to build a database of patient experiences that serves to help in clinical decision making and pattern recognition. A skilled clinical educator must point out pertinent findings and focus the beginner's attention.

Instructors should be cautioned against using time as a criterion to determine the quantity of clinical education. **More than any other phase of AEMT education, minimum amounts of patient contacts and frequency of skills performed must be established for clinical education.** It is acceptable to use a time-based system to help in program planning, but a system must be used to assure that every student satisfies each and every clinical objective. Typically, clinical education for the AEMT takes place in both the hospital and field environments:

Hospital Clinical

Because of the unpredictable nature of emergency medicine, the hospital environment offers two advantages in AEMT education: volume and specificity. In the hospital setting, the AEMT student can see many more patients than is possible in the field. This is a very important component in building up a "library" of patient care experiences to draw upon in clinical decision making.

The use of multiple departments within the hospital enables the student to see an adequate distribution of patient situations. In addition to emergency departments, which most closely approximate the types of patients that AEMT students should see, clinical education should take advantage of critical care units, OB/GYN, operating rooms/anesthesia, recovery, pediatrics, psychiatric, etc. This will help assure a variety of patient presentations and complaints. These also provide a more holistic view of health care and an appreciation for the care that their patients will undergo throughout their recovery. This places emergency care context.

AEMT programs throughout the country have created clinical learning experiences in many environments. There is application to emergency medical care in almost any patient care setting. When a particular location lacks access to some patient populations, educational programs have created innovative solutions. Programs are encouraged to be creative and seek out clinical learning experiences in many settings. Examples include morgues, hospices, nursing homes, primary care settings, doctor's offices, clinics, laboratories, pharmacies, day care centers, well baby clinics, and community and public health centers.

Field Clinical

It is unreasonable to expect students to derive benefit from being placed directly into a field environment and being required to perform. Field clinical represents the phase of instruction where the students learn how to apply cognitive knowledge, and the skills developed in skills laboratory and hospital clinical, to the field environment. In most cases, field clinical should be held concurrently with didactic and hospital clinical instruction.

Field instruction, as well as hospital clinical, should follow a logical progression. In general, students should progress from observer to participant to team leader. The amount of time that the student will have to spend in each phase will be variable and will depend on many individual factors. One of the largest factors will be the amount and quality of previous emergency care experience. With the trend toward less and less EMT experience prior to AEMT education, programs must adjust the amount of field experience to the experience of the students.

Clinical affiliations must be established and confirmed in written affiliation agreements with course sponsor and agencies that provide clinical experience under appropriate medical direction and clinical supervision. Students should have access to patients who present common problems. Supervision should be provided by instructors or preceptors appointed by the program. The clinical site should be periodically evaluated with respect to its continued appropriateness and efficacy in meeting the expectations of the programs.

The following goals must be successfully accomplished within the context of the learning environment. Clinical experiences should occur after the student has demonstrated competence in skills and knowledge in the didactic and laboratory components of the course. Items in **bold** are essentials and must be completed. Items in *italics* are recommendations to achieve the essential and should be performed on actual patients in a clinical setting. Recommendations are not the only way to achieve the essential. If the program is unable to achieve the recommendations on live patients, alternative learning experiences (simulations, programmed patient scenarios, etc.) can be developed. If alternatives to live patient contact are used, the program should increase the number of times the skill must be performed to demonstrate competence.

Programs are encouraged to adjust these recommendations based on thorough program evaluation. For example, if the program finds that graduates perform poorly in airway management skills, they should increase the number of intubations and ventilations required for graduation and monitor the results.

PSYCHOMOTOR SKILLS

The student must demonstrate the ability to safely administer medications.

The student should safely, and while performing all steps of each procedure, properly administer medications at least 10 times to live patients.

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.

AGES

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

The student should perform a comprehensive patient assessment on at least 15 (including newborns, infants, toddlers, and school age) pediatric patients.

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

The student should perform a comprehensive patient assessment on at least 15 adult patients.

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

The student should perform a comprehensive patient assessment on at least 15 geriatric patients.

PATHOLOGIES

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

The student should perform a comprehensive patient assessment on at least 5 obstetric patients.

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.

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

The student should perform a comprehensive assessment on at least 5 psychiatric patients.

COMPLAINTS

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

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

The student must demonstrate the ability to perform a comprehensive assessment, formulate and implement a treatment plan for patients with dyspnea/respiratory distress.

The student should perform a comprehensive patient assessment, formulate and implement a treatment plan on at least 10 adult patients with dyspnea/respiratory distress.

The student should perform a comprehensive patient assessment, formulate and implement a treatment plan on at least 4 pediatric patients (including infants, toddlers, and school age) with dyspnea/respiratory distress.

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

The student should perform a comprehensive patient assessment, formulate and implement a treatment plan on at least 5 patients with syncope.

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

The student should perform a comprehensive patient assessment, formulate and implement a treatment plan on at least 5 patients with abdominal complaints (for example: abdominal pain, nausea/vomiting, GI bleeding, gynecological complaint, etc.)

The student must demonstrate the ability to perform a comprehensive assessment, formulate and implement a treatment plan for patients with altered mental status.

The student should perform a comprehensive patient assessment, formulate and implement a treatment plan on at least 5 patients with altered mental status.

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.