Emergency Medical Technician-Basic:

National Standard Curriculum

EMT-BASIC: NATIONAL STANDARD CURRICULUM

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Contract Number DTNH22-90-C-05189

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Preface

The National Highway Traffic Safety Administration (NHTSA) has assumed responsibility for the development of training courses that are responsive to the standards established by the Highway Safety Act of 1966 (amended). Since these training courses are designed to provide national guidelines for training, it is NHTSA's intention that they be of the highest quality and be maintained in a current and up-to-date status from the point of view of both technical content and instructional strategy. To this end, NHTSA supported the current project which involved revision of the 1984 *Emergency Medical Technician-Ambulance: National Standard Curriculum*, deemed of high value to the states in carrying out their annual training programs. This course is one of a series of courses making up a National EMS training program for prehospital care. The curriculum, *Emergency Medical Technician-Basic: National Standard Curriculum*, is the cornerstone of EMS prehospital training. In addition, the new curriculum parallels the recommendations of the *National EMS Education and Practice Blueprint*.

The EMT-Basic curriculum is a core curriculum of minimum required information, to be presented within a 110-hour training program. It is recognized that there is additional specific education that will be required of EMT-Basics who operate in the field, i.e. ambulance driver training, heavy and light rescue, basic extrication, special needs, and so on. It is also recognized that this information might differ from locality to locality, and that each training program, or system should identify and provide special training requirements. This curriculum is intended to prepare a medically competent EMT-Basic to operate in the field. Enrichment programs and continuing education will help fulfill other specific needs for the EMT-Basic's education.

Acknowledgement

From the very beginning of this revision project, the Department of Transportation relied on the knowledge, attitudes, and skills from hundreds of experts. These individuals sought their own level of involvement and contribution toward accomplishing the goals of this project. These contributions varied from individual to individual, and regardless of the level of involvement, everyone played a significant role in the development of the curriculum. It is essential that those who have assisted with the achievement of this worthy educational endeavor be recognized for their efforts. For every person named, there are 50 or more individuals that should be identified for their contributions. For all who have contributed, named and unnamed, thank you for sharing your vision. Your efforts have helped assure that the educational/training

needs of EMT-Basics are met so that they can provide appropriate and effective patient care.

Special thanks for the knowledge, expertise, and dedication given to this project by the Project Director, Principal Investigator, Co-Medical Directors, and all the members of the Curriculum Development Group and Medical Oversight Committee.

NHTSA would also like to recognize the following individuals and/or organizations for their significant contributions to this project:

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Thanks to the many outside reviewers who provided diverse knowledge and skills from across the country. They contributed to the content and shared their ideas and visions about the new curriculum.

NHTSA would also like to thank two other Federal agencies that supported the pilot testing of the new curriculum: The Maternal and Child Health Bureau and the Office of Rural Health Policy, both within the Department of Health and Human Services.

Process

The content of this curriculum was established by a Curriculum Development Group consisting of emergency medical and educational experts. These individuals met periodically to review, edit, and critique the development of the curriculum. The Medical Oversight Committee developed the medical/clinical component of the curriculum. A six-member writing group and Principal Investigator actually "put pen to paper", once the objectives and format were approved by the Curriculum Development Group and Medical Oversight Committee. The co-medical directors dealt with difficult and controversial issues and sought to achieve consensus with the Curriculum Development Group and Medical Oversight Committee.

The National Council of State EMS Training Coordinators made a significant contribution to the overall design, development, and content of the curriculum

throughout the project. More importantly, this organization has assumed the responsibility for implementing the curriculum in the coming years.

Two pilot tests were conducted in Ekalaka, Montana (representing the rural/frontier EMT-Basic), and Pittsburgh, Pennsylvania (representing the urban/metropolitan EMT-Basic). Seven students participated in the Montana pilot, and twenty-three students participated in the Pennsylvania pilot. The project team gained valuable insight into the implementation of the new EMT-Basic, and modifications were made to the final curriculum document.

The National Registry of EMTs contributed to the design and development of the examinations and final evaluation tools that were used in the pilot program, as well as the tabulation and evaluation of scores. The National Registry also contributed significantly to the design and development of the skill sheets that are contained within this curriculum.

Medical Direction Statement

Medical direction of the EMT-Basic is an essential component of prehospital training, and thus is included in this revised EMT-B curriculum. Physician involvement should be in place for all aspects of EMS training programs, specifically for every ambulance service/rescue squad. On-line and/or off-line medical direction must be in place to allow for EMT-Basics to carry and assist with the administration of medications to patients.

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

Curriculum

History

The last revision of the EMT-Ambulance: National Standard Curriculum occurred in the early 1980s with a completed course published in 1984. The current revision came about as a result of the National Highway Traffic Safety Administration's (NHTSA) January 1990 *Consensus Workshop on Emergency Medical Services Training Programs*. Participants discussed the national training curricula needs of Emergency Medical Service (EMS) providers. Using a nominal group process, the participants identified the top priority needs for EMS training in the United States.
The top priorities identified at that meeting led to issuance of a Request for Proposals (RFP) by NHTSA to revise the EMT-Ambulance Curriculum based upon the input provided by many national EMS organizations and representatives at the consensus workshop. The following priorities from the 1990 consensus workshop recommendations played a directing role in the revision of this EMT-Basic Curriculum:

- Review and development of a blueprint/model and core curriculum for each provider level, based upon task analysis focusing on field impact (evaluating positive/negative outcomes) and the most utilized knowledge and skill areas. Identify "need to know" versus "nice to know" content. Conduct an analysis of interventions and outcomes for both the patient and the care provider. (What are we really doing in EMS? What's making a difference? Define what we want to do).

- Establish a Physician Board to review and approve all medical curriculum content.

- Emphasize an assessment-based format rather than a diagnostic-based format for all levels and all ages.

- Ensure that there is adequate focus on primary skills of assessment and ABCs in all provider levels (with emphasis on airway).

- Include an objective assessment of all published studies in peer journals when revising curricula.
- Emphasize rescuer and patient safety components, including infection control, in all curricula.

- Ensure that prehospital providers have adequate skills to care for children and infants by integrating information throughout the curricula at all levels, within the established course items.
- Build in clearly defined medical control for all levels, not just EMT-Paramedic.
- Utilize measurable educational objectives (knowledge, skills, judgement) to determine individuals' learning needs and duration of training program.
- Develop a nationally acceptable core curriculum for each provider level, with a mechanism for customizing for local needs.
- Place curriculum revision emphasis on EMT-A and First Responder courses.
- Revise basic course to be no more than 110 hours in length.
- Add automated defibrillation (fully automatic and semi-automatic) for CPR by EMTs and First Responders.
- Develop an integrated/situational (real-world) approach for EMT training.
- Develop a mechanism for consensus on EMS education among national groups.
- Evaluate delivery methods of training.
- Include sufficient information in basic EMT-A curriculum to comply with hazardous materials (HAZMAT) worker protection standard.
- Include more on medical emergencies as opposed to trauma (including airway).

Course Goals

This instructor's course guide has been designed and developed to assist the course coordinator, instructors, and others in planning, managing and teaching the Emergency Medical Technician-Basic: National Standard Curriculum. The goals and objectives of this curriculum are to improve the quality of emergency medical care.

This course is designed to instruct a student to the level of Emergency Medical Technician-Basic, formerly the EMT-Ambulance, who serves as a vital link in the chain of the health care team. It is recognized that the majority of prehospital emergency medical care will be provided by the EMT-Basic. This includes all skills necessary for the individual to provide emergency medical care at a basic life support level with an ambulance service or other specialized service. Specifically, after successful completion of the program, the student will be capable of performing the following functions at the minimum entry level:

- Recognize the nature and seriousness of the patient's condition or extent of injuries to assess requirements for emergency medical care;
- Administer appropriate emergency medical care based on assessment findings of the patient's condition;
- Lift, move, position and otherwise handle the patient to minimize discomfort and prevent further injury; and,
- Perform safely and effectively the expectations of the job description.

It is obvious that EMT-Basics provide a service in an environment requiring special skills and knowledge in such areas as communications, transportation, and keeping records. They also serve as liaisons with other emergency services. This course provides an introduction to these concepts. Individual orientation to the specific systems and services with which the EMT-Basic will be affiliated is necessary to achieve a full level of competency.

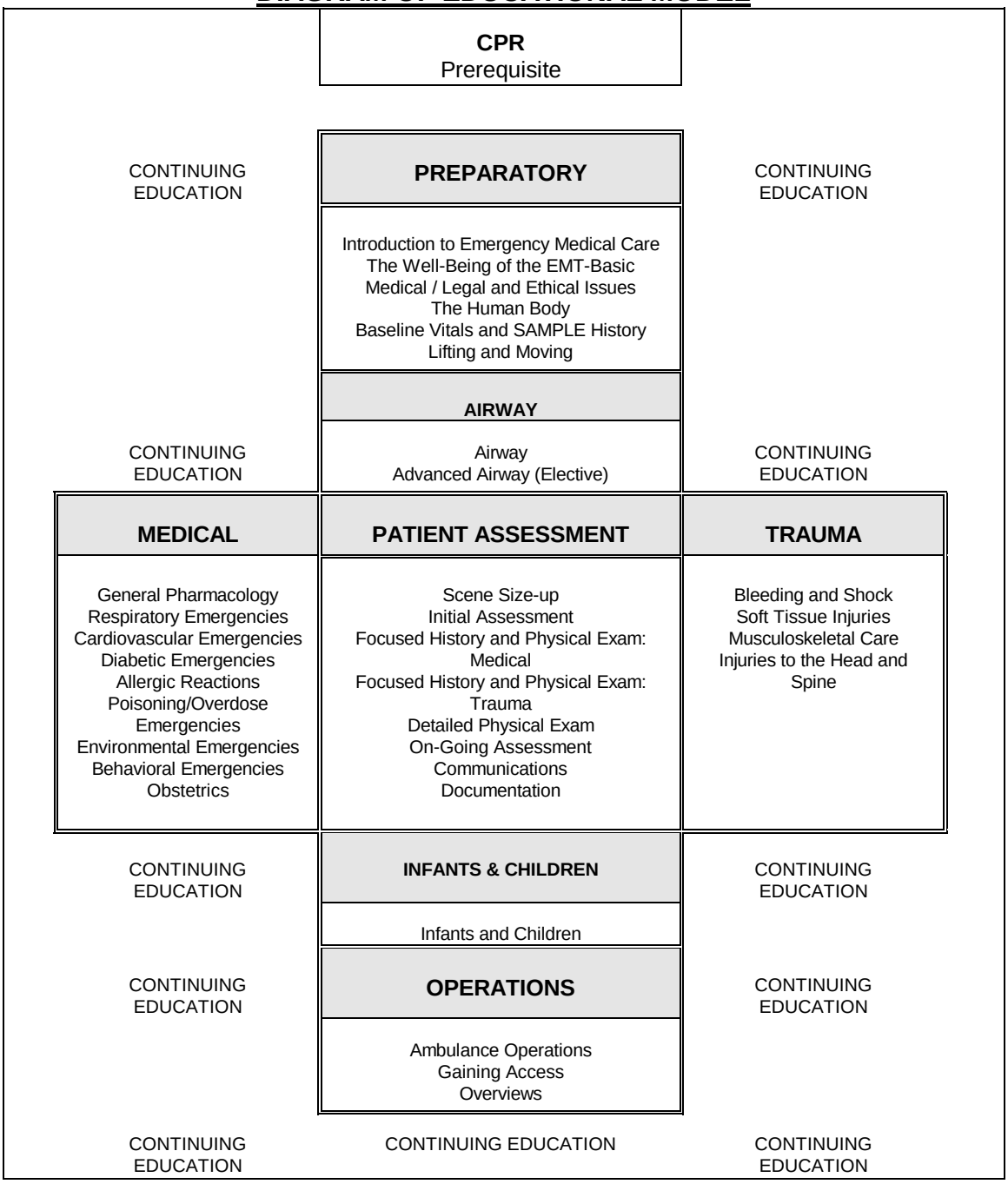
On the following page is the diagram of the educational model. This is a graph representing the flow of the curriculum.

The model has the medical and trauma information on either side of patient assessment. The curriculum is designed to have the medical module presented after patient assessment and prior to the trauma module, however, this format may be altered.

The entire curriculum is surrounded by continuing education, which is designed to reflect two primary goals. First, during the instruction of the EMT-Basic: National

Standard Curriculum, additional continuing education in related content may be provided. Secondly, continuing education is an integral component of any educational process and the EMT-Basic should be committed to life-long learning.

EMT-BASIC: NATIONAL STANDARD CURRICULUM
DIAGRAM OF EDUCATIONAL MODEL



The following pages show the breakdown of hours and objectives for the Emergency Medical Technician-Basic: National Standard Curriculum. In this design there are 46 lessons in the core curriculum. Three additional lessons are needed to complete the advanced airway elective, if offered.

The name of each lesson is followed by the recommended time needed to complete the instruction. The cognitive, effective, psychomotor objectives and the total number of objectives for that lesson are provided. The percentage of cognitive and percentage of hours is based on the entire core curriculum. This information may prove to be beneficial in designing written and practical evaluation tools.

Course Design

MODULE 1 PREPARATORY

Lesson 1-1 Introduction to Emergency Medical Care
Familiarizes the EMT-Basic candidate with the introductory aspects of emergency medical care. Topics covered include the Emergency Medical Services system, roles and responsibilities of the EMT-Basic, quality improvement, and medical direction.

Lesson 1-2 Well-Being of the EMT-Basic
Covers the emotional aspects of emergency care, stress management, introduction to Critical Incident Stress Debriefing (CISD), scene safety, body substance isolation (BSI), personal protection equipment (PPE), and safety precautions that can be taken prior to performing the role of an EMT-Basic.

Lesson 1-3 Medical/Legal and Ethical Issues
Explores the scope of practice, ethical responsibilities, advance directives, consent, refusals, abandonment, negligence, duty to act, confidentiality, and special situations such as organ donors and crime scenes. Medical/legal and ethical issues are vital elements of the EMT-Basic's daily life.

Lesson 1-4 The Human Body
Enhances the EMT-Basic's knowledge of the human body. A brief overview of body systems, anatomy, physiology and topographic anatomy will be given in this session.

Lesson 1-5 Baseline Vital Signs and SAMPLE History
Teaches assessing and recording of a patient's vital signs and a SAMPLE history.

Lesson 1-6 Lifting and Moving Patients
Provides students with knowledge of body mechanics, lifting and carrying techniques, principles of moving patients, and an overview of equipment. Practical skills of lifting and moving will also be developed during this lesson.

Lesson 1-7 Evaluation: Preparatory Module
Conduct a written and skills evaluation to determine the student's level of achievement of the cognitive, psychomotor and affective objectives from this module of instruction.

MODULE 2 AIRWAY

Lesson 2-1 Airway
Teaches airway anatomy and physiology, how to maintain an open airway, pulmonary resuscitation, variations for infants and children and patients with laryngectomies. The use of airways, suction equipment, oxygen equipment and delivery systems, and resuscitation devices will be discussed in this lesson.

Lesson 2-2 Practical Skills Lab: Airway
Provides supervised practice for students to develop the psychomotor skills of airway care. The use of airways, suction equipment, oxygen equipment and delivery systems, and resuscitation devices will be included in this lesson.

Lesson 2-3 Evaluation: Airway Module
Conduct a written and skills evaluation to determine the student's level of achievement of the cognitive, psychomotor and affective objectives from this module of instruction.

MODULE 3 PATIENT ASSESSMENT

Lesson 3-1 Scene Size-Up
Enhance the EMT-Basic's ability to evaluate a scene for potential hazards, determine by the number of patients if additional help is necessary, and evaluate mechanism of injury or nature of illness. This lesson draws on the knowledge of Lesson 1-2.

Lesson 3-2 Initial Assessment
Provides the knowledge and skills to properly perform the initial assessment. In this session, the student will learn about forming a general impression, determining responsiveness, assessment of the airway, breathing and circulation. Students will also discuss how to determine priorities of patient care.

Lesson 3-3 Focused History and Physical Exam - Trauma Patients
Describes and demonstrates the method of assessing patients' traumatic injuries. A rapid approach to the trauma patient will be the focus of this lesson.

Lesson 3-4 Focused History and Physical Exam - Medical Patients
Describes and demonstrates the method of assessing patients with medical complaints or signs and symptoms. This lesson will also serve as an introduction to the care of the medical patient.

Lesson 3-5 Detailed Physical Exam
Teaches the knowledge and skills required to continue the assessment and treatment of the patient.

Lesson 3-6 On-Going Assessment
Stresses the importance of trending, recording changes in the patient's condition, and reassessment of interventions to assure appropriate care.

Lesson 3-7 Communications
Discusses the components of a communication system, radio communications, communication with medical direction, verbal communication, interpersonal communication, and quality improvement.

Lesson 3-8 Documentation
Assists the EMT-Basic in understanding the components of the written report, special considerations regarding patient refusal, the legal implications of the report, and special reporting situations. Reports are an important aspect of prehospital care. This skill will be integrated into all student practices.

Lesson 3-9 Practical Skills Lab: Patient Assessment
Integrates the knowledge and skills learned thus far to assure that the student has the knowledge and skills of assessment necessary to continue with the management of patients with medical complaints and traumatic injuries.

Lesson 3-10 Evaluation: Patient Assessment Module
Conduct written and skills evaluation to determine the student's level of achievement of the cognitive, psychomotor and affective objectives from this module of instruction.

MODULE 4 MEDICAL/BEHAVIORAL EMERGENCIES AND OBSTETRICS/GYNECOLOGY

Lesson 4-1 General Pharmacology
Provides the student with a basic knowledge of pharmacology, providing a foundation for the administration of medications given by the EMT-Basic and those used to assist a patient with self-administration.

Lesson 4-2 Respiratory Emergencies
Reviews components of the lesson on respiratory anatomy and physiology. It will also provide instruction on assessment of respiratory difficulty and emergency medical care of respiratory problems, and the administration of prescribed inhalers.

Lesson 4-3 Cardiovascular Emergencies
Reviews of the cardiovascular system, an introduction to the signs and symptoms of cardiovascular disease, administration of a patient's prescribed nitroglycerin, and use of the automated external defibrillator.

Lesson 4-4 Diabetes/Altered Mental Status
Reviews of the signs and symptoms of altered level of consciousness, the emergency medical care of a patient with signs and symptoms of altered mental status and a history of diabetes, and the administration of oral glucose.

Lesson 4-5 Allergies
Teaches the student to recognize the signs and symptoms of an allergic reaction, and to assist the patient with a prescribed epinephrine auto-injector.

Lesson 4-6 Poisoning/Overdose
Teaches the student to recognize the signs and symptoms of poisoning and overdose. Information on the administration of activated charcoal is also included in this section.

Lesson 4-7 Environmental Emergencies
Covers recognizing the signs and symptoms of heat and cold exposure, as well as the emergency medical care of these conditions. Information on aquatic emergencies and bites and stings will also be included in this lesson.

Lesson 4-8 Behavioral Emergencies

Develops the student's awareness of behavioral emergencies and the management of the disturbed patient. Restraining the combative patient will also be taught in this lesson.

Lesson 4-9 Obstetrics/Gynecology
Reviews the anatomical and physiological changes that occur during pregnancy, demonstrate normal and abnormal deliveries, summarize signs and symptoms of common gynecological emergencies, and neonatal resuscitation.

Lesson 4-10 Practical Skills Lab: Medical/Behavioral Emergencies and Obstetrics/Gynecology
Draws on the knowledge and skills learned thus far in this practical lab. Students will be given the opportunity to assess and treat a variety of patients with various medical complaints.

Lesson 4-11 Evaluation: Medical/Behavioral Emergencies and Obstetrics/Gynecology
Conducts a written and skills evaluation to determine the student's level of achievement of the cognitive, psychomotor and affective objectives from this module of instruction.

MODULE 5 TRAUMA

Lesson 5-1 Bleeding and Shock
Reviews the cardiovascular system, describes the care of the patient with internal and external bleeding, signs and symptoms of shock (hypoperfusion), and the emergency medical care of shock (hypoperfusion).

Lesson 5-2 Soft Tissue Injuries
Continues with the information taught in Bleeding and Shock, discussing the anatomy of the skin and the management of soft tissue injuries and the management of burns. Techniques of dressing and bandaging wounds will also be taught in this lesson.

Lesson 5-3 Musculoskeletal Care
Reviews of the musculoskeletal system before recognition of signs and symptoms of a painful, swollen, deformed extremity and splinting are taught in this section.

Lesson 5-4 Injuries to the Head and Spine
Reviews the anatomy of the nervous system and the skeletal system. Injuries to the spine and head, including mechanism of injury, signs and symptoms of injury, and assessment. Emergency medical care, including the use of cervical immobilization devices and short and long back boards will also be discussed and demonstrated by the instructor and students. Other topics include helmet removal and infant and child considerations.

Lesson 5-5 Practical Skills Lab: Trauma
Provides practice of the assessment and management of patients with traumatic injuries.

Lesson 5-6 Evaluation: Trauma Module
Conducts a written and skills evaluation to determine the student's level of achievement of the cognitive, psychomotor and affective objectives from this module of instruction.

MODULE 6 INFANTS AND CHILDREN

Lesson 6-1 Infants and Children
Presents information concerning the developmental and anatomical differences in infants and children, discuss common medical and trauma situations, and also covered are infants children dependent on special technology. Dealing with an ill or injured infant or child patient has always been a challenge for EMS providers.

Lesson 6-2 Practical Skills Lab: Infants and Children
Provides the EMT-Basic student with the opportunity to interact with infants and children, and to practice the knowledge and skills learned thus far concerning this special population.

Lesson 6-3 Evaluation: Infants and Children
Conduct a written and skills evaluation to determine the student's level of achievement of the cognitive, psychomotor and affective objectives from this module of instruction.

MODULE 7 OPERATIONS

Lesson 7-1 Ambulance Operations
Presents an overview of the knowledge needed to function in the prehospital environment. Topics covered include responding to a call, emergency vehicle operations, transferring patients, and the phases of an ambulance call.
Lesson 7-2 Gaining Access

Provides the EMT-Basic student with an overview of rescue operations. Topics covered include roles and responsibilities at a crash scene, equipment, gaining access, and removing the patient.

Lesson 7-3 Overviews
Provides the EMT-Basic student with information on hazardous materials, incident management systems, mass casualty situations, and basic triage.

Lesson 7-4 Evaluation: Operations
Conduct a written and skills evaluation will be done to determine the student's level of achievement of the cognitive, psychomotor and affective objectives from this module of instruction.

MODULE 8 ADVANCED AIRWAY (Elective)

The course coordinator should consult with state EMS office prior to establishing course outline to determine if this module of instruction may be included.

Lesson 8-1 Advanced Airway
Instructs students on how to maintain an airway by means of orotracheal intubation. Included is a review of basic airway skills, nasogastric tube insertion for decompression of the stomach of an infant or child patient, and orotracheal intubation of adults, infants and children. This lesson should be presented prior to the medical and trauma modules.

Lesson 8-2 Practical Skills Lab: Advanced Airway
Demonstrates the skills of advanced airway techniques for the EMT-Basic. This includes insertion of the nasogastric tube in infant and child patients and orotracheal intubation of adults, infants and children.

Lesson 8-3 Evaluation: Advanced Airway
Conduct a written and skills evaluation to determine the student's level of achievement of the cognitive, psychomotor and affective objectives from this module of instruction. Whenever possible, supervised clinical experience will be provided to the students.

How to Use the Curriculum and Lesson Plans

There are seven modules of instruction in the core content (one additional module on advanced airway is provided for those who elect to utilize it). There are 44 lessons within the seven modules. Each lesson has the following components:

Objectives

The objectives are divided into three categories: Cognitive, Affective, and Psychomotor.

Cognitive	Affective	Psychomotor
mental process--	**emotional process--**	**physical process--**
perception reasoning intuition	feelings	muscular activity

To assist with the design and development of a specific lesson, each objective has a numerical value, e.g., 3-2.1. The first number is the module of instruction, followed by a hyphen and the number of the specific lesson. For example, 3-2.1 is:

Module 3:	Patient Assessment
Lesson 3-2:	The Initial Assessment
Objective 3-2.1	Summarize the reasons for forming a general impression of the patient. (C-1)

At the end of each objective is a letter for the type of objective: C = Cognitive; A = Affective; and P = Psychomotor. (The example above is cognitive). The number following the type of objective represents the level of objective: 1 = Knowledge; 2 = Application; and 3 = Problem Solving. (The example above is knowledge).

Preparation

Motivation -- Each lesson has a motivational statement that should be read by the instructor prior to teaching the lesson. It is not the intent for the instructor to necessarily read the motivational statement to the students, but more importantly to be familiar with its content and to be able to prepare the students or explain why this is important.

Prerequisites -- Prior to starting a lesson, the instructor should assure that the students have completed the necessary prerequisites.

Materials:

Audio Visual (AV) Equipment -- In recent years, high quality video materials have become available for the EMS community. They should be used as an integral part of the instruction in this program. The course administrator should assure that the necessary types of AV equipment are accessible for the class. If possible, the course administrator should have a video library available for the student.

Emergency Medical Services (EMS) Equipment -- Each lesson plan contains a list of equipment that should be available for instruction.

Personnel:

Program Director
Course Coordinator
Primary Instructor
Assistant Instructor
Course Medical Director

The roles of the program personnel are discussed in more detail under Program Personnel.

Recommended Minimum Time to Complete -- Each lesson plan has a recommended minimum time for completion. Although the time for each lesson has been pilot tested, due to the varying nature of adult learners, the enrichment and need for remediation may require additional time. Time limits may be extended to bring the students to the full level of competency.

Presentation

Declarative (What) -- This is the cognitive lesson plan. This is the information that the instructor provides the students. This may be accomplished by various methods, including lectures, small group discussion, and the use of audio-visual materials. Demonstrations, if the instructor desires, may be used as part of the instruction. The instructor must be well versed with the entire content of the lesson plan. It is not appropriate to read the lesson plans word for word to the students. Lesson plans should be considered dynamic documents that provide guidelines for the appropriate flow of information. The lesson plans are based upon changes in national standards and scientific evidence approved by the Course Medical Director. The instructor should feel free to write notes in the margins and make the lesson plan his own.

Application

Procedural (How) -- This is the skills portion of the program. The students should be able to demonstrate competency in all skills listed in each section. If

the declarative (what) content was presented as a lecture, the instructor must perform demonstrations prior to having the students perform the skills. If the instructor performed a demonstration as part of the declarative component, the students may begin by practicing skills in the practical setting. When this component of the lesson is being conducted, there should be one instructor for every six students. Students should be praised for their progress. For those students having difficulty performing a skill or skills, remediation is required. It is well known that a demonstration must be followed by practice, which must be drilled to a level that assures mastery of the skill. It has been proven that demonstration followed as soon as possible by organized, supervised practice enhances mastery and successful applications.

Contextual (When, Where and Why) -- This section is designed to help the student understand the application of their knowledge and skills as they relate to their performance as an EMT-Basic. This section relates back to the motivational statement and represents the reasoning as to why, where and when the EMT-Basic would need to use the knowledge or perform the skills. It is of utmost importance that the instructor be familiar with the intent of this section and relay that intent to the students.

Student Activities -- Students learn by various methods. The three types are auditory, visual and kinesthetic. The intent of this section is to assure that the content of the curriculum is presented to meet the needs of the three different types of learning styles. These three areas should not necessarily be used separately from the lesson plan, but as an adjunct to it. An attempt to provide instruction to the student with these three types of modalities will enhance student learning.

Auditory (Hear) -- This section allows the instructor to provide material in a verbal manner. Those students who learn best by hearing will benefit from this method of instruction.

Visual (See) -- This section allows the instructor to provide material in a visual manner. Visual learners will benefit from this method of instruction.

Kinesthetic (Do) -- This section allows the instructor to provide material in a performance manner. Those students who learn best by doing will benefit from this method of instruction.

Instructor Activities -- This section is to remind the instructors that they should always supervise student practice and praise progress. They should reinforce student progress in cognitive, affective and psychomotor domains. If students

are having difficulty understanding the content or performing the skills, the instructor should redirect the students. If additional time is needed to complete this task beyond the assigned times of the program, the instructor should complete a remediation form to remind him to schedule additional assistance for the student or group of students experiencing difficulty with the task.

Evaluation

Written -- The instructor should design and develop various quizzes, verbal reviews, handouts and any other desired materials for the students. Ideally, the instructor should provide a brief quiz after every lesson to determine if the students are comprehending the lesson.

Practical -- The instructor should provide students with practical evaluations when applicable. The skill sheets provided within the curriculum will assist the students in preparing for field performance and the final practical evaluation.

Remediation

The intent of this section is to assure that the instructor meets the needs of those students who are experiencing difficulty understanding the lesson plan. Remediation Sheets supplied in this guide will enable the instructor to keep track of those students. If a student requires remediation frequently a decision should be reached to determine if the student should continue in the program (see Appendix G).

Enrichment

This section is designed to allow the instructors, the course medical director, the course coordinator, the region, or state to add additional information, or augment the curriculum. Anything that is unique to your area should be added, for example, jellyfish injuries that are unique to coastal areas (see Appendix F).

Prerequisites

Cardiopulmonary Resuscitation (CPR) -- To meet the time requirements of this revised EMT-Basic Curriculum, CPR should be a prerequisite. Basic life support is an essential component of any EMS educational experience and this class should be successfully completed prior to entering the EMT-Basic program. This may be accomplished by various alternatives:

- **!** Assure that the EMT-Basic candidates have a current card prior to entering the program.
- **!** Offer one or several programs of CPR prior to the start of EMT-Basic program.
- **!** Set a time prior to the beginning of the EMT-Basic program and require all students seeking to enter that program to participate or test out.

Note: Although CPR is a prerequisite, it should be routinely practiced and integrated throughout the entire instruction of the EMT-Basic. Skill stations should be created to reinforce knowledge and skills.

Instructors

Assessing Student Achievement

This training program includes several methods for assessing student achievement. As mentioned before, quizzes of the cognitive and psychomotor domains should be provided at the completion of each lesson. Time is allocated at the end of each module of instruction for a cognitive and psychomotor evaluation. The primary instructor in conjunction with the course coordinator is responsible for the design, development, administration and grading of all written and practical examinations. The program should feel free to use outside agency-approved psychomotor evaluation instruments or those found in texts. All written examinations used within the program should be valid and reliable and conform to psychometric standards. Instructors should be encouraged to use outside sources to validate examinations and/or as a source of classroom examination items.

The primary purpose of this course is to meet the entry-level job expectations as indicated in the job description. Each student, therefore, must demonstrate attainment of knowledge, attitude, and skills in each area taught in the course. It is the responsibility of the course coordinator, medical director, primary instructor and educational institution to assure that students obtain proficiency in each module of instruction before they proceed to the next area. If after counseling and remediation a student fails to demonstrate the ability to learn specific knowledge, attitudes and skills, the program director should not hesitate to dismiss the student. The level of knowledge, attitude and skills attained by a student in the program will be reflected in his performance on the job as an EMT-Basic. This is ultimately a reflection on the program director, primary instructor, medical director and educational institution. It is not the responsibility of the certifying examination to assure competency over successful completion of the course. Program directors should recommend only qualified candidates for licensure, certification or registration.

Requirements for successful completion of the course are as follows:

Cognitive - Students must receive passing grades on all module examinations and the final examination. Special remedial sessions may be utilized to assist in the completion of a lesson or module of instruction. Scores should be in accordance with accepted practices.

Affective - Students must demonstrate conscientiousness and interest in the program. Students who fail to do so should be

counseled while the course is in progress in order to provide them the opportunity to develop and exhibit the proper attitude expected of an EMT-Basic.

Psychomotor - Students must demonstrate proficiency in all skills in each testing session of selected topic areas and mastery of skills in the final examination. Special remedial sessions may be utilized to assist in the completion of a lesson or module of instruction. Pass/fail scores should be in accordance with accepted practices. Usage of the skill measurement instruments within this curriculum or developed by way of a valid process is strongly recommended to achieve maximum results with the students.

The additional areas that should be utilized for evaluation of student achievement include:

Personal appearance - Each student should be neat, clean, well groomed and physically fit enough to perform the minimal entry-level job requirements. Students who fail to exhibit good hygiene habits should be counseled while the program is in session to provide them with the opportunity to correct the habits.

Attendance - Students are required to attend all lessons. At the discretion of the program director or designee, a student missing a lesson may demonstrate the fulfillment of all skills and knowledge covered in the missed lesson.

Clinical or Field Rotation Experience - Prior to certification of course completion, satisfactory clinical or field experience is required by the student.

Program Personnel

There will often be a number of individuals involved in the presentation of the EMT-Basic program. For clarity, the following terms are defined as they will be used throughout this document.

These identified roles and responsibilities are a necessary part of each EMT-B course. The individuals carrying them out may vary from program to program and from locality to locality as the exact roles interface and overlap. In fact, one person, if qualified, may carry out all of the roles in some programs.

Program Director: An individual responsible for course planning, operation and evaluation. While the Program Director is responsible for the overall operation of the education experience, this person need not be qualified or involved in the actual instruction of specific course lessons. The Program Director is responsible for EMT-Basic course planning.

Course Coordinator: The Course Coordinator is the individual responsible for coordinating and conducting the EMT-Basic program. The Course Coordinator acts as the liaison between the students, the sponsoring agency, the local medical community and the state-level certifying or licensing agency and is responsible for assuring that the course goals and objectives (and those set forth by any licensing, registering, or certifying agency as applicable) are met. The Course Coordinator may also serve as the Primary Instructor. This individual should have attended a workshop which reviews the format, philosophy and skills of the new curriculum.

Primary Instructor: This individual is expected to be knowledgeable in all aspects of prehospital emergency care, in the techniques and methods of adult education, and managing resources and personnel. This individual should have attended and successfully completed a program in EMS instruction methodology and an update on this curriculum. This individual should be present at most, if not all, class sessions to assure program continuity and to be able to identify that the students have the cognitive, affective and psychomotor skills necessary to function as an Emergency Medical Technician-Basic. This individual is responsible for the teaching of a specific lesson of the EMT-Basic course. This individual should have attended a workshop which reviews the format, philosophy and skills of the new curriculum.

Assistant Instructor: This individual assists the primary instructor of any lesson in the demonstration and practice designed to develop and evaluate student skill competencies.

Course Medical Director: The Course Medical Director of the EMT-Basic program should be a local physician with emergency medical experience who will act as the ultimate medical authority regarding course content, procedures, and protocols. The

Course Medical Director, Course Coordinator and the Primary Instructor should work closely together in the preparation and presentation of the program. The Course Medical Director can assist in recruiting physicians to present materials in class, settling questions of medical protocol and acting as a liaison between the course and the medical community. During the program the Medical Director will be responsible for reviewing the quality of care rendered by the EMT-Basic in the clinical and field setting. This Course Medical Director or a designee is responsible to verify student competence in the cognitive, affective and psychomotor domains. The Course Medical Director should review all examinations. The Course Medical Director may also serve as the Primary Instructor.

Philosophy of the Adult Learner

Individuals participating in this educational program should be considered adult learners, even in those programs providing instruction to students younger than age 18. Adult learners are responsible for their own learning. There are several characteristics regarding the adult learner as an EMT-Basic student.

1. EMT-Basic students usually want to utilize knowledge and skills they have learned soon after they have learned them.
2. EMT-Basic students are interested in learning new concepts and principles; they enjoy situations that require problem-solving, not necessarily learning facts. It is less difficult for them to use the concepts and principles they have gained if they are able to participate actively in the learning process.
3. EMT-Basic students learn best if they are able to proceed at their own pace.
4. Motivation is increased when the subject content is relevant to the immediate interests and concerns of the EMT-Basic student.
5. Immediate feedback is essential to the EMT-Basic student, who needs to be kept informed of his progress continuously.

The intent of this revised curriculum is to alter the methods of instruction provided by the instructor. This curriculum has been designed and developed to reduce the amount of lecture time and move towards an environment of discussion and practical skills. This way both learners and instructors are active in the process of learning.

Principles of Adult Education

1. Attract and maintain the attention of the EMT-Basic student.

If instructors get off to a bad start, it is often because they fail to successfully gain and maintain the attention of the student. In these situations, students start enthusiastic and may leave with some level of disappointment.

A clear statement of the purpose of each lesson is of utmost importance in gaining the student's attention. This may be accomplished by using the information found in the motivational statement or the contextual statement of the lesson plan.

There are many methods that may be used to gain the student's attention, e.g., telling a relevant anecdote, posing a unique situation, or asking how they would solve a problem. Once you have gained the attention of the student, you must then maintain it throughout the entire lesson. After about 15-20 minutes of presentation, it is essential that the student be reinvolved in the learning process. There are three methods often utilized to keep the students active in the process: Questioning, brainstorming, and demonstration.

Questions should be used to promote thought, to evaluate what has been learned, and to continuously move students toward their desired goal. Questioning students keeps them actively involved and keeps them thinking. It is also appropriate to ask rhetorical questions that are not meant to be answered by the student, but that encourage thinking. Questions should be open-ended and should not have "yes" or "no" answers. Questions should be a significant part of the lesson and should be used in both didactic and practical presentation.

Another method of keeping students actively involved in their learning is to use brainstorming. Brainstorming is a special and different type of questioning. This process generates a wide variety of creative ideas. There is no right or wrong answer, only creative thinking. Pose a question to the students and then allow them to provide as many answers as possible. After all the ideas have been presented, move the students toward the appropriate and important points.

The third technique is demonstration. By providing the students with actual demonstration, you have bridged the gap between theory and practice. When performing demonstration, it is beneficial to involve the students in the process. It is encouraged that demonstration be used during the didactic component of the presentation to assure breaking up long runs of lecture-type material.

2. Make the presentation clear and keep it organized.

By using the lesson plans, your instruction should be clear and organized. However, there are some additional tips that may assist you in your educational endeavors.

1. Tell the students what you are going to tell them.
2. Tell them.
3. Show them.
4. Let them try.
5. Observe.
6. Praise progress and redirect.
7. Tell them what you have told them.
8. Have them summarize what they have learned.

To help keep lessons clear, make sure the students have the objectives. The objectives should be presented to the students on the first day of class. It may be beneficial to present students with entire lesson plans and allow students to write additional information in the margins.

Continuing Education

It will be necessary to provide updates to the lead instructor and assistant instructors regarding the new curriculum material, and annual updates should be scheduled to inform instructors of current trends in prehospital emergency medicine.

Students

Job Description:
Emergency Medical Technician - Basic

Career Requirements:
Responds to emergency calls to provide efficient and immediate care to the critically ill and injured, and transports the patient to a medical facility.

After receiving the call from the dispatcher, drives the ambulance to address or location given, using the most expeditious route, depending on traffic and weather conditions. Observes traffic ordinances and regulations concerning emergency vehicle operation.

Upon arrival at the scene of crash or illness, parks the ambulance in a safe location to avoid additional injury. Prior to initiating patient care, the EMT-Basic will also "size-up" the scene to determine that the scene is safe, the mechanism of injury or nature of illness, total number of patients and to request additional help if necessary. In the absence of law enforcement, creates a safe traffic environment, such as the placement of road flares, removal of debris, and re-direction of traffic for the protection of the injured and those assisting in the care of injured patients.

Determines the nature and extent of illness or injury and establishes priority for required emergency care. Based on assessment findings, renders emergency medical care to adult, infant and child, medical and trauma patients. Duties include but are not limited to, opening and maintaining an airway, ventilating patients, and cardiopulmonary resuscitation, including use of automated external defibrillators. Provide prehospital emergency medical care of simple and multiple system trauma such as controlling hemorrhage, treatment of shock (hypoperfusion), bandaging wounds, and immobilization of painful, swollen, deformed extremities. Medical patients include: Assisting in childbirth, management of respiratory, cardiac, diabetic, allergic, behavioral, and environmental emergencies, and suspected poisonings. Searches for medical identification emblem as a clue in providing emergency care. Additional care is provided based upon assessment of the patient and obtaining historical information. These interventions include assisting patients with prescribed medications, including sublingual nitroglycerin, epinephrine auto-injectors and hand-held aerosol inhalers. The EMT-Basic will also be responsible for administration of oxygen, oral glucose and activated charcoal.

Reassures patients and bystanders by working in a confident, efficient manner. Avoids mishandling and undue haste while working expeditiously to accomplish the task.

Where a patient must be extricated from entrapment, assesses the extent of injury and gives all possible emergency care and protection to the entrapped patient and uses the prescribed techniques and appliances for safely removing the patient. If needed, radios the dispatcher for additional help or special rescue and/or utility services. Provides simple rescue service if the ambulance has not been accompanied by a specialized unit. After extrication, provides additional care in triaging the injured in accordance with standard emergency procedures.

Complies with regulations on the handling of the deceased, notifies authorities, and arranges for protection of property and evidence at scene.

Lifts stretcher, placing in ambulance and seeing that the patient and stretcher are secured, continues emergency medical care.

From the knowledge of the condition of the patient and the extent of injuries and the relative locations and staffing of emergency hospital facilities, determines the most appropriate facility to which the patient will be transported, unless otherwise directed by medical direction. Reports directly to the emergency department or communications center the nature and extent of injuries, the number being transported, and the destination to assure prompt medical care on arrival. Identifies assessment findings which may require communications with medical direction for advice and for notification that special professional services and assistance be immediately available upon arrival at the medical facility.

Constantly assesses patient en route to emergency facility, administers additional care as indicated or directed by medical direction.

Assists in lifting and carrying the patient out of the ambulance and into the receiving facility.

Reports verbally and in writing their observation and emergency medical care of the patient at the emergency scene and in transit to the receiving facility staff for purposes of records and diagnostics. Upon request, provides assistance to the receiving facility staff.

After each call, restocks and replaces used linens, blankets and other supplies, cleans all equipment following appropriate disinfecting procedures, makes careful check of all equipment so that the ambulance is ready for the next run. Maintains ambulance in efficient operating condition. Ensures that the ambulance is clean and washed and

kept in a neat orderly condition. In accordance with local, state or federal regulations, decontaminates the interior of the vehicle after transport of patient with contagious infection or hazardous materials exposure.

Determines that vehicle is in proper mechanical condition by checking items required by service management. Maintains familiarity with specialized equipment used by the service.

Attends continuing education and refresher training programs as required by employers, medical direction, licensing or certifying agencies.

Meets qualifications within the functional job analysis.

Continuing Education and Its Importance in Lifelong Learning

This curriculum is designed to provide the student with the essentials to serve as an EMT-Basic. The 110-hour time constraint of this program as recommended by the national emergency medical services community during the 1990 NHTSA *Consensus Workshop on Emergency Medical Services Training Programs* necessitates the need for enrichment and continuing education in order to bring the student to full competency. As an entry-level medical education program, we understand that a laborer who works with his hands and even a craftsman who works with his hands and head may be achievable within the 110-hour time limit constraint, but an artist who works with his hands, head and heart cannot be achieved within these constraints. We strongly urge employers and service chiefs to integrate new graduates into specific orientation training programs.

It is important to understand that this curriculum does not provide students with extensive knowledge in hazardous materials, blood-borne pathogens, emergency vehicle operations or rescue practices in unusual environments. These areas are not core elements of education and practice as identified in the *National EMS Education and Practice Blueprint*. Identified areas of competency not specifically designed within the EMT-Basic: National Standard Curriculum should be taught in conjunction with this program as a local or state option.

Environment

Classroom Environment

The intent of the revised curriculum is to allow for greater interaction between students and the instructors. The instruction should be very active and experiential. By using the procedural (how) section of the application area of the lesson plan, as well as the kinesthetic (do) component of the student activity section, the instructor should be better able to enhance the educational experience for the students.

Clinical/Field Rotations

In addition to the required 110 hours of instruction, this course requires that the student have patient interactions in a clinical setting. Ideally, areas that have access to an Emergency Medical Services system should send students into the field with experienced preceptors. However, in low volume systems or systems with legal considerations, the training program may utilize emergency departments, clinics, or physician offices. The program director or medical director must establish appropriate relationships with various clinical sites to assure adequate contact with patients.

The student should interview and assess a minimum of five patients. The student should record the patient history and assessment on a prehospital care report just as he would if he were interacting with this patient in a field setting. The prehospital care report should then be reviewed by the Primary Instructor to assure competent documentation practices in accordance with the minimum data set. Regardless of the clinical educational system, the program must establish a feedback system to assure that students have acted safely and professionally during their training. Students should be graded on this experience.

Students who have been reported to have difficulty in the clinical or field setting must receive remediation and redirection. Students should be required to repeat clinical or field setting experiences until they are deemed competent within the goals established by the Program Director.

In extreme cases, when students are not able to obtain experiences in a clinical or field setting, it may be necessary to utilize programmed patients. All variances must be approved by the state EMS office or licensing agency.

Maintaining Records

With regard to records, it is recommended that the Program Director/Course Coordinator maintain, as a minimum, information on the following:

- Student recruiting procedures and forms.
- Instructor recruiting and forms.
- Conducting an instructor orientation.
- Student attendance and performance at each lesson, including comments as appropriate regarding need for improvement in skills, knowledge, attitudes or personal habits.
- Results of evaluation and counseling sessions.
- Grades for each written examination and completed checklists for each skill evaluation.
- Number and qualifications of students completing the course.
- Number and qualifications of students who did not complete the course and the reasons for not completing the course if known.
- Number and qualifications of the instructional team.
- Instructor performance.
- Description of the clinical and field rotations.
- Adequacy and availability of facilities and resources.
- Cost - total program costs, costs for each program element and costs per student.
- Lists of enrichments and add-on courses taught in conjunction with the program.
- Copies of American Heart Association or American Red Cross Basic Life Support Cards at the professional rescuer level.
- Results of course entry examinations and qualifications as required by the certifying agency, state EMS office, course medical director or training institution.

Licensure, Certification and Registration

State regulatory agencies may require specific evaluation of cognitive and psychomotor performance prior to official licensure, certification or registration as an Emergency Medical Technician-Basic. This is in addition to course completion and may be required by state regulations. The National Registry of EMTs is a recognized agency that provides examinations for certification and registration that may be required by your state. The program director should contact the State Office of Emergency Medical Services for licensure, certification or registration information.

Program Evaluation

On-going evaluation must be initiated to identify instructional or organizational deficiencies which affect student performance. The evaluation process should be two-fold in nature, objective and subjective. Two main methods of objective evaluation generally used are: 1) How well do students measure up to standardized examination? 2) How well do EMT-Basics practice in accordance with established standards of care? Group and individual deficiencies may indicate problems in conducting the training program. Subjective evaluation should be conducted at regular intervals by providing students with written questions on their opinions of the program's strengths and weaknesses. Students should be given the opportunity comment on the primary and assistant instructors, presentation style and effectiveness. Students should also be asked to comment on the program's compliance with specified course of instruction, the quality and quantity of psychomotor skills labs, and the validity of the examinations.

The purpose of this evaluation process is to strengthen future training efforts. All information obtained as part of the subjective evaluation should be reviewed for legitimacy and possible incorporation into the course. Due to the important nature of this educational program, every effort should be made to ensure the highest quality instruction.

Facilities

The physical environment for the provision of the EMT-Basic program is a critical component for the success of the overall program. The facility should have a large hall with sufficient space for seating all students. Abundant space should be made available for demonstration during the presentation of the course material. Additional rooms or adequate space should be available to serve as a practice area (one instructor for every six students). It is recommended that all the required equipment for the program be stored at the facility to assure availability for its use. The facility should be well lit for adequate viewing of various types of visual aids and demonstrations. Heating and ventilation should assure student and instructor comfort and the seats should be comfortable with availability of desk tops or tables for taking notes. There should be an adequate number of tables for display of equipment, medical supplies, and training aids. A chalkboard (flip chart, grease board) should be in the main hall. A projection screen and appropriate audio visual equipment should be located in the presentation facility. If possible, light switches should be conveniently located in the presentation area. Practice area should be carpeted and large enough to accommodate six students, one instructor, and the necessary equipment and medical supplies. Tables should be available for practice areas, with appropriate and sufficient equipment and medical supplies.

Course Cost

The cost for the provision of the EMT-Basic education varies widely across the nation. Training considerations provided in this section may serve as a basis for estimating costs for conducting an EMT-Basic program. Additional costs will be incurred in the management and evaluation of the program. Specifically, the course director should consider costs associated with the following:

1. Salaries

- Medical director
- Course coordinator
- Primary instructor
- Assistant instructors

2. Facilities

- Classroom and associated equipment (tables, chairs, audio-visual equipment)
- Field and clinical training facilities
- Office space and associated equipment (desks, chairs, files)

3. Materials

- Emergency care equipment and supplies
- Educational aids (slides, film, video, flip chart, projection equipment, screens, handouts)
- Documents, e.g., Instructor's Course Guide, Instructor's Lesson Plans, text material, study guides, reference books

Student and instructor recruiting materials, registration forms, data collection forms, records and reports, and postage should be considered in the formal budget.

4. Travel and per diem, as appropriate

- Medical director
- Course coordinator
- Primary instructor
- Assistant instructors
- Students

5. Examination and certification costs

Examination and certification costs are as specified by the state emergency medical services office. If it is necessary to provide instruction to the lead instructor or assistant instructors, that cost should also be taken into consideration in calculating the overall cost of the EMT-Basic program. In addition, it will be necessary to provide updates to the lead instructor and assistant instructors regarding the new curriculum material. Annual updates should be scheduled to inform instructors of current trends in prehospital emergency medicine.

MODULE 1

Preparatory

Lesson 1-1

Introduction to Emergency Care

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

1-1.1 Define Emergency Medical Services (EMS) systems.(C-1)
1-1.2 Differentiate the roles and responsibilities of the EMT-Basic from other prehospital care providers.(C-3)
1-1.3 Describe the roles and responsibilities related to personal safety.(C-1)
1-1.4 Discuss the roles and responsibilities of the EMT-Basic towards the safety of the crew, the patient and bystanders.(C-1)
1-1.5 Define quality improvement and discuss the EMT-Basic's role in the process.(C-1)
1-1.6 Define medical direction and discuss the EMT-Basic's role in the process.(C-1)
1-1.7 State the specific statutes and regulations in your state regarding the EMS system.(C-1)

AFFECTIVE OBJECTIVES

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

1-1.8 Assess areas of personal attitude and conduct of the EMT-Basic.(A-3)
1-1.9 Characterize the various methods used to access the EMS system in your community.(A-3)

PSYCHOMOTOR OBJECTIVES

No psychomotor objectives identified.

Motivation: The field of prehospital emergency medical care is an evolving profession in which the reality of life and death is confronted at a moment's notice. EMS has developed from the days when the local funeral home and other services served as the ambulance provider to a far more sophisticated system today. EMT-Basics work side by side with other health care professionals to help deliver professional prehospital emergency medical care. This course is designed to help the new EMT-Basic gain the knowledge, skills and attitude necessary to be a competent, productive, and valuable member of the emergency medical services team.

Prerequisites: BLS

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to emergency medical care. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.

EMS Equipment: None required.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in EMT-Basic course overview, administrative paperwork, certification requirements, Americans with Disabilities Act issues, and roles and responsibilities of the EMT-Basic.

Assistant Instructor: None required.

Recommended Minimum Time to Complete: One and a half hours

Declarative (What)

I. Course Overview
   A. Paperwork
      1. Local
      2. State
   B. Course description and expectations
   C. Immunizations/physical exam
   D. Review criteria for certification
      1. Successful course completion
      2. Mentally/physically meet criteria of safe and effective practice of job functions
      3. Written examination
      4. Practical examination
      5. State and local provisions
   E. Implications of Americans with Disabilities Act (ADA) - state and local policies
   F. Implications of harassment - state and local policies

II. The Emergency Medical Services System and the Emergency Medical Technician-Basic
   A. Overview of the Emergency Medical Services system
      1. National Highway Traffic Safety Administration Technical Assistance Program Assessment Standards
         a. Regulation and policy
         b. Resource management
         c. Human resources and training
         d. Transportation
         e. Facilities
         f. Communications
         g. Public information and education
         h. Medical direction
         i. Trauma systems
         j. Evaluation
      2. Access to the system
         a. 9-1-1
         b. Non 9-1-1

3. Levels of training
    a. First Responder
    b. EMT-Basic
    c. EMT-Intermediate
    d. EMT-Paramedic
4. The health care system
    a. Emergency departments
    b. Specialty facilities
        (1) Trauma centers
        (2) Burn centers
        (3) Pediatric centers
        (4) Poison centers
        (5) Other specialty centers - locally dependent
5. Hospital personnel
    a. Physicians
    b. Nurses
    c. Other health professionals
6. Liaison with other public safety workers
    a. Local law enforcement
    b. State and federal law enforcement
7. Overview of the local EMS system

B. Roles and Responsibilities of the EMT-Basic
1. Personal safety
2. Safety of crew, patient and bystanders
3. Patient assessment
4. Patient care based on assessment findings
5. Lifting and moving patients safely
6. Transport/transfer of care
7. Record keeping/data collection
8. Patient advocacy (patient rights) - patient as a whole

C. Professional attributes
1. Appearance
    a. Neat
    b. Clean
    c. Positive image
2. Maintains up-to-date knowledge and skills
    a. Continuing education
    b. Refresher courses
3. Puts patient's needs as a priority without endangering self.
4. Maintains current knowledge of local, state, and national issues affecting EMS.

D. Quality improvement
   1. Definition - a system of internal/external reviews and audits of all aspects of an EMS system so as to identify those aspects needing improvement to assure that the public receives the highest quality of prehospital care.
   2. The role of the EMT-Basic in quality improvement
      a. Documentation
      b. Run reviews and audits
      c. Gathering feedback from patients and hospital staff
      d. Conducting preventative maintenance
      e. Continuing education
      f. Skill maintenance

E. Medical direction
   1. Definition
      a. A physician responsible for the clinical and patient care aspects of an EMS system.
      b. Every ambulance service/rescue squad must have physician medical direction.
      c. Types of medical direction
         (1) On-line
            (a) Telephone
            (b) Radio
         (2) Off-line
            (a) Protocols
            (b) Standing orders
      d. Responsible for reviewing quality improvement
   2. The relationship of the EMT-Basic to medical direction
      a. Designated agent of the physician
      b. Care rendered is considered an extension of the medical director's authority (varies by state law).

F. Specific statutes and regulations regarding EMS in your state

APPLICATION

Procedural (How)

None identified for this lesson.

Contextual (When, Where, Why)

The student will use this information throughout the course to enhance his understanding and provide direction for the EMT-Basic's relationship to the individual components of the EMS system. The lesson will provide the student with a road map for learning the skill and knowledge domains of the EMT-Basic. Additionally, this lesson will identify that not all students meet the mental and physical requirements of the career field. After completion of the course, the EMT-Basic will use this information to understand the process of gaining and maintaining certification, as well as understanding state and local legislation affecting the profession. This lesson sets the foundation for the remaining teaching/learning process. A positive, helpful attitude presented by the instructor is *essential* to assuring a positive, helpful attitude from the student.

STUDENT ACTIVITY

Auditory (Hear)

1. Students will hear specifically what they can expect to receive from the training program.
2. Students will hear the specific expectations of the training program.
3. Students will hear actual state and local legislation relative to EMS practice and certification.

Visual (See)

1. Students will see audio-visual aids or materials explaining the components of the health care system, EMT-Basic level of care, EMT-Basic's roles and responsibilities, professional attributes, and certification requirements.
2. Students will receive a copy of the cognitive, affective and psychomotor objectives for the entire curriculum.
3. Students will receive the final skill evaluation instruments.

Kinesthetic (Do)

1. Students will practice situations in which EMT-Basics portray professional attributes and experience ethical dilemmas.
2. Students will complete the necessary course paperwork.
3. Students will indicate if they will require/request assistance during the course or certification process based on the Americans with Disabilities Act. Additionally, students will provide the necessary documentation to support the requirements/request.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation form).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

What is unique in the local area concerning this topic? Complete enrichment sheets from instructor's course guide and attach with lesson plan.

MODULE 1

Preparatory

Lesson 1-2

Well-Being of the EMT-Basic

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

1-2.1 List possible emotional reactions that the EMT-Basic may experience when faced with trauma, illness, death and dying. (C-1)
1-2.2 Discuss the possible reactions that a family member may exhibit when confronted with death and dying.(C-1)
1-2.3 State the steps in the EMT-Basic's approach to the family confronted with death and dying.(C-1)
1-2.4 State the possible reactions that the family of the EMT-Basic may exhibit due to their outside involvement in EMS.(C-1)
1-2.5 Recognize the signs and symptoms of critical incident stress.(C-1)
1-2.6 State possible steps that the EMT-Basic may take to help reduce/alleviate stress.(C-1)
1-2.7 Explain the need to determine scene safety. (C-2)
1-2.8 Discuss the importance of body substance isolation (BSI).(C-1)
1-2.9 Describe the steps the EMT-Basic should take for personal protection from airborne and bloodborne pathogens.(C-1)
1-2.10 List the personal protective equipment necessary for each of the following situations:(C-1)
- Hazardous materials
- Rescue operations
- Violent scenes
- Crime scenes

- Exposure to bloodborne pathogens
- Exposure to airborne pathogens

AFFECTIVE OBJECTIVES

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

1-2.11 Explain the rationale for serving as an advocate for the use of appropriate protective equipment. (A-3)

PSYCHOMOTOR OBJECTIVES

1-2.12 Given a scenario with potential infectious exposure, the EMT-Basic will use appropriate personal protective equipment. At the completion of the scenario, the EMT-Basic will properly remove and discard the protective garments. (P-1,2)

1-2.13 Given the above scenario, the EMT-Basic will complete disinfection/cleaning and all reporting documentation.(P-1,2)

PREPARATION

Motivation: EMT-Basics encounter many stressful situations providing emergency medical care to patients. These range from death and terminal illness to major traumatic situations and child abuse. EMT-Basics will treat angry, scared, violent, seriously injured and ill patients and family members. The EMT-Basic is not immune from the personal effects of these situations. EMT-Basics will learn during this lesson what to expect and how to assist the patient, patient's family, the EMT-Basic's family and other EMT-Basics in dealing with the stress. This lesson discusses methods of talking to friends and family, without violating confidentiality, but as a means of helping them cope with involvement in EMS. Finally, aspects of personal safety will be discussed. It is important to realize this is only a brief overview and will be readdressed with each specific skill or topic. To put this in

perspective, remember: A dead or injured EMT-Basic is of little or no use to a patient.

Prerequisites: BLS

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to the well-being of the EMT-Basic. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.

EMS Equipment: Eye protection, gowns, gloves, masks, forms for reporting exposures.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in critical incident stress debriefing, identifying child/elderly abuse, stages of death and dying, and aspects of scene safety.

Assistant Instructor: None required.

Recommended Minimum Time to Complete: One and a half hours

PRESENTATION

Declarative (What)

I. Emotional Aspects of Emergency Care
   A. Death and dying
      1. Stages
         a. Denial ("Not me.") - defense mechanism creating a buffer between shock of dying and dealing with the illness/injury.
         b. Anger ("Why me.")
            (1) EMT-Basics may be the target of the anger.
            (2) Don't take anger or insults personally.
               (a) Be tolerant.
               (b) Do not become defensive.

(3) Employ good listening and communication skills.
(4) Be empathetic.

c. Bargaining ("OK, but first let me...") - agreement that, in the patient's mind, will postpone the death for a short time.
d. Depression ("OK, but I haven't...")
(1) Characterized by sadness and despair.
(2) Patient is usually silent and retreats into his own world.
e. Acceptance ("OK, I am not afraid.")
(1) Does not mean the patient will be happy about dying.
(2) The family will usually require more support during this stage than the patient.

2. Dealing with the dying patient and family members
a. Patient needs include dignity, respect, sharing, communication, privacy and control.
b. Family members may express rage, anger and despair.
c. Listen empathetically.
d. Do not falsely reassure.
e. Use a gentle tone of voice.
f. Let the patient know everything that can be done to help will be done.
g. Use a reassuring touch, if appropriate.
h. Comfort the family.

B. Stressful situations
1. Examples of situations that may produce a stress response
a. Mass casualty situations
b. Infant and child trauma
c. Amputations
d. Infant/child/elder/spouse abuse
e. Death/injury of co-worker or other public safety personnel
2. The EMT-Basic will experience personal stress as well as encounter patients and bystanders in severe stress.

C. Stress management
1. Recognize warning signs
a. Irritability to co-workers, family, friends
b. Inability to concentrate
c. Difficulty sleeping/nightmares
d. Anxiety
e. Indecisiveness
f. Guilt
g. Loss of appetite
h. Loss of interest in sexual activities
i. Isolation

j. Loss of interest in work

2. Life-style changes
   a. Helpful for "job burnout"
   b. Change diet
      (1) Reduce sugar, caffeine and alcohol intake
      (2) Avoid fatty foods
      (3) Increase carbohydrates
   c. Exercise
   d. Practice relaxation techniques, meditation, visual imagery
3. Balance work, recreation, family, health, etc.
4. EMS personnel and their family's and friends' responses
   a. Lack of understanding
   b. Fear of separation and being ignored
   c. On-call situations cause stress
   d. Can't plan activities
   e. Frustration caused by wanting to share
5. Work environment changes
   a. Request work shifts allowing for more time to relax with family and friends.
   b. Request a rotation of duty assignment to a less busy area.
6. Seek/refer professional help.

D. Critical incident stress debriefing (CISD)
1. A team of peer counsellors and mental health professionals who help emergency care workers deal with critical incident stress.
2. Meeting is held within 24 to 72 hours of a major incident.
   a. Open discussion of feelings, fears, and reactions
   b. Not an investigation or interrogation
   c. All information is confidential
   d. CISD leaders and mental health personnel evaluate the information and offer suggestions on overcoming the stress.
3. Designed to accelerate the normal recovery process after experiencing a critical incident.
   a. Works well because feelings are ventilated quickly.
   b. Debriefing environment is non-threatening.
4. How to access local CISD system.

E. Comprehensive critical incident stress management includes:
   1. Pre-incident stress education
   2. On-scene peer support
   3. One-on-one support
   4. Disaster support services
   5. Defusings
   6. CISD
   7. Follow up services
   8. Spouse/family support
   9. Community outreach programs
   10. Other health and welfare programs such as wellness programs

II. Scene Safety
   A. Body substance isolation (BSI) (Bio-Hazard)
      1. EMT-Basic's and patient's safety
         a. Hand washing
         b. Eye protection
            (1) If prescription eyeglasses are worn, then removable side shields can be applied to them.
            (2) Goggles are NOT required.
         c. Gloves (vinyl or latex)
            (1) Needed for contact with blood or bloody body fluids.
            (2) Should be changed between contact with different patients.
         d. Gloves (utility) - needed for cleaning vehicles and equipment
         e. Gowns
            (1) Needed for large splash situations such as with field delivery and major trauma.
            (2) Change of uniform is preferred.
         f. Masks
            (1) Surgical type for possible blood splatter (worn by care provider)
            (2) High Efficiency Particulate Air (HEPA) respirator if patient suspected for or diagnosed with tuberculosis (worn by care provider)
            (3) Airborne disease - surgical type mask (worn by patient)
         g. Requirements and availability of specialty training

2. OSHA/state regulations regarding BSI
3. Statutes/regulations reviewing notification and testing in an exposure incident

B. Personal protection
1. Hazardous materials
   a. Identify possible hazards
      (1) Binoculars
      (2) Placards
      (3) *Hazardous Materials, The Emergency Response Handbook*, published by the United States Department of Transportation
   b. Protective clothing
      (1) Hazardous material suits
      (2) Self Contained Breathing Apparatus
   c. Hazardous materials scenes are controlled by specialized Haz-Mat teams.
   d. EMT-Basics provide emergency care only after the scene is safe and patient contamination limited.
   e. Requirements and availability of specialized training
2. Rescue
   a. Identify and reduce potential life threats.
      (1) Electricity
      (2) Fire
      (3) Explosion
      (4) Hazardous materials
   b. Protective clothing
      (1) Turnout gear
      (2) Puncture-proof gloves
      (3) Helmet
      (4) Eye wear
   c. Dispatch rescue teams for extensive/heavy rescue.

3. Violence
   a. Scene should always be controlled by law enforcement before EMT-Basic provides patient care.
      (1) Perpetrator of the crime
      (2) Bystanders
      (3) Family members
   b. Behavior at crime scene (covered in greater detail in Medical/Legal and Ethical Issues, Module 1, Lesson 1-3).
      (1) Do not disturb the scene unless required for medical care.
      (2) Maintain chain of evidence.

III. Safety Precautions in Advance - Suggested Immunizations
   A. Tetanus prophylaxis
   B. Hepatitis B vaccine
   C. Verification of immune status with respect to commonly transmitted contagious diseases
   D. Access or availability of immunizations in the community
   E. Tuberculin purified protein derivative (PPD) testing
   F. Others

APPLICATION

Procedural (How)

1. The EMT-Basic will know how to access additional information on hazardous materials and infectious disease exposure, notification and follow-up.

Contextual (When, Where, Why)

1. The EMT-Basic will use the aspects of scene safety and personal protection every day and on every emergency run.
2. While the EMT-Basic may not be a member of a hazardous material or heavy rescue team, this lesson should provide the personal incentive to seek out and attend continuing education programs relative to personal safety during hazardous material incidents, rescue situations and violent crime scenes.

3. If the EMT-Basic fails to develop personal safety skills, his EMT-Basic career may come to a premature end through serious injury or death.

4. The well-being of the EMT-Basic depends upon his ability to recognize that stressful traumatic situations do occur and the effect of those situations is felt by the patient, family members and the EMT-Basic. In recognizing this, the EMT-Basic must be aware of internal and external mechanisms to help himself, the patient, patient's families, EMT-Basic's family and other EMT-Basics deal with reactions to stress.
5. The EMT-Basic will use proper communication techniques when dealing with the grieving process.

STUDENT ACTIVITIES

Auditory (Hear)

1. The student will hear the instructor demonstrate methods of communicating with patients and family members of terminally ill patients.
2. The student will hear the instructor demonstrate methods of communicating with friends and family members of a dead or dying patient.

Visual (See)

1. The student will see various audio-visual aids or materials of scenes requiring personal protection.
2. The student will see various audio-visual aids or materials of personal protection clothing worn by hazardous material/rescue teams.
3. The student will see the gown, gloves, mask and eye protection associated with body substance isolation (BSI).

Kinesthetic (Do)

1. The student will practice role play, talking to patients in various stressful/traumatic situations.
2. The student will practice putting on and removing gowns, gloves and eye protection gear.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from instructor's course guide and attach with lesson plan.

MODULE 1

Preparatory

Lesson 1-3

Medical/Legal and Ethical Issues

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

1-3.1 Define the EMT-Basic scope of practice. (C-1)
1-3.2 Discuss the importance of Do Not Resuscitate [DNR] (advance directives) and local or state provisions regarding EMS application.(C-1)
1-3.3 Define consent and discuss the methods of obtaining consent.(C-1)
1-3.4 Differentiate between expressed and implied consent. (C-3)
1-3.5 Explain the role of consent of minors in providing care.(C-1)
1-3.6 Discuss the implications for the EMT-Basic in patient refusal of transport.(C-1)
1-3.7 Discuss the issues of abandonment, negligence, and battery and their implications to the EMT-Basic.(C-1)
1-3.8 State the conditions necessary for the EMT-Basic to have a duty to act.(C-1)
1-3.9 Explain the importance, necessity and legality of patient confidentiality.(C-1)
1-3.10 Discuss the considerations of the EMT-Basic in issues of organ retrieval.(C-1)
1-3.11 Differentiate the actions that an EMT-Basic should take to assist in the preservation of a crime scene. (C-3)
1-3.12 State the conditions that require an EMT-Basic to notify local law enforcement officials.(C-1)

AFFECTIVE OBJECTIVES

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

1-3.13 Explain the role of EMS and the EMT-Basic regarding patients with DNR orders. (A-3)

1-3.14 Explain the rationale for the needs, benefits and usage of advance directives.(A-3)

1-3.15 Explain the rationale for the concept of varying degrees of DNR.(A-3)

PSYCHOMOTOR OBJECTIVES

No psychomotor objectives identified.

PREPARATION

Motivation: Medical/legal and ethical issues are a vital element of the EMT-Basic's daily life. Should an EMT-Basic stop and treat an automobile crash victim when off duty? Should patient information be released to the attorney on the telephone? Can a child with a broken arm be treated even though his parents are not at home and/or only his child care provider is around? These and many other medical/legal/ethical questions face the EMT-Basic every day. Guidance will be given in this lesson to answer these questions and learn how to make the correct decision when other medical/legal and ethical questions arise.

Prerequisites: BLS

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to medical/ legal and ethical issues. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.

EMS Equipment: None.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in the medical/legal aspects and ethical issues that the EMT-Basic will encounter.

Assistant Instructor: None required.

Recommended Minimum Time to Complete: One and a half hours

PRESENTATION

Declarative (What)

I. Scope of Practice
   A. Legal duties to the patient, medical director, and public
      1. Provide for the well-being of the patient by rendering necessary interventions outlined in the scope of practice.
      2. Defined by state legislation
         a. Enhanced by medical direction through the use of protocols and standing orders
         b. Referenced to the National Standard Curricula
      3. Legal right to function as an EMT-Basic may be contingent upon medical direction.
         a. Telephone/radio communications
         b. Approved standing orders/protocols
         c. Responsibility to medical direction
   B. Ethical responsibilities
      1. Make the physical/emotional needs of the patient a priority.
      2. Practice/maintenance of skills to the point of mastery.
      3. Attend continuing education/refresher programs.

4. Critically review performances, seeking ways to improve response time, patient outcome, communication.
5. Honesty in reporting

II. Advance Directives
- A. Do Not Resuscitate (DNR) orders
  1. Patient has the right to refuse resuscitative efforts.
  2. In general, requires written order from physician.
  3. Review state and local legislation/protocols relative to DNR orders and advance directives.
  4. When in doubt or when written orders are not present, the EMT-Basic should begin resuscitation efforts.

III. Consent
- A. Expressed
  1. Patient must be of legal age and able to make a rational decision.
  2. Patient must be informed of the steps of the procedures and all related risks.
  3. Must be obtained from every conscious, mentally competent adult before rendering treatment.
- B. Implied
  1. Consent assumed from the unconscious patient requiring emergency intervention
  2. Based on the assumption that the unconscious patient would consent to life saving interventions
- C. Children and mentally incompetent adults
  1. Consent for treatment must be obtained from the parent or legal guardian.
     - a. Emancipation issues
     - b. State regulations regarding age of minors
  2. When life threatening situations exist and the parent or legal guardian is not available for consent, emergency treatment should be rendered based on implied consent.

IV. Assault/Battery
- A. Unlawfully touching a patient without his consent
- B. Providing emergency care when the patient does not consent to the treatment

V. Refusals
- A. The patient has the right to refuse treatment.
- B. The patient may withdraw from treatment at any time. Example: an unconscious patient regains consciousness and refuses transport to the hospital.

C. Refusals must be made by mentally competent adults following the rules of expressed consent.
D. The patient must be informed of and fully understand all the risks and consequences associated with refusal of treatment/transport, and must sign a "release from liability" form.
E. When in doubt, err in favor of providing care.
F. Documentation is a key factor to protect EMT-Basic in refusal.
   1. Competent adult patients have the right to refuse treatment.

2. Before the EMT-Basic leaves the scene, he should:
   a. Try again to persuade the patient to go to a hospital.
   b. Ensure the patient is able to make a rational, informed decision, e.g., not under the influence of alcohol or other drugs, or illness/injury effects.
   c. Inform the patient why he should go and what may happen to him if he does not.
   d. Consult medical direction as directed by local protocol.
   e. Consider assistance of law enforcement.
   f. Document any assessment findings and emergency medical care given, and if the patient still refuses, then have the patient sign a refusal form.
   g. The EMT-Basic should never make an independent decision not to transport.

VI. Abandonment - termination of care of the patient without assuring the continuation of care at the same level or higher.

VII. Negligence - deviation from the accepted standard of care resulting in further injury to the patient. Components:
   A. Duty to act
   B. Breach of the duty
   C. Injury/damages were inflicted
      1. Physical
      2. Psychological
   D. The actions of the EMT-Basic caused the injury/damage.

VIII. Duty to Act
   A. A contractual or legal obligation must exist.
      1. Implied
         a. Patient calls for an ambulance and the dispatcher confirms that an ambulance will be sent.
         b. Treatment is begun on a patient.
      2. Formal - ambulance service has a written contract with a municipality. Specific clauses within the contract should indicate when service can be refused to a patient.
   B. Legal duty to act may not exist. May be moral/ethical considerations.
      1. In some states, while off duty, if the EMT-Basic comes upon an accident while driving.
      2. When driving the ambulance not in the company's service area and EMT-Basic observes an accident.
         a. Moral/ethical duty to act
         b. Risk management
         c. Documentation

3. Specific state regulations regarding duty to act.

IX. Confidentiality
- A. Confidential information
  1. Patient history gained through interview
  2. Assessment findings
  3. Treatment rendered
- B. Releasing confidential information
  1. Requires a written release form signed by the patient. Do not release on request, written or verbal, unless legal guardianship has been established.
  2. When a release is not required
     - a. Other health care providers need to know information to continue care.
     - b. State law requires reporting incidents such as rape, abuse or gun shot wounds.
     - c. Third party payment billing forms
     - d. Legal subpoena

X. Special Situations
- A. Donor/organ harvesting consideration
  1. Requires a signed legal permission document
     - a. Separate donor card
     - b. Intent to be a donor on the reverse of patient's driver's license
  2. A potential organ donor should not be treated differently from any other patient requesting treatment.
  3. EMT-Basic's role in organ harvesting
     - a. Identify the patient as a potential donor.
     - b. Establish communication with medical direction.
     - c. Provide care to maintain viable organs.
- B. Medical identification insignia
  1. Bracelet, necklace, card
  2. Indicates a serious medical condition of the patient
     - a. Allergies
     - b. Diabetes
     - c. Epilepsy
     - d. Others

XI. Potential Crime Scene/Evidence Preservation
- A. Dispatch should notify police personnel.
- B. Responsibility of the EMT-Basic
  1. Emergency care of the patient is the EMT-Basic's priority.

2. Do not disturb any item at the scene unless emergency care requires it.
3. Observe and document anything unusual at the scene.
4. If possible, do not cut through holes in clothing from gunshot wounds or stabbings.

XII. Special Reporting Situations
- A. Established by state legislation and may vary from state to state
- B. Commonly required reporting situations
  1. Abuse
     - a. Child
     - b. Elderly
     - c. Spouse
  2. Crime
     - a. Wounds obtained by violent crime
     - b. Sexual assault
- C. Infectious disease exposure
- D. Patient restraint laws e.g. forcing someone to be transported against their will.
- E. Mentally incompetent, e.g., intoxication with injuries.

APPLICATION

Procedural (How)

None identified for this lesson.

Contextual (When, Where, Why)

Medical/legal and ethical issues are present in every aspect of patient care. The decision to treat or not treat a patient, to release or not release information, to report or not report an incident all require a knowledge of current state and local legislation, policy and protocol. Up-to-date knowledge of the current legal interpretation of issues such a negligence, battery, confidentiality, consent and refusal of treatment is essential for the EMT-Basic.

STUDENT ACTIVITIES

Auditory (Hear)

1. Students should hear actual case law and common law decisions relative to EMT-Basic care.

Visual (See)

1. Students should see actual copies of medical identification insignia, organ donor cards, Do Not Resuscitate orders, and information release forms.
2. Students should see audio-visual aids or materials of definitions of medical/legal terms such as negligence, abandonment, battery, duty to act, consent, confidentiality.

Kinesthetic (Do)

1. Students should practice making decisions while role playing the various medical/legal and ethical situations that occur in the EMS environment (including consent, abandonment, battery, duty to act, negligence, and confidentiality).
2. Students should practice role play situations in which DNR orders are in effect.
3. Students should practice role play situations in which organ donor cards are in effect.
4. Students should practice role playing situations of patients refusing transport.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance

with the cognitive and affective objectives and their mastery of the

REMEDIATION

psychomotor objectives of this lesson.
Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from instructor's course guide and attach with lesson plan.

MODULE 1

Preparatory

Lesson 1-4

The Human Body

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

1-4.1 Identify the following topographic terms: Medial, lateral, proximal, distal, superior, inferior, anterior, posterior, midline, right and left, mid-clavicular, bilateral, mid-axillary. (C-1)

1-4.2 Describe the anatomy and function of the following major body systems: Respiratory, circulatory, musculoskeletal, nervous and endocrine. (C-1)

AFFECTIVE OBJECTIVES

No affective objectives identified.

PSYCHOMOTOR OBJECTIVES

No psychomotor objectives identified.

PREPARATION

Motivation: To perform an adequate patient assessment, the EMT-Basic must be familiar with the normal anatomy of the human body and topographical terminology. This information will provide a solid cornerstone which will enable the EMT-Basic to build the essentials of quality patient assessment and management.

Prerequisites: BLS

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to the human body. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.

EMS Equipment: Anatomy models

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in human body systems and topographical terminology.

Assistant Instructor: None required.

Recommended Minimum Time to Complete: Two and a half hours

PRESENTATION

Declarative (What)

XIII. Anatomical Terms
- A. Normal anatomical position
  - 1. Person standing, facing forward
  - 2. Palms facing forward

B. Anatomical terms - planes
   1. Midline
      a. Imaginary line drawn vertically through the middle of the body: Nose --> umbilicus (belly button)
      b. Divides the body into right and left.
   2. Mid-axillary
      a. Imaginary line drawn vertically from the middle of the armpit to the ankle.
      b. Divides the body into anterior and posterior.

C. Descriptive anatomical terms
   1. Torso
   2. Medial
   3. Lateral
   4. Proximal
   5. Distal
   6. Superior
   7. Inferior
   8. Anterior
   9. Posterior
   10. Right and left
   11. Mid-clavicular
   12. Bilaterally
   13. Dorsal
   14. Ventral
   15. Plantar
   16. Palmar
   17. Prone
   18. Supine
   19. Fowlers
   20. Trendelenburg
   21. Shock position

XIV. The Skeletal System

A. Function
   1. Gives the body shape
   2. Protects vital internal organs
   3. Provides for body movement

B. Components
   1. Skull - houses and protects the brain
   2. Face
      a. Orbit
      b. Nasal bone

c. Maxilla
d. Mandible (jaw)
e. Zygomatic bones (cheeks)

3. Spinal Column
   a. Cervical (neck) - 7
   b. Thoracic (upper back) - 12
   c. Lumbar (lower back) - 5
   d. Sacral (back wall of the pelvis) - 5
   e. Coccyx (tailbone) - 4
4. Thorax
   a. Ribs
      (1) 12 pair
      (2) Attached posterior to the thoracic vertebrae.
      (3) Pairs 1-10 are attached anterior to the sternum.
      (4) Pairs 11 and 12 are floating.
   b. Sternum (Breastbone)
      (1) Manubrium (superior portion of sternum)
      (2) Body (middle)
      (3) Xiphoid process (inferior portion of sternum)
5. Pelvis
   a. Iliac crest (wings of pelvis)
   b. Pubis (anterior portion of pelvis)
   c. Ischium (inferior portion of pelvis)
6. Lower extremities
   a. Greater trochanter (ball) and acetabulum (socket of hip bone) [Make up the hip joint]
   b. Femur (thigh)
   c. Patella (kneecap)
   d. Tibia (shin - lower leg)
   e. Fibula (lower leg)
   f. Medial and lateral malleolus - are the surface landmarks of the ankle joint.
   g. Tarsals and metatarsals (foot)
   h. Calcaneus (heel)
   i. Phalanges (toes)
7. Upper extremities
   a. Clavicle (collar bone)
   b. Scapula (shoulder blade)
   c. Acromion (tip of shoulder)
   d. Humerus (superior portion of upper extremity)
   e. Olecranon (elbow)

f. Radius (lateral bone of forearm)
g. Ulna (medial bone of forearm)
h. Carpals (wrist)
i. Metacarpals (hand)
j. Phalanges (fingers)

C. Joints
1. Where bones connect to other bones
2. Types
a. Ball and socket
b. Hinged

XV. Body Systems
A. Respiratory
1. Nose and mouth
2. Pharynx
a. Oropharynx
b. Nasopharynx
3. Epiglottis - a leaf-shaped structure that prevents food and liquid from entering the trachea during swallowing.
4. Trachea (windpipe)
5. Cricoid cartilage - firm cartilage ring forming the lower portion of the larynx.
6. Larynx (voice box)
7. Bronchi - two major branches of the trachea to the lungs. Bronchus subdivides into smaller air passages ending at the alveoli.
8. Lungs
9. Diaphragm
a. Inhalation (active)
(1) Diaphragm and intercostal muscles contract, increasing the size of the thoracic cavity.
(a) Diaphragm moves slightly downward, flares lower portion of rib cage.
(b) Ribs move upward/outward.
(2) Air flows into the lungs.
b. Exhalation
(1) Diaphragm and intercostal muscles relax decreasing the size of the thoracic cavity.
(a) Diaphragm moves upward.
(b) Ribs move downward/inward.
(2) Air flows out of the lungs.
10. Respiratory physiology
a. Alveolar/capillary exchange

(1) Oxygen-rich air enters the alveoli during each inspiration.
(2) Oxygen-poor blood in the capillaries passes into the alveoli.
(3) Oxygen enters the capillaries as carbon dioxide enters the alveoli.

b. Capillary/cellular exchange
(1) Cells give up carbon dioxide to the capillaries.
(2) Capillaries give up oxygen to the cells.

c. Adequate breathing
(1) Normal rate
(a) Adult - 12-20/minute
(b) Child - 15-30/minute
(c) Infant - 25-50/minute
(2) Rhythm
(a) Regular
(b) Irregular
(3) Quality
(a) Breath sounds - present and equal
(b) Chest expansion - adequate and equal
(c) Effort of breathing - use of accessory muscles - predominantly in infants and children
(4) Depth (tidal volume) - adequate

d. Inadequate breathing
(1) Rate - outside of normal ranges.
(2) Rhythm - irregular
(3) Quality
(a) Breath sounds - diminished or absent
(b) Chest expansion - unequal or inadequate
(c) Increased effort of breathing - use of accessory muscles - predominantly in infants and children
(4) Depth (tidal volume) - inadequate/shallow
(5) The skin may be pale or cyanotic (blue) and cool and clammy.
(6) There may be retractions above the clavicles, between the ribs and below the rib cage, especially in children.
(7) Nasal flaring may be present, especially in children.
(8) In infants, there may be "seesaw" breathing where the abdomen and chest move in opposite directions.

(9) Agonal respirations (occasional gasping breaths) may be seen just before death.

11. Infant and child anatomy considerations
    a. Mouth and nose - in general: All structures are smaller and more easily obstructed than in adults.
    b. Pharynx - infants' and children's tongues take up proportionally more space in the mouth than adults.
    c. Trachea (windpipe)
        (1) Infants and children have narrower tracheas that are obstructed more easily by swelling.
        (2) The trachea is softer and more flexible in infants and children.
    d. Cricoid cartilage - like other cartilage in the infant and child, the cricoid cartilage is less developed and less rigid.
    e. Diaphragm - chest wall is softer, infants and children tend to depend more heavily on the diaphragm for breathing.

B. Circulatory (Cardiovascular)
1. Heart
    a. Structure/function
        (1) Atrium
            (a) Right - receives blood from the veins of the body and the heart, pumps oxygen-poor blood to the right ventricle.
            (b) Left - receives blood from the pulmonary veins (lungs), pumps oxygen-rich blood to left ventricle.
        (2) Ventricle
            (a) Right - pumps blood to the lungs.
            (b) Left - pumps blood to the body.
        (3) Valves prevent backflow of blood.
    b. Cardiac conductive system
        (1) Heart is more than a muscle.
        (2) Specialized contractile and conductive tissue in the heart
        (3) Electrical impulses
2. Arteries
    a. Function - carry blood away from the heart to the rest of the body.
    b. Major arteries
        (1) Coronary arteries - vessels that supply the heart with blood.

(2) Aorta
  (a) Major artery originating from the heart, lying in front of the spine in the thoracic and abdominal cavities.
  (b) Divides at the level of the navel into the iliac arteries.
(3) Pulmonary
  (a) Artery originating at the right ventricle.
  (b) Carries oxygen-poor blood to the lungs.
(4) Carotid
  (a) Major artery of the neck.
  (b) Supplies the head with blood.
  (c) Pulsations can be palpated on either side of the neck.
(5) Femoral
  (a) The major artery of the thigh.
  (b) Supplies the lower extremities with blood.
  (c) Pulsations can be palpated in the groin area (the crease between the abdomen and thigh).
(6) Radial
  (a) Major artery of the lower arm.
  (b) Pulsations can be palpated at the wrist thumbside.
(7) Brachial
  (a) An artery of the upper arm.
  (b) Pulsations can be palpated on the inside of the arm between the elbow and the shoulder.
  (c) Used when determining a blood pressure (BP) using a BP cuff (sphygmomanometer) and a stethoscope.
(8) Posterior tibial - pulsations can be palpated on the posterior surface of the medial malleolus.
(9) Dorsalis pedis
  (a) An artery in the foot
  (b) Pulsations can be palpated on the anterior surface of the foot.

3. Arteriole - the smallest branch of an artery leading to the capillaries.
4. Capillaries
  a. Tiny blood vessels that connect arterioles to venules
  b. Found in all parts of the body

   c. Allow for the exchange of nutrients and waste at the cellular level
5. Venule - the smallest branch of a vein leading to the capillaries.
6. Veins
   a. Function - vessels that carry blood back to the heart.

b. Major veins
   (1) Pulmonary vein - carries oxygen-rich blood from the lungs to the left atrium.
   (2) Venae cavae
      (a) Superior
      (b) Inferior
      (c) Carries oxygen-poor blood back to the right atrium.

7. Blood composition
   a. Red blood cells
      (1) Give the blood its color.
      (2) Carry oxygen to organs.
      (3) Carry carbon dioxide away from organs.
   b. White blood cells - part of the body's defense against infections.
   c. Plasma - fluid that carries the blood cells and nutrients.
   d. Platelets - essential for the formation of blood clots.

8. Physiology
   a. Pulse
      (1) Left ventricle contracts sending a wave of blood through the arteries.
      (2) Can be palpated anywhere an artery simultaneously passes near the skin surface and over a bone.
      (3) Peripheral
         (a) Radial
         (b) Brachial
         (c) Posterior tibial
         (d) Dorsalis pedis
      (4) Central
         (a) Carotid
         (b) Femoral
   b. Blood Pressure
      (1) Systolic - the pressure exerted against the walls of the artery when the left ventricle contracts.
      (2) Diastolic - the pressure exerted against the walls of the artery when the left ventricle is at rest.

9. Inadequate circulation - Shock (hypoperfusion): A state of profound depression of the vital processes of the body, characterized by signs and symptoms such as: Pale, cyanotic (blue-gray color), cool, clammy skin, rapid, weak pulse, rapid and shallow breathing, restlessness, anxiety or mental dullness, nausea and vomiting, reduction in total blood volume, low or decreasing blood pressure and subnormal temperature.
10. Perfusion
    a. Definition - circulation of blood through an organ or a structure.
    b. Perfusion is the delivery of oxygen and other nutrients to the cells of all organ systems and the removal of waste products.
    c. Hypoperfusion is the inadequate circulation of blood through an organ or a structure.

C. Musculoskeletal
1. The muscular system function
    a. Gives the body shape.
    b. Protects internal organs.
    c. Provides for movement.
2. Types
    a. Voluntary (skeletal)
        (1) Attached to the bones.
        (2) Form the major muscle mass of the body.
        (3) Under control of the nervous system and brain. Can be contracted and relaxed by the will of the individual.
        (4) Responsible for movement.
    b. Involuntary (smooth)
        (1) Found in the walls of the tubular structures of the gastrointestinal tract and urinary system, as well as the blood vessels and bronchi.
        (2) Control the flow through these structures.
        (3) Carry out the automatic muscular functions of the body.
        (4) Individuals have no direct control over these muscles.
        (5) Respond to stimuli such as stretching, heat, and cold.

c. Cardiac
   (1) Found only in the heart.
   (2) Involuntary muscle - has its own supply of blood through the coronary artery system.
   (3) Can tolerate interruption of blood supply for only very short periods.
   (4) Automaticity - the ability of the muscle to contract on its own.

D. Nervous system
   1. Function - controls the voluntary and involuntary activity of the body.
   2. Components
      a. Central nervous system
         (1) Brain - located within the cranium.
         (2) Spinal cord - located within the spinal column from the brain through the lumbar vertebrae.
      b. Peripheral nervous system
         (1) Sensory - carry information from the body to the brain and spinal cord.
         (2) Motor - carry information from the brain and spinal cord to the body.

E. Skin
   1. Function
      a. Protects the body from the environment, bacteria and other organisms.
      b. Helps regulate the temperature of the body.
      c. Senses heat, cold, touch, pressure and pain; transmits this information to the brain and spinal cord.
   2. Layers
      a. Epidermis - outermost layer of skin.
      b. Dermis - deeper layer of skin containing sweat and sebaceous glands, hair follicles, blood vessels and nerve endings.
      c. Subcutaneous layer

F. Endocrine system function - secretes chemicals, such as insulin and adrenalin, responsible for regulating body activities and functions.

Procedural (How)

None identified for this lesson.

Contextual (When, Where, Why)

It is of utmost importance that the EMT-Basic have a very basic level of knowledge concerning the human body. To accurately communicate (both verbally and through written reports) to other health professionals, the EMT-Basic must be able to identify topographic anatomy.

The EMT-Basic must also understand the basic components of the body systems. Knowledge obtained in this lesson will be extremely beneficial in other modules throughout this curriculum.

STUDENT ACTIVITY

Auditory (Hear)

None identified for this lesson.

Visual (See)

1. The students should see models of the human body.
2. The students should see diagrams of the human body.
3. The students should see a skeleton of the human body.

Kinesthetic (Do)

1. The students should practice identifying various structures of the human body.
2. The students should practice demonstrating their ability to identify topographic anatomy.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from instructor's course guide and attach with lesson plan.

MODULE 1

Preparatory

Lesson 1-5

Baseline Vital Signs and SAMPLE History

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

1-5.1 Identify the components of vital signs.(C-1)
1-5.2 Describe the methods to obtain a breathing rate.(C-1)
1-5.3 Identify the attributes that should be obtained when assessing breathing.(C-1)
1-5.4 Differentiate between shallow, labored and noisy breathing.(C-3)
1-5.5 Describe the methods to obtain a pulse rate.(C-1)
1-5.6 Identify the information obtained when assessing a patient's pulse.(C-1)
1-5.7 Differentiate between a strong, weak, regular and irregular pulse.(C-3)
1-5.8 Describe the methods to assess the skin color, temperature, condition (capillary refill in infants and children).(C-1)
1-5.9 Identify the normal and abnormal skin colors.(C-1)
1-5.10 Differentiate between pale, blue, red and yellow skin color. (C-3)
1-5.11 Identify the normal and abnormal skin temperature.(C-1)
1-5.12 Differentiate between hot, cool and cold skin temperature. (C-3)
1-5.13 Identify normal and abnormal skin conditions.(C-1)
1-5.14 Identify normal and abnormal capillary refill in infants and children.(C-1)
1-5.15 Describe the methods to assess the pupils.(C-1)
1-5.16 Identify normal and abnormal pupil size.(C-1)
1-5.17 Differentiate between dilated (big) and constricted (small) pupil size. (C-3)
1-5.18 Differentiate between reactive and non-reactive pupils and equal and unequal pupils. (C-3)
1-5.19 Describe the methods to assess blood pressure.(C-1)

1-5.20 Define systolic pressure.(C-1)
1-5.21 Define diastolic pressure.(C-1)
1-5.22 Explain the difference between auscultation and palpation for obtaining a blood pressure.(C-1)
1-5.23 Identify the components of the SAMPLE history.(C-1)
1-5.24 Differentiate between a sign and a symptom. (C-3)
1-5.25 State the importance of accurately reporting and recording the baseline vital signs.(C-1)
1-5.26 Discuss the need to search for additional medical identification.(C-1)

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
1-5.27 Explain the value of performing the baseline vital signs.(A-2)
1-5.28 Recognize and respond to the feelings patients experience during assessment.(A-1)
1-5.29 Defend the need for obtaining and recording an accurate set of vital signs.(A-3)
1-5.30 Explain the rationale of recording additional sets of vital signs.(A-1)
1-5.31 Explain the importance of obtaining a SAMPLE history.(A-1)

PSYCHOMOTOR OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
1-5.32 Demonstrate the skills involved in assessment of breathing.(P-1,2)
1-5.33 Demonstrate the skills associated with obtaining a pulse. (P-1,2)
1-5.34 Demonstrate the skills associated with assessing the skin color, temperature, condition, and capillary refill in infants and children.(P-1,2)
1-5.35 Demonstrate the skills associated with assessing the pupils. (P-1,2)
1-5.36 Demonstrate the skills associated with obtaining blood pressure.(P-1,2)
1-5.37 Demonstrate the skills that should be used to obtain information from the patient, family, or bystanders at the scene. (P-1,2)

Motivation: An EMT-Basic must be able to accurately assess and record a patient's vital signs. This must be done to record trends in the patient's condition. In addition to vital signs, obtain a SAMPLE history in the event that the patient loses consciousness.

Prerequisite Skills: BLS

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to vital signs and SAMPLE history. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.

EMS Equipment: Exam gloves, stethoscope (dual and single head)(1:6), blood pressure cuffs (adult, infant and child)(1:6), penlights (1:6).

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in patient assessment.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in assessing baseline vital signs and SAMPLE histories.

Recommended Minimum Time to Complete: Two hours

Declarative (What)

I. General Information
   A. Chief complaint - why EMS was notified
   B. Age - years, months, days
   C. Sex - male or female
   D. Race

II. Baseline Vital Signs
   A. Breathing - assessed by observing the patient's chest rise and fall.
      1. Rate is determined by counting the number of breaths in a 30-second period and multiplying by 2. Care should be taken not to inform the patient, to avoid influencing the rate.
      2. Quality of breathing can be determined while assessing the rate. Quality can be placed in 1 of 4 categories:
         a. Normal - average chest wall motion, not using accessory muscles.
         b. Shallow - slight chest or abdominal wall motion.
         c. Labored
            (1) An increase in the effort of breathing
            (2) Grunting and stridor
            (3) Often characterized by the use of accessory muscles
            (4) Nasal flaring, supraclavicular and intercostal retractions in infants and children
            (5) Sometimes gasping
         d. Noisy - an increase in the audible sound of breathing. May include snoring, wheezing, gurgling, crowing.
   B. Pulse
      1. Initially a radial pulse should be assessed in all patients one year or older. In patients less than one year of age a brachial pulse should be assessed.
      2. If the pulse is present, assess rate and quality.
         a. Rate is the number of beats felt in 30 seconds multiplied by 2.
         b. Quality of the pulse can be characterized as:
            (1) Strong
            (2) Weak
            (3) Regular
            (4) Irregular

3. If peripheral pulse is not palpable, assess carotid pulse.
   a. Use caution. Avoid excess pressure on geriatrics.
   b. Never attempt to assess carotid pulse on both sides at one time.

C. Assess skin to determine perfusion.
1. The patient's color should be assessed in the nail beds, oral mucosa, and conjunctiva.
   a. In infants and children, palms of hands and soles of feet should be assessed.
   b. Normal skin - pink
   c. Abnormal skin colors
      (1) Pale - indicating poor perfusion (impaired blood flow)
      (2) Cyanotic (blue-gray) - indicating inadequate oxygenation or poor perfusion
      (3) Flushed (red) - indicating exposure to heat or carbon monoxide poisoning.
      (4) Jaundice (yellow) - indicating liver abnormalities
2. The patient's temperature should be assessed by placing the back of your hand on the patient's skin.
   a. Normal - warm
   b. Abnormal skin temperatures
      (1) Hot - indicating fever or an exposure to heat.
      (2) Cool - indicating poor perfusion or exposure to cold.
      (3) Cold - indicates extreme exposure to cold.
3. Assess the condition of the patient's skin.
   a. Normal - dry
   b. Abnormal - skin is wet, moist, or dry.
4. Assess capillary refill in infants and children less than six years of age.
   a. Capillary refill in infants and children is assessed by pressing on the patient's skin or nail beds and determining time for return to initial color.
   b. Normal capillary refill in infants and children is < 2 seconds.
   c. Abnormal capillary refill in infants and children is > 2 seconds.

D. Pupils are assessed by briefly shining a light into the patient's eyes, and determining size and reactivity.
   1. Dilated (very big), normal, or constricted (small).
   2. Equal or unequal
   3. Reactivity is whether or not the pupils change in response to the light.
      a. Reactive - change when exposed to light
      b. Non-reactive - do not change when exposed to light
      c. Equally or unequally reactive

E. Blood pressure
   1. Assess systolic and diastolic pressures.
      a. Systolic blood pressure is the first distinct sound of blood flowing through the artery as the pressure in the blood pressure cuff is released. This is a measurement of the pressure exerted against the walls of the arteries during contraction of the heart.
      b. Diastolic blood pressure is the point during deflation of the blood pressure cuff at which sounds of the pulse beat disappear. It represents the pressure exerted against the walls of the arteries while the left ventricle is at rest.
      c. There are two methods of obtaining blood pressure.
         (1) Auscultation: In this case the EMT-Basic will listen for the systolic and diastolic sounds.
         (2) Palpation: In certain situations, the systolic blood pressure may be measured by feeling for return of pulse with deflation of the cuff.
   2. Blood pressure should be measured in all patients older than 3 years of age.
   3. The general assessment of the infant or child patient, such as sick appearing, in respiratory distress, or unresponsive, is more valuable than vital sign numbers.

F. Vital sign reassessment
   1. Vital signs should be assessed and recorded every 15 minutes at a minimum in a stable patient.
   2. Vital signs should be assessed and recorded every 5 minutes in the unstable patient.
   3. Vital signs should be assessed following all medical interventions.

III. Obtain an SAMPLE history.
- A. Signs/Symptoms
  1. Sign - any medical or trauma condition displayed by the patient and identifiable by the EMT-Basic, e.g., Hearing = respiratory distress, Seeing = bleeding, Feeling = skin temperature.
  2. Symptom - any condition described by the patient, e.g., shortness of breath.
- B. Allergies
  1. Medications
  2. Food
  3. Environmental allergies
  4. Consider medical identification tag
- C. Medications
  1. Prescription
     - a. Current
     - b. Recent
     - c. Birth control pills
  2. Non-prescription
     - a. Current
     - b. Recent
  3. Consider medical identification tag
- D. Pertinent Past History
  1. Medical
  2. Surgical
  3. Trauma
  4. Consider medical identification tag
- E. Last oral intake: Solid or liquid
  1. Time
  2. Quantity
- F. Events leading to the injury or illness
  1. Chest pain with exertion
  2. Chest pain while at rest

APPLICATION

Procedural (How)

1. Demonstrate the skill of assessing breathing.
2. Demonstrate the skill of determining a pulse.
3. Demonstrate the skill of determining skin color, temperature, condition.
4. Demonstrate the skill of determining capillary refill in infants and children.
5. Demonstrate the skill of assessing pupils for size, reactivity and equality.
6. Demonstrate the skill of assessing blood pressure
   a. Auscultation
   b. Palpation
7. Discussion on questioning techniques to obtain history.

Contextual (When, Where, Why)

Accurate measurement and recording of vital signs over a period of time may indicate a trend in the patient's condition and be valuable in the continuum of care. There are a number of interventions that the EMT-Basic can perform; however, these skills cannot be performed without an accurate set of baseline vital signs. The SAMPLE history is important to guide the pace of the EMT-Basic and assist in the continuum of care at the receiving facility.

STUDENT ACTIVITIES

Auditory (Hear)

1. Students should hear normal and abnormal breathing.
2. Student should hear with a stethoscope and assess systolic and diastolic pressures.
3. Student should hear 5 components of the SAMPLE history.

Visual (See)

1. Students should see a simulated or actual patient's chest rise and fall and assess rate and quality of breathing.
2. Students should see appropriate areas of the body to assess the color and condition (and in infants and children < 6 years of age, the capillary refill).
3. Students should see pupils to assess size, reactivity and equality.

Kinesthetic (Do)

1. Students should practice methods for assessing breathing.
2. Students should practice methods for obtaining a pulse.

3. Students should practice methods for determining skin color, temperature, condition, (and capillary refill in infants and children < 6 years of age).
4. Students should practice methods for determining pupil size, reactivity and equality.
5. Students should practice methods for determining blood pressure by auscultation and palpation.
6. Students should practice methods for obtaining an SAMPLE history.

7. Students should practice completing a prehospital care report including vital signs and SAMPLE history.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from instructor's course guide and attach with lesson plan.

MODULE 1

Preparatory

Lesson 1-6

Lifting and Moving Patients

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

1-6.1 Define body mechanics. (C-1)
1-6.2 Discuss the guidelines and safety precautions that need to be followed when lifting a patient.(C-1)
1-6.3 Describe the safe lifting of cots and stretchers.(C-1)
1-6.4 Describe the guidelines and safety precautions for carrying patients and/or equipment.(C-1)
1-6.5 Discuss one-handed carrying techniques.(C-1)
1-6.6 Describe correct and safe carrying procedures on stairs.(C-1)
1-6.7 State the guidelines for reaching and their application. (C-1)
1-6.8 Describe correct reaching for log rolls.(C-1)
1-6.9 State the guidelines for pushing and pulling.(C-1)
1-6.10 Discuss the general considerations of moving patients.(C-1)
1-6.11 State three situations that may require the use of an emergency move.(C-1)
1-6.12 Identify the following patient carrying devices:

- **!** Wheeled ambulance stretcher
- **!** Portable ambulance stretcher
- **!** Stair chair
- **!** Scoop stretcher
- **!** Long spine board
- **!** Basket stretcher
- **!** Flexible stretcher (C-1)

AFFECTIVE OBJECTIVES

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

1-6.13 Explain the rationale for properly lifting and moving patients.(A-3)

PSYCHOMOTOR OBJECTIVES

1-6.14 Working with a partner, prepare each of the following devices for use, transfer a patient to the device, properly position the patient on the device, move the device to the ambulance and load the patient into the ambulance:

- Wheeled ambulance stretcher
- Portable ambulance stretcher
- Stair chair
- Scoop stretcher
- Long spine board
- Basket stretcher
- Flexible stretcher (P-1,2)

1-6.15 Working with a partner, the EMT-Basic will demonstrate techniques for the transfer of a patient from an ambulance stretcher to a hospital stretcher.(P-1,2)

PREPARATION

Motivation: Many EMT-Basics are injured every year because they attempt to lift patients improperly.

Prerequisites: BLS

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to lifting and moving techniques. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.

EMS Equipment:	Wheeled stretcher, stair chair, scoop stretcher, flexible stretcher, ambulance, long and short backboards, bed.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in this area.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skills practice. Individuals used as assistant instructors should be knowledgeable about lifting and moving patients.

Recommended Minimum
Time to Complete: Three hours

PRESENTATION

Declarative (What)

I. Body Mechanics
   A. Lifting techniques
      1. Safety precautions
         a. Use legs, not back, to lift.
         b. Keep weight as close to body as possible.
      2. Guidelines for lifting
         a. Consider weight of patient and need for additional help.
         b. Know physical ability and limitations.
         c. Lift without twisting.
         d. Have feet positioned properly.
         e. Communicate clearly and frequently with partner.
      3. Safe lifting of cots and stretchers. When possible use a stair chair instead of a stretcher if medically appropriate.
         a. Know or find out the weight to be lifted.
         b. Use at least two people.
         c. Ensure enough help available. Use an even number of people to lift so that balance is maintained.
            (1) Know or find out the weight limitations of equipment being used.
            (2) Know what to do with patients who exceed weight limitations of equipment.

d. Using power-lift or squat lift position, keep back locked into normal curvature. The power-lift position is useful for individuals with weak knees or thighs. The feet are a comfortable distance apart. The back is tight and the abdominal muscles lock the back in a slight inward curve. Straddle the object. Keep feet flat. Distribute weight to balls of feet or just behind them. Stand by making sure the back is locked in and the upper body comes up before the hips.
e. Use power grip to get maximum force from hands. The palm and fingers come into complete contact with the object and all fingers are bent at the same angles. The power-grip should always be used in lifting. This allows for maximum force to be developed. Hands should be at least 10 inches apart.
f. Lift while keeping back in locked-in position.
g. When lowering cot or stretcher, reverse steps.
h. Avoid bending at the waist.

B. Carrying
1. Precautions for carrying - whenever possible, transport patients on devices that can be rolled.
2. Guidelines for carrying
   a. Know or find out the weight to be lifted.
   b. Know limitations of the crew's abilities.
   c. Work in a coordinated manner and communicate with partners.
   d. Keep the weight as close to the body as possible.
   e. Keep back in a locked-in position and refrain from twisting.
   f. Flex at the hips, not the waist; bend at the knees.
   g. Do not hyperextend the back (do not lean back from the waist).
3. Correct carrying procedure
   a. Use correct lifting techniques to lift the stretcher.
   b. Partners should have similar strength and height.
4. One-handed carrying technique
   a. Pick up and carry with the back in the locked-in position.
   b. Avoid leaning to either side to compensate for the imbalance.

5. Correct carrying procedure on stairs
    a. When possible, use a stair chair instead of a stretcher.
    b. Keep back in locked-in position.
    c. Flex at the hips, not the waist; bend at the knees.
    d. Keep weight and arms as close to the body as possible.

C. Reaching
1. Guidelines for reaching
    a. Keep back in locked-in position.
    b. When reaching overhead, avoid hyperextended position.
    c. Avoid twisting the back while reaching.
2. Application of reaching techniques
    a. Avoid reaching more than 15 - 20 inches in front of the body.
    b. Avoid situations where prolonged (more than a minute) strenuous effort is needed in order to avoid injury.
3. Correct reaching for log rolls
    a. Keep back straight while leaning over patient.
    b. Lean from the hips.
    c. Use shoulder muscles to help with roll.

D. Pushing and pulling guidelines
1. Push, rather than pull, whenever possible.
2. Keep back locked-in.
3. Keep line of pull through center of body by bending knees.
4. Keep weight close to the body.
5. Push from the area between the waist and shoulder.
6. If weight is below waist level, use kneeling position.
7. Avoid pushing or pulling from an overhead position if possible.
8. Keep elbows bent with arms close to the sides.

II. Principles of Moving Patients
A. General considerations
1. In general, a patient should be moved <u>immediately</u> (emergency move) only when:
    a. There is an immediate danger to the patient if not moved.
        (1) Fire or danger of fire.
        (2) Explosives or other hazardous materials.
        (3) Inability to protect the patient from other hazards at the scene.
        (4) Inability to gain access to other patients in a vehicle who need life-saving care.

b. Life-saving care cannot be given because of the patient's location or position, e.g., a cardiac arrest patient sitting in a chair or lying on a bed.

2. A patient should be moved quickly (urgent move) when there is immediate threat to life.
   a. Altered mental status
   b. Inadequate breathing
   c. Shock (hypoperfusion)
3. If there is no threat to life, the patient should be moved when ready for transportation (non-urgent move).

B. Emergency moves
1. The greatest danger in moving a patient quickly is the possibility of aggravating a spine injury.
2. In an emergency, every effort should be made to pull the patient in the direction of the long axis of the body to provide as much protection to the spine as possible.
3. It is impossible to remove a patient from a vehicle quickly and at the same time provide as much protection to the spine as can be accomplished with an interim immobilization device.
4. If the patient is on the floor or ground, he can be moved by:
   a. Pulling on the patient's clothing in the neck and shoulder area.
   b. Putting the patient on a blanket and dragging the blanket.
   c. Putting the EMT-Basic's hands under the patient's armpits (from the back), grasping the patient's forearms and dragging the patient.

C. Urgent moves
1. Rapid extrication of patient sitting in vehicle
   a. One EMT-Basic gets behind patient and brings cervical spine into neutral in-line position and provides manual immobilization.
   b. A second EMT-Basic applies cervical immobilization device as the third EMT-Basic first places long backboard near the door and then moves to the passenger seat.
   c. The second EMT-Basic supports the thorax as the third EMT-Basic frees the patient's legs from the pedals.
   d. At the direction of the second EMT-Basic, he and the third EMT-Basic rotate the patient in several short, coordinated moves until the patient's back is in the open doorway and his feet are on the passenger seat.

e. Since the first EMT-Basic usually cannot support the patient's head any longer, another available EMT-Basic or a bystander supports the patient's head as the first EMT-Basic gets out of the vehicle and takes support of the head outside of the vehicle.
f. The end of the long backboard is placed on the seat next to the patient's buttocks. Assistants support the other end of the board as the first EMT-Basic and the second EMT-Basic lower the patient onto it.
g. The second EMT-Basic and the third EMT-Basic slide the patient into the proper position on the board in short, coordinated moves.
h. Several variations of the technique are possible, including assistance from bystanders. Must be accomplished without compromise to the spine.

D. Non-urgent moves
1. Direct ground lift (no suspected spine injury)
a. Two or three rescuers line up on one side of the patient.
b. Rescuers kneel on one knee (preferably the same for all rescuers).
c. The patient's arms are placed on his chest if possible.
d. The rescuer at the head places one arm under the patient's neck and shoulder and cradles the patient's head. He places his other arm under the patient's lower back.
e. The second rescuer places one arm under the patient's knees and one arm above the buttocks.
f. If a third rescuer is available, he should place both arms under the waist and the other two rescuers slide their arms either up to the mid-back or down to the buttocks as appropriate.
g. On signal, the rescuers lift the patient to their knees and roll the patient in toward their chests.
h. On signal, the rescuers stand and move the patient to the stretcher.
i. To lower the patient, the steps are reversed.
2. Extremity lift (no suspected extremity injuries)
a. One rescuer kneels at the patient's head and one kneels at the patient's side by his knees.

b. The rescuer at the head places one hand under each of the patient's shoulders while the rescuer at the foot grasps the patient's wrists.
c. The rescuer at the head slips his hands under the patient's arms and grasps the patient's wrists.
d. The rescuer at the patient's foot slips his hands under the patient's knees.
e. Both rescuers move up to a crouching position.
f. The rescuers stand up simultaneously and move with the patient to a stretcher.

3. Transfer of supine patient from bed to stretcher
   a. Direct carry
      (1) Position cot perpendicular to bed with head end of cot at foot of bed.
      (2) Prepare cot by unbuckling straps and removing other items.
      (3) Both rescuers stand between bed and stretcher, facing patient.
      (4) First rescuer slides arm under patient's neck and cups patient's shoulder.
      (5) Second rescuer slides hand under hip and lifts slightly.
      (6) First rescuer slides other arm under patient's back.
      (7) Second rescuer places arms underneath hips and calves.
      (8) Rescuers slide patient to edge of bed.
      (9) Patient is lifted/curled toward the rescuers' chests.
      (10) Rescuers rotate and place patient gently onto cot.
   b. Draw sheet method
      (1) Loosen bottom sheet of bed.
      (2) Position cot next to bed.
      (3) Prepare cot: Adjust height, lower rails, unbuckle straps.
      (4) Reach across cot and grasp sheet firmly at patient's head, chest, hips and knees.
      (5) Slide patient gently onto cot.

III. Equipment
- A. Stretchers/cots
  - 1. Types
    - a. Wheeled stretcher
      - (1) Most commonly used device
      - (2) Rolling
        - (a) Restricted to smooth terrain.
        - (b) Foot end should be pulled.
        - (c) One person must guide the stretcher at head.
      - (3) Carrying
        - (a) Two rescuers
          - i) Preferable in narrow spaces, but requires more strength.
          - ii) Easily unbalanced.
          - iii) Rescuers should face each other from opposite ends of stretcher.
        - (b) Four rescuers
          - i) One rescuer at each corner.
          - ii) More stability and requires less strength.
          - iii) Safer over rough terrain.
      - (4) Loading into ambulance
        - (a) Use sufficient lifting power.
        - (b) Load hanging stretchers before wheeled stretchers.
        - (c) Follow manufacturer's directions.
        - (d) Ensure all cots and patients secured before moving ambulance.
    - b. Portable stretcher
    - c. Stair chair
    - d. Backboards
      - (1) Long
        - (a) Traditional wooden device
        - (b) Manufactured varieties
      - (2) Short
        - (a) Traditional wooden device
        - (b) Vest type device
    - e. Scoop or orthopedic stretcher
    - f. Flexible stretcher

2. Maintenance - follow manufacturer's directions for inspection, cleaning, repair and upkeep.

B. Patient positioning

1. An unresponsive patient without suspected spine injury should be moved into the recovery position by rolling the patient onto his side (preferably the left) without twisting the body.
2. A patient with chest pain or discomfort or difficulty breathing should sit in a position of comfort as long as hypotension is not present.
3. A patient with suspected spine injury should be immobilized on a long backboard.
4. A patient in shock (hypoperfusion) should have his legs elevated 8 - 12 inches.
5. For the pregnant patient with hypotension, an early intervention is to position the patient on her left side.
6. A patient who is nauseated or vomiting should be transported in a position of comfort; however, the EMT-Basic should be positioned appropriately to manage the airway.

APPLICATION

Procedural (how)

1. Show examples of proper lifting.
2. Show examples of proper carrying.
3. Show examples of proper reaching.
4. Show examples of situations where emergency moves are appropriate.
5. Show examples of situations where urgent moves are appropriate.
6. Show examples of situations where non-urgent moves are appropriate.
7. Demonstrate emergency moves.
8. Demonstrate urgent moves.
9. Demonstrate non-urgent moves.
10. Demonstrate transfer of patient to stretcher.
11. Show examples of different types of carrying devices.
12. Demonstrate knowledge of appropriate selection of each carrying device.

12. Demonstrate carrying a patient on a stretcher.
13. Demonstrate loading a patient on a stretcher into an ambulance.
14. Demonstrate use of a stair chair.
15. Demonstrate use of a scoop stretcher.
16. Demonstrate positioning patients with different conditions.
    - A. Unresponsiveness
    - B. Chest pain/discomfort or difficulty breathing
    - A. Suspected spine injury
    - B. Shock (hypoperfusion)
    - E. Patients who are vomiting or nauseous
    - F. Pregnant patient

Contextual (When, Where, Why)

When to transport a patient is determined by both the patient's condition and the environment in which he is found. The determination of how to transport the patient is made by considering his complaint, the severity of his condition and his location.

STUDENT ACTIVITIES

Auditory (Hear)

None identified for this lesson.

Visual (See)

1. The student should see proper lifting techniques.
2. The student should see proper carrying techniques.
3. The student should see proper reaching techniques.
4. The student should see situations where emergency moves are appropriate.
5. The student should see situations where urgent moves are appropriate.
6. The student should see situations where non-urgent moves are appropriate.
7. The student should see emergency moves.
8. The student should see urgent moves.
9. The student should see non-urgent moves.
10. The student should see a patient transferred to a stretcher.
11. The student should see different types of carrying devices.
12. The student should see a patient carried on a stretcher.
13. The student should see a patient on a stretcher loaded into an ambulance.
14. The student should see a stair chair used.
15. The student should see a scoop stretcher used.
16. The student should see patients with different conditions positioned properly.
    - A. Unresponsiveness
    - B. Chest pain/discomfort or difficulty breathing
    - C. Suspected spine injury

D. Shock (hypoperfusion)
E. Patients who are vomiting or nauseous
F. Pregnant patient

Kinesthetic (Do)

1. The student should practice proper lifting techniques.
2. The student should practice proper carrying techniques.
3. The student should practice proper reaching techniques.
4. The student should practice determining whether emergency, urgent or non-emergency moves are appropriate.
5. The student should practice emergency moves.
6. The student should practice urgent moves.
7. The student should practice non-urgent moves.
8. The student should practice transferring a patient to a stretcher.
9. The student should practice carrying a patient on a stretcher.
10. The student should practice loading a patient on a stretcher into an ambulance.
11. The student should practice using a stair chair.
12. The student should practice using a scoop stretcher.
13. The student should practice positioning patients with different conditions.
    A. Unresponsiveness
    B. Chest pain/discomfort or difficulty breathing
    C. Suspected spine injury
    D. Shock (hypoperfusion)
    E. Patients who are vomiting or nauseous
    F. Pregnant patients

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice, or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

G.

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from instructor's guide and attach with lesson plan.

MODULE 1

Preparatory

Lesson 1-7

Evaluation: Preparatory

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

- **!** Demonstrate knowledge of the cognitive objectives of Lesson 1-1: Introduction to Emergency Care.
- **!** Demonstrate knowledge of the cognitive objectives of Lesson 1-2: Well-Being of the EMT-Basic.
- **!** Demonstrate knowledge of the cognitive objectives of Lesson 1-3: Medical/Legal and Ethical Issues.
- **!** Demonstrate knowledge of the cognitive objectives of Lesson 1-4: The Human Body.
- **!** Demonstrate knowledge of the cognitive objectives of Lesson 1-5: Baseline Vital Signs and SAMPLE History.
- **!** Demonstrate knowledge of the cognitive objectives of Lesson 1-6: Lifting and Moving Patients.

AFFECTIVE OBJECTIVES

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

- **!** Demonstrate knowledge of the affective objectives of Lesson 1-1: Introduction to Emergency Care.
- **!** Demonstrate knowledge of the affective objectives of Lesson 1-2: Well-Being of the EMT-Basic.
- **!** Demonstrate knowledge of the affective objectives of Lesson 1-3: Medical/Legal and Ethical Issues.

! Demonstrate knowledge of the affective objectives of Lesson 1-5: Baseline Vital Signs and SAMPLE History.

PSYCHOMOTOR OBJECTIVES

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

- Demonstrate proficiency in the psychomotor objectives of Lesson 1-2: Well-Being of the EMT-Basic.
- Demonstrate proficiency in the psychomotor objectives of Lesson 1-5: Baseline Vital Signs and SAMPLE History.
- Demonstrate proficiency in the psychomotor objectives of Lesson 1-6: Lifting and Moving Patients.

PREPARATION

Motivation: Evaluation of the student's attainment of the cognitive and affective knowledge and psychomotor skills is an essential component of the EMT-Basic educational process. The modules are presented in a "building block" format. Once the students have demonstrated their knowledge and proficiency, the next lesson should be built upon that knowledge. This evaluation will help to identify students or groups of students having difficulty with a particular area. This is an opportunity for the instructor to evaluate their performance, and make appropriate modifications to the delivery of material.

Prerequisites: Completion of Lesson 1-1 through 1-6.

MATERIALS

AV Equipment: Typically none required.

EMS Equipment: Equipment required to evaluate the students' proficiency in the psychomotor skills of this module.

PERSONNEL

Primary Instructor: One proctor for the written evaluation.

Assistant Instructor: One practical skills examiner for each 6 students.

Recommended Minimum

PRESENTATION

Time to Complete: One hour

Declarative (What)

I. Purpose of the evaluation

II. Items to be evaluated

III. Feedback from evaluation

APPLICATION

Procedural (How)

1. Written evaluation based on the cognitive and affective objectives of Lessons 1-1 ----> 1-6.

2. Practical evaluation stations based on the psychomotor objectives of Lessons 1-1 ----> 1-6.

Contextual (When, Where and Why)

The evaluation is the final lesson in this module and is designed to bring closure to the module, and to assure that students are prepared to move to the next module.

This modular evaluation is given to determine the effectiveness of the presentation of materials and how well students have retained the material. This is an opportunity for the students to make necessary adjustments in study habits or for the instructor to adjust the manner in which material is presented.

INSTRUCTOR ACTIVITIES

Supervise student evaluation.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

REMEDIATION

Identify students and/or groups of students who are having difficulty with this subject content. Complete a remediation sheet from the instructor's course guide. If students continue to have difficulty demonstrating knowledge of the cognitive and affective objectives, or demonstrating proficiency in psychomotor skills, the students should be counseled, remediated and re-evaluated. If improvements in cognitive, affective or psychomotor skills are not achieved, consideration regarding the ability of the student to progress in the program should be taken into account.

MODULE 2

Airway

Lesson 2-1

Airway

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

2-1.1 Name and label the major structures of the respiratory system on a diagram. (C-1)
2-1.2 List the signs of adequate breathing.(C-1)
2-1.3 List the signs of inadequate breathing.(C-1)
2-1.4 Describe the steps in performing the head-tilt chin-lift.(C-1)
2-1.5 Relate mechanism of injury to opening the airway. (C-3)
2-1.6 Describe the steps in performing the jaw thrust.(C-1)
2-1.7 State the importance of having a suction unit ready for immediate use when providing emergency care.(C-1)
2-1.8 Describe the techniques of suctioning.(C-1)
2-1.9 Describe how to artificially ventilate a patient with a pocket mask.(C-1)
2-1.10 Describe the steps in performing the skill of artificially ventilating a patient with a bag-valve-mask while using the jaw thrust.(C-1)
2-1.11 List the parts of a bag-valve-mask system.(C-1)
2-1.12 Describe the steps in performing the skill of artificially ventilating a patient with a bag-valve-mask for one and two rescuers.(C-1)
2-1.13 Describe the signs of adequate artificial ventilation using the bag-valve-mask.(C-1)
2-1.14 Describe the signs of inadequate artificial ventilation using the bag-valve-mask.(C-1)
2-1.15 Describe the steps in artificially ventilating a patient with a flow restricted, oxygen-powered ventilation device.(C-1)

2-1.16 List the steps in performing the actions taken when providing mouth-to-mouth and mouth-to-stoma artificial ventilation.(C-1)
2-1.17 Describe how to measure and insert an oropharyngeal (oral) airway. (C-1)
2-1.18 Describe how to measure and insert a nasopharyngeal (nasal) airway. (C-1)
2-1.19 Define the components of an oxygen delivery system.(C-1)
2-1.20 Identify a nonrebreather face mask and state the oxygen flow requirements needed for its use.(C-1)
2-1.21 Describe the indications for using a nasal cannula versus a nonrebreather face mask. (C-1)
2-1.22 Identify a nasal cannula and state the flow requirements needed for its use.(C-1)

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
2-1.23 Explain the rationale for basic life support artificial ventilation and airway protective skills taking priority over most other basic life support skills.(A-3)
2-1.24 Explain the rationale for providing adequate oxygenation through high inspired oxygen concentrations to patients who, in the past, may have received low concentrations.(A-3)

PSYCHOMOTOR OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
2-1.25 Demonstrate the steps in performing the head-tilt chin-lift. (P-1,2)
2-1.26 Demonstrate the steps in performing the jaw thrust.(P-1,2)
2-1.27 Demonstrate the techniques of suctioning.(P-1,2)
2-1.28 Demonstrate the steps in providing mouth-to-mouth artificial ventilation with body substance isolation (barrier shields).(P-1,2)
2-1.29 Demonstrate how to use a pocket mask to artificially ventilate a patient.(P-1,2)
2-1.30 Demonstrate the assembly of a bag-valve-mask unit.(P-1,2)
2-1.31 Demonstrate the steps in performing the skill of artificially ventilating a patient with a bag-valve-mask for one and two rescuers.(P-1,2)
2-1.32 Demonstrate the steps in performing the skill of artificially ventilating a patient with a bag-valve-mask while using the jaw thrust.(P-1,2)
2-1.33 Demonstrate artificial ventilation of a patient with a flow restricted, oxygen-powered ventilation device.(P-1,2)
2-1.34 Demonstrate how to artificially ventilate a patient with a stoma.(P-1,2)
2-1.35 Demonstrate how to insert an oropharyngeal (oral) airway.(P-1,2)
2-1.36 Demonstrate how to insert a nasopharyngeal (nasal) airway.(P-1,2)
2-1.37 Demonstrate the correct operation of oxygen tanks and regulators.(P-1,2)
2-1.38 Demonstrate the use of a nonrebreather face mask and state the oxygen flow requirements needed for its use.(P-1,2)

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2-1.39 Demonstrate the use of a nasal cannula and state the flow requirements needed for its use.(P-1,2)
2-1.40 Demonstrate how to artificially ventilate the infant and child patient.(P-1,2)
2-1.41 Demonstrate oxygen administration for the infant and child patient.(P-1,2)

PREPARATION

Motivation: A patient without an airway is a dead patient.

Prerequisites: BLS and Preparatory.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to airway management. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.

EMS Equipment: Pocket mask, bag-valve-mask, flow restricted, oxygen-powered ventilation device, oral airways, nasal airways, suction units, suction catheters, oxygen tank, regulator, nonrebreather mask, nasal cannula, tongue blade, and lubricant.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in airway management.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in airway techniques and management.

Recommended Minimum
Time to Complete: Four hours

PRESENTATION

Declarative (What)

I. Anatomy review
   A. Respiratory
      1. Nose and mouth
      2. Pharynx
         a. Oropharynx
         b. Nasopharynx
      3. Epiglottis - a leaf-shaped structure that prevents food and liquid from entering the trachea during swallowing.
      4. Trachea (windpipe)
      5. Cricoid cartilage - firm cartilage ring forming the lower portion of the larynx.
      6. Larynx (voice box)
      7. Bronchi - two major branches of the trachea to the lungs. Bronchus subdivides into smaller air passages ending at the alveoli.
      8. Lungs
      9. Diaphragm
         a. Inhalation (active)
            (1) Diaphragm and intercostal muscles contract, increasing the size of the thoracic cavity.

(a) Diaphragm moves slightly downward, flares lower portion of rib cage.
(b) Ribs move upward/outward.
(2) Air flows into the lungs.
b. Exhalation
(1) Diaphragm and intercostal muscles relax, decreasing the size of the thoracic cavity.
(a) Diaphragm moves upward.
(b) Ribs move downward/inward.
(2) Air flows out of the lungs.
10. Respiratory physiology
a. Alveolar/capillary exchange
(1) Oxygen-rich air enters the alveoli during each inspiration.
(2) Oxygen-poor blood in the capillaries passes into the alveoli.
(3) Oxygen enters the capillaries as carbon dioxide enters the alveoli.
b. Capillary/cellular exchange
(1) Cells give up carbon dioxide to the capillaries.
(2) Capillaries give up oxygen to the cells.
c. Adequate breathing
(1) Normal Rate
(a) Adult - 12-20/minute
(b) Child - 15-30/minute
(c) Infant - 25-50/minute
(2) Rhythm
(a) Regular
(b) Irregular
(3) Quality
(a) Breath sounds - present and equal
(b) Chest expansion - adequate and equal
(c) Minimum effort of breathing - use of accessory muscles - predominantly in infants and children
(4) Depth (tidal volume) - adequate
d. Inadequate breathing
(1) Rate - outside of normal ranges.
(2) Rhythm - irregular
(3) Quality
(a) Breath sounds - diminished or absent

(b) Chest expansion - unequal or inadequate

(c) Increased effort of breathing - use of accessory muscles - predominantly in infants and children

(4) Depth (tidal volume) - inadequate/shallow

(5) The skin may be pale or cyanotic (blue) and cool and clammy.

(6) There may be retractions above the clavicles, between the ribs and below the rib cage, especially in children.

(7) Nasal flaring may be present, especially in children.

(8) In infants, there may be "seesaw" breathing where the abdomen and chest move in opposite directions.

(9) Agonal respirations (occasional gasping breaths) may be seen just before death.

11. Infant and child anatomy considerations

a. Mouth and nose - in general: All structures are smaller and more easily obstructed than in adults.

b. Pharynx - infants' and children's tongues take up proportionally more space in the mouth than adults.

c. Trachea (windpipe)

(1) Infants and children have narrower tracheas that are obstructed more easily by swelling.

(2) The trachea is softer and more flexible in infants and children.

d. Cricoid cartilage - like other cartilage in the infant and child, the cricoid cartilage is less developed and less rigid.

e. Diaphragm - chest wall is softer, infants and children tend to depend more heavily on the diaphragm for breathing.

B. Adequate and inadequate artificial ventilation

1. An EMT-Basic is artificially ventilating a patient adequately when:

a. The chest rises and falls with each artificial ventilation.

b. The rate is sufficient, approximately 12 per minute for adults and 20 times per minute for children and infants.

c. Heart rate returns to normal with successful artificial ventilation.

2. Artificial ventilation is inadequate when:

a. The chest does not rise and fall with artificial ventilation.

b. The rate is too slow or too fast.

c. Heart rate does not return to normal with artificial ventilation.

II. Opening the Airway

A. Head-tilt chin-lift when no neck injury suspected - review technique learned in BLS course.
B. Jaw thrust when EMT-Basic suspects spinal injury - review technique learned in BLS course.
C. Assess need for suctioning.

III. Techniques of Suctioning
- A. Body substance isolation
- B. Purpose
  - 1. Remove blood, other liquids and food particles from the airway.
  - 2. Some suction units are inadequate for removing solid objects like teeth, foreign bodies and food.
  - 3. A patient needs to be suctioned immediately when a gurgling sound is heard with artificial ventilation.
- C. Types of units
  - 1. Suction devices
    - a. Mounted
    - b. Portable
      - (1) Electrical
      - (2) Hand operated
  - 2. Suction catheters
    - a. Hard or rigid ("tonsil sucker," "tonsil tip")
      - (1) Used to suction the mouth and oropharynx of an unresponsive patient.
      - (2) Should be inserted only as far as you can see.
      - (3) Use rigid catheter for infants and children, but take caution not to touch back of airway.
    - b. Soft (French)
      - (1) Useful for suctioning the nasopharynx and in other situations where a rigid catheter cannot be used.
      - (2) Should be measured so that it is inserted only as far as the base of the tongue.
- D. Techniques of use
  - 1. Suction device should be inspected on a regular basis before it is needed. A properly functioning unit with a gauge should generate 300 mmHg vacuum. A battery operated unit should have a charged battery.
  - 2. Turn on the suction unit.

3. Attach a catheter.
   a. Use rigid catheter when suctioning mouth of an infant or child.
   b. Often will need to suction nasal passages; should use a bulb suction or French catheter with low to medium suction.
4. Insert the catheter into the oral cavity without suction, if possible. Insert only to the base of the tongue.
5. Apply suction. Move the catheter tip side to side.
6. Suction for no more than 15 seconds at a time.
   a. In infants and children, shorter suction time should be used.
   b. If the patient has secretions or emesis that cannot be removed quickly and easily by suctioning, the patient should be log rolled and the oropharynx should be cleared.
   c. If patient produces frothy secretions as rapidly as suctioning can remove, suction for 15 seconds, artificially ventilate for two minutes, then suction for 15 seconds, and continue in that manner. Consult medical direction for this situation.
7. If necessary, rinse the catheter and tubing with water to prevent obstruction of the tubing from dried material.

IV. Techniques of Artificial Ventilation

A. In order of preference, the methods for ventilating a patient by the EMT-Basic are as follows:
   1. Mouth-to-mask
   2. Two-person bag-valve-mask
   3. Flow restricted, oxygen-powered ventilation device
   4. One-person bag-valve-mask

B. Body substance isolation

C. Mouth-to-mouth - review technique learned in BLS course.

D. Mouth-to-mask
   1. Review technique learned in BLS course.
   2. The mask should be connected to high flow oxygen = 15 liters per minute.

E. Bag-valve-mask
   1. The bag-valve-mask consists of a self-inflating bag, one-way valve, face mask, oxygen reservoir. It needs to be connected to oxygen to perform most effectively.

2. Bag-valve-mask issues
   a. Volume of approximately 1,600 milliliters
   b. Provides less volume than mouth-to-mask
   c. Single EMT-Basic may have difficulty maintaining an airtight seal.
   d. Two EMT-Basics using the device will be more effective.
   e. Position self at top of patient's head for optimal performance.
   f. Adjunctive airways (oral or nasal) may be necessary in conjunction with bag-valve-mask.
   g. The bag-valve-mask should have:
      (1) A self-refilling bag that is easily cleaned and sterilized.
      (2) A non-jam valve that allows a maximum oxygen inlet flow of 15/lpm.
      (3) No pop-off valve, or the pop-off valve must be disabled. Failure to do so may result in inadequate artificial ventilations.
      (4) Standardized 15/22 mm fittings.
      (5) An oxygen inlet and reservoir to allow for high concentration of oxygen.
      (6) A true valve for nonrebreather.
      (7) Should perform in all environmental conditions and temperature extremes.
      (8) Available in infant, child and adult sizes.
3. Use when no trauma is suspected.
   a. After opening airway, select correct mask size (adult, infant or child).
   b. Position thumbs over top half of mask, index and middle fingers over bottom half.
   c. Place apex of mask over bridge of nose, then lower mask over mouth and upper chin. If mask has large round cuff surrounding a ventilation port, center port over mouth.
   d. Use ring and little fingers to bring jaw up to mask.
   e. Connect bag to mask if not already done.
   f. Have assistant squeeze bag with two hands until chest rises.
   g. If alone, form a "C" around the ventilation port with thumb and index finger; use middle, ring and little fingers under jaw to maintain chin lift and complete the seal.

h. Repeat a minimum of every 5 seconds for adults and every 3 seconds for children and infants.
i. If chest does not rise and fall, re-evaluate.
   (1) If chest does not rise, reposition head.
   (2) If air is escaping from under the mask, reposition fingers and mask.
   (3) Check for obstruction.
   (4) If chest still does not rise and fall, use alternative method of artificial ventilation, e.g., pocket mask, manually triggered device.
j. If necessary, consider use of adjuncts.
   (1) Oral airway
   (2) Nasal airway

4. Use with suspected trauma
   a. After opening airway, select correct mask size (adult, infant or child).
   b. Immobilize head and neck, e.g., have an assistant hold head manually or use your knees to prevent movement.
   c. Position thumbs over top half of mask, index and middle fingers over bottom half.
   d. Place apex of mask over bridge of nose, then lower mask over mouth and upper chin. If mask has large round cuff surrounding a ventilation port, center port over mouth.
   e. Use ring and little fingers to bring jaw up to mask without tilting head or neck.
   f. Connect bag to mask if not already done.
   g. Have assistant squeeze bag with two hands until chest rises.
   h. Repeat every 5 seconds for adults and every 3 seconds for children and infants, continuing to hold jaw up without moving head or neck.
   i. If chest does not rise, re-evaluate.
      (1) If abdomen rises, reposition jaw.
      (2) If air is escaping from under the mask,reposition fingers and mask.
      (3) Check for obstruction.
      (4) If chest still does not rise, use alternative method of artificial ventilation, e.g., pocket mask.
   j. If necessary, consider use of adjuncts.
      (1) Oral airway
      (2) Nasal airway

F. Flow restricted, oxygen-powered ventilation devices
   1. Flow restricted, oxygen-powered ventilation devices (for use in adults only) should provide
      a. A peak flow rate of 100% oxygen at up to 40 lpm.
      b. An inspiratory pressure relief valve that opens at approximately 60 centimeters water and vents any remaining volume to the atmosphere or ceases gas flow.
      c. An audible alarm that sounds whenever the relief valve pressure is exceeded.
      d. Satisfactory operation under ordinary environmental conditions and extremes of temperature.
      e. A trigger positioned so that both hands of the EMT-Basic can remain on the mask to hold it in position.
   2. Use when no neck injury is suspected
      a. After opening airway, insert correct size oral or nasal airway and attach adult mask.
      b. Position thumbs over top half of mask, index and middle fingers over bottom half.
      c. Place apex of mask over bridge of nose, then lower mask over mouth and upper chin.
      d. Use ring and little fingers to bring jaw up to mask.
      e. Connect flow restricted, oxygen-powered ventilation device to mask if not already done.
      f. Trigger the flow restricted, oxygen-powered ventilation device until chest rises.
      g. Repeat every 5 seconds.
      h. If necessary, consider use of adjuncts.
      i. If chest does not rise, re-evaluate.
         (1) If abdomen rises, reposition head.
         (2) If air is escaping from under the mask, reposition fingers and mask.
         (3) If chest still does not rise, use alternative method of artificial ventilation, e.g., pocket mask.
         (4) Check for obstruction.
   3. Use when there is suspected neck injury.
      a. After opening airway, attach adult mask.
      b. Immobilize head and neck, e.g., have an assistant hold head manually or use your knees to prevent movement.
      c. Position thumbs over top half of mask, index and middle fingers over bottom half.

d. Place apex of mask over bridge of nose, then lower mask over mouth and upper chin.
e. Use ring and little fingers to bring jaw up to mask without tilting head or neck.
f. Connect flow restricted, oxygen-powered ventilation device to mask, if not already done.
g. Trigger the flow restricted, oxygen-powered ventilation device until chest rises.
h. Repeat every 5 seconds.
i. If necessary, consider use of adjuncts.
j. If chest does not rise and fall, re-evaluate.
(1) If chest does not rise and fall, reposition jaw.
(2) If air is escaping from under the mask, reposition fingers and mask.
(3) If chest still does not rise, use alternative method of artificial ventilation, e.g., pocket mask.
(4) Check for obstruction.

G. Bag to stoma or tracheostomy tube
1. Definition of tracheostomy - an artificial permanent opening in the trachea.
2. If unable to artificially ventilate, try suction, then artificial ventilation through mouth and nose; sealing stoma may improve ability to artificially ventilate from above or may clear obstruction.
3. Need to seal the mouth and nose when air is escaping when artificially ventilating at the stoma.

H. Bag-valve-mask to stoma - use infant and child mask to make seal. Technique otherwise very similar to artificially ventilating through mouth. Head and neck do not need to be positioned.

V. Airway Adjuncts
A. Oropharyngeal (oral) airways
1. Oropharyngeal airways may be used to assist in maintaining an open airway on unresponsive patients without a gag reflex. Patients with a gag reflex will vomit.
2. Select the proper size: Measure from the corner of the patient's lips to the bottom of the earlobe or angle of jaw.
3. Open the patient's mouth.
4. In adults, to avoid obstructing the airway with the tongue, insert the airway upside down, with the tip facing toward the roof of the patient's mouth.

5. Advance the airway gently until resistance is encountered. Turn the airway 180 degrees so that it comes to rest with the flange on the patient's teeth.
6. Another method of inserting an oral airway is to insert it right side up, using a tongue depressor to press the tongue down and forward to avoid obstructing the airway. This is the preferred method for airway insertion in an infant or child.

B. Nasopharyngeal (nasal) airways
1. Nasopharyngeal airways are less likely to stimulate vomiting and may be used on patients who are responsive but need assistance keeping the tongue from obstructing the airway. Even though the tube is lubricated, this is a painful stimulus.
2. Select the proper size: Measure from the tip of the nose to the tip of the patient's ear. Also consider diameter of airway in the nostril.
3. Lubricate the airway with a water soluble lubricant.
4. Insert it posteriorly. Bevel should be toward the base of the nostril or toward the septum.
5. If the airway cannot be inserted into one nostril, try the other nostril.

VI. Oxygen

A. Oxygen cylinders
1. Different sizes
   a. D cylinder has 350 liters
   b. E cylinder has 625 liters
   c. M cylinder has 3,000 liters
   d. G cylinder has 5,300 liters
   e. H cylinder has 6,900 liters
2. Need to handle carefully since their contents are under pressure.
3. Tanks should be positioned to prevent falling and blows to the valve-gauge assembly and secured during transport.

B. Pressure regulators
1. Full tank approximately 2000 psi. Varies with ambient temperature.
2. Dry oxygen not harmful in short term; humidifier needed only for patient on oxygen for a long time. Not generally needed for prehospital care.

C. Operating procedures
   1. Remove protective seal.
   2. Quickly open, then shut, the valve.
   3. Attach regulator-flowmeter to tank.
   4. Attach oxygen device to flowmeter.
   5. Open flowmeter to desired setting.
   6. Apply oxygen device to patient.
   7. When complete, remove device from patient, then turn off valve and remove all pressure from the regulator.

D. Equipment for oxygen delivery
   1. Nonrebreather
      a. Preferred method of giving oxygen to prehospital patients.
      b. Up to 90% oxygen can be delivered.
      c. Nonrebreather bag must be full before mask is placed on patient.
      d. Flow rate should be adjusted so that when patient inhales, bag does not collapse (15 lpm).
      e. Patients who are cyanotic, cool, clammy or short of breath need oxygen. Concerns about the dangers of giving too much oxygen to patients with history of chronic obstructive pulmonary disease and infants and children have not been shown to be valid in the prehospital setting. Patients with chronic obstructive pulmonary disease and infants and children who require oxygen should receive high concentration oxygen.
      f. Masks come in different sizes for adult, children and infants. Be sure to select the correct size mask.
   2. Nasal cannula - rarely the best method of delivering adequate oxygen to the prehospital patient. Should be used only when patients will not tolerate a nonrebreather mask, despite coaching from the EMT-Basic.

VII. Special Considerations

A. Patients with laryngectomies (stomas)
   1. A breathing tube may be present. If it is obstructed, suction it.
   2. Some patients have partial laryngectomies. If, upon artificially ventilating stoma, air escapes from the mouth or nose, close the mouth and pinch the nostrils.

B. Infant and child patients
   1. Place head in correct neutral position for the infant and extend a little past neutral for a child.
   2. Avoid excessive hyperextension of the head.
   3. Avoid excessive bag pressure - use only enough to make chest rise.
   4. Ventilate with bag-valve-mask until adequate chest rise occurs. Do not use pop-off valve, must be disabled (placed in closed position) in order to adequately ventilate child or infant.
   5. Gastric distention is more common in children.
   6. An oral or nasal airway may be considered when other procedures fail to provide a clear airway.

C. Facial injuries
   1. Because the blood supply to the face is so rich, blunt injuries to the face frequently result in severe swelling.
   2. For the same reason, bleeding into the airway from facial injuries can be a challenge to manage.

D. Obstructions
   1. Review the foreign body airway obstruction (FBAO) procedures that the students learned in their BLS training.
   2. When foreign body airway obstruction persists, EMT-Basics should perform three cycles of the FBAO procedure, then transport, continuing the FBAO procedure en route.

E. Dental appliances
   1. Dentures - ordinarily dentures should be left in place.
   2. Partial dentures (plates) may become dislodged during an emergency. Leave in place, but be prepared to remove it if it becomes dislodged.

APPLICATION

Procedural (How)

1. Show diagrams of the airway and respiratory system of adults, children and infants.

2. Show examples of inadequate breathing.
3. Demonstrate the head-tilt chin-lift method of opening the airway.
4. Demonstrate the jaw thrust method of opening the airway.
5. Demonstrate mouth-to-mouth artificial ventilation of a patient.

6. Demonstrate artificial ventilation of a patient with a pocket mask with oxygen.
7. Demonstrate assembly of a bag-valve-mask.
8. Use a bag-valve-mask to demonstrate artificial ventilation of a non-neck injured patient with and without assistance.
9. Use a bag-valve-mask to demonstrate artificial ventilation of a suspected spinal injured patient with and without assistance.
10. Demonstrate artificial ventilation of a non-neck injured patient with a flow restricted, oxygen-powered ventilation device.
11. Demonstrate artificial ventilation of a neck injured patient with a flow restricted, oxygen-powered ventilation device.
12. Demonstrate insertion of an oropharyngeal (oral) airway.
13. Demonstrate insertion of a nasopharyngeal (nasal) airway.
14. Demonstrate how to check a suction unit.
15. Demonstrate the techniques of suctioning.
16. Demonstrate use of a nasal cannula.
17. Demonstrate use of a nonrebreather mask.
18. Demonstrate correct operation of oxygen tanks and regulators.
19. Demonstrate artificial ventilation of a patient with a stoma.
20. Demonstrate artificial ventilation of an infant or child patient.

Contextual (When, Where, Why)

Every patient must have a patent airway to survive. When the airway is obstructed, the EMT-Basic must clear it as soon as possible using the methods described in this lesson. The only exceptions to this would be situations where it is unsafe or the airway problem is such that it cannot be treated in the field and the patient must be transported immediately to a hospital.

Once the airway has been opened, the EMT-Basic must determine if breathing is adequate. Patients with inadequate breathing must be artificially ventilated using mouth-to-mouth, mouth-to-mask, bag-valve-mask or flow restricted, oxygen-powered ventilation device. If the patient has adequate breathing, the EMT-Basic must decide if oxygen is indicated. If oxygen is necessary, the EMT-Basic must select the appropriate device and follow the procedure for delivery.

STUDENT ACTIVITIES

Auditory (Hear)

1. The student should hear abnormal airway sounds such as gurgling, snoring, stridor, and expiratory grunting.
2. The student should hear a bag-valve-mask being used on a patient with an open airway.
3. The student should hear a bag-valve-mask being used on a patient with an obstructed airway.
4. The student should hear a flow restricted, oxygen-powered ventilation device being used on a patient with an open airway.
5. The student should hear a flow restricted, oxygen-powered ventilation device being used on a patient with an obstructed airway.
6. The student should hear suction units being operated.
7. The student should hear an oxygen tank and flowmeter in operation.

Visual (See)

1. The student should see audio-visual aids or materials of the airway and respiratory system.
2. The student should see normal breathing in other students.
3. The student should see audio-visual aids or materials of abnormal breathing.
4. The student should see audio-visual aids or materials of patients with stomas.
5. The student should see different kinds of oral and nasal airways.
6. The student should see different devices for ventilating patients (pocket masks, bag-valve-masks).
7. The student should see different kinds of suction units.
8. The student should see different kinds of oxygen tanks, regulators, and flowmeters.
9. The student should see nonrebreather masks and nasal cannulas.
10. The student should see audio-visual aids or materials of various dental appliances.

Kinesthetic (Do)

1. The student should practice evaluating breathing for adequacy.
2. The student should practice opening the airway with the head-tilt chin-lift maneuver.
3. The student should practice opening the airway with the jaw thrust.
4. The student should practice mouth-to-mouth artificial ventilation.
5. The student should practice artificial ventilation of a patient with a pocket mask with oxygen.
6. The student should practice assembly of a bag-valve-mask.

7. The student should practice using a bag-valve-mask to artificially ventilate a non-neck injured patient (adult, child, and infant) with and without assistance.
8. The student should practice using a bag-valve-mask to artificially ventilate a neck injured patient (adult, child, and infant) with assistance.
9. The student should practice artificial ventilation of a non-neck injured patient with a flow restricted, oxygen-powered ventilation device.
10. The student should practice artificial ventilation of a neck injured patient with a flow restricted, oxygen-powered ventilation device.
11. The student should practice insertion of an oropharyngeal (oral) airway (adult, child, and infant) with and without tongue blade.
12. The student should practice insertion of a nasopharyngeal (nasal) airway.
13. The student should practice checking a suction unit.
14. The student should practice suctioning.
15. The student should practice using a nasal cannula.
16. The student should practice using a nonrebreather mask.
17. The student should practice correct operation of oxygen tanks, regulators, and flowmeters.
18. The student should practice artificial ventilation of a patient with a stoma.
19. The student should practice artificial ventilation of an infant or child patient.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with

the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 2

Airway

Lesson 2-2

Practical Lab: Airway

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

! Demonstrate the cognitive objectives of Lesson 2-1: Airway.

AFFECTIVE OBJECTIVES

! Demonstrate the affective objectives of Lesson 2-1: Airway.

PSYCHOMOTOR OBJECTIVES

! Demonstrate the psychomotor objectives of Lesson 2-1: Airway.

PREPARATION

Motivation: The practical lesson is designed to allow the students additional time to perfect skills. It is of utmost importance that the students demonstrate proficiency of the skill, cognitive knowledge of the steps to perform a skill, and a healthy attitude towards performing that skill on a patient.

This is an opportunity for the instructor and assistant instructors to praise progress and re-direct the students toward appropriate psychomotor skills. The material from all preceding lessons and basic life support should be incorporated into these practical skill sessions.

Prerequisites: BLS and Preparatory.

MATERIALS

AV Equipment: Typically not required.

EMS Equipment: Equipment from the list in Lesson 2-1: Airway.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in airway management.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in airway techniques and management.

Recommended Minimum
Time to Complete: Two hours

APPLICATION

Procedural (How)

Instructor should demonstrate the procedural activities from Lesson 2-1: Airway.

Contextual (When, Where, Why)

Instructor should review contextual information from Lesson 2-1: Airway.

STUDENT ACTIVITIES

Auditory (Hear)

The students should hear the auditory information from Lesson 2-1: Airway.

Visual (See)

The students should see the visual material from Lesson 2-1: Airway.

Kinesthetic (Do)

The students should practice the kinesthetic activities from Lesson 2-1: Airway.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skills stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

What is unique in the local area concerning this topic?
from the instructor's course guide and attach with lesson plan.

MODULE 2

Airway

Lesson 2-3

Evaluation: Airway

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

! Demonstrate knowledge of the cognitive objectives of Lesson 2-1: Airway.

AFFECTIVE OBJECTIVES

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

! Demonstrate knowledge of the affective objectives of Lesson 2-1: Airway.

PSYCHOMOTOR OBJECTIVES

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

! Demonstrate proficiency in the psychomotor objectives of Lesson 2-1: Airway.

Motivation: Evaluation of the student's attainment of the cognitive and affective knowledge and psychomotor skills is an essential component of the EMT-Basic educational process. The modules are presented in a "building block" format. Once the students have demonstrated their knowledge and proficiency, the next lesson should be built upon that knowledge. This evaluation will help to identify students or groups of students having difficulty with a particular area. This is an opportunity for the instructor to evaluate their performance, and make appropriate modifications to the delivery of material.

Prerequisites: Completion of Lessons 2-1 through 2-2.

MATERIALS

AV Equipment: Typically none required.

EMS Equipment: Equipment required to evaluate the student's proficiency in the psychomotor skills of this module.

PERSONNEL

Primary Instructor: One proctor for the written evaluation.

Assistant Instructor: One practical skills examiner for each 6 students.

Recommended Minimum Time to Complete: One hour

Declarative (What)

I. Purpose of the evaluation

II. Items to be evaluated

III. Feedback from evaluation

APPLICATION

Procedural (How)

1. Written evaluation based on the cognitive and affective objectives of Lesson 2-1.

2. Practical evaluation stations based on the psychomotor objectives of Lesson 2-1.

Contextual (When, Where and Why)

The final lesson in this module is designed to bring closure to the module and to assure that students are prepared to move to the next module.

This modular evaluation is given to determine the effectiveness of the presentation of materials and how well students have retained the material. This is an opportunity for the students to make necessary adjustments in study habits or for the instructor to adjust the manner in which material is presented.

INSTRUCTOR ACTIVITIES

Supervise student evaluation.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

Identify students and/or groups of students who are having difficulty with this subject content. Complete a remediation sheet from the instructor's course guide. If students continue to have difficulty demonstrating knowledge of the cognitive and affective objectives, or demonstrating proficiency in psychomotor skills, the students should be counseled, remediated and re-evaluated. If improvements in cognitive, affective or psychomotor skills are not achieved, consideration regarding the ability of the student to progress in the program should be taken into account.

MODULE 3

Patient Assessment

Lesson 3-1

Scene Size-up

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

3-1.1 Recognize hazards/potential hazards.(C-1)
3-1.2 Describe common hazards found at the scene of a trauma and a medical patient. (C-1)
3-1.3 Determine if the scene is safe to enter.(C-2)
3-1.4 Discuss common mechanisms of injury/nature of illness.(C-1)
3-1.5 Discuss the reason for identifying the total number of patients at the scene.(C-1)
3-1.6 Explain the reason for identifying the need for additional help or assistance.(C-1)

AFFECTIVE OBJECTIVES

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

3-1.7 Explain the rationale for crew members to evaluate scene safety prior to entering.(A-2)
3-1.8 Serve as a model for others explaining how patient situations affect your evaluation of mechanism of injury or illness.(A-2)

PSYCHOMOTOR OBJECTIVES

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

3-1.9 Observe various scenarios and identify potential hazards. (P-1)

Motivation: Size-up is the first and most important aspect of patient assessment. It begins as the EMT-Basic approaches the scene. During this phase, the EMT-Basic surveys the scene to determine if there are any threats that may cause an injury to the EMT-Basic. In addition, this assessment allows the EMT-Basic to determine the nature of the call and obtain additional help.

Prerequisites: BLS

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to scene size-up. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.

EMS Equipment: None

PERSONNEL

Primary Instructor: One EMT-Basic instructor, knowledgeable in scene management.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable about scene size-up.

Recommended Minimum Time to Complete: 30 minutes

Declarative (What)

I. Scene Size-up/Assessment
   A. Body substance isolation review
      1. Eye protection if necessary
      2. Gloves if necessary
      3. Gown if necessary
      4. Mask if necessary
   B. Scene safety
      1. Definition - an assessment to assure the well-being of the EMT-Basic.
      2. Personal protection - Is it safe to approach the patient?
         a. Crash/rescue scenes
         b. Toxic substances - low oxygen areas
         c. Crime scenes - potential for violence
         d. Unstable surfaces: slope, ice, water
      3. Protection of the patient - environmental considerations
      4. Protection of bystanders - if appropriate, help the bystander avoid becoming a patient.
      5. If the scene is unsafe, make it safe. Otherwise, do not enter.
   C. Definition - an assessment of the scene and surroundings that will provide valuable information to the EMT-Basic.
   D. Mechanism of injury/ nature of illness
      1. Medical
         a. Nature of illness - determine from the patient, family or bystanders why EMS was activated.
         b. Determine the total number of patients. If there are more patients than the responding unit can effectively handle, initiate a mass casualty plan.
            (a) Obtain additional help prior to contact with patients: law enforcement, fire, rescue, ALS, utilities. EMT-Basic is less likely to call for help if involved in patient care.
            (b) Begin triage.
      2. Trauma
         a. Mechanism of injury - determine from the patient, family or bystanders and inspection of the scene what is the mechanism of injury.
         b. Determine the total number of patients.
            (1) If there are more patients than the responding unit can effectively handle, initiate a mass casualty plan.

(a) Obtain additional help prior to contact with patients. EMT-Basic is less likely to call for help when involved in patient care.
(b) Begin triage.

(2) If the responding crew can manage the situation, consider spinal precautions and continue care.

APPLICATION

Procedural (How)

None identified for this lesson.

Contextual (When, Where, Why)

Size-up represents the very beginning of patient assessment. It requires the EMT-Basic to evaluate several aspects concerning the situation in a very short period of time. It is essential for assuring the safety of the crew and the patient. This information may be obtained as part of dispatch, but should always be reassessed upon arrival at the scene. For some situations, size-up is an on-going process. As additional information is obtained, modification is made to the size-up of the patient and the situation overall.

STUDENT ACTIVITIES

Auditory (Hear)

1. The student will hear simulations of various safe and unsafe scenes.

Visual (See)

1. The student will see simulations of various safe and unsafe scenes.
2. The student should see the flow chart from Appendix I.

Kinesthetic (Do)

1. The student will practice role playing the actions to take at various safe and unsafe scenes.
2. The student should use the flow chart from Appendix I.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 3

Patient Assessment

Lesson 3-2

Initial Assessment

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

3-2.1 Summarize the reasons for forming a general impression of the patient.(C-1)
3-2.2 Discuss methods of assessing altered mental status.(C-1)
3-2.3 Differentiate between assessing the altered mental status in the adult, child and infant patient.(C-3)
3-2.4 Discuss methods of assessing the airway in the adult, child and infant patient.(C-1)
3-2.5 State reasons for management of the cervical spine once the patient has been determined to be a trauma patient.(C-1)
3-2.6 Describe methods used for assessing if a patient is breathing.(C-1)
3-2.7 State what care should be provided to the adult, child and infant patient with adequate breathing.(C-1)
3-2.8 State what care should be provided to the adult, child and infant patient without adequate breathing.(C-1)
3-2.9 Differentiate between a patient with adequate and inadequate breathing.(C-3)
3-2.10 Distinguish between methods of assessing breathing in the adult, child and infant patient.(C-3)
3-2.11 Compare the methods of providing airway care to the adult, child and infant patient.(C-3)
3-2.12 Describe the methods used to obtain a pulse.(C-1)
3-2.13 Differentiate between obtaining a pulse in an adult, child and infant patient.(C-3)

3-2.14 Discuss the need for assessing the patient for external bleeding.(C-1)
3-2.15 Describe normal and abnormal findings when assessing skin color.(C-1)
3-2.16 Describe normal and abnormal findings when assessing skin temperature.(C-1)
3-2.17 Describe normal and abnormal findings when assessing skin condition.(C-1)
3-2.18 Describe normal and abnormal findings when assessing skin capillary refill in the infant and child patient.(C-1)
3-2.19 Explain the reason for prioritizing a patient for care and transport.(C-1)

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
3-2.20 Explain the importance of forming a general impression of the patient.(A-1)
3-2.21 Explain the value of performing an initial assessment.(A-2)

PSYCHOMOTOR OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
3-2.22 Demonstrate the techniques for assessing mental status.(P-1,2)
3-2.23 Demonstrate the techniques for assessing the airway.(P-1,2)
3-2.24 Demonstrate the techniques for assessing if the patient is breathing.(P-1,2)
3-2.25 Demonstrate the techniques for assessing if the patient has a pulse.(P-1,2)
3-2.26 Demonstrate the techniques for assessing the patient for external bleeding.(P-1,2)
3-2.27 Demonstrate the techniques for assessing the patient's skin color, temperature, condition and capillary refill (infants and children only).(P-1,2)
3-2.28 Demonstrate the ability to prioritize patients.(P-1,2)

PREPARATION

Motivation: The EMT-Basic will encounter patients who require emergency medical care. It is important for the EMT-Basic to identify those patients who require rapid assessment critical interventions, and immediate transport.

Following the initial assessment, the EMT-B will use information obtained during this phase with the appropriate history and physical examination.

Prerequisites: BLS, Preparatory, and Airway.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to patient assessment. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.

EMS Equipment: Exam gloves, airway management equipment.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in patient assessment.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable about patient assessment.

Recommended Minimum Time to Complete: One hour

PRESENTATION

Declarative (What)

I. General Impression of the Patient
   A. Definition

1. The general impression is formed to determine priority of care and is based on the EMT-Basic's immediate assessment of the environment and the patient's chief complaint.
2. Determine if ill, i.e., medical or injured (trauma). If injured, identify mechanism of injury.
3. Age
4. Sex
5. Race

B. Assess patient and determine if the patient has a life threatening condition.
   1. If a life threatening condition is found, treat immediately.
   2. Assess nature of illness or mechanism of injury.

II. Assess Patient's Mental Status. Maintain Spinal Immobilization if Needed.
   A. Begin by speaking to the patient. State name, tell the patient that you are an emergency medical technician, and explain that you are here to help.
   B. Levels of mental status
      1. Alert
      2. Responds to Verbal stimuli.
      3. Responds to Painful stimuli.
      4. Unresponsive - no gag or cough

III. Assess the Patient's Airway Status.
   A. Responsive patient - Is the patient talking or crying?
      1. If yes, assess for adequacy of breathing.
      2. If no, open airway.
   B. Unresponsive patient - Is the airway open?
      1. Open the airway. Positioning is patient, age, and size specific.
         a. For medical patients, perform the head-tilt chin-lift.
            (1) Clear
            (2) Not clear - Clear the airway.
         b. For trauma patients or those with unknown nature of illness, the cervical spine should be stabilized/immobilized and the jaw thrust maneuver performed.
            (1) Clear
            (2) Not clear - Clear the airway.

IV. Assess the Patient's Breathing.
   A. If breathing is adequate and the patient is responsive, oxygen may be indicated.
   B. All responsive patients breathing <24 breaths per minute or <8 breaths per minute should receive high flow oxygen (defined as a 15 LPM nonrebreather mask).

C. If the patient is unresponsive and the breathing is adequate, open and maintain the airway and provide high concentration oxygen.

D. If the breathing is inadequate, open and maintain the airway, assist the patient's breathing and utilize ventilatory adjuncts. In all cases oxygen should be used.

E. If the patient is not breathing, open and maintain the airway and ventilate using ventilatory adjuncts. In all cases oxygen should be used.

V. Assess the Patient's Circulation.

A. Assess the patient's pulse.

1. The circulation is assessed by feeling for a radial pulse.
   a. In a patient one year old or less, palpate a brachial pulse.
   b. If no radial pulse is felt, palpate carotid pulse.
      (1) If pulseless, medical patient >12 years old, start CPR and apply automated external defibrillator (AED).
      (2) Medical patient < 12 years old, start CPR.
      (3) Trauma patient, start CPR.

B. Assess if major bleeding is present. If bleeding is present, control bleeding.

C. Assess the patient's perfusion by evaluating skin color and temperature.

1. The patient's skin color is assessed by looking at the nail beds, lips and eyes.
   a. Normal - pink
   b. Abnormal conditions
      (1) Pale
      (2) Cyanotic or blue-gray
      (3) Flushed or red
      (4) Jaundice or yellow
2. Assess the patient's skin temperature by feeling the skin.
   a. Normal - warm
   b. Abnormal skin temperatures
      (1) Hot
      (2) Cool
      (3) Cold
      (4) Clammy - cool & moist
3. Assess the patient's skin condition. This is an assessment of the amount of moisture on the skin.
   a. Normal - dry
   b. Abnormal - moist or wet
4. Assess capillary refill in infant and child patients.
   a. Normal capillary refill is less than two seconds.
   b. Abnormal capillary refill is greater than two seconds.

VI. Identify Priority Patients.

A. Consider:

1. Poor general impression
2. Unresponsive patients - no gag or cough
3. Responsive, not following commands

4. Difficulty breathing
5. Shock (hypoperfusion)
6. Complicated childbirth
7. Chest pain with BP <100 systolic
8. Uncontrolled bleeding
9. Severe pain anywhere

B. Expedite transport of the patient. Consider ALS back up.

VII. Proceed to the appropriate focused history and physical examination.

APPLICATION

Procedural (How)

1. Review airway patency, breathing and oxygen delivery.
2. Review methods of assessing mental status.
3. Demonstrate obtaining radial, carotid, and brachial pulses.
4. Show assessment and control of major external bleeding.
5. Demonstrate assessment of skin color, temperature and capillary refill.

Contextual (When, Where, Why)

Perform initial assessment on all patients after assuring scene and personal safety. If the scene is safe and the environment permits, perform the assessment prior to moving the patient. The initial assessment is a rapid means of assessing patient condition and priorities of care.

STUDENT ACTIVITIES

Auditory (Hear)

1. Students should hear recordings of various patient situations to listen for clues concerning the general impression.
2. Students should hear normal and abnormal airway noises.
3. Students should hear breathing.

Visual (See)

1. Students should see audio-visual aids or materials of various patients situations.
2. Students should see breathing while an initial assessment is being performed.

3. Students should see appropriate landmarks for assessing pulses.
4. Students should see examples of major bleeding.
5. Students should see normal skin color and condition.
6. Students should see how to control major bleeding.
7. Students should see the flow chart from Appendix I.

Kinesthetic (Do)

1. Students should practice establishing mental status on programmed patients (fellow students) with various altered mental statuses.
2. Students should practice airway opening techniques on manikins and each other.
3. Students should practice assessing breathing.
4. Students should practice assessing pulses.
5. Students should practice assessing for major bleeding.
6. Students should practice assessing skin color, temperature and condition.
7. Students should practice assessing capillary refill.
8. Students should practice recording assessment findings.
9. Students should use the flow chart from Appendix I.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with

the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 3

Patient Assessment

Lesson 3-3

Focused History and Physical Exam: Trauma

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

3-3.1 Discuss the reasons for reconsideration concerning the mechanism of injury.(C-1)
3-3.2 State the reasons for performing a rapid trauma assessment.(C-1)
3-3.3 Recite examples and explain why patients should receive a rapid trauma assessment.(C-1)
3-3.4 Describe the areas included in the rapid trauma assessment and discuss what should be evaluated.(C-1)
3-3.5 Differentiate when the rapid assessment may be altered in order to provide patient care. (C-3)
3-3.6 Discuss the reason for performing a focused history and physical exam.(C-1)

AFFECTIVE OBJECTIVES

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

3-3.7 Recognize and respect the feelings that patients might experience during assessment.(A-1)

PSYCHOMOTOR OBJECTIVES

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

3-3.8 Demonstrate the rapid trauma assessment that should be used to assess a patient based on mechanism of injury.(P-1,2)

Motivation: With trauma patients, it is important for the EMT-Basic student to separate those patients who require rapid assessment and critical interventions, from those patients who can be managed using components of the focused assessment.

Prerequisite Skills: BLS, Preparatory, and Airway.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to the history and physical exam of trauma patients. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.

EMS Equipment: Exam gloves, stethoscope (dual and single head)(1:6), blood pressure cuffs (adult, child and infant)(1:6), penlight (1:6).

PERSONNEL

Primary Instructor: One EMT-Basic instructor, knowledgeable in patient assessment.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in assessing the history and physical exam of the trauma patient.

Recommended Minimum Time to Complete: Four hours

Declarative (What)

I. Re-consider Mechanism of Injury
   A. Significant mechanism of injury
      1. Ejection from vehicle
      2. Death in same passenger compartment
      3. Falls > 20 feet
      4. Roll-over of vehicle
      5. High-speed vehicle collision
      6. Vehicle-pedestrian collision
      7. Motorcycle crash
      8. Unresponsive or altered mental status
      9. Penetrations of the head, chest, or abdomen
      10. Hidden injuries
         a. Seat belts
            (1) If buckled, may have produced injuries.
            (2) If patient had seat belt on, it does not mean they do not have injuries.
         b. Airbags
            (1) May not be effective without seat belt.
            (2) Patient can hit wheel after deflation.
            (3) Lift the deployed airbag and look at the steering wheel for deformation.
               (a) "Lift and look" under the bag after the patient has been removed.
               (b) Any visible deformation of the steering wheel should be regarded as an indicator of potentially serious internal injury, and appropriate action should be taken.
   B. Infant and child considerations
      1. Falls >10 feet
      2. Bicycle collision
      3. Vehicle in medium speed collision
II. Perform rapid trauma assessment on patients with significant mechanism of injury to determine life threatening injuries. In the responsive patient, symptoms should be sought before and during the trauma assessment.
   A. Continue spinal stabilization.
   B. Consider ALS request.
   C. Reconsider transport decision.
   D. Assess mental status.
   E. As you inspect and palpate, look and feel for the following examples of injuries or signs of injury:

1. Deformities
2. Contusions
3. Abrasions
4. Punctures/penetrations
5. Burns
6. Tenderness
7. Lacerations
8. Swelling

F. Assess the head, inspect and palpate for injuries or signs of injury.
1. Deformities
2. Contusions
3. Abrasions
4. Punctures/penetrations
5. Burns
6. Tenderness
7. Lacerations
8. Swelling
9. Crepitation

G. Assess the neck, inspect and palpate for injuries or signs of injury.
1. Deformities
2. Contusions
3. Abrasions
4. Punctures/penetrations
5. Burns
6. Tenderness
7. Lacerations
8. Swelling
9. Jugular vein distension (JVD)
10. Crepitation

H. Apply cervical spinal immobilization collar (CSIC). May use information from the head injury lesson at this time.

I. Assess the chest, inspect and palpate for:
1. Injuries or signs of injury
2. Deformities
3. Contusions
4. Abrasions
5. Punctures/penetrations
6. Burns
7. Tenderness
8. Lacerations
9. Swelling

10. Paradoxical motion
11. Crepitation
12. Breath sounds in the apices, mid-clavicular line, bilaterally and at the bases, mid-axillary line, bilaterally
    a. Present
    b. Absent
    c. Equal

J. Assess the abdomen, inspect and palpate for injuries or signs of injury.
1. Deformities
2. Contusions
3. Abrasions
4. Punctures/penetrations
5. Burns
6. Tenderness
7. Lacerations
8. Swelling
9. Firm
10. Soft
11. Distended

K. Assess the pelvis, inspect and palpate for injuries or signs of injury.
1. Deformities
2. Contusions
3. Abrasions
4. Punctures/penetrations
5. Burns
6. Tenderness
7. Lacerations
8. Swelling
9. If no pain is noted, gently compress the pelvis to determine tenderness or motion.

L. Assess all four extremities, inspect and palpate for injuries or signs of injury.
1. Deformities
2. Contusions
3. Abrasions
4. Punctures/penetrations
5. Burns
6. Tenderness
7. Lacerations
8. Swelling
9. Distal pulse

10. Sensation
11. Motor function

M. Roll patient with spinal precautions and assess posterior body, inspect and palpate, examining for injuries or signs of injury.
N. Assess baseline vital signs.
O. Assess SAMPLE history.

III. For patients with no significant mechanism of injury, e.g., cut finger
A. Perform focused history and physical exam of injuries based on the components of the rapid assessment. The focused assessment is performed on the specific injury site.
B. Assess baseline vital signs.
C. Assess SAMPLE history.

APPLICATION

Procedural (How)

The assessment is completed by visually inspecting, physically palpating and auscultating, and verbally communicating with the patient and family. The assessment is an input/output process, where the assessment findings are the input and the treatment is the output.

1. Review of scene size-up.
2. Review of the initial assessment.
3. Students should be shown audio-visual aids or materials of various trauma scenes to evaluate the mechanism of injury.
4. Demonstrate a rapid patient assessment.

Contextual (When, Where, Why)

The history and physical exam are performed following the initial assessment and correction of immediate threats to life. During this process, obtain additional information regarding the patient's condition.

This assessment may be performed at the same location as the initial assessment, unless the scene or patient's condition requires movement.

This assessment is the second hands-on approach to gain information to continue providing patient care, managing life threats, and making a transport decision.

STUDENT ACTIVITIES

Auditory (Hear)

1. Students should hear information input from a simulated patient or others regarding signs and symptoms for patients that are unresponsive.
2. Students should hear the presence of breath sounds on fellow students.

Visual (See)

1. Students should see audio-visual aids or materials of various injuries.
2. Students should see the inspection and palpation of programmed patients for various injuries and patterns of injury.
3. Students should see landmarks for auscultation of breath sounds.
4. Students should see landmarks for palpation and inspection.
5. Students should see the sizing and application of cervical spine immobilization devices.
6. Students should see how the pupils of the eye normally react to light.
7. Students should see the flow chart from Appendix I.

Kinesthetic (Do)

1. Students should practice performing the skills of inspection, palpation, and auscultation.
2. Students should practice measuring and applying cervical spine immobilization devices.
3. Students should practice recording assessment findings for a trauma patient.
4. Students should use the flow chart from Appendix I.
5. The student should practice doing the focused history and physical exam learned in this lesson.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 3

Patient Assessment

Lesson 3-4

Focused History and Physical Exam: Medical

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

3-4.1 Describe the unique needs for assessing an individual with a specific chief complaint with no known prior history.(C-1)

3-4.2 Differentiate between the history and physical exam that are performed for responsive patients with no known prior history and responsive patients with a known prior history.(C-3)

3-4.3 Describe the needs for assessing an individual who is unresponsive.(C-1)

3-4.4 Differentiate between the assessment that is performed for a patient who is unresponsive or has an altered mental status and other medical patients requiring assessment.(C-3)

AFFECTIVE OBJECTIVES

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

3-4.5 Attend to the feelings that these patients might be experiencing.(A-1)

PSYCHOMOTOR OBJECTIVES

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

3-4.6 Demonstrate the patient assessment skills that should be used to assist a patient who is responsive with no known history.(P-1,2)

3-4.7 Demonstrate the patient assessment skills that should be used to assist a patient who is unresponsive or has an altered metal status.(P-1,2)

Motivation: The emergency medical care for the patient by the EMT-Basic is based upon assessment findings. In the history and physical exam, the EMT-Basic will concentrate on the patient's complaint and history, allowing for rapid emergency medical care.

Prerequisite Skills: BLS, Preparatory and Airway.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to the history and physical exam of medical patients. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.

EMS Equipment: Exam gloves, stethoscope (dual and single head)(1:6), blood pressure cuffs (adult, child and infant)(1:6), penlight (1:6).

PERSONNEL

Primary Instructor: One EMT-Basic instructor, knowledgeable in patient assessment.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in assessing the history and physical exam for medical patients.

Recommended Minimum Time to Complete: Two hours

PRESENTATION

Declarative (What)

I. Assess History of Present Illness.
   A. Assess complaints and signs or symptoms.
      1. O-P-Q-R-S-T
         a. Onset
         b. Provocation
         c. Quality
         d. Radiation
         e. Severity
         f. Time
      2. Assess SAMPLE History.
      3. Perform rapid assessment.
         a. Assess the head if necessary.
         b. Assess the neck if necessary.
         c. Assess the chest if necessary.
         d. Assess the abdomen if necessary.
         e. Assess the pelvis if necessary.
         f. Assess the extremities if necessary.
         g. Assess the posterior body if necessary.
      4. Assess baseline vital signs.
      5. Provide emergency medical care based on signs and symptoms in consultation with medical direction.

II. Unresponsive Medical Patients
   A. Perform rapid assessment.
      1. Assess the head.
      2. Assess the neck.
      3. Assess the chest.
      4. Assess the abdomen.
      5. Assess the pelvis.
      6. Assess the extremities.
      7. Assess the posterior aspect of the body.
   B. Assess baseline vital signs.
   C. Position patient to protect airway.
   D. Obtain SAMPLE history from bystander, family, friends prior to leaving.

Procedural (How)

1. Review methods of questioning to determine SAMPLE history.
2. Practice methods of questioning to determine history of present illness.
3. Review airway management.
4. Review size-up.
5. Review the initial assessment.
6. Review rapid patient assessment.
7. Review of general impression.

Contextual (When, Where, Why)

The history and physical exam will be performed on all patients, following the initial assessment. This assessment will focus on the patient's history, as well as the signs and symptoms of the present illness. This assessment will help the EMT-Basic student provide rapid intervention.

STUDENT ACTIVITIES

Auditory (Hear)

1. Students should hear input from the patient or others regarding signs and symptoms for patients that are unresponsive.
2. Students should hear the presence of breath sounds in fellow students.
3. Students should hear questions to assist in determining the SAMPLE History.
4. Students should hear questions to assist in determining the history of the present illness.

Visual (See)

1. Students should see the entire assessment completed for each patient category.
2. Students should see audio-visual aids or materials of various illnesses.
3. Students should see the inspection and palpation of programmed patients for various illnesses.
4. Students should see landmarks for auscultation of breath sounds.
5. Students should see landmarks for palpation and inspection.
6. Students should see the flow chart from Appendix I.

Kinesthetic (Do)

1. Students should practice performing the skills of inspection, palpation, and auscultation.
2. Students should practice questioning programmed patients on SAMPLE histories.
3. Students should practice questioning programmed patients on the history of present illness.
4. Students should practice all components of the assessment including: Size-up, initial assessment and the focused history and physical exam.
5. Students should practice recording assessment findings on a medical patient.
6. Students should use the flow chart from Appendix I.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 3

Patient Assessment

Lesson 3-5

Detailed Physical Exam

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

3-5.1 Discuss the components of the detailed physical exam.(C-1)

3-5.2 State the areas of the body that are evaluated during the detailed physical exam.(C-1)

3-5.3 Explain what additional care should be provided while performing the detailed physical exam.(C-1)

3-5.4 Distinguish between the detailed physical exam that is performed on a trauma patient and that of the medical patient.(C-3)

AFFECTIVE OBJECTIVES

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

3-5.5 Explain the rationale for the feelings that these patients might be experiencing.(A-3)

PSYCHOMOTOR OBJECTIVES

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

3-5.6 Demonstrate the skills involved in performing the detailed physical exam.(P-1,2)

Motivation:	The entire basis for the EMT-Basic's emergency medical care is the assessment findings. In the detailed physical exam, the EMT-Basic will continue to assess the patient, allowing for continued care.
Prerequisites:	BLS, Preparatory and Airway.

MATERIALS

AV Equipment:	Utilize various audio-visual materials relating to the detailed physical exam. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.
EMS Equipment:	Exam gloves, stethoscope (dual and single head)(1:6), blood pressure cuffs (adult, child and infant)(1:6), penlight (1:6).

PERSONNEL

Primary Instructor:	One EMT-Basic instructor with knowledge in patient assessment.
Assistant Instructor:	The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in assessing a detailed physical exam.
Recommended Minimum Time to Complete:	One hour

Declarative (What)

I. Detailed Physical Exam
   A. Patient and injury specific, e.g., cut finger would not require the detailed physical exam.
   B. Perform a detailed physical examination on the patient to gather additional information.
      1. As you inspect and palpate, look and/or feel for the following examples of injuries or signs of injury:
         a. Deformities
         b. Contusions
         c. Abrasions
         d. Punctures/penetrations
         e. Burns
         f. Tenderness
         g. Lacerations
         h. Swelling
      2. Assess the head, inspect and palpate for injuries or signs of injury.
         a. Deformities
         b. Contusions
         c. Abrasions
         d. Punctures/penetrations
         e. Burns
         f. Tenderness
         g. Lacerations
         h. Swelling
      3. Assess the face, inspect and palpate for injuries or signs of injury.
         a. Deformities
         b. Contusions
         c. Abrasions
         d. Punctures/penetrations
         e. Burns
         f. Tenderness
         g. Lacerations
         h. Swelling

4. Assess the ears, inspect and palpate for injuries or signs of injury .
    a. Deformities
    b. Contusions
    c. Abrasions
    d. Punctures/penetrations
    e. Burns
    f. Tenderness
    g. Lacerations
    h. Swelling
    i. Drainage
5. Assess the eyes, inspect for injuries or signs of injury.
    a. Deformities
    b. Contusions
    c. Abrasions
    d. Punctures/penetrations
    e. Burns
    f. Tenderness
    g. Lacerations
    h. Swelling
    i. Discoloration
    j. Unequal pupils
    k. Foreign bodies
    l. Blood in anterior chamber
6. Assess the nose, inspect and palpate for injuries or signs of injury.
    a. Deformities
    b. Contusions
    c. Abrasions
    d. Punctures/penetrations
    e. Burns
    f. Tenderness
    g. Lacerations
    h. Swelling
    i. Drainage
    j. Bleeding
7. Assess the mouth, inspect for injuries or signs of injury.
    a. Deformities
    b. Contusions
    c. Abrasions
    d. Punctures/penetrations
    e. Burns
    f. Tenderness

g. Lacerations
h. Swelling
i. Teeth
j. Obstructions
k. Swollen or lacerated tongue
l. Odors
m. Discoloration

8. Assess the neck, inspect and palpate for injuries or signs of injury.
   a. Deformities
   b. Contusions
   c. Abrasions
   d. Punctures/penetrations
   e. Burns
   f. Tenderness
   g. Lacerations
   h. Swelling
   i. Jugular vein distension
   j. Crepitance
9. Assess the chest, inspect and palpate for injuries or signs of injury.
   a. Deformities
   b. Contusions
   c. Abrasions
   d. Punctures/penetrations
   e. Burns
   f. Tenderness
   g. Lacerations
   h. Swelling
   i. Crepitance
   j. Paradoxical motion
   k. Breath sounds in the apices, mid-clavicular line, bilaterally and at the bases, mid-axillary line, bilaterally.
      (1) Present
      (2) Absent
      (3) Equal
10. Assess the abdomen, inspect and palpate for injuries or signs of injury.
   a. Deformities
   b. Contusions
   c. Abrasions
   d. Punctures/penetrations
   e. Burns

f. Tenderness
g. Lacerations
h. Swelling
i. Firm
j. Soft
k. Distended

11. Assess the pelvis, inspect and palpate for injuries or signs of injury.
    a. Deformities
    b. Contusions
    c. Abrasions
    d. Punctures/penetrations
    e. Burns
    f. Tenderness
    g. Lacerations
    h. Swelling
    i. If the patient does not complain of pain or is unresponsive, gently flex and compress the pelvis to determine stability.
12. Assess all four extremities, inspect and palpate for injuries or signs of injury.
    a. Deformities
    b. Contusions
    c. Abrasions
    d. Punctures/penetrations
    e. Burns
    f. Tenderness
    g. Lacerations
    h. Swelling
    i. Distal pulses
    j. Sensation
    k. Motor function
13. Roll with spinal precautions and assess posterior aspect of body, inspect and palpate for injuries or signs of injury.
    a. Deformities
    b. Contusions
    c. Abrasions
    d. Punctures/penetrations
    e. Burns
    f. Tenderness
    g. Lacerations
    h. Swelling

II. Assess Baseline Vital Signs.

APPLICATION

Procedural (How)

The physical assessment is completed by visual inspection and palpation. The assessment is an input/output process, where the assessment findings are the input and the treatment is the output.

Contextual (When, Where, Why)

The detailed physical exam is performed following the focused history and physical exam. It will be performed after all critical interventions have been completed. It is situation and time dependent. Depending upon the severity of the patient's injury or illness, this assessment may not be completed. During this process, additional information regarding the patient's condition is obtained.

Typically this assessment will be performed while en route to the receiving facility.

STUDENT ACTIVITIES

Auditory (Hear)

1. Students should hear information (clues) from the responsive or altered mental status patient regarding symptoms.

Visual (See)

1. Students should see audio-visual aids or materials of various injuries.
2. Students should see the inspection and palpation of programmed patients for various injuries and illnesses.
3. Students should see landmarks for auscultation of breath sounds.
4. Students should see landmarks for palpation and inspection.
5. Students should see the flow chart from Appendix I.

Kinesthetic (Do)

1. Students should practice performing the skills of inspection, palpation, and auscultation of the detailed physical exam.

2. Students should use the flow chart from Appendix I.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 3

Patient Assessment

Lesson 3-6

On-Going Assessment

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

3-6.1 Discuss the reasons for repeating the initial assessment as part of the on-going assessment.(C-1)
3-6.2 Describe the components of the on-going assessment.(C-1)
3-6.3 Describe trending of assessment components.(C-1)

AFFECTIVE OBJECTIVES

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

3-6.4 Explain the value of performing an on-going assessment.(A-2)
3-6.5 Recognize and respect the feelings that patients might experience during assessment.(A-1)
3-6.6 Explain the value of trending assessment components to other health professionals who assume care of the patient.(A-2)

PSYCHOMOTOR OBJECTIVES

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

3-6.7 Demonstrate the skills involved in performing the on-going assessment.(P-1,2)

Motivation: In order to assure appropriate care, the EMT-Basic must re-evaluate the patient frequently. The length of time spent with the patient or the condition of the patient will assist in establishing how often and how on-going assessments will be conducted.

It is of utmost importance to be accurate with the documentation of all findings and interventions. Be sure to accurately record all times associated with the care provided.

Prerequisites: BLS, Preparatory and Airway.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to patient assessment. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.

EMS Equipment: Exam gloves, stethoscope (dual and single head)(1:6), blood pressure cuffs (adult, child and infant)(1:6), penlight.

PERSONNEL

Primary Instructor: One EMT-Basic instructor with knowledge in patient assessment.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in the aspects of the on-going assessment.

Recommended Minimum Time to Complete: One hour

Declarative (What)

I. Repeat initial assessment. For a stable patient, repeat and record every 15 minutes. For an unstable patient, repeat and record at a minimum every 5 minutes.
   A. Reassess mental status.
   B. Maintain open airway.
   C. Monitor breathing for rate and quality.
   D. Reassess pulse for rate and quality.
   E. Monitor skin color and temperature.
   F. Re-establish patient priorities.
II. Reassess and record vital signs.
III. Repeat focused assessment regarding patient complaint or injuries.
IV. Check interventions.
   A. Assure adequacy of oxygen delivery/artificial ventilation.
   B. Assure management of bleeding.
   C. Assure adequacy of other interventions.

APPLICATION

Procedural (How)

1. Review methods for determining mental status.
2. Review of the airway module for airway patency.
3. Review of the airway module for breathing.
4. Review of the airway module for oxygen delivery/artificial ventilation.
5. Review of obtaining radial, carotid, and brachial pulses.
6. Review assessment of skin color, temperature and capillary refill for infant and child patients.
7. Review patient priorities.
8. Review baseline vital signs.
9. Review SAMPLE history.
10. Review the focused history and physical examination.

11. Discuss intervention checks.

Contextual (When, Where, Why)

The on-going assessment should be performed on all patients after assuring completion of critical interventions. Ideally, it is completed following the detailed physical exam. However, the patient condition may preclude performance of the detailed physical exam. In these cases, the on-going assessment is extremely valuable. The on-going assessment is a means of determining changes in the patient's condition.

STUDENT ACTIVITIES

Auditory (Hear)

None identified for this lesson.

Visual (See)

1. The students should see the flow chart from Appendix I.

Kinesthetic (Do)

1. The students should practice establishing mental status on programmed patients with various mental statuses.
2. The students should practice airway opening techniques on manikins and each other.
3. The students should practice on each other to determine breathing.
4. The students should practice determining pulses.
5. The students should practice determining skin color, temperature and condition.
6. The students should practice examining interventions to assure that they continue to be effective.
7. The students should practice completing an on-going assessment.
8. The students should practice recording assessment findings.
9. The students should use the flow chart from Appendix I.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 3

Patient Assessment

Lesson 3-7

Communications

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

3-7.1 List the proper methods of initiating and terminating a radio call.(C-1)

3-7.2 State the proper sequence for delivery of patient information.(C-1)

3-7.3 Explain the importance of effective communication of patient information in the verbal report.(C-1)

3-7.4 Identify the essential components of the verbal report.(C-1)

3-7.5 Describe the attributes for increasing effectiveness and efficiency of verbal communications.(C-1)

3-7.6 State legal aspects to consider in verbal communication.(C-1)

3-7.7 Discuss the communication skills that should be used to interact with the patient.(C-1)

3-7.8 Discuss the communication skills that should be used to interact with the family, bystanders, individuals from other agencies while providing patient care and the difference between skills used to interact with the patient and those used to interact with others.(C-1)

3-7.9 List the correct radio procedures in the following phases of a typical call:(C-1)

- To the scene.
- At the scene.
- To the facility.
- At the facility.
- To the station.
- At the station.

AFFECTIVE OBJECTIVES

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

3-7.10 Explain the rationale for providing efficient and effective radio communications and patient reports.(A-3)

PSYCHOMOTOR OBJECTIVES

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

3-7.11 Perform a simulated, organized, concise radio transmission.(P-2)

3-7.12 Perform an organized, concise patient report that would be given to the staff at a receiving facility.(P-2)

3-7.13 Perform a brief, organized report that would be given to an ALS provider arriving at an incident scene at which the EMT-Basic was already providing care.(P-2)

PREPARATION

Motivation: The best prehospital patient care may come to an end at the door of the Emergency Department (ED) if a patient's condition is not described well enough for the ED staff to prepare.

Communication is an essential component of prehospital care. Both verbal and written communications will be used during every response. Patient care not only includes assessment and treatment, but the ability to effectively and efficiently communicate findings to other health care providers.

Prerequisites: BLS, Preparatory and Airway.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to communications. The continuous design and development of new audio-visual materials relating to EMS requires

careful review to determine which best meet the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.

EMS Equipment: None

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in this area.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in communications.

Recommended Minimum Time to Complete: One hour

PRESENTATION

Declarative (What)

I. Communication
   A. Communication system
      1. System components
         a. Base station - a radio which is located at a stationary site such as a hospital, mountain top, or public safety agency.
         b. Mobile two-way radios (transmitter/receivers)
            (1) Implies a vehicular mounted device.
            (2) Mobile transmitters usually transmit at lower power than base stations (typically 20 - 50 watts).
            (3) Typical transmission range is 10 - 15 miles over average terrain.
         c. Portable radios (transmitter/receivers)
            (1) Implies a handheld device.
            (2) Typically have power output of 1 - 5 watts, limiting their range.

d. Repeater/base station - receives a transmission from a low-power portable or mobile radio on one frequency and retransmits at a higher power on another frequency.
e. Digital radio equipment
f. Cellular telephones

2. Radio communications
   a. Radio frequencies - assigned and licensed by the Federal Communication Commission (FCC).

b. Response to the scene
   (1) The dispatcher needs to be notified that the call was received.
   (2) Dispatch needs to know that the unit is en route.
   (3) Other agencies should be notified as appropriate, e.g., local hospital.
c. Arrival at the scene - the dispatcher must be notified.

3. Communication with medical direction
   a. In some systems, medical direction is at the receiving facility. In others, medical direction is at a separate site.
   b. In either case, EMT-Basics may need to contact medical direction for consultation and to get orders for administration of medications. Radio transmissions need to be organized, concise and pertinent.
   c. Since the physician will determine whether to order medications and procedures based on the information given by the EMT-Basic, this information must be accurate.
   d. After receiving an order for a medication or procedure (or denial of such a request), repeat the order back word for word.
   e. Orders that are unclear or appear to be inappropriate should be questioned.
   f. Communication with receiving facilities
   g. EMT-Basics provide information that allows hospitals to prepare for a patient's arrival by having the right room, equipment and personnel prepared.
   h. Patient reporting concepts
      (1) When speaking on the radio, keep these principles in mind:
         (a) Radio is on and volume is properly adjusted.
         (b) Listen to the frequency and ensure it is clear before beginning a transmission.
         (c) Press the "press to talk" (PTT) button on the radio and wait for one second before speaking.
         (d) Speak with lips about 2 to 3 inches from the microphone.
         (e) Address the unit being called, then give the name of the unit (and number if appropriate) where the transmission is originating from.
         (f) The unit being called will signal that the transmission should start by saying "go ahead"

or some other term standard for that area. A response of "stand by" means wait until further notice.

(g) Speak clearly and slowly, in a monotone voice.

(h) Keep transmissions brief. If, on occasion, a transmission takes longer than 30 seconds, stop at that point and pause for a few seconds so that emergency traffic can use the frequency if necessary.

(i) Use clear text.

(j) Avoid codes.

(k) Avoid meaningless phrases like "Be advised."

(l) Courtesy is assumed, so there is no need to say "please," "thank you" and "you're welcome."

(m) When transmitting a number that might be confused (e.g., a number in the teens), give the number, then give the individual digits.

(n) The airwaves are public and scanners are popular. EMS transmissions may be overheard by more than just the EMS community. Do not give a patient's name over the air.

(o) For the same reason, be careful to remain objective and impartial in describing patients. An EMT-Basic may be sued for slander if he injures someone's reputation in this way.

(p) An EMT-Basic rarely acts alone: Use "we" instead of "I."

(q) Do not use profanity on the air. The FCC takes a dim view of such language and may impose substantial fines.

(r) Avoid words that are difficult to hear like "yes" and "no." Use "affirmative" and "negative."

(s) Use the standard format for transmission of information.
(t) When the transmission is finished, indicate this by saying "over." Get confirmation that the message was received.
(u) Avoid codes, especially those that are not standardized.
(v) Avoid offering a diagnosis of the patient's problem.
(w) Use EMS frequencies only for EMS communication.
(x) Reduce background noise as much as possible by closing the window.

(2) Notify the dispatcher when the unit leaves the scene.

(3) When communicating with medical direction or the receiving facility, a verbal report should be given. The essential elements of such a report, in the order they should be given, are:
(a) Identify unit and level of provider (who and what)
(b) Estimated time of arrival
(c) Patient's age and sex
(d) Chief complaint
(e) Brief, pertinent history of the present illness
(f) Major past illnesses
(g) Mental status
(h) Baseline vital signs
(i) Pertinent findings of the physical exam
(j) Emergency medical care given
(k) Response to emergency medical care

(4) After giving this information, the EMT-Basic will continue to assess the patient. Additional vital signs may be taken and new information may become available, particularly on long transports. In some systems, this information should be relayed to the hospital (see local protocol). Information that must be transmitted includes deterioration in the patient's condition.

(5) Arrival at the hospital
(a) The dispatcher must be notified.

(b) In some systems, the hospital should also be notified.

(6) Leaving the hospital for the station - the dispatcher should be notified.

(7) Arrival at the station - the dispatcher should be notified.

4. System maintenance
   a. Communication equipment needs to be checked periodically by a qualified technician, e.g., to ensure that a radio is not drifting from its assigned frequency.
   b. As technology changes, new equipment becomes available that may have a role in EMS systems, e.g., cellular phones.
   c. Since EMT-Basics may need to be able to consult on-line medical direction, an EMS system must provide a back-up in case the usual procedures do not work.

B. Verbal communication
   1. After arrival at the hospital, give a verbal report to the staff.
      a. Introduce the patient by name (if known).
      b. Summarize the information given over the radio:
         (1) Chief complaint
         (2) History that was not given previously
         (3) Additional treatment given en route
         (4) Additional vital signs taken en route
      c. Give additional information that was collected but not transmitted.

C. Written communication - this is covered in the lesson on documentation.

D. Interpersonal communication
   1. Make and keep eye contact with the patient.
   2. When practical, position yourself at a level lower than the patient.
   3. Be honest with the patient.
   4. Use language the patient can understand.
   5. Be aware of your own body language.
   6. Speak clearly, slowly and distinctly.
   7. Use the patient's proper name, either first or last, depending on the circumstances. Ask the patient what he wishes to be called.
   8. If a patient has difficulty hearing, speak clearly with lips visible.

9. Allow the patient enough time to answer a question before asking the next one.
10. Act and speak in a calm, confident manner.

E. Communication with hearing impaired, non-English speaking populations, use of interpreters, etc.

F. Communication with elderly
1. Potential for visual deficit
2. Potential for auditory deficit

APPLICATION

Procedural (How)

1. Show how to initiate and terminate a radio call.
2. Demonstrate use of the radio in the different phases of a typical call.
   - To the scene.
   - At the scene.
   - To the facility.
   - At the facility.
   - To the station.
   - At the station.
3. Demonstrate the proper sequence of patient information.
4. Demonstrate how to communicate with a patient.
5. Demonstrate how to communicate with a patient's family.
6. Demonstrate how to communicate with bystanders.
7. Demonstrate how to communicate with individuals from other agencies while providing patient care.
8. Demonstrate a brief, organized report that would be given to an ALS provider arriving at an incident scene at which the EMT-Basic was already providing care.
9. Demonstrate a simulated, organized, concise radio transmission.

Contextual (When, Where, Why)

Communications occur from the pre-dispatch phase, throughout the call, and well after the completion of the transport. Various individuals will be involved in the verbal communication process and vital information will be discussed. The EMT-Basic must

have excellent verbal and written communication skills to assure accurate information is delivered to the appropriate individuals. The continuum of patient care is based upon effective and efficient communication skills.

STUDENT ACTIVITIES

Auditory (Hear)

1. The student should hear both sides of a radio transmission during the phases of a typical call:
   - **!** To the scene.
   - **!** At the scene.
   - **!** To the facility.
   - **!** At the facility.
   - **!** To the station.
   - **!** At the station.
2. The student should hear initiation and termination of a radio call.
3. The student should hear patient information delivered in the proper sequence.
4. The student should hear communication with a simulated patient.
5. The student should hear communication with the family of a simulated patient.
6. The student should hear communication with simulated bystanders.
7. The student should hear communication with individuals from other agencies at a call.
8. The student should hear a brief, organized report that would be given to an ALS provider arriving at an incident scene at which the EMT-Basic was already providing care.

Visual (See)

1. The student should see examples of portable, mobile and base station radio equipment.
2. The student should see the communication skills used to interact with the family.
3. The student should see the communication skills used to interact with bystanders.
4. The student should see the communication skills used to interact with individuals from other agencies while providing patient care.
5. The student should see the components of the minimum data set.

Kinesthetic (Do)

1. The student should practice radio use procedures in the following phases of a typical call:
   - **!** To the scene.
   - **!** At the scene.
   - **!** To the facility.

- At the facility.
- To the station.
- At the station.

2. The student should practice the proper methods of initiating and terminating a radio call.
3. The student should practice the proper sequence of delivery of patient information.
4. The student should practice the communication skills used to interact with the patient.
5. The student should practice the communication skills used to interact with the family.
6. The student should practice the communication skills used to interact with bystanders.
7. The student should practice the communication skills used to interact with individuals from other agencies while providing patient care.
8. The student should practice performing an organized, concise patient report that would be given to the medical staff at a receiving facility.
9. The student should practice performing a brief, organized report that would be given to an ALS provider arriving at an incident scene at which the EMT-Basic was already providing care.
10. The student should practice performing a simulated, organized, concise radio transmission.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 3

Patient Assessment

Lesson 3-8

Documentation

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

3-8.1 Explain the components of the written report and list the information that should be included in the written report.(C-1)
3-8.2 Identify the various sections of the written report.(C-1)
3-8.3 Describe what information is required in each section of the prehospital care report and how it should be entered.(C-1)
3-8.4 Define the special considerations concerning patient refusal. (C-1)
3-8.5 Describe the legal implications associated with the written report.(C-1)
3-8.6 Discuss all state and/or local record and reporting requirements.(C-1)

AFFECTIVE OBJECTIVES

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

3-8.7 Explain the rationale for patient care documentation.(A-3)
3-8.8 Explain the rationale for the EMS system gathering data.(A-3)
3-8.9 Explain the rationale for using medical terminology correctly.(A-3)
3-8.10 Explain the rationale for using an accurate and synchronous clock so that information can be used in trending.(A-3)

PSYCHOMOTOR OBJECTIVES

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

3-8.11 Complete a prehospital care report.(P-2)

Motivation: A competent prehospital report documents the nature and extent of emergency medical care. Well prepared reports are an important medical/legal document. "If it isn't written down, it wasn't done," and "If it wasn't done, don't write it down."

Health care providers use the information from the report to trend changes in patient condition. In particular, the trending of mental status and vital signs is extremely important to physicians and nurses who assume care. The information on the report can also be used in quality assessment of emergency medical care.

Prerequisites: BLS

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to documentation. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.

EMS Equipment: Copies of a prehospital care report and a vital sign trended report.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in this area.

Assistant Instructor: None required.

Recommended Minimum Time to Complete: One hour and 30 minutes

Declarative (What)

I. Documentation
   A. Minimum data set
      1. Patient information gathered at time of EMT-B's initial contact with patient on arrival at scene, following all interventions and on arrival at facility.
         a. Chief complaint
         b. Level of consciousness (AVPU) - mental status
         c. Systolic blood pressure for patients greater than 3 years old
         d. Skin perfusion (capillary refill) for patients less than 6 years old
         e. Skin color and temperature
         f. Pulse rate
         g. Respiratory rate and effort
      2. Administrative information
         a. Time incident reported
         b. Time unit notified
         c. Time of arrival at patient
         d. Time unit left scene
         e. Time of arrival at destination
         f. Time of transfer of care
      3. Accurate and synchronous clocks
   B. Prehospital care report
      1. Functions
         a. Continuity of care - a form that is not read immediately in the emergency department may very well be referred to later for important information.
         b. Legal document
            (1) A good report has documented what emergency medical care was provided and the status of the patient on arrival at the scene and any changes upon arrival at the receiving facility.
            (2) The person who completed the form ordinarily must go to court with the form.
            (3) Information should include objective and subjective information and be clear.
         c. Educational - used to demonstrate proper documentation and how to handle unusual or uncommon cases.
         d. Administrative
            (1) Billing
            (2) Service statistics

e. Research
f. Evaluation and continuous quality improvement

2. Use
   a. Types
      (1) Traditional written form with check boxes and a section for narrative.
      (2) Computerized version where information is filled in by means of an electronic clipboard or a similar device.
   b. Sections
      (1) Run data - date, times, service, unit, names of crew
      (2) Patient data - patient name, address, date of birth, insurance information, sex, age, nature of call, mechanism of injury, location of patient, treatment administered prior to arrival of EMT-Basic, signs and symptoms, care administered, baseline vital signs, SAMPLE history and changes in condition.
      (3) Check boxes
         (a) Be sure to fill in the box completely.
         (b) Avoid stray marks.
      (4) Narrative section (if applicable)
         (a) Describe, don't conclude.
         (b) Include pertinent negatives.
         (c) Record important observations about the scene, e.g., suicide note, weapon, etc.
         (d) Avoid radio codes.
         (e) Use abbreviations only if they are standard.
         (f) When information of a sensitive nature is documented, note the source of that information, e.g., communicable diseases.
         (g) State reporting requirements
         (h) Be sure to spell words correctly, especially medical words. If you do not know how to spell it, find out or use another word.

(i) For every reassessment, record time and findings.

(5) Other state or local requirements

c. Confidentiality - the form itself and the information on the form are considered confidential. Be familiar with state laws.

d. Distribution - local and state protocol and procedures will determine where the different copies of the form should be distributed.

3. Falsification issues

a. When an error of omission or commission occurs, the EMT-Basic should not try to cover it up. Instead, document what did or did not happen and what steps were taken (if any) to correct the situation.

b. Falsification of information on the prehospital care report may lead not only to suspension or revocation of the EMT-Basic's certification/license, but also to poor patient care because other health care providers have a false impression of which assessment findings were discovered or what treatment was given.

c. Specific areas of difficulty

(1) Vital signs - document only the vital signs that were actually taken.

(2) Treatment - if a treatment like oxygen was overlooked, do not chart that the patient was given oxygen.

C. Documentation of patient refusal

1. Competent adult patients have the right to refuse treatment.

2. Before the EMT-Basic leaves the scene, however, he should:

a. Try again to persuade the patient to go to a hospital.

b. Ensure the patient is able to make a rational, informed decision, e.g., not under the influence of alcohol or other drugs, or illness/injury effects.

c. Inform the patient why he should go and what may happen to him if he does not.

d. Consult medical direction as directed by local protocol.

e. If the patient still refuses, document any assessment findings and emergency medical care given, then have the patient sign a refusal form.

f. Have a family member, police officer or bystander sign the form as a witness. If the patient refuses to sign the refusal form, have a family member, police officer or bystander sign the form verifying that the patient refused to sign.

g. Complete the prehospital care report.
   (1) Complete patient assessment.
   (2) Care EMT-Basic wished to provide for the patient.
   (3) Statement that the EMT-Basic explained to the patient the possible consequences of failure to accept care, including potential death.
   (4) Offer alternative methods of gaining care.
   (5) State willingness to return.

D. Special situations/reports/incident reporting

1. Correction of errors
   a. Errors discovered while the report form is being written
      (1) Draw a single horizontal line through the error, initial it and write the correct information beside it.
      (2) Do not try to obliterate the error - this may be interpreted as an attempt to cover up a mistake.
   b. Errors discovered after the report form is submitted
      (1) Preferably in a different color ink, draw a single line through the error, initial and date it and add a note with the correct information.
      (2) If information was omitted, add a note with the correct information, the date and the EMT-Basic's initials.

2. Multiple casualty incidents (MCI)
   a. When there is not enough time to complete the form before the next call, the EMT-Basic will need to fill out the report later.
   b. The local MCI plan should have some means of recording important medical information temporarily, e.g., triage tag, that can be used later to complete the form.
   c. The standard for completing the form in an MCI is not the same as for a typical call. The local plan should have guidelines.

3. Special situation reports
   a. Used to document events that should be reported to local authorities, or to amplify and supplement primary report.
   b. Should be submitted in timely manner.
   c. Should be accurate and objective.
   d. The EMT-Basic should keep a copy for his own records.

e. The report, and copies, if appropriate, should be submitted to the authority described by local protocol.
f. Exposure
g. Injury

4. Continuous quality improvement
5. Information gathered from the prehospital care report can be used to analyze various aspects of the EMS system.
6. This information can then be used to improve different components of the system and prevent problems from occurring.

APPLICATION

Procedural (How)

1. Show the students the prehospital care report used locally.
2. Show the students the refusal form used locally, if there is one.
3. Show the students good examples of completed prehospital care reports.
4. If there is a quality improvement system in place locally, show the students a report generated by the system.
5. Show the students how trending information is used to aid in the future care of the patient.

Contextual (When, Where, Why)

To establish the continuum of care, the EMT-Basic must document not only what the patient complained of, but also what he denied. A prehospital care report must be filled out for every patient encounter. On non-emergency runs, this process may be started at the scene.

Documentation is an on-going process and the report provides information that can be used in many constructive ways.

STUDENT ACTIVITIES

Auditory (Hear)

None identified for this lesson.

Visual (See)

1. The student should see the prehospital care report used locally.
2. The student should see the components of the prehospital care report.
3. The student should see good examples of completed prehospital care reports.

Kinesthetic (Do)

1. The student should practice completing the prehospital care report, given different scenarios.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 3

Patient Assessment

Lesson 3-9

Practical Lab: Patient Assessment

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

! Demonstrate the cognitive objectives of Lesson 3-1: Scene Size-up.

! Demonstrate the cognitive objectives of Lesson 3-2: Initial Assessment.

! Demonstrate the cognitive objectives of Lesson 3-3: Focused History and Physical Exam: Trauma

! Demonstrate the cognitive objectives of Lesson 3-4: Focused History and Physical Exam: Medical

! Demonstrate the cognitive objectives of Lesson 3-5: Detailed Physical Exam.

! Demonstrate the cognitive objectives of Lesson 3-6: On-going Assessment.

! Demonstrate the cognitive objectives of Lesson 3-7: Communications.

! Demonstrate the cognitive objectives of Lesson 3-8: Documentation.

AFFECTIVE OBJECTIVES

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

! Demonstrate the affective objectives of Lesson 3-1: Scene Size-up.

- Demonstrate the affective objectives of Lesson 3-2: Initial Assessment.

- Demonstrate the affective objectives of Lesson 3-3: Focused History and Physical Exam: Trauma
- Demonstrate the affective objectives of Lesson 3-4: Focused History and Physical Exam: Medical
- Demonstrate the affective objectives of Lesson 3-5: Detailed Physical Exam.
- Demonstrate the affective objectives of Lesson 3-6: On-going Assessment.
- Demonstrate the affective objectives of Lesson 3-7: Communications.
- Demonstrate the affective objectives of Lesson 3-8: Documentation.

PSYCHOMOTOR OBJECTIVES

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

- Demonstrate the psychomotor objectives of Lesson 3-1: Scene Size-up.
- Demonstrate the psychomotor objectives of Lesson 3-2: Initial Assessment.
- Demonstrate the psychomotor objectives of Lesson 3-3: Focused History and Physical Exam: Trauma
- Demonstrate the psychomotor objectives of Lesson 3-4: Focused History and Physical Exam: Medical
- Demonstrate the psychomotor objectives of Lesson 3-5: Detailed Physical Exam.
- Demonstrate the psychomotor objectives of Lesson 3-6: On-going Assessment.
- Demonstrate the psychomotor objectives of Lesson 3-7: Communications.
- Demonstrate the psychomotor objectives of Lesson 3-8: Documentation.

PREPARATION

Motivation: The practical lesson is designed to allow the students additional time to perfect skills. It is of utmost importance that the students demonstrate proficiency of the skill, cognitive knowledge of the steps to perform a skill, and a healthy attitude towards performing that skill on a patient.

This is an opportunity for the instructor and assistant instructors to praise progress and re-direct the students toward appropriate psychomotor skills. The material from all preceding lessons and basic life support should be incorporated into these practical skill sessions.

Prerequisites: BLS, Preparatory and Airway.

MATERIALS

AV Equipment: Typically not required.

EMS Equipment: Equipment from the lists in Lessons 3-1 through 3-8.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in patient assessment.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in patient assessment.

Recommended Minimum
Time to Complete: Eight hours

APPLICATION

Procedural (How)

Instructor should demonstrate the procedural activities from Lesson 3-1: Scene Size-up.

Instructor should demonstrate the procedural activities from Lesson 3-2: Initial Assessment.

Instructor should demonstrate the procedural activities from Lesson 3-3: Focused History and Physical Exam: Trauma.

Instructor should demonstrate the procedural activities from Lesson 3-4: Focused History and Physical Exam: Medical.

Instructor should demonstrate the procedural activities from Lesson 3-5: Detailed Physical Exam.

Instructor should demonstrate the procedural activities from Lesson 3-6: On-going Assessment.

Instructor should demonstrate the procedural activities from Lesson 3-7: Communications.

Instructor should demonstrate the procedural activities from Lesson 3-8: Documentation.

Contextual (When, Where, Why)

Instructor should review contextual information from Lesson 3-1: Scene Size-up.

Instructor should review contextual information from Lesson 3-2: Initial Assessment.

Instructor should review contextual information from Lesson 3-3: Focused History and Physical Exam: Trauma

Instructor should review contextual information from Lesson 3-4: Focused History and Physical Exam: Medical

Instructor should review contextual information from Lesson 3-5: Detailed Physical Exam.

Instructor should review contextual information from Lesson 3-6: On-going Assessment.

Instructor should review contextual information from Lesson 3-7: Communications.

Instructor should review contextual information from Lesson 3-8: Documentation.

STUDENT ACTIVITIES

Auditory (Hear)

The students should hear the auditory information from Lesson 3-1: Scene Size-up.

The students should hear the auditory information from Lesson 3-2: Initial Assessment.

The students should hear the auditory information from Lesson 3-3: Focused History and Physical Exam: Trauma.

The students should hear the auditory information from Lesson 3-4: Focused History and Physical Exam: Medical.

The students should hear the auditory information from Lesson 3-5: Detailed Physical Exam.

The students should hear the auditory information from Lesson 3-7: Communications.

Visual (See)

The students should see the visual material from Lesson 3-1: Scene Size-up.

The students should see the visual material from Lesson 3-2: Initial Assessment.

The students should see the visual material from Lesson 3-3: Focused History and Physical Exam: Trauma.

The students should see the visual material from Lesson 3-4: Focused History and Physical Exam: Medical.

The students should see the visual material from Lesson 3-5: Detailed Physical Exam.

The students should see the visual material from Lesson 3-7: Communications.

The students should see the visual material from Lesson 3-8: Documentation.

Kinesthetic (Do)

The students should practice the kinesthetic activities from Lesson 3-1: Scene Size-up.

The students should practice the kinesthetic activities from Lesson 3-2: Initial Assessment.

The students should practice the kinesthetic activities from Lesson 3-3: Focused History and Physical Exam: Trauma.

The students should practice the kinesthetic activities from Lesson 3-4: Focused History and Physical Exam: Medical.

The students should practice the kinesthetic activities from Lesson 3-5: Detailed Physical Exam.

The students should practice the kinesthetic activities from Lesson 3-6: On-going Assessment.

The students should practice the kinesthetic activities from Lesson 3-7: Communications.

The students should practice the kinesthetic activities from Lesson 3-8: Documentation.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skills stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 3

Patient Assessment

Lesson 3-10

Evaluation: Patient Assessment

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

- Demonstrate knowledge of the cognitive objectives of Lesson 3-1: Scene Size-up.
- Demonstrate knowledge of the cognitive objectives of Lesson 3-2: Initial Assessment.
- Demonstrate knowledge of the cognitive objectives of Lesson 3-3: Focused History and Physical Exam: Trauma.
- Demonstrate knowledge of the cognitive objectives of Lesson 3-4: Focused History and Physical Exam: Medical.
- Demonstrate knowledge of the cognitive objectives of Lesson 3-5: The Detailed Physical Exam.
- Demonstrate knowledge of the cognitive objectives of Lesson 3-6: On-going Assessment.
- Demonstrate knowledge of the cognitive objectives of Lesson 3-7: Communications.

- Demonstrate knowledge of the cognitive objectives of Lesson 3-8: Documentation.

AFFECTIVE OBJECTIVES

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

- Demonstrate knowledge of the affective objectives of Lesson 3-1: Scene Size-up.
- Demonstrate knowledge of the affective objectives of Lesson 3-2: Initial Assessment.
- Demonstrate knowledge of the affective objectives of Lesson 3-3: Focused History and Physical Exam: Trauma.
- Demonstrate knowledge of the affective objectives of Lesson 3-4: Focused History and Physical Exam: Medical.
- Demonstrate knowledge of the affective objectives of Lesson 3-5: The Detailed Physical Exam.
- Demonstrate knowledge of the affective objectives of Lesson 3-6: On-going Assessment.
- Demonstrate knowledge of the affective objectives of Lesson 3-7: Communications.
- Demonstrate knowledge of the affective objectives of Lesson 3-8: Documentation.

PSYCHOMOTOR OBJECTIVES

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

- Demonstrate knowledge of the psychomotor objectives of Lesson 3-1: Scene Size-up.
- Demonstrate knowledge of the psychomotor objectives of Lesson 3-2: Initial Assessment.
- Demonstrate knowledge of the psychomotor objectives of Lesson 3-3: Focused History and Physical Exam: Trauma.

- Demonstrate knowledge of the psychomotor objectives of Lesson 3-4: Focused History and Physical Exam: Medical.

- Demonstrate knowledge of the psychomotor objectives of Lesson 3-5: The Detailed Physical Exam.

- Demonstrate knowledge of the psychomotor objectives of Lesson 3-6: On-going Assessment.

- Demonstrate knowledge of the psychomotor objectives of Lesson 3-7: Communications.

- Demonstrate knowledge of the psychomotor objectives of Lesson 3-8: Documentation.

PREPARATION

Motivation: Evaluation of the student's attainment of the cognitive and affective knowledge and psychomotor skills is an essential component of the EMT-Basic educational process. The modules are presented in a "building block" format. Once the students have demonstrated their knowledge and proficiency, the next lesson should be built upon that knowledge. This evaluation will help to identify students or groups of students having difficulty with a particular area. This is an opportunity for the instructor to evaluate his performance, and make appropriate modifications to the delivery of material.

Prerequisites: Completion of Lessons 3-1 through 3-9.

MATERIALS

AV Equipment: Typically none required.

EMS Equipment:	Equipment required to evaluate the students' proficiency in the psychomotor skills of this module.

PERSONNEL

Primary Instructor: One proctor for the written evaluation.

Assistant Instructor: One practical skills examiner for each 6 students.

Recommended Minimum
Time to Complete: One hour

PRESENTATION

Declarative (What)

I. Purpose of the evaluation

II. Items to be evaluated

III. Feedback from evaluation

APPLICATION

Procedural (How)

1. Written evaluation based on the cognitive and affective objectives of Lessons 3-1 through 3-8.

2. Practical evaluation stations based on the psychomotor objectives of Lessons 3-1 through 3-8.

Contextual (When, Where and Why)

The final lesson in this module is designed to bring closure to the module and to assure that students are prepared to move to the next module.

This modular evaluation is given to determine the effectiveness of the presentation of materials and how well students have retained the material. This is an opportunity for the students to make necessary adjustments in study habits or for the instructor to adjust the manner in which material is presented.

INSTRUCTOR ACTIVITIES

Supervise student evaluation.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

REMEDIATION

Identify students or groups of students that are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide. If students continue to have difficulty demonstrating knowledge of the cognitive and affective objectives, or demonstrating proficiency in psychomotor skills, the students should be counseled, remediated and re-evaluated. If no progress is noted, or this continues to be a problem, the student or students should be dismissed from the program.

MODULE 4

Medical/Behavioral and Obstetrics/Gynecology

Lesson 4-1

General Pharmacology

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

4-1.1 Identify which medications will be carried on the unit.(C-1)
4-1.2 State the medications carried on the unit by the generic name. (C-1)
4-1.3 Identify the medications with which the EMT-Basic may assist the patient with administering. (C-1)
4-1.4 State the medications the EMT-Basic can assist the patient with by the generic name.(C-1)
4-1.5 Discuss the forms in which the medications may be found. (C-1)

AFFECTIVE OBJECTIVES

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

4-1.6 Explain the rationale for the administration of medications.(A-3)

PSYCHOMOTOR OBJECTIVES

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

4-1.7 Demonstrate general steps for assisting patient with self-administration of medications.(P-2)
4-1.8 Read the labels and inspect each type of medication.(P-2)

Motivation: Later in this course the EMT-Basic student will be learning specific medications which may be administered to a patient who has his own prescribed medication for a specific medical condition.

Some medications may be administered by the EMT-Basic when there are patients with specific chief complaints. Giving the proper medication in an emergency situation is critical to the well-being of the patient.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to general pharmacology. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment: None

PERSONNEL

Primary Instructor: Advanced-level provider who has administered medications.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in general pharmacology.

Recommended Minimum Time to Complete: One hour

Declarative (What)

I. Overview - the importance of medications and the dangers associated with their administration.

II. Medications (carried on the EMS unit)
   - A. Activated Charcoal - learned as a part of the poison/overdose module (4-6).
   - B. Oral Glucose - learned as a part of the diabetes module (4-4).
   - C. Oxygen (refer to airway module).

III. Medications (prescribed by a physician and the patient has them in his possession; they are not carried on the EMS unit. May assist patients in taking, with approval by medical direction).
   - A. Prescribed Inhaler - learned as a part of the respiratory module (4-2).
   - B. Nitroglycerin - learned as a part of the cardiac module (4-3).
   - C. Epinephrine - learned as a part of the allergies module (4-5).

IV. Medication names
   - A. Generic
     1. The name listed in the U.S. Pharmacopedia, a governmental publication listing all drugs in the U.S.
     2. Name assigned to drug before it becomes officially listed. Usually a simple form of the chemical name.
     3. Give examples.
   - B. Trade
     1. Brand name is the name a manufacturer uses in marketing the drug.
     2. Give examples.

V. Indications - the indication for a drug's use includes the most common uses of the drug in treating a specific illness.

VI. Contraindications - situations in which a drug should not be used because it may cause harm to the patient or offer no effect in improving the patient's condition or illness.

VII. Medication Form
   - A. Medications the EMT-Basic carries on the unit or medications that a patient may have a prescription for that the EMT-Basic may assist with administration.
     - Compressed powders or tablets - nitroglycerin
     - Liquids for injection - epinephrine
     - Gels - glucose

Suspensions - activated charcoal
Fine powder for inhalation - prescribed inhaler
Gases - oxygen
Sub-lingual spray - nitroglycerin
Liquid/vaporized fixed dose nebulizers

B. Each drug is in a specific medication form to allow properly controlled concentrations of the drug to enter into the blood stream where it has an effect on the target body system.

VIII. Dose - state how much of the drug should be given.

IX. Administration - state route by which the medication is administered such as oral, sublingual (under the tongue), injectable, or intramuscular.

X. Actions - state desired effects a drug has on the patient and/or his body systems.

XI. Side Effects - state any actions of a drug other than those desired. Some side effects may be predictable.

XII. Re-assessment strategies
- A. Repeat baseline vital signs.
- B. Must be done as part of the on-going patient assessment.
- C. Documentation of response to intervention.

APPLICATION

Procedural (How)

Demonstrate reading labels and inspecting each medication that will be carried on the unit or assisted with by the patient.

Contextual (When, Where, Why)

For years the primary medication used by the EMT was oxygen. The EMT-Basic will have activated charcoal and oral glucose on the unit to administer with medical direction. In addition, the EMT-Basic will be able to assist patients with several medications, again under the supervision of medical direction.

This pharmacology lesson will assist you in understanding basic components for each of the medications. In later lessons, you will obtain additional knowledge and skills concerning their administration.

STUDENT ACTIVITIES

Auditory (Hear)

1. The student will hear information on medications they will use on the EMS unit.

Visual (See)

1. The student will see the instructor pick up each type of medication they will use on the EMS unit.

Kinesthetic (Do)

1. The student will practice inspecting and reading the labels of each type of medication they will use on the EMS unit.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 4

Medical/Behavioral and Obstetrics/Gynecology

Lesson 4-2

Respiratory Emergencies

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

4-2.1 List the structure and function of the respiratory system.(C-1)
4-2.2 State the signs and symptoms of a patient with breathing difficulty.(C-1)
4-2.3 Describe the emergency medical care of the patient with breathing difficulty.(C-1)
4-2.4 Recognize the need for medical direction to assist in the emergency medical care of the patient with breathing difficulty.(C-3)
4-2.5 Describe the emergency medical care of the patient with breathing distress.(C-1)
4-2.6 Establish the relationship between airway management and the patient with breathing difficulty.(C-3)
4-2.7 List signs of adequate air exchange.(C-1)
4-2.8 State the generic name, medication forms, dose, administration, action, indications and contraindications for the prescribed inhaler.(C-1)
4-2.9 Distinguish between the emergency medical care of the infant, child and adult patient with breathing difficulty.(C-3)
4-2.10 Differentiate between upper airway obstruction and lower airway disease in the infant and child patient.(C-3)

AFFECTIVE OBJECTIVES

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

4-2.11 Defend EMT-Basic treatment regimens for various respiratory emergencies.(A-1)
4-2.12 Explain the rationale for administering an inhaler.(A-3)

PSYCHOMOTOR OBJECTIVES

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

4-2.13 Demonstrate the emergency medical care for breathing difficulty.(P-1,2)
4-2.14 Perform the steps in facilitating the use of an inhaler.(P-2)

PREPARATION

Motivation: Over 200,000 persons die from respiratory emergencies each year.

One large city reported 12% of their ambulance runs were respiratory emergencies. This represented three times the calls for heart attacks.

A child with severe respiratory distress will deteriorate into respiratory failure and circulatory collapse, eventually resulting in respiratory arrest. The use of oxygen can block this progression and may even reverse it to some degree. When possible, deliver humidified oxygen and allow the child to remain in the parent's lap. A more comfortable, secure child will require less oxygen. Have the parent accompany the child in the ambulance. There is no contraindication to high concentration oxygen in the infant or child patient.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to respiratory emergencies. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment: Handheld inhaler suitable for training purposes and various spacer devices.

PERSONNEL

Primary Instructor: One Advanced-Level Provider or EMT-Basic instructor who is knowledgeable in respiratory diseases and handheld inhalers.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in respiratory emergencies.

Recommended Minimum Time to Complete: Two and one half hours

PRESENTATION

Declarative (What)

I. Anatomy review
   A. Respiratory
      1. Nose and mouth
      2. Pharynx
         a. Oropharynx
         b. Nasopharynx
      3. Epiglottis - a leaf-shaped structure that prevents food and liquid from entering the trachea during swallowing.

4. Trachea (windpipe)
5. Cricoid cartilage - firm cartilage ring forming the lower portion of the larynx.
6. Larynx (voice box)
7. Bronchi - two major branches of the trachea to the lungs. Bronchus subdivides into smaller air passages ending at the alveoli.
8. Lungs
9. Diaphragm
    a. Inhalation (active)
        (1) Diaphragm and intercostal muscles contract, increasing the size of the thoracic cavity.
            (a) Diaphragm moves slightly downward, flares lower portion of rib cage.
            (b) Ribs move upward/outward.
        (2) Air flows into the lungs.
    b. Exhalation
        (1) Diaphragm and intercostal muscles relax, decreasing the size of the thoracic cavity.
            (a) Diaphragm moves upward.
            (b) Ribs move downward/inward.
        (2) Air flows out of the lungs.
10. Respiratory physiology
    a. Alveolar/capillary exchange
        (1) Oxygen-rich air enters the alveoli during each inspiration.
        (2) Oxygen-poor blood in the capillaries passes into the alveoli.
        (3) Oxygen enters the capillaries as carbon dioxide enters the alveoli.
    b. Capillary/cellular exchange
        (1) Cells give up carbon dioxide to the capillaries.
        (2) Capillaries give up oxygen to the cells.
    c. Adequate breathing
        (1) Normal Rate
            (a) Adult - 12-20/minute
            (b) Child - 15-30/minute
            (c) Infant - 25-50/minute
        (2) Rhythm
            (a) Regular
            (b) Irregular
        (3) Quality

(a) Breath sounds - present and equal
(b) Chest expansion - adequate and equal

(c) Effort of breathing - use of accessory muscles - predominantly in infants and children

(4) Depth (tidal volume) - adequate

d. Inadequate breathing

(1) Rate - outside of normal ranges.

(2) Rhythm - irregular

(3) Quality

(a) Breath sounds - diminished or absent

(b) Chest expansion - unequal or inadequate

(c) Increased effort of breathing - use of accessory muscles - predominantly in infants and children

(4) Depth (tidal volume) - inadequate/shallow

(5) The skin may be pale or cyanotic (blue) and cool and clammy.

(6) There may be retractions above the clavicles, between the ribs and below the rib cage, especially in children.

(7) Nasal flaring may be present, especially in children.

(8) In infants, there may be "seesaw" breathing where the abdomen and chest move in opposite directions.

(9) Agonal breathing (occasional gasping breaths) may be seen just before death.

11. Infant and child anatomy considerations

a. Mouth and nose - in general: All structures are smaller and more easily obstructed than in adults.

b. Pharynx - infants' and children's tongues take up proportionally more space in the mouth than adults.

c. Trachea (windpipe)

(1) Infants and children have narrower tracheas that are obstructed more easily by swelling.

(2) The trachea is softer and more flexible in infants and children.

d. Cricoid cartilage - like other cartilage in the infant and child, the cricoid cartilage is less developed and less rigid.

e. Diaphragm - chest wall is softer, infants and children tend to depend more heavily on the diaphragm for breathing.

B. Adequate and inadequate artificial ventilation
   1. An EMT-Basic is adequately artificially ventilating a patient when:
      a. The chest rises and falls with each artificial ventilation.
      b. The rate is sufficient, approximately 12 per minute for adults and 20 times per minute for children and infants.
      c. Heart rate returns to normal with successful artificial ventilation.
   2. Artificial ventilation is inadequate when:
      a. The chest does not rise and fall with artificial ventilation.
      b. The rate is too slow or too fast.
      c. Heart rate does not return to normal with artificial ventilation.

II. Breathing Difficulty
   A. Signs and symptoms
      1. Shortness of breath
      2. Restlessness
      3. Increased pulse rate
      4. Increased breathing rate
      5. Decreased breathing rate
      6. Skin color changes
         a. Cyanotic (blue-gray)
         b. Pale
         c. Flushed (red)
      7. Noisy breathing
         a. Crowing
         b. Audible wheezing
         c. Gurgling
         d. Snoring
         e. Stridor
            (1) A harsh sound heard during breathing
            (2) Upper airway obstruction
      8. Inability to speak due to breathing efforts.
      9. Retractions - use of accessory muscles.
      10. Shallow or slow breathing may lead to altered mental status (with fatigue or obstruction).
      11. Abdominal breathing (diaphragm only)
      12. Coughing
      13. Irregular breathing rhythm
      14. Patient position
         a. Tripod position
         b. Sitting with feet dangling, leaning forward.
      15. Unusual anatomy (barrel chest)

III. Emergency Medical Care - Focused History and Physical Exam
  A. Important questions to ask
    1. Onset
    2. Provocation
    3. Quality
    4. Radiation
    5. Severity
    6. Time
    7. Interventions
  B. Breathing
    1. Complains of trouble breathing.
      a. Apply oxygen if not already done.
      b. Assess baseline vital signs.
    2. Has a prescribed inhaler available.
      a. Consult medical direction.
      b. Facilitate administration of inhaler
        (1) Repeat as indicated.
        (2) Continue focused assessment.
    3. Does not have prescribed inhaler - continue with focused assessment.

IV. Relationship to Airway Management - should be prepared to intervene with appropriate oxygen administration and artificial ventilation support.

V. Medications
  A. Prescribed inhaler
    1. Medication name
      a. Generic - albuterol, isoetharine, metaproteranol, etc.
      b. Trade - Proventil, Ventolin, Bronkosol, Bronkometer, Alupent, Metaprel, etc.
    2. Indications - meets all of the following criteria:
      a. Exhibits signs and symptoms of respiratory emergency,
      b. Has physician prescribed handheld inhaler, and
      c. Specific authorization by medical direction.
    3. Contraindications
      a. Inability of patient to use device.
      b. Inhaler is not prescribed for the patient.
      c. No permission from medical direction.
      d. Patient has already met maximum prescribed dose prior to EMT-Basic arrival.
    4. Medication form - handheld metered dose inhaler
    5. Dosage - number of inhalations based upon medical direction's order or physician's order based upon consultation with the patient.

6. Administration
   a. Obtain order from medical direction either on-line or off-line.
   b. Assure right medication, right patient, right route, patient alert enough to use inhaler.
   c. Check the expiration date of the inhaler.
   d. Check to see if the patient has already taken any doses.
   e. Assure the inhaler is at room temperature or warmer.
   f. Shake the inhaler vigorously several times.
   g. Remove oxygen adjunct from patient.
   h. Have the patient exhale deeply.
   i. Have the patient put his lips around the opening of the inhaler.
   j. Have the patient depress the handheld inhaler as he begins to inhale deeply.
   k. Instruct the patient to hold his breath for as long as he comfortably can (so medication can be absorbed).
   l. Replace oxygen on patient.
   m. Allow patient to breathe a few times and repeat second dose per medical direction.
   n. If patient has a spacer device for use with his inhaler, it should be used. A spacer device is an attachment between inhaler and patient that allows for more effective use of medication.
7. Actions - Beta agonist bronchodilators - dilates bronchioles reducing airway resistance.
8. Side effects
   a. Increased pulse rate
   b. Tremors
   c. Nervousness
9. Re-assessment strategies
   a. Gather vital signs and focused reassessment.
   b. Patient may deteriorate and need positive pressure artificial ventilation.
10. Infant and child considerations
   a. Use of handheld inhalers is very common in children.
   b. Retractions are more commonly seen in children than adults.
   c. Cyanosis (blue-gray) is a late finding in children.
   d. Very frequent coughing may be present rather than wheezing in some children.

e. Emergency care with usage of handheld inhalers is the same if the indications for usage of inhalers are met by the ill child.

APPLICATION

Procedural (How)

1. Show students images of adults, children and infants with breathing distress.
2. Show students different types of inhalers.
3. Show students how to use a metered dose inhaler.

Contextual (When, Where, Why)

Very few situations are more frightening to a patient than not being able to breathe. By giving oxygen and helping the patient use his inhaler, the EMT-Basic will be able to relieve a significant amount of the patient's anxiety. The sooner this is done, the better.

STUDENT ACTIVITIES

Auditory (Hear)

1. The student should hear noisy breathing on an audio tape of actual patients.

Visual (See)

1. The student should see signs and symptoms of respiratory emergencies using various audio-visual aids or materials of patients exhibiting the signs.
2. The student should see a demonstration of the proper steps in assisting in the usage of handheld inhalers.

Kinesthetic (Do)

1. The student should practice assessment and management of adult, child and infant patients having a respiratory illness who have been prescribed a handheld inhaler by their physician.
2. The student should practice the steps in facilitating the use of a handheld inhaler.
3. The student should practice role play situations where appropriate and inappropriate assistance of the usage of handheld inhalers occurs.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

What is unique in the local area concerning this topic?
from the instructor's course guide and attach with lesson plan.

MODULE 4

Medical/Behavioral and Obstetrics/Gynecology

Lesson 4-3

Cardiac Emergencies

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

4-3.1 Describe the structure and function of the cardiovascular system.(C-1)
4-3.2 Describe the emergency medical care of the patient experiencing chest pain/discomfort.(C-1)
4-3.3 List the indications for automated external defibrillation (AED).(C-1)
4-3.4 List the contraindications for automated external defibrillation.(C-1)
4-3.5 Define the role of EMT-B in the emergency cardiac care system.(C-1)
4-3.6 Explain the impact of age and weight on defibrillation.(C-1)
4-3.7 Discuss the position of comfort for patients with various cardiac emergencies.(C-1)
4-3.8 Establish the relationship between airway management and the patient with cardiovascular compromise.(C-3)
4-3.9 Predict the relationship between the patient experiencing cardiovascular compromise and basic life support.(C-2)
4-3.10 Discuss the fundamentals of early defibrillation. (C-1)
4-3.11 Explain the rationale for early defibrillation.(C-1)
4-3.12 Explain that not all chest pain patients result in cardiac arrest and do not need to be attached to an automated external defibrillator.(C-1)
4-3.13 Explain the importance of prehospital ACLS intervention if it is available.(C-1)
4-3.14 Explain the importance of urgent transport to a facility with Advanced Cardiac Life Support if it is not available in the prehospital setting.(C-1)
4-3.15 Discuss the various types of automated external defibrillators.(C-1)

4-3.16 Differentiate between the fully automated and the semiautomated defibrillator.(C-3)
4-3.17 Discuss the procedures that must be taken into consideration for standard operations of the various types of automated external defibrillators.(C-1)
4-3.18 State the reasons for assuring that the patient is pulseless and apneic when using the automated external defibrillator.(C-1)
4-3.19 Discuss the circumstances which may result in inappropriate shocks.(C-1)
4-3.20 Explain the considerations for interruption of CPR, when using the automated external defibrillator.(C-1)
4-3.21 Discuss the advantages and disadvantages of automated external defibrillators.(C-1)
4-3.22 Summarize the speed of operation of automated external defibrillation.(C-1)
4-3.23 Discuss the use of remote defibrillation through adhesive pads.(C-1)
4-3.24 Discuss the special considerations for rhythm monitoring.(C-1)
4-3.25 List the steps in the operation of the automated external defibrillator. (C-1)
4-3.26 Discuss the standard of care that should be used to provide care to a patient with persistent ventricular fibrillation and no available ACLS.(C-1)
4-3.27 Discuss the standard of care that should be used to provide care to a patient with recurrent ventricular fibrillation and no available ACLS.(C-1)
4-3.28 Differentiate between the single rescuer and multi-rescuer care with an automated external defibrillator.(C-3)
4-3.29 Explain the reason for pulses not being checked between shocks with an automated external defibrillator.(C-1)
4-3.30 Discuss the importance of coordinating ACLS trained providers with personnel using automated external defibrillators.(C-1)
4-3.31 Discuss the importance of post-resuscitation care.(C-1)
4-3.32 List the components of post-resuscitation care.(C-1)
4-3.33 Explain the importance of frequent practice with the automated external defibrillator.(C-1)
4-3.34 Discuss the need to complete the Automated Defibrillator: Operator's Shift Checklist.(C-1)
4-3.35 Discuss the role of the American Heart Association (AHA) in the use of automated external defibrillation.(C-1)
4-3.36 Explain the role medical direction plays in the use of automated external defibrillation.(C-1)
4-3.37 State the reasons why a case review should be completed following the use of the automated external defibrillator.(C-1)
4-3.38 Discuss the components that should be included in a case review.(C-1)
4-3.39 Discuss the goal of quality improvement in automated external defibrillation.(C-1)

4-3.40 Recognize the need for medical direction of protocols to assist in the emergency medical care of the patient with chest pain.(C-3)
4-3.41 List the indications for the use of nitroglycerin.(C-1)
4-3.42 State the contraindications and side effects for the use of nitroglycerin.(C-1)
4-3.43 Define the function of all controls on an automated external defibrillator, and describe event documentation and battery defibrillator maintenance.(C-1)

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
4-3.44 Defend the reasons for obtaining initial training in automated external defibrillation and the importance of continuing education.(A-3)
4-3.45 Defend the reason for maintenance of automated external defibrillators.(A-3)
4-3.46 Explain the rationale for administering nitroglycerin to a patient with chest pain or discomfort.(A-3)

PSYCHOMOTOR OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
4-3.47 Demonstrate the assessment and emergency medical care of a patient experiencing chest pain/discomfort.(P-1,2)
4-3.48 Demonstrate the application and operation of the automated external defibrillator.(P-1,2)
4-3.49 Demonstrate the maintenance of an automated external defibrillator.(P-1,2)
4-3.50 Demonstrate the assessment and documentation of patient response to the automated external defibrillator.(P-1,2)
4-3.51 Demonstrate the skills necessary to complete the Automated Defibrillator: Operator's Shift Checklist.(P-1,2)
4-3.52 Perform the steps in facilitating the use of nitroglycerin for chest pain or discomfort.(P-2)
4-3.53 Demonstrate the assessment and documentation of patient response to nitroglycerin.(P-1,2)
4-3.54 Practice completing a prehospital care report for patients with cardiac emergencies.(P-2)

PREPARATION

Motivation: Over 600,000 patients die each year from cardiovascular diseases; half of those occur outside the hospital, with sudden death (collapse) being the first sign of cardiac disease in 50%.

Rapid defibrillation, which will be covered in this module, is the major determinant of survival in cardiac arrest caused by ventricular fibrillation.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to cardiac emergencies. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment: CPR manikins, artificial ventilation manikins, automated external defibrillator, NTG training bottle, defibrillation manikin.

PERSONNEL

Primary Instructor: One advanced-level provider with knowledge and experience in out-of-hospital cardiac resuscitation.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in cardiac emergencies.

Recommended Minimum Time to Complete: Seven hours

Declarative (What)

I. Review of Circulatory System Anatomy and Physiology
   A. Circulatory (Cardiovascular)
      1. Heart
         a. Structure/function
            (1) Atrium
               (a) Right - receives blood from the veins of the body and the heart and pumps oxygen-poor blood to the right ventricle.
               (b) Left - receives blood from the pulmonary veins (lungs) and pumps oxygen-rich blood to left ventricle.
            (2) Ventricle
               (a) Right - pumps blood to the lungs.
               (b) Left - pumps blood to the body.
            (3) Valves prevent backflow of blood.
         b. Cardiac conductive system
            (1) Heart is more than a muscle.
            (2) Specialized contractile and conductive tissue in the heart
            (3) Electrical impulses
      2. Arteries
         a. Function - carry blood away from the heart to the rest of the body.
         b. Major Arteries
            (1) Coronary arteries - vessels that supply the heart with blood.
            (2) Aorta
               (a) Major artery originating from the heart and lying in front of the spine in the thoracic and abdominal cavities.
               (b) Divides at the level of the navel into the iliac arteries.
            (3) Pulmonary
               (a) Artery originating at the right ventricle.
               (b) Carries oxygen-poor blood to the lungs.

(4) Carotid
  (a) Major artery of the neck
  (b) Supplies the head with blood.
  (c) Pulsations can be palpated on either side of the neck.
(5) Femoral
  (a) The major artery of the thigh
  (b) Supplies the groin and the lower extremities with blood.
  (c) Pulsations can be palpated in the groin area.
(6) Radial
  (a) Major artery of the lower hand
  (b) Pulsations can be palpated at the wrist thumbside.
(7) Brachial
  (a) An artery of the upper arm
  (b) Pulsations can be palpated on the inside of the arm between the elbow and the shoulder.
  (c) Used when determining a blood pressure (BP) using a BP cuff (sphygmomanometer) and a stethoscope.
(8) Posterior tibial - pulsations can be palpated on the posterior surface of the medial malleolus.
(9) Dorsalis pedis
  (a) An artery in the foot
  (b) Pulsations can be palpated on the anterior surface of the foot.

3. Arterioles - the smallest branches of an artery leading to the capillaries.
4. Capillaries
   a. Tiny blood vessels that connect arterioles to venules.
   b. Found in all parts of the body
   c. Allow for the exchange of nutrients and waste at the cellular level.
5. Venules - the smallest branches of the veins leading to the capillaries.
6. Veins
   a. Function - vessels that carry blood back to the heart.
   b. Major veins

(1) Pulmonary vein - carries oxygen-rich blood from the lungs to the left atrium.
(2) Venae Cavae
(a) Superior
(b) Inferior
(c) Carries oxygen-poor blood back to the right atrium.

7. Blood composition
a. Red blood cells
(1) Give the blood its color.
(2) Carry oxygen to organs.
(3) Carry carbon dioxide away from organs.
b. White blood cells - part of the body's defense against infections.
c. Plasma - fluid that carries the blood cells and nutrients.
d. Platelets - essential for the formation of blood clots.

8. Physiology
a. Pulse
(1) Left ventricle contracts sending a wave of blood through the arteries.
(2) Can be palpated anywhere an artery simultaneously passes near the skin surface and over a bone.
(3) Peripheral
(a) Radial
(b) Brachial
(c) Posterior tibial
(d) Dorsalis pedis
(4) Central
(a) Carotid
(b) Femoral
b. Blood Pressure
(1) Systolic - the pressure exerted against the walls of the artery when the left ventricle contracts.
(2) Diastolic - the pressure exerted against the walls of the artery when the left ventricle is at rest.

B. Inadequate circulation - Shock (hypoperfusion): A state of profound depression of the vital processes of the body. Characterized by signs and symptoms such as: Pale, cyanotic, cool clammy skin, rapid but weak pulse, rapid and shallow breathing, restlessness, anxiety or mental dullness, nausea and vomiting, reduction in total blood volume, low or decreasing blood pressure and subnormal temperature.

II. Cardiac Compromise - Signs and Symptoms. May include one or all of the following:
- A. Squeezing, dull pressure, chest pain commonly radiating down the arms or to the jaw.
- B. Sudden onset of sweating (this in and of itself is a significant finding).
- C. Difficulty breathing (dyspnea)
- D. Anxiety, irritability
- E. Feeling of impending doom
- F. Abnormal pulse rate (may be irregular)
- G. Abnormal blood pressure
- H. Epigastric pain
- I. Nausea/vomiting

III. Emergency Medical Care - Initial Patient Assessment Review
- A. Circulation - pulse absent
  - 1. Medical patient >12 years old - CPR with AED
  - 2. Medical patient < 12 years old or < 90 lbs. - CPR
- B. Responsive patient with a known history - cardiac
  - 1. Perform initial assessment.
  - 2. Perform focused history and physical exam.
  - 3. Place patient in position of comfort.
  - 4. Cardiac
    - a. Complains of chest pain/discomfort.
      - (1) Apply oxygen if not already done.
      - (2) Assess baseline vital signs.
    - b. Important questions to ask.
      - (1) Onset
      - (2) Provocation
      - (3) Quality
      - (4) Radiation
      - (5) Severity
      - (6) Time
    - c. Has been prescribed nitroglycerin (NTG) and nitro is with the patient.

(1) Blood pressure greater than 100 systolic
(a) One dose, repeat in 3-5 minutes if no relief and authorized by medical direction up to a maximum of three doses.
(b) Reassess vital signs and chest pain after each dose.
(2) Blood pressure less than 100 systolic - continue with elements of focused assessment.
d. Does not have prescribed nitroglycerin (NTG) - continue with elements of focused assessment.
e. Transport promptly

IV. Relationship to Basic Life Support
A. Not all chest pain patients become cardiac arrest patients.
B. One Rescuer CPR - rarely done by EMT-Basics while on duty, may be done while partner is preparing equipment, or en route to facility.
C. Two Rescuer CPR - learning outcomes of a Professional Rescuer CPR Course must be enhanced during an EMT-Basic course.
1. EMT-Basics must also learn:
a. Use of automated external defibrillation.
b. To request available ALS backup to continue the chain of survival (as developed by AHA) when appropriate.
c. Use of bag-valve-mask devices with oxygen attached.
d. Use of flow restricted, oxygen-powered ventilatory devices.
e. Techniques of lifting and moving patients.
f. Suctioning of airways.
g. Use of airway adjuncts.
h. Use of body substance isolation for infections when necessary.
i. Interviewing bystanders/family to obtain facts related to arrest events.

V. Automated External Defibrillation
A. Importance of automated external defibrillation to the EMT-Basic.
1. Fundamentals of early defibrillation - successful resuscitation of out-of-hospital arrest depends on a series of critical interventions known as the chain of survival.
a. Early access
b. Early CPR
c. Early defibrillation
d. Early ACLS

2. Rationale for early defibrillation
   a. Many EMS systems have demonstrated increased survival outcomes of cardiac arrest patients experiencing ventricular fibrillation.
   b. This increased survival was after early defibrillation programs were implemented and when all of the links in the chain of survival were present.

B. Overview of automated external defibrillators
   1. Types of automated external defibrillators
      a. Fully automated - defibrillator operates without action by EMT-Basic, except to turn on power.
      b. Semi-automated - defibrillator uses a computer voice synthesizer to advise EMT-Basic as to the steps to take based upon its analysis of the patient's cardiac rhythm.
   2. Analysis of cardiac rhythms
      a. Defibrillator computer microprocessor evaluates the patient's rhythm and confirms the presence of a rhythm for which a shock is indicated.
      b. Accuracy of devices in rhythm analysis has been high both in detecting rhythms needing shocks and rhythms that do not need shocks.
      c. Analysis is dependent on properly charged defibrillator batteries.
   3. Inappropriate delivery of shocks
      a. Human error
      b. Mechanical error
   4. Ventricular tachycardia
      a. Attach defibrillator to only unresponsive, pulseless, nonbreathing patients to avoid delivering inappropriate shocks.
      b. Defibrillator advises shocks for ventricular tachycardia when the rate exceeds a certain value, for example, above 180 beats per minute.
   5. Interruption of CPR
      a. No CPR performed at times shocks are delivered.
      b. No person should be touching patient when rhythm is being analyzed and when shocks are delivered.
      c. Chest compressions and artificial ventilations are stopped when the rhythm is being analyzed and when shocks are delivered.

d. Defibrillation is more effective than CPR, so stopping CPR during process is more beneficial to patient outcome.
e. CPR may be stopped up to 90 seconds if three shocks are necessary.
f. Resume CPR only after up to the first three shocks are delivered.

C. Advantages of automated external defibrillation
1. Initial training and continuing education
a. Easier to learn than CPR, however, must memorize treatment sequence.
b. EMS delivery system should have:
(1) Necessary links in chain of survival.
(2) Medical direction.
(3) EMS system with audit and/or quality improvement program in place.
(4) Mandatory continuing education with skill competency review for EMS providers.
c. Continuing competency skill review every three months for EMT-Basic.
2. Speed of operation - first shock can be delivered within one minute of arrival at the patient's side.
3. Remote defibrillation through adhesive pads.
a. Defibrillation is "hands-off"
b. Safer method
c. Better electrode placement
d. Has larger pad surface area
e. Provokes less anxiety in EMT-Basic
4. Rhythm monitoring - option on some defibrillator models.

D. Use of automated external defibrillators during resuscitation attempts.
1. Operational steps
a. Take infection control precautions - should be done en route to scene.
b. Arrive on scene and perform initial assessment.
c. Stop CPR if in progress.
d. Verify pulselessness and apnea.
e. Have partner resume CPR.
f. Attach device.
g. Turn on defibrillator power.
h. Begin narrative if machine has tape recorder.
i. Stop CPR.
j. Clear patient.

k. Initiate analysis of rhythm.
    (1) Machine advises shock.
        (a) Deliver shock.
        (b) Re-analyze rhythm.
        (c) If machine advises shock, deliver second shock.
        (d) Re-analyze rhythm.
        (e) If machine advises shock, deliver third shock.
        (f) Check pulse.
            i) If pulse, check breathing.
                a) If breathing adequately, give high concentration oxygen by nonrebreather mask and transport.
                b) If not breathing adequately, artificially ventilate with high concentration oxygen and transport.
            ii) If no pulse, resume CPR for one minute.
                a) Repeat one cycle of up to three stacked shocks.
                b) Transport.
    (2) If, after any rhythm analysis, the machine advises no shock, check pulse.
        (a) If pulse, check breathing.
            i) If breathing adequately, give high concentration oxygen by nonrebreather mask and transport.
            ii) If not breathing adequately, artificially ventilate with high concentration oxygen and transport.
        (b) If no pulse, resume CPR for one minute.
            i) Repeat rhythm analysis.
                a) If shock advised, deliver if necessary up to two sets of three stacked shocks separated by one minute of CPR.

b) If no shock advised and no pulse, resume CPR for one minute.
c) Analyze rhythm third time.
- If shock advised, deliver, if needed, up to two sets of three stacked shocks separated by one minute of CPR.
- If no shock advised, resume CPR and transport.

2. Standard operational procedures
   a. Assuming no on-scene ALS, the patient should be transported when one of the following occurs:
      (1) The patient regains a pulse.
      (2) Six shocks are delivered.
      (3) The machine gives three consecutive messages (separated by one minute of CPR) that no shock is advised.
   b. One EMT-Basic operates defibrillator, one does CPR.
   c. Defibrillation comes first. Don't hook up oxygen or do anything that delays analysis of rhythm or defibrillation.
   d. EMT-Basic must be familiar with device used in operational EMS setting.
   e. All contact with patient must be avoided during analysis of rhythm.
   f. State "Clear the patient" before delivering shocks.
   g. No defibrillator is capable of working without properly functioning batteries. Check batteries at beginning of shift. Carry extra batteries.
3. Age and weight guideline
   a. Airway and artificial ventilation is of prime importance.
   b. Automated external defibrillation is not used in cardiac arrest in children under 12 years of age and less than 90 lbs.
4. Persistent ventricular fibrillation and no available ALS backup.
   a. After six shocks on scene, (three initial, three after one minute of CPR), prepare for transport.
   b. Additional shocks may be delivered at the scene or en route by approval of local medical direction.

c. Automated external defibrillators can not analyze rhythm when emergency vehicle is in motion. Must completely stop vehicle in order to analyze rhythm if more shocks are ordered.
d. It is not safe to defibrillate in a moving ambulance.

5. Recurrent ventricular fibrillation - defibrillation with no available ACLS.
   a. If en route with unconscious patient check pulse frequently (every 30 seconds). If pulse is not present then:
      (1) Stop vehicle.
      (2) Start CPR if defibrillator is not immediately ready.
      (3) Analyze rhythm.
      (4) Deliver shock if indicated.
      (5) Continue resuscitation as per protocol.
   b. If en route with conscious patient having chest pain who becomes unconscious, pulseless and apneic then:
      (1) Stop vehicle.
      (2) Start CPR if defibrillator is not immediately ready.
      (3) Analyze rhythm.
      (4) Deliver up to 3 shocks, if indicated.
      (5) Continue resuscitation as per protocol.
   c. If "no shock" message is delivered and no pulse is present
      (1) Start or resume CPR.
      (2) Analyze rhythm until three consecutive "no shock" messages given or six shocks given or patient regains pulse.
      (3) Continue transport.
6. Single rescuer with an automated external defibrillator
   a. Follow sequence
      (1) Perform initial assessment.
      (2) Assure pulselessness, apnea.
      (3) Turn on AED power.
      (4) Attach device.
      (5) Initiate analysis of rhythm.
      (6) Deliver shock if necessary.
      (7) Follow protocol.
   b. Defibrillation is initial step; CPR should not be performed prior to rhythm analysis.

c. EMS system activation should not occur until "no shock indicated", pulse returns, three shocks are delivered, or help arrives.

7. Pulse checks should not occur during rhythm analysis. Typically there will be no pulse check between stacked shocks 1 & 2 and stacked shocks 4 & 5.
8. Coordination of ALS personnel or EMT-Paramedics when EMT-Basics are using automated external defibrillators.
   a. EMS system design establishes protocols.
   b. AED usage does not require ALS on scene.
   c. ALS should be notified of arrest events as soon as possible.
   d. Considerations for EMT-Basic transporting the patient or waiting for ALS to arrive on the scene to transport should be in local protocols established by medical direction.
9. Safety considerations
   a. Water - rain
   b. Metal

E. Post resuscitation care
1. After automated external defibrillation protocol is completed, patient may:
   a. Have pulses.
   b. Have no pulse with machine indicating "no shock indicated."
   c. Have no pulse with machine indicating shock.
2. If pulses return
   a. See airway module.
   b. See lifting and moving patients module.
   c. Consider awaiting ALS backup if appropriate.
   d. See transportation module.
   e. Continue to keep defibrillator device on patient en route.
   f. Perform focused assessment and reassessment en route.

F. Defibrillator maintenance
1. Regular maintenance for defibrillators is necessary.
2. Operators Shift Checklist for Automated Defibrillators must be accomplished on a daily basis by EMT-Basics.
3. Defibrillator failure is most frequently related to improper device maintenance, commonly battery failure. EMT-Basics must assure proper battery maintenance and battery replacement schedules.

G. Training and sources of information - the American Heart Association publishes a variety of guidelines and additional information on automated external defibrillation.
H. Maintenance of skills - most systems permit a maximum of 90 days between practice drills to reassess competency in usage of AEDs.
I. Medical direction
   1. Successful completion of AED training in an EMT-Basic course does not permit usage of the device without approval by state laws/rules and local medical direction authority.
   2. Every event in which an AED is used must be reviewed by the medical director or his designated representative.
   3. Reviews of events using AEDs may be accomplished by:
      a. Written report.
      b. Review of voice-ECG tape recorders attached to AED's.
      c. Solid-state memory modules and magnetic tape recordings stored in device.
J. Quality improvement - involves both individuals using AEDs and the EMS system in which the AEDs are used.

VI. Medications
A. Nitroglycerin
   1. Medication name
      a. Generic - nitroglycerin
      b. Trade - Nitrostat **J**
   2. Indications - must have all of the following criteria:
      a. Exhibits signs and symptoms of chest pain,
      b. Has physician prescribed sublingual tablets, and
      c. Has specific authorization by medical direction.
   3. Contraindications
      a. Hypotension or blood pressure below 100 mmHg systolic.
      b. Head injury
      c. Infants and children
      d. Patient has already met maximum prescribed dose prior to EMT-Basic arrival.
   4. Medication form - tablet, sub-lingual spray
   5. Dosage - one dose, repeat in 3-5 minutes if no relief, BP > 100, and authorized by medical direction up to a maximum of three doses.
   6. Administration
      a. Obtain order from medical direction either on-line or off-line.
      b. Perform focused assessment for cardiac patient.
      c. Take blood pressure - above 100 mmHg systolic.

d. Contact medical control if no standing orders.
e. Assure right medication, right patient, right route, patient alert.
f. Check expiration date of nitroglycerin.
g. Question patient on last dose administration, effects, and assures understanding of route of administration.
h. Ask patient to lift tongue and place tablet or spray dose under tongue (while wearing gloves) or have patient place tablet or spray under tongue.
i. Have patient keep mouth closed with tablet under tongue (without swallowing) until dissolved and absorbed.
j. Recheck blood pressure within 2 minutes.
k. Record activity and time.
l. Perform reassessment.

7. Actions
   a. Relaxes blood vessels
   b. Decreases workload of heart
8. Side effects
   a. Hypotension
   b. Headache
   c. Pulse rate changes
9. Reassessment strategies
   a. Monitor blood pressure.
   b. Ask patient about effect on pain relief.
   c. Seek medical direction before re-administering.
   d. Record reassessments.

APPLICATION

Procedural (How)

1. Demonstrate the assessment and emergency medical care of a patient experiencing chest pain/discomfort.
2. Perform the steps in facilitating the use of nitroglycerin for chest pain using a substitute candy tablet and breath spray.

3. Demonstrate the assessment and documentation of patient response to nitroglycerin.

4. Demonstrate application and operation of the automated external defibrillator.
5. Demonstrate maintenance checks of the automated external defibrillator.
6. Demonstrate the assessment and documentation of patient response to the automated external defibrillator.
7. Demonstrate assessment, defibrillation, airway management, lifting and moving a patient, and transportation out of the training laboratory of a manikin in a simulated cardiac arrest situation in which a patient does not respond to defibrillation.

Contextual (When, Where, Why)

The EMT-Basic student must prepare to assess and manage patients with cardiac emergencies. The training laboratory must provide simulated cardiac situations, both on conscious and unconscious patients, for the student to practice demonstrated skills. The student must be able to integrate many single skills into one simulated cardiac arrest scenario in order to perform safe and effective practice after course completion.

STUDENT ACTIVITIES

Auditory (Hear)

1. The student should hear computer voice simulations made by automated external defibrillators giving instructions on protocols or shocks.
2. The student should hear of actual cases where cardiac arrest resuscitation efforts were successful and unsuccessful and the reasons for the outcomes.

Visual (See)

1. The student should see an instructor team appropriately resuscitate a simulated cardiac arrest patient using an automated external defibrillator.
2. The student should see re-enactments of cardiac arrest resuscitation efforts by EMT-Basics using automated external defibrillators.
3. The student should see an instructor team appropriately administer a small candy or breath spray sublingually to a simulated patient presenting with chest pain.
4. The student should see re-enactments of EMS calls where a patient has been assessed and assisted in the administration of nitroglycerin.

Kinesthetic (Do)

1. The student should practice the assessment and emergency medical care of a patient experiencing chest pain/discomfort.
2. The student should practice the application and operation of the automated external defibrillator.
3. The student should practice maintenance checks of the automated external defibrillator.

4. The student should practice performing the steps in facilitating the use of nitroglycerin for chest pain using a suitable candy tablet and breath spray.
5. The student should practice the assessment and documentation of patient response to the automated external defibrillator.
6. The student should practice the assessment and documentation of patient response to nitroglycerin.
7. The student should practice assessment, defibrillation, airway management, lifting and moving a patient, and transportation out of the training laboratory of a manikin in a simulated cardiac arrest situation in which a patient does not respond to defibrillation.
8. The student should practice completing a prehospital care report for a patient with a cardiac emergency.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 4

Medical/Behavioral and Obstetrics/Gynecology

Lesson 4-4

Diabetic Emergencies/ Altered Mental Status

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

4-4.1 Identify the patient taking diabetic medications with altered mental status and the implications of a diabetes history.(C-1)

4-4.2 State the steps in the emergency medical care of the patient taking diabetic medicine with an altered mental status and a history of diabetes.(C-1)

4-4.3 Establish the relationship between airway management and the patient with altered mental status.(C-3)

4-4.4 State the generic and trade names, medication forms, dose, administration, action, and contraindications for oral glucose.(C-1)

4-4.5 Evaluate the need for medical direction in the emergency medical care of the diabetic patient.(C-3)

AFFECTIVE OBJECTIVES

4-4.6 Explain the rationale for administering oral glucose.(A-3)

PSYCHOMOTOR OBJECTIVES

4-4.7 Demonstrate the steps in the emergency medical care for the patient taking diabetic medicine with an altered mental status and a history of diabetes.(P-1,2)

4-4.8 Demonstrate the steps in the administration of oral glucose.(P-1,2)

4-4.9 Demonstrate the assessment and documentation of patient response to oral glucose.(P-1,2)

4-4.10 Demonstrate how to complete a prehospital care report for patients with diabetic emergencies.(P-2)

PREPARATION

Motivation: Diabetes is a prevalent disease in American society with estimates between 2-5% of the total population having either diagnosed or undiagnosed diabetes mellitus.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to diabetic emergencies. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment: Exam gloves, stethoscope (6:1), blood pressure cuff (6:1), penlight, tube of glucose, suitable glucose substitute.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in treatment of diabetic emergencies.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in diabetic emergencies.

Recommended Minimum Time to Complete: Two hours

Declarative (What)

I. Signs and symptoms associated with a patient with altered mental status with a history of diabetes controlled by medication.
   A. Rapid onset of altered mental status.
      1. After missing a meal on a day the patient took prescribed insulin.
      2. After vomiting a meal on a day the patient took prescribed insulin.
      3. After an unusual exercise or physical work episode.
      4. May occur with no identifiable predisposing factor.
   B. Intoxicated appearance, staggering, slurred speech to complete unresponsiveness
   C. Elevated heart rate
   D. Cold, clammy skin
   E. Hunger
   F. Seizures
   G. Insulin in refrigerator or other medications found at scene.
      1. Diabinese **J**
      2. Orinase **J**
      3. Micronase **J**
   H. Uncharacteristic behavior
   I. Anxious
   J. Combative

II. Seizures
   A. Seizures in children who have chronic seizures are rarely life-threatening. However, seizures, including febrile, should be considered life-threatening by the EMT.
   B. May be brief or prolonged.
   C. Caused by fever, infections, poisoning, hypoglycemia, trauma, decreased levels of oxygen or could be idiopathic in children.
   D. Emergency medical care
      1. Assure patency of airway.
      2. Position patient on side if no possibility of cervical spine trauma.
      3. Have suction ready.
      4. If cyanotic, assure airway and artificially ventilate.

      5. Transport.
         a. Although brief seizures are not harmful, there may be a more dangerous underlying condition.

b. Rule out trauma, head injury can cause seizures.

III. Altered Mental Status
- A. Caused by a variety of conditions
  1. Hypoglycemia
  2. Poisoning
  3. Post seizure
  4. Infection
  5. Head trauma
  6. Decreased oxygen levels
- B. Emergency medical care
  1. Assure patency of airway.
  2. Be prepared to artificially ventilate/suction.
  3. Transport.
  4. Consider trauma, trauma can cause altered mental status.

IV. Emergency medical care of altered mental status with a history of diabetes.
- A. Perform initial assessment.
- B. Perform focused history and physical exam.
  1. Dissemination of the episode
  2. Onset
  3. Duration
  4. Associated symptoms
  5. Evidence of trauma
  6. Interruptions
  7. Seizures
  8. Fever
- C. Performs baseline vital signs and SAMPLE history.
- D. Assure known history of diabetes (medical identification tags), etc.
- E. Determine last meal, last medication dose, any related illness.
- F. Determine if patient can swallow.
- G. Administer oral glucose in accordance with local or state medical direction or protocol.

V. Relationship to Airway Management

VI. Medication
- A. Oral Glucose
  1. Medication Name
     - a. Generic - Glucose, Oral
     - b. Trade - Glutose, Insta-glucose
  2. Indications - patients with altered mental status with a known history of diabetes controlled by medication.
  3. Contraindications

a. Unresponsive.
b. Unable to swallow.

4. Medication form - Gel, in toothpaste type tubes
5. Dosage - one tube
6. Administration
   a. Obtain order from medical direction either on-line or off-line.
   b. Assure signs and symptoms of altered mental status with a known history of diabetes.
   c. Assure patient is conscious and can swallow and protect their airway.
   d. Administer glucose.
      (1) Between cheek and gum.
      (2) Place on tongue depressor between cheek and gum.
   e. Perform ongoing assessment.
7. Actions - increases blood sugar
8. Side effects - none when given properly. May be aspirated by the patient without a gag reflex.
9. Re-assessment strategies - if patient loses consciousness or seizes, remove tongue depressor from mouth.

APPLICATION

Procedural (How)

1. Demonstrate the steps in emergency care for the patient with altered mental status and a history of diabetes who is on diabetic medication.
2. Demonstrate the steps in the administration of oral glucose.
3. Demonstrate the assessment and documentation of patient response.

Contextual (When, Where, Why)

Diabetes is a common disease affecting a large population. As the population ages, the number of people affected by diabetes will increase. Oral glucose given to a patient with an altered mental status and a known history of diabetes can make a difference between development of coma (unconsciousness) and ability to maintain consciousness.

STUDENT ACTIVITIES

Auditory (Hear)

None identified for this lesson.

Visual (See)

1. The student should see audio-visual aids or materials of patients with altered mental status with a known history of diabetes mellitus in the prehospital setting.
2. The student should see the administration of oral glucose (as a simulated paste) to a simulated patient.

Kinesthetic (Do)

1. The student will practice the steps in emergency care for the patient with an altered mental status and a history of diabetes and taking diabetic medication.
2. The student will practice the steps in the administration of oral glucose.
3. The student will practice documentation of assessment, treatment, and patient response to oral glucose.
4. The student will practice completing a prehospital care report for patients with diabetic emergencies.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

- -

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 4

Medical/Behavioral and Obstetrics/Gynecology

Lesson 4-5

Allergies

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

4-5.1 Recognize the patient experiencing an allergic reaction.(C-1)
4-5.2 Describe the emergency medical care of the patient with an allergic reaction.(C-1)
4-5.3 Establish the relationship between the patient with an allergic reaction and airway management.(C-3)
4-5.4 Describe the mechanisms of allergic response and the implications for airway management.(C-1)
4-5.5 State the generic and trade names, medication forms, dose, administration, action, and contraindications for the epinephrine auto-injector.(C-1)
4-5.6 Evaluate the need for medical direction in the emergency medical care of the patient with an allergic reaction.(C-3)
4-5.7 Differentiate between the general category of those patients having an allergic reaction and those patients having an allergic reaction and requiring immediate medical care, including immediate use of epinephrine auto-injector.(C-3)

AFFECTIVE OBJECTIVES

4-5.8 Explain the rationale for administering epinephrine using an auto-injector.(A-3)

PSYCHOMOTOR OBJECTIVES

4-5.9 Demonstrate the emergency medical care of the patient experiencing an allergic reaction.(P-1,2)
4-5.10 Demonstrate the use of epinephrine auto-injector.(P-1,2)
4-5.11 Demonstrate the assessment and documentation of patient response to an epinephrine injection.(P-1,2)
4-5.12 Demonstrate proper disposal of equipment.(P-1,2)
4-5.13 Demonstrate completing a prehospital care report for patients with allergic emergencies.(P-2)

PREPARATION

Motivation: The ability to recognize and manage a severe allergic reaction (anaphylaxis) is possibly the only thing standing between a patient and imminent death.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to allergic emergencies. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment: Epinephrine auto-injector, epinephrine auto-injector trainer, synthetic skin mannequin for injection.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in the physiology of severe allergic reactions and the use of epinephrine auto-injectors.

- -

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in allergic emergencies.

Recommended Minimum
Time To Complete: Two hours

Declarative (What)

I. Allergic Reactions
   A. Definition - an exaggerated immune response to any substance.
   B. Possible causes
      1. Insect bites/stings - bees, wasps, etc.
      2. Food - nuts, crustaceans, peanuts, etc.
      3. Plants
      4. Medications
      5. Others
   C. Assessment findings may include:
      1. Skin
         a. Patient may state he has a warm tingling feeling in the face, mouth, chest, feet and hands.
         b. Itching
         c. Hives
         d. Red skin (flushing)
         e. Swelling to face, neck, hands, feet and/or tongue
      2. Respiratory system
         a. Patient may state he feels a tightness in his throat/chest.
         b. Cough
         c. Rapid breathing
         d. Labored breathing
         e. Noisy breathing
         f. Hoarseness (losing the voice)
         g. Stridor
         h. Wheezing (audible without stethoscope)
      3. Cardiac
         a. Increased heart rate
         b. Decreased blood pressure
      4. Generalized findings
         a. Itchy, watery eyes
         b. Headache
         c. Sense of impending doom
         d. Runny nose
      5. Decreasing mental status

6. Assessment findings that reveal shock (hypoperfusion) or respiratory distress indicate the presence of a severe allergic reaction.

D. Emergency medical care of allergic reactions.

1. Patient has come in contact with substance that caused past allergic reaction and complains of respiratory distress or exhibits signs and symptoms of shock (hypoperfusion).
   a. Perform initial assessment.
   b. Perform focused history and physical exam.
      (1) History of allergies.
      (2) What was patient exposed to.
      (3) How were they exposed.
      (4) What effects.
      (5) Progression.
      (6) Interventions.
   c. Assess baseline vital signs and SAMPLE history.
   d. Administer oxygen if not already done in the initial assessment.
   e. Determine if patient has prescribed preloaded epinephrine available. Facilitate administration of preloaded epinephrine.
   f. Contact medical direction.
   g. Record and reassess in two minutes.
   h. Record reassessment findings.
   i. If patient does not have epinephrine auto-injector available - transport immediately.
2. Patient has contact with substance that causes allergic reaction without signs of respiratory distress or shock (hypoperfusion).
   a. Continue with focused assessment.
   b. Patient not wheezing or without signs of respiratory compromise or hypotension should not receive epinephrine.

II. Relationship to Airway Management

A. These patients may initially present with airway/respiratory compromise or airway/respiratory compromise may develop as the allergic reaction progresses.

B. The airway should be managed according to the principles identified in the airway management lesson presented earlier.

III. Medications
- A. Epinephrine auto-injector
  - 1. Medication name
    - a. Generic - Epinephrine
    - b. Trade - Adrenalin **J**
  - 2. Indications - must meet the following three criteria:
    - a. Emergency medical care for the treatment of the patient exhibiting the assessment findings of an allergic reaction.
    - b. Medication is prescribed for this patient by a physician.
    - c. Medical direction authorizes use for this patient.
  - 3. Contraindications - no contraindications when used in a life-threatening situation.
  - 4. Medication form - liquid administered via an automatically injectable needle and syringe system.
  - 5. Dosage
    - a. Adult - one adult auto-injector (0.3 mg)
    - b. Infant and child - one infant/child auto-injector (0.15 mg)
  - 6. Administration
    - a. Obtain order from medical direction either on-line or off-line.
    - b. Obtain patient's prescribed auto-injector. Ensure:
      - (1) Prescription is written for the patient experiencing allergic reactions.
      - (2) Medication is not discolored (if able to see).
    - c. Remove safety cap from the auto-injector.
    - d. Place tip of auto-injector against the patient's thigh.
      - (1) Lateral portion of the thigh.
      - (2) Midway between the waist and the knee.
    - e. Push the injector firmly against the thigh until the injector activates.
    - f. Hold the injector in place until the medication is injected.
    - g. Record activity and time.
    - h. Dispose of injector in biohazard container.
  - 7. Actions
    - a. Dilates the bronchioles.
    - b. Constricts blood vessels.
  - 8. Side effects
    - a. Increases heart rate
    - b. Pallor
    - c. Dizziness
    - d. Chest pain
    - e. Headache

f. Nausea
g. Vomiting
h. Excitability, anxiousness

9. Re-assessment strategies
   a. Transport.
   b. Continue focused assessment of airway, breathing and circulatory status.
      (1) Patient condition continues to worsen.
         (a) Decreasing mental status
         (b) Increasing breathing difficulty
         (c) Decreasing blood pressure
         (d) Obtain medical direction
            i) Additional dose of epinephrine.
            ii) Treat for shock (hypoperfusion).
            iii) Prepare to initiate Basic Cardiac Life support measures.
               - CPR
               - AED
      (2) Patient condition improves. Provide supportive care.
         (a) Oxygen
         (b) Treat for shock (hypoperfusion).

APPLICATION

Procedural (How)

The instructor will demonstrate the following steps using an epinephrine auto-injector trainer and appropriate synthetic skin mannequin:

1. Obtain medical direction.
2. Obtain patient's prescribed auto injector. Ensure:
   a. Prescription is written for the patient experiencing allergic reactions.
   b. Medication is not discolored, if visible.
3. Remove safety cap from the auto-injector.
4. Place tip of auto-injector against the patient's thigh.
   a. Lateral portion of the thigh.

b. Midway between the waist and the knee.
5. Push the injector firmly against the thigh until the injector activates.
6. Hold the injector in place until the medication is injected.
7. Dispose of injector in biohazard container.

Contextual (When, Where, Why)

The EMT-Basic will now be able to assist patients with the administration of epinephrine auto-injectors. This will make a significant difference in those patients exposed to an allergic agent.

The administration of the epinephrine should be performed as soon as possible following appropriate identification of the allergic reaction.

STUDENT ACTIVITIES

Auditory (Hear)

1. The student should hear the assessment findings differentiating minor and severe allergic reactions.
2. The student should hear the steps required to appropriately administer epinephrine using an auto-injector.

Visual (See)

1. The student should see various audio-visual aids or materials showing the assessment findings relative to minor allergic reactions.
2. The student should see an actual epinephrine auto-injector.
3. The student should see the instructor demonstrate the appropriate steps in using an auto-injector.
4. The student should see various audio-visual aids or materials showing the assessment findings of major allergic reactions and the appropriate use of the auto-injector.

Kinesthetic (Do)

1. The student should practice the correct way to use an epinephrine auto-injector.
2. The student should practice role play treatment of a patient experiencing an allergic reaction.
3. The student should practice re-assessment and documentation relative to the use of a epinephrine auto-injector.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

What is unique in the local area concerning this topic?
from the instructor's course guide and attach with lesson plan.

MODULE 4

Medical/Behavioral and Obstetrics/Gynecology

Lesson 4-6

Poisoning/ Overdose

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

4-6.1 List various ways that poisons enter the body.(C-1)
4-6.2 List signs/symptoms associated with poisoning.(C-1)
4-6.3 Discuss the emergency medical care for the patient with possible overdose.(C-1)
4-6.4 Describe the steps in the emergency medical care for the patient with suspected poisoning.(C-1)
4-6.5 Establish the relationship between the patient suffering from poisoning or overdose and airway management.(C-3)
4-6.6 State the generic and trade names, indications, contraindications, medication form, dose, administration, actions, side effects and re-assessment strategies for activated charcoal.(C-1)
4-6.7 Recognize the need for medical direction in caring for the patient with poisoning or overdose.(C-3)

AFFECTIVE OBJECTIVES

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

4-6.8 Explain the rationale for administering activated charcoal.(A-3)
4-6.9 Explain the rationale for contacting medical direction early in the prehospital management of the poisoning or overdose patient.(A-3)

PSYCHOMOTOR OBJECTIVES

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

4-6.10 Demonstrate the steps in the emergency medical care for the patient with possible overdose.(P-1,2)

- -

4-6.11 Demonstrate the steps in the emergency medical care for the patient with suspected poisoning.(P-1,2)
4-6.12 Perform the necessary steps required to provide a patient with activated charcoal.(P-2)
4-6.13 Demonstrate the assessment and documentation of patient response.(P-1,2)
4-6.14 Demonstrate proper disposal of the equipment for the administration of activated charcoal.(P-1,2)
4-6.15 Demonstrate completing a prehospital care report for patients with a poisoning/overdose emergency.(P-1,2)

PREPARATION

Motivation: Thousands of children are poisoned every year as they explore their environments. Many adults also overdose on medication, either accidentally or deliberately. With early prehospital management, the vast majority of these patients have better outcomes.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to poisoning/overdose emergencies. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment: Activated charcoal, suction equipment.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in this area.

Assistant Instructor: None required.

- -

Recommended Minimum
Time to Complete: Two hours

PRESENTATION

Declarative (What)

I. Emergency Medical Care of Poisoning/Overdose
   A. Important questions to consider asking patient
      1. What substance
      2. When did you ingest/become exposed
      3. If an ingestion, how much did you ingest
      4. Over what time period
      5. Interventions
      6. How much do you weigh
   B. Ingested
      1. Signs and symptoms
         a. History of ingestion
         b. Nausea
         c. Vomiting
         d. Diarrhea
         e. Altered mental status
         f. Abdominal pain
         g. Chemical burns around the mouth
         h. Different breath odors
      2. Emergency medical care
         a. Remove pills, tablets or fragments with gloves from patient's mouth, as needed, without injuring oneself.
         b. Consult medical direction - activated charcoal.
         c. Bring all containers, bottles, labels, etc. of poison agents to receiving facility.
   C. Inhaled
      1. Signs and symptoms
         a. History of inhalation of toxic substance

b. Difficulty breathing
c. Chest pain
d. Cough
e. Hoarseness
f. Dizziness
g. Headache
h. Confusion
i. Seizures
j. Altered mental status

2. Emergency medical care
   a. Have trained rescuers remove patient from poisonous environment.
   b. Give oxygen, if not already done in the initial assessment.
   c. Bring all containers, bottles, labels, etc. of poison agents to receiving facility.

D. Toxic injection
1. Signs and symptoms
   a. Weakness
   b. Dizziness
   c. Chills
   d. Fever
   e. Nausea
   f. Vomiting
2. Emergency medical care
   a. Airway and oxygen.
   b. Be alert for vomiting.
   c. Bring all containers, bottles, labels, etc. of poison agents to receiving facility.

E. Absorbed
1. Signs and symptoms
   a. History of exposure
   b. Liquid or powder on patient's skin
   c. Burns
   d. Itching
   e. Irritation
   f. Redness
2. Emergency medical care
   a. Skin - remove contaminated clothing while protecting oneself from contamination.
      (1) Powder - brush powder off patient, then continue as for other absorbed poisons.

(2) Liquid - irrigate with clean water for at least 20 minutes (and continue en route to facility if possible).

b. Eye - irrigate with clean water away from affected eye for at least 20 minutes and continue en route to facility if possible.

II. Relationship to Airway Management

A. Use information and skills learned in airway section of course to manage airway difficulties.

B. A patient's condition may deteriorate, so continue to assess patient for airway difficulties and manage as learned previously.

III. Medications

A. Activated charcoal

1. Medication name

a. Generic - Activated charcoal

b. Trade

(1) SuperChar **J**

(2) InstaChar **J**

(3) Actidose **J**

(4) LiquiChar **J**

(5) Others

2. Indications - poisoning by mouth

3. Contraindications

a. Altered mental status

b. Ingestion of acids or alkalis

c. Unable to swallow

4. Medication form

a. Pre-mixed in water, frequently available in plastic bottle containing 12.5 grams activated charcoal.

b. Powder - should be avoided in field.

5. Dosage

a. Adults and children: 1 gram activated charcoal/kg of body weight.

b. Usual adult dose: 25 - 50 grams

c. Usual infant/child dose: 12.5 - 25 grams

6. Administration

a. Obtain order from medical direction either on-line or off-line.

b. Container must be shaken thoroughly.

c. Since medication looks like mud, patient may need to be persuaded to drink it.

d. A covered container and a straw may improve patient compliance since the patient cannot see the medication this way.

e. If patient takes a long time to drink the medication, the charcoal will settle and will need to be shaken or stirred again.
f. Record activity and time.

7. Actions

   a. Binds to certain poisons and prevents them from being absorbed into the body.
   b. Not all brands of activated charcoal are the same; some bind much more poison than others, so consult medical direction about the brand to use.
8. Side effects
   a. Black stools
   b. Some patients, particularly those who have ingested poisons that cause nausea, may vomit.
   c. If the patient vomits, the dose should be repeated once.
9. Re-assessment strategies - the EMT-Basic should be prepared for the patient to vomit or further deteriorate.

APPLICATION

Procedural (How)

1. Show the student examples of poisoning by ingestion.
2. Show the student examples of poisoning by inhalation.
3. Show the student examples of poisoning by injection.
4. Show the student examples of poisoning by absorption.
5. Show the student activated charcoal.
6. Show the student how to administer activated charcoal.
7. Show the student how to care for a patient with suspected poisoning or overdose.

Contextual (When, Where, Why)

The EMT-Basic can prevent injury and illness from ingested poisoning by administering activated charcoal. The sooner this happens, the more effect it will have. The EMT-Basic can also prevent loss of life by ensuring the patient who has overdosed has his airway protected.

STUDENT ACTIVITIES

Auditory (Hear)

None identified for this lesson.

Visual (See)

1. The student should see audio-visuals aids or materials of examples of poisoning by ingestion.

2. The student should see audio-visuals aids or materials of examples of poisoning by inhalation.
3. The student should see audio-visuals aids or materials of examples of poisoning by injection.
4. The student should see audio-visuals aids or materials of examples of poisoning by absorption.
5. The student should see activated charcoal.
6. The student should see a demonstration of how to administer activated charcoal.
7. The student should see a demonstration of how to care for a patient with suspected poisoning or overdose.

Kinesthetic (Do)

1. The student should practice caring for a patient with suspected poisoning or overdose.
2. The student should practice the assessment and documentation of patient response to activated charcoal.
3. The student should practice completing a prehospital care report for patients with poisoning/overdose emergencies.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan. If there are local resources, for example, Poison Control Centers, utilize them.

MODULE 4

Medical/Behavioral and Obstetrics/Gynecology

Lesson 4-7

Environmental Emergencies

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

4-7.1 Describe the various ways that the body loses heat.(C-1)
4-7.2 List the signs and symptoms of exposure to cold.(C-1)
4-7.3 Explain the steps in providing emergency medical care to a patient exposed to cold.(C-1)
4-7.4 List the signs and symptoms of exposure to heat.(C-1)
4-7.5 Explain the steps in providing emergency care to a patient exposed to heat.(C-1)
4-7.6 Recognize the signs and symptoms of water-related emergencies.(C-1)
4-7.7 Describe the complications of near drowning.(C-1)
4-7.8 Discuss the emergency medical care of bites and stings.(C-1)

AFFECTIVE OBJECTIVES

No affective objectives identified.

PSYCHOMOTOR OBJECTIVES

4-7.9 Demonstrate the assessment and emergency medical care of a patient with exposure to cold.(P-1,2)
4-7.10 Demonstrate the assessment and emergency medical care of a patient with exposure to heat.(P-1,2)
4-7.11 Demonstrate the assessment and emergency medical care of a near drowning patient.(P-1,2)

4-7.12 Demonstrate completing a prehospital care report for patients with environmental emergencies.(P-2)

PREPARATION

Motivation: Environmental emergencies include exposure to both heat and cold. The key to effective management is recognizing the signs and symptoms and providing prompt emergency medical care.

Cold emergencies are found in varied groups of individuals, including hunters, sailors, skiers, climbers, swimmers, military personnel, and all others in the wilderness, rural, and urban setting. The greatest number of hypothermia cases are reported in the urban setting, many involving the elderly patient.

Likewise, heat emergencies are also prevalent in a large number of groups of individuals in many different settings. Heat emergencies range from very minor effects to life threatening conditions. Heat emergencies may occur during any season of the year.

Because of the increased popularity of water sports, there is a subsequent increase in the incidence of aquatic emergencies. Aquatic emergencies most frequently managed by the EMT-Basic will involve near drowning. The EMT-Basic must be prepared to assess and manage the patient experiencing these types of emergencies.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to environmental emergencies. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

- -

EMS Equipment: Exam gloves, stethoscopes, blood pressure cuffs, penlight.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in heat, cold and aquatic emergencies.

Assistant Instructor: None required.

Recommended Minimum Time to Complete: Two hours

PRESENTATION

Declarative (What)

I. Temperature Regulation
   A. Based on heat loss versus heat gained.
      1. Heat loss exceeds heat gained - hypothermia (low body temperature)
         a. Heat loss occurs by:
            (1) Radiation
            (2) Convection
            (3) Conduction
            (4) Evaporation
            (5) Breathing
         b. EMT-Basic must be aware of methods of heat loss when treating patients with hypothermia to prevent further heat loss.
      2. Heat gained exceeds heat loss - hyperthermia (high body core temperature)

II. Important Questions to Ask Patients Exposed to the Environment
   A. Source
   B. Environment
   C. Loss of consciousness
   D. Effects

1. General
2. Local

III. Exposure to Cold
- A. Generalized cold emergency - generalized hypothermia
  - 1. Predisposing factors
    - a. Cold environment
      - (1) Immersion
      - (2) Non-immersion
    - b. Age
      - (1) Very old
      - (2) Very young
        - (a) Infants and young children are small with large surface area.
        - (b) Small muscle mass, so shivering is poor in children and not at all in infants.
        - (c) Less body fat
        - (d) Younger children need help to protect self. Cannot put on or take off clothes.
    - c. Medical conditions
      - (1) Shock (hypoperfusion)
      - (2) Head injury
      - (3) Burns
      - (4) Generalized infection
      - (5) Injuries to the spinal cord
      - (6) Diabetes and hypoglycemia
    - d. Drugs/poisons
  - 2. Signs and symptoms of generalized hypothermia
    - a. Environmental conditions of cold exposure
      - (1) Obvious exposure
      - (2) Subtle exposure
        - (a) Ethanol ingestion
        - (b) Underlying illness
        - (c) Overdose/poisoning
        - (d) Major trauma
        - (e) Outdoor resuscitation
        - (f) Ambient temperature decreased (e.g. home of elderly patient)
    - b. Cool/cold skin temperature - the EMT-Basic should place the back of his hand between the clothing and the patient's abdomen to assess the general temperature of the patient. The patient experiencing a generalized cold emergency will present with cool abdominal skin temperature.

c. Decreasing mental status or motor function - correlates with the degree of hypothermia.
   (1) Poor coordination
   (2) Memory disturbances
   (3) Reduced or loss of sensation - to touch
   (4) Mood changes
   (5) Less communicative
   (6) Dizziness
   (7) Speech difficulty
d. Stiff or rigid posture
e. Muscular rigidity
f. Shivering may be present or absent.
g. Breathing variations
   (1) Early - rapid breathing
   (2) Late - shallow, slow or even absent breathing
h. Slowly responding pupils
i. Pulse
   (1) Early - rapid
   (2) Late - slow and barely palpable and/or irregular, or completely absent
j. Low to absent blood pressure
k. Poor judgement - patient may actually remove clothing.
l. Complaints of joint/muscle stiffness.
m. Skin
   (1) Red - early
   (2) Pale
   (3) Cyanotic - blue-gray
   (4) Stiff/hard

3. Emergency medical care for generalized hypothermia
   a. Remove the patient from the environment - protect the patient from further heat loss.
   b. Remove wet clothing and cover with blanket.
   c. Handle the patient extremely gently. Avoid rough handling.
   d. Do not allow the patient to walk or exert himself.
   e. Administer oxygen if not already done as part of the initial assessment - oxygen administered should be warmed and humidified, if possible.
   f. Assess pulses for 30-45 seconds before starting CPR.
   g. If the patient is alert and responding appropriately, actively rewarm.
      (1) Warm blankets

(2) Heat packs or hot water bottles to the groin, axillary and cervical regions.
(3) Turn the heat up high in the patient compartment of the ambulance.

h. If the patient is unresponsive or not responding appropriately, rewarm passively:
(1) Warm blankets
(2) Turn the heat up high in the patient compartment of the ambulance.

i. Do not allow the patient to eat or drink stimulants.
j. Do not massage extremities.

B. Local cold injuries - localized to specific area of body
1. Predisposing factors
2. Tend to occur on the extremities and exposed ears, nose, and face.
3. Signs and symptoms of local cold injuries
a. Local injury with clear demarcation.
b. Early or superficial injury
(1) Blanching of the skin - palpation of the skin in which normal color does not return.
(2) Loss of feeling and sensation in the injured area.
(3) Skin remains soft.
(4) If rewarmed, tingling sensation

c. Late or deep injury
(1) White, waxy skin
(2) Firm to frozen feeling upon palpation
(3) Swelling may be present.
(4) Blisters may be present.
(5) If thawed or partially thawed, the skin may appear flushed with areas of purple and blanching or mottled and cyanotic.

4. Emergency medical care for local cold injuries
a. Remove the patient from the environment.
b. Protect the cold injured extremity from further injury.
c. Administer oxygen if not already done as part of the initial assessment.
d. Remove wet or restrictive clothing.
e. If early or superficial injury
(1) Splint extremity.
(2) Cover the extremity.
(3) Do not rub or massage.

(4) Do not re-expose to the cold.

f. If late or deep cold injury
   (1) Remove jewelry.
   (2) Cover with dry clothing or dressings.
   (3) Do not:
      (a) Break blisters
      (b) Rub or massage area
      (c) Apply heat
      (d) Rewarm
      (e) Allow the patient to walk on the affected extremity

g. When an extremely long or delayed transport is inevitable, then active rapid rewarming should be done.
   (1) Immerse the affected part in warm water bath.
   (2) Monitor the water to ensure it does not cool from the frozen part.
   (3) Continuously stir water.
   (4) Continue until the part is soft and color and sensation return.
   (5) Dress the area with dry sterile dressings. If hand or foot, place dry sterile dressings between fingers or toes.
   (6) Protect against refreezing the warmed part.
   (7) Expect the patient to complain of severe pain.

IV. Exposure to Heat

A. Predisposing factors

1. Climate
   a. High ambient temperature reduces the body's ability to lose heat by radiation.
   b. High relative humidity reduces the body's ability to lose heat through evaporation.
2. Exercise and activity
   a. Can lose more than 1 liter of sweat per hour.
   b. Loss of electrolytes (sodium, chloride and fluid through sweat).
3. Age
   a. Elderly
      (1) Poor thermoregulation
      (2) Medications
      (3) Lack mobility - can not escape hot environment.
   b. Newborn/infants

(1) Poor thermoregulation
(2) Cannot remove own clothing

4. Pre-existing illness and/or conditions
   a. Heart disease
   b. Dehydration
   c. Obesity
   d. Fever
   e. Fatigue
   f. Diabetes
5. Drugs/medications

B. Signs and symptoms
1. Muscular cramps
2. Weakness or exhaustion
3. Dizziness or faintness
4. Skin
   a. Moist, pale, normal to cool temperature
   b. Hot, dry or moist - dire emergency
5. Rapid heart rate
6. Altered mental status to unresponsive

C. Emergency medical care of heat emergencies - patient with moist, pale, normal to cool temperature skin.
1. Remove the patient from the hot environment and place in a cool environment (back of air conditioned ambulance).
2. Administer oxygen if not already done during the initial assessment.
3. Loosen or remove clothing.
4. Cool patient by fanning.
5. Put in supine position with legs elevated.
6. If patient is responsive and is not nauseated, have the patient drink water.
7. If the patient is unresponsive or is vomiting, transport to the hospital with patient on his left side.

D. Emergency medical care of heat emergencies - patient with hot, dry or moist skin.
1. Remove the patient from the hot environment and place in a cool environment (back of air conditioned ambulance with air conditioner running on high).
2. Remove clothing.
3. Administer oxygen if not already done during the initial assessment.
4. Apply cool packs to neck, groin and armpits.

5. Keep the skin wet by applying water by sponge or wet towels.
6. Fan aggressively.
7. Transport immediately.

V. Water-Related Emergencies

A. Near drowning/drowning

1. Ensure the safety of the rescue personnel.
2. Suspect possible spine injury if diving accident is involved or unknown.
3. Consider length of time in cold water drowning. Any pulseless, non-breathing patient who has been submerged in cold water should be resuscitated.
4. Emergency medical care:
   a. In-line immobilization and removal from water with backboard if spine injury is suspected and patient is responsive.
   b. If there is no suspected spine injury, place patient on left side to allow water, vomitus and secretions to drain from upper airway.
   c. Suction as needed.
   d. Administer oxygen if not already done during the initial assessment.
   e. If gastric distention interferes with artificial ventilation, the patient should be placed on his left side. With suction immediately available, the EMT-Basic should place his hand over the epigastric area of the abdomen and apply firm pressure to relieve the distention. This procedure should only be done if the gastric distention interferes with the ability of the EMT-Basic to artificially ventilate the patient effectively.
   f. For warm water drownings requiring resuscitation - see cardiac module.

VI. Bites and Stings

A. Signs and symptoms

1. History of bite (spider, snake) or sting (insect, scorpion, marine animal)
2. Pain
3. Redness
4. Swelling
5. Weakness
6. Dizziness
7. Chills

8. Fever
9. Nausea
10. Vomiting
11. Bite marks
12. Stinger

B. Emergency medical care
1. If stinger present, remove it.
   a. Scrape stinger out; e.g., with edge of card.
   b. Avoid using tweezers or forceps as these can squeeze venom from the venom sac into the wound.
2. Wash area gently.
3. Remove jewelry from injured area before swelling begins, if possible.
4. Place injection site slightly below the level of the patient's heart.
5. Do not apply cold to snakebites.
6. Consult medical direction regarding constricting band for snakebite.
7. Observe for development of signs and symptoms of an allergic reaction; treat as needed.

APPLICATION

Procedural (How)

1. Show illustrations of signs and symptoms of cold injuries.
2. Demonstrate the steps in providing emergency medical care to a patient exposed to the cold.
3. Describe the various ways that the body loses heat.
4. Show illustrations of the signs and symptoms heat emergencies.
5. Demonstrate the assessment and emergency medical care of a patient with exposure to heat.
6. Demonstrate the assessment and emergency medical care of a patient with exposure to cold.
7. Demonstrate the assessment and emergency medical care of a near drowning patient.

8. Demonstrate how to remove a patient from the water who has a suspected spine injury.

Contextual (When, Where, Why)

Patients suffering from heat and cold emergencies or those involved in water related emergencies must be promptly recognized through assessment of signs and symptoms. Patients with heat and cold emergencies must be rapidly moved to the ambulance to remove them from the environment. Warming of the cold-exposed patient and cooling of the heat-exposed patient is necessary to reduce the incidence of morbidity and mortality. Immediate resuscitation of the water-related patient may require rapid intervention to prevent death.

STUDENT ACTIVITIES

Auditory (Hear)

1. The student should hear simulations involving the assessment, recognition and emergency medical care of cold, heat and water-related emergencies.

Visual (See)

1. The student should see audio-visual aids or materials of signs and symptoms of cold injuries.
2. The student should see a demonstration of the steps in providing emergency medical care to a patient exposed to cold.
3. The student should see an illustration or demonstration of the various ways that the body loses heat.
4. The student should see audio-visual aids or materials of the signs and symptoms of heat emergencies.
5. The student should see a demonstration of the assessment and emergency medical care of a patient with exposure to heat.
6. The student should see a demonstration of the assessment and emergency medical care of a patient with exposure to cold.
7. The student should see a demonstration of the assessment and emergency medical care of a near drowning patient.
8. The student should see a demonstration of how to remove a patient from the water who has a suspected spinal injury.

Kinesthetic (Do)

1. The student should practice the steps in providing emergency medical care to a patient exposed to cold.
2. The student should practice the assessment and emergency medical care of a patient with exposure to heat.

3. The student should practice the assessment and emergency medical care of a patient with exposure to cold.
4. The student should practice the assessment and emergency medical care of a near drowning patient.
5. The student should practice the skills involved in removing a patient from the water who has a suspected spinal injury.
6. The student should practice completing a prehospital report for patients with environmental emergencies.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content.

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan. Use floating backboards and CPR techniques in water rescue.

MODULE 4

Medical/Behavioral and Obstetrics/Gynecology

Lesson 4-8

Behavioral Emergencies

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

4-8.1 Define behavioral emergencies.(C-1)
4-8.2 Discuss the general factors that may cause an alteration in a patient's behavior.(C-1)
4-8.3 State the various reasons for psychological crises.(C-1)
4-8.4 Discuss the characteristics of an individual's behavior which suggests that the patient is at risk for suicide.(C-1)
4-8.5 Discuss special medical/legal considerations for managing behavioral emergencies.(C-1)
4-8.6 Discuss the special considerations for assessing a patient with behavioral problems. (C-1)
4-8.7 Discuss the general principles of an individual's behavior which suggests that he is at risk for violence.(C-1)
4-8.8 Discuss methods to calm behavioral emergency patients.(C-1)

AFFECTIVE OBJECTIVES

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

4-8.9 Explain the rationale for learning how to modify your behavior toward the patient with a behavioral emergency.(A-3)

PSYCHOMOTOR OBJECTIVES

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

4-8.10 Demonstrate the assessment and emergency medical care of the patient experiencing a behavioral emergency.(P-1,2)
4-8.11 Demonstrate various techniques to safely restrain a patient with a behavioral problem.(P-1,2)

PREPARATION

Motivation: The EMT-Basic will respond to many situations involving behavioral emergencies. Some of these result from an injury or acute illness of the patient. Others are the result of mental illness or the use of mind altering substances. Restraints are the best LAST option in a behavioral emergency.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to behavioral emergencies. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment: Stretcher, restraints.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in behavioral emergencies.

Assistant Instructor: None required.

Recommended Minimum Time to Complete: One and a half hours

Declarative (What)

I. Behavior
   A. Behavior - manner in which a person acts or performs; any or all activities of a person, including physical and mental activity.
   B. Behavioral Emergency - a situation where the patient exhibits abnormal behavior within a given situation that is unacceptable or intolerable to the patient, family or community. This behavior can be due to extremes of emotion leading to violence or other inappropriate behavior or due to a psychological or physical condition such as lack of oxygen or low blood sugar in diabetes.

II. Behavioral Change
   A. General factors that may alter a patient's behavior - the number of factors which may alter a patient's behavior include situational stresses, medical illnesses, psychiatric problems and alcohol or drugs. Below is a list of common causes for behavior alteration.
      1. Low blood sugar
      2. Lack of oxygen
      3. Inadequate blood flow to the brain
      4. Head trauma
      5. Mind altering substances
      6. Psychogenic - resulting in psychotic thinking, depression or panic.
      7. Excessive cold
      8. Excessive heat

III. Psychologic Crises
   A. Panic
   B. Agitation
   C. Bizarre thinking and behavior
   D. Danger to self - self destructive behavior, suicide
   E. Danger to others - threatening behavior, violence

IV. Assessment for Suicide Risk
   A. Depression
      1. Sad, tearful
      2. Thoughts of death or taking one's life

B. Suicidal gestures - the EMT-Basic must recognize and intervene in self-destructive behavior before the patient commits the act of suicide. Risk factors may include:
   1. Individuals over 40, single, widowed or divorced, alcoholic, depressed.
   2. A defined lethal plan of action which has been verbalized.
   3. Unusual gathering of articles which can cause death such as purchase of a gun, large volumes of pills, etc.
   4. Previous history of self-destructive behavior.
   5. Recent diagnosis of serious illness.
   6. Recent loss of significant loved one.
   7. Arrest, imprisonment, loss of job

C. Assessment findings
   1. Patient in an unsafe environment or with unsafe objects in hands.
   2. Displaying of self-destructive behavior during initial assessment or prior to emergency response.
   3. Important questions to be considered
      a. How does the patient feel
      b. Determine suicidal tendencies
      c. Is patient a threat to self or others
      d. Is there a medical problem
      e. Interventions

D. Emergency medical care
   1. Scene size-up, personal safety
   2. Patient assessment
   3. Calm the patient - do not leave patient alone
   4. Restrain if necessary. Consider need for law enforcement.
   5. Transport
   6. If overdose, bring medications or drugs found to medical facility.

V. Medical/Legal Considerations

A. Emotionally disturbed patient who consents to care - legal problems greatly reduced.

B. How to handle the patient who resists treatment
   1. Emotionally disturbed patient will often resist treatment.
   2. May threaten EMT-Basics and others
   3. To provide care against patient's will, you must show a reasonable belief the patient would harm himself or others.
   4. If a threat to self or others, patient may be transported without consent after contacting medical direction.
   5. Usually law enforcement is required.

C. Avoiding unreasonable force

1. Reasonable force depends on what force was necessary to keep patient from injuring himself or others.
2. Reasonableness is determined by looking at all circumstances involved.
    a. Patients size and strength
    b. Type of abnormal behavior
    c. Sex of patient
    d. Mental state of patient
    e. Method of restraint
3. Be aware after a period of combativeness and aggression some calm patients may cause unexpected and sudden injury to self and others.
4. Avoid acts or physical force that may cause injury to the patient.
5. EMS personnel may use reasonable force to defend against an attack by emotionally disturbed patients.

D. Police and medical direction involvement
1. Seek medical direction when considering restraining a patient.
2. Ask for police assistance if during scene size-up the patient appears or acts aggressive or combative.

E. Protection against false accusations
1. Documentation of abnormal behavior exhibited by the patient is very important.
2. Have witnesses in attendance especially during transport, if possible.
3. Accusing EMT-Basics of sexual misconduct is common by emotionally disturbed patients - have help, same sex attendants, and third party witnesses.

VI. Principles for Assessing Behavioral Emergency Patients
A. Identify yourself and let the person know you are there to help.
B. Inform him of what you are doing.
C. Ask questions in a calm, reassuring voice.
D. Allow the patient to tell what happened without being judgmental.
E. Show you are listening by rephrasing or repeating part of what is said.
F. Acknowledge the patient's feelings.
G. Assess the patient's mental status.
1. Appearance
2. Activity
3. Speech
4. Orientation for time, person, and place

VII. Assessment of Potential Violence
A. Scene size-up

B. History - the EMT-Basic should check with family and bystanders to determine if the patient has a known history of aggression or combativeness.
C. Posture - stands or sits in a position which threatens self or others. May have fists clinched or lethal objects in hands.
D. Vocal activity - is yelling or verbally threatens harm to self or others.
E. Physical activity - moves toward caregiver, carries heavy or threatening objects, has quick irregular movements, muscles tense.

VIII. Methods to Calm Behavioral Emergency Patients
A. Acknowledge that the person seems upset and restate that you are there to help.
B. Inform him of what you are doing.
C. Ask questions in a calm, reassuring voice.
D. Maintain a comfortable distance.
E. Encourage the patient to state what is troubling him.
F. Do not make quick moves.
G. Respond honestly to patient's questions.
H. Do not threaten, challenge or argue with disturbed patients.
I. Tell the truth, do not lie to the patient.
J. Do not "play along" with visual or auditory disturbances of the patient.
K. Involve trusted family members or friends.
L. Be prepared to stay at scene for a long time. Always remain with the patient.
M. Avoid unnecessary physical contact. Call additional help if needed.
N. Use good eye contact.

IX. Restraining Patients - restraint should be avoided unless patient is a danger to self and others. When using restraints have police present, if possible, and get approval from medical direction. If restraints must be used, do the following:
A. Be sure to have adequate help.
B. Plan your activities.
C. Use only the force necessary for restraint.
D. Estimate range of motion of patients arms and legs and stay beyond range until ready.
E. Once decision has been made - act quickly.
F. Have one EMT-Basic talk to patient throughout restraining.

G. Approach with four persons, one assigned to each limb all at the same time.
H. Secure limbs together with equipment approved by medical direction.
I. Turn patient face down on stretcher.
J. Secure to stretcher with multiple straps.
K. Cover face with surgical mask if spitting on EMT-Basics.
L. Reassess circulation frequently.
M. Document indication for restraining patients and technique of restraint.
N. Avoid unnecessary force.

X. Other Behavioral Problems
A. Always try to talk patient into cooperation.
B. Do not belittle or threaten patients.
C. Be calm and patient in your attitude.
D. Do not agree with disturbed thinking.
E. Be reassuring.
F. Avoid arguing with irrational patients.
G. Suggest appropriate steps to take.
H. Lower distressing stimuli.
I. Avoid restraints unless necessary.
J. Treat with respect.

APPLICATION

Procedural (How)

1. Demonstrate the assessment and emergency medical care of the patient experiencing a behavioral emergency.
2. Demonstrate the method of restraint.

Contextual (When, Where, Why)

The EMT-Basic will frequently handle behavioral emergencies since many people are aware these persons need help, but are unsure what to do in emergency situations. Because treatment of these emergencies usually requires long term management, little medical intervention can be done in the acute situation. The EMT-Basic must assure

his own safety in these situations, consider the legal ramifications of his actions, and transport the patient in a safe and effective manner.

STUDENT ACTIVITIES

Auditory (Hear)

1. The student should hear audio tapes of patients with behavioral emergencies.

Visual (See)

1. The student should see audio-visual aids or materials of behavioral conditions, patient interviewing, and use of restraints.

Kinesthetic (Do)

1. The student should practice physically restraining another student who is simulating moderate resist.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 4

Medical/Behavioral and Obstetrics/Gynecology

Lesson 4-9

Obstetrics/ Gynecology

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

4-9.1 Identify the following structures: Uterus, vagina, fetus, placenta, umbilical cord, amniotic sac, perineum.(C-1)
4-9.2 Identify and explain the use of the contents of an obstetrics kit.(C-1)
4-9.3 Identify predelivery emergencies.(C-1)
4-9.4 State indications of an imminent delivery.(C-1)
4-9.5 Differentiate the emergency medical care provided to a patient with predelivery emergencies from a normal delivery.(C-3)
4-9.6 State the steps in the predelivery preparation of the mother.(C-1)
4-9.7 Establish the relationship between body substance isolation and childbirth.(C-3)
4-9.8 State the steps to assist in the delivery.(C-1)
4-9.9 Describe care of the baby as the head appears.(C-1)
4-9.10 Describe how and when to cut the umbilical cord.(C-1)
4-9.11 Discuss the steps in the delivery of the placenta.(C-1)
4-9.12 List the steps in the emergency medical care of the mother post-delivery.(C-3)
4-9.13 Summarize neonatal resuscitation procedures.(C-1)
4-9.14 Describe the procedures for the following abnormal deliveries: Breech birth, prolapsed cord, limb presentation.(C-1)
4-9.15 Differentiate the special considerations for multiple births.(C-3)
4-9.16 Describe special considerations of meconium.(C-1)
4-9.17 Describe special considerations of a premature baby.(C-1)

4-9.18 Discuss the emergency medical care of a patient with a gynecological emergency.(C-1)

AFFECTIVE OBJECTIVES

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

4-9.19 Explain the rationale for understanding the implications of treating two patients (mother and baby).(A-3)

PSYCHOMOTOR OBJECTIVES

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

4-9.20 Demonstrate the steps to assist in the normal cephalic delivery.(P-1,2)
4-9.21 Demonstrate necessary care procedures of the fetus as the head appears.(P-1,2)
4-9.22 Demonstrate infant neonatal procedures.(P-1,2)
4-9.23 Demonstrate post delivery care of infant.(P-1,2)
4-9.24 Demonstrate how and when to cut the umbilical cord.(P-1,2)
4-9.25 Attend to the steps in the delivery of the placenta.(P-1,2)
4-9.26 Demonstrate the post-delivery care of the mother.(P-1,2)
4-9.27 Demonstrate the procedures for the following abnormal deliveries: vaginal bleeding, breech birth, prolapsed cord, limb presentation.(P-1,2)
4-9.28 Demonstrate the steps in the emergency medical care of the mother with excessive bleeding.(P-1,2)
4-9.29 Demonstrate completing a prehospital care report for patients with obstetrical/gynecological emergencies.(P-2)

PREPARATION

Motivation: Childbirth in the prehospital setting does occur on rare occasions. Because of the infrequency, taking care of an anxious mother and newborn infant is a stressful emergency call for the EMT-Basic. Knowledge and practice in simulated situations can decrease stress and lead to better mother and child care.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to obstetrics/gynecology. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment: Childbirth kit, airway management equipment, eye protection, gloves.

PERSONNEL

Primary Instructor: One EMT-Basic instructor familiar with childbirth who has either delivered a child in the out-of-hospital setting or has seen or assisted with a vaginal delivery within the hospital.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in obstetric/gynecological emergencies.

Recommended Minimum Time to Complete: Two hours

PRESENTATION

Declarative (What)

I. Reproductive anatomy and physiology
   A. Fetus - developing unborn baby
   B. Uterus - organ in which a fetus grows, responsible for labor and expulsion of infant.
   C. Birth Canal - vagina and lower part of the uterus.
   D. Placenta - fetal organ through which fetus exchanges nourishment and waste products during pregnancy.

- E. Umbilical cord - cord which is an extension of the placenta through which fetus receives nourishment while in the uterus.
- F. Amniotic sac (bag of water) - the sac that surrounds the fetus inside the uterus.
- G. Vagina - lower part of the birth canal.
- H. Perineum - skin area between vagina and anus, commonly torn during deliver.
- I. Crowning - the bulging-out of the vagina which is opening as the fetus' head or presenting part presses against it.
- J. "Bloody Show" - mucus and blood that may come out of the vagina as labor begins.
- K. Labor - the time and process (defined in 3 or 4 stages) beginning with the first uterine muscle contraction until delivery of the placenta.
  1. Delivery is imminent
  2. Crowning
  3. In the process of delivering
- L. Presenting Part - the part of the infant/fetus that comes first - usually the head.
- M. Abortion - miscarriage - delivery of products of conception early in pregnancy.

II. Contents of a childbirth delivery kit
- A. Surgical scissors
- B. Hemostats or cord clamps
- C. Umbilical tape or sterilized cord
- D. Bulb syringe
- E. Towels
- F. 2 x 10 gauze sponges
- G. Sterile gloves
- H. One baby blanket
- I. Sanitary napkins
- J. Plastic bag

III. Emergency Medical Care - Predelivery Emergencies
- A. Miscarriage - Spontaneous abortion - emergency medical care
  1. Size up
  2. Initial assessment
  3. History and physical exam
  4. Assess baseline vitals
  5. Treatment based on signs and symptoms
  6. Apply external vaginal pads
  7. Bring fetal tissues to hospital
  8. Support mother

B. Seizure during pregnancy - emergency medical care
   1. Size up
   2. Initial assessment
   3. History and physical exam
   4. Assess baseline vitals
   5. Treatment based on signs and symptoms
   6. Transport on left side
C. Vaginal bleeding - late pregnancy vaginal bleeding, with or without pain. Emergency medical care:
   1. Size up
   2. Initial assessment
   3. History and physical exam
   4. Assess baseline vitals
   5. Treatment based on signs and symptoms
   6. Apply external vaginal pads
   7. Transport
D. Trauma - emergency medical care - same as other trauma patients
   1. Size up
   2. Initial assessment
   3. History and physical exam
   4. Assess baseline vitals
   5. Treatment based on signs and symptoms
   6. Transport on left side

IV. Normal Delivery
A. Predelivery considerations
   1. It is best to transport an expecting mother, unless delivery is expected within a few minutes based on assessment of:
      a. Are you pregnant?
      b. How long have you been pregnant?
      c. Are there contractions or pain?
      d. Any bleeding or discharge?
      e. Is crowning occurring with contractions?
      f. What is the frequency and duration of contractions?
      g. Does she feel as if she is having a bowel movement with increasing pressure in the vaginal area?
      h. Does she feel the need to push?
      i. Rock hard abdomen?
   2. Precautions
      a. Use body substance isolation.
      b. Do not touch vaginal areas except during delivery and when your partner is present.

c. Do not let the mother go to bathroom.
d. Do not hold mother's legs together.
e. Recognize your own limitations and transport even if delivery must occur during transport.
f. If delivery is eminent with crowning, contact medical direction for decision to commit to delivery on site. If delivery does not occur within 10 minutes, contact medical direction for permission to transport.

B. Delivery procedures
1. Apply gloves, mask, gown, eye protection for infection control precautions.
2. Have mother lie with knees drawn up and spread apart.
3. Elevate buttocks - with blankets or pillow.
4. Create sterile field around vaginal opening with sterile towels or paper barriers.
5. When the infant's head appears during crowning, place fingers on bony part of skull (not fontanelle or face) and exert very gentle pressure to prevent explosive delivery. Use caution to avoid fontanelle.
6. If the amniotic sac does not break, or has not broken, use a clamp to puncture the sac and push it away from the infant's head and mouth as they appear.
7. As the infant's head is being born, determine if the umbilical cord is around the infant's neck; slip over the shoulder or clamp, cut and unwrap.
8. After the infant's head is born, support the head, suction the mouth two or three times and the nostrils. Use caution to avoid contact with the back of the mouth.
9. As the torso and full body are born, support the infant with both hands.
10. As the feet are born, grasp the feet.
11. Wipe blood and mucus from mouth and nose with sterile gauze, suction mouth and nose again.
12. Wrap infant in a warm blanket and place on its side, head slightly lower than trunk.
13. Keep infant level with vagina until the cord is cut.
14. Assign partner to monitor infant and complete initial care of the newborn.
15. Clamp, tie and cut umbilical cord (between the clamps) as pulsations cease approximately 4 fingers width from infant.

16. Observe for delivery of placenta while preparing mother and infant for transport.
17. When delivered, wrap placenta in towel and put in plastic bag; transport placenta to hospital with mother.
18. Place sterile pad over vaginal opening, lower mother's legs, help her hold them together.
19. Record time of delivery and transport mother, infant and placenta to hospital.

C. Vaginal bleeding following delivery - up to 500 cc of blood loss is normal following delivery.
   1. A 500 cc blood loss is well tolerated by the mother following delivery. The EMT-Basic must be aware of this loss so as not to cause undue psychological stress on himself or the new mother.
   2. With excessive blood loss, massage the uterus.
      a. Hand with fingers fully extended.
      b. Place on lower abdomen above pubis.
      c. Massage (knead) over area.
      d. Bleeding continues - check massage technique and transport immediately, providing oxygen and ongoing assessment.
   3. Regardless of estimated blood loss, if mother appears in shock (hypoperfusion), treat as such and transport prior to uterine massage. Massage en route.

D. Initial care of the newborn
   1. Position, dry, wipe, and wrap newborn in blanket and cover the head.
   2. Repeat suctioning.
   3. Assessment of infant - normal findings
      a. Appearance - color: no central (trunk) cyanosis
      b. Pulse - greater than 100/min
      c. Grimace - vigorous and crying
      d. Activity - good motion in extremities
      e. Breathing effort - normal, crying
   4. Stimulate newborn if not breathing.
      a. Flick soles of feet.
      b. Rub infant's back.

E. Resuscitation of the newborn follows the inverted pyramid (see Appendix K) - after assessment, if signs and symptoms require either cardiac or pulmonary resuscitation, do the following when appropriate:
   1. Breathing effort - if shallow, slow or absent provide artificial ventilations:

a. 60/min
b. Reassess after 30 seconds.
c. If no improvement, continue artificial ventilations and reassessments.

2. Heart rate
   a. If less than 100 beats per minute provide artificial ventilations:
      (1) 60/min
      (2) Reassess after 30 seconds.
      (3) If no improvement continue artificial ventilations and reassessments.
   b. If less than 80 beats per minute and not responding to bag-valve-mask, start chest compressions.
   c. If less than 60 beats per minute, start compressions and artificial ventilations.
3. Color - if central cyanosis is present with spontaneous breathing and an adequate heart rate administer free flow oxygen - administer oxygen (10-15L) using oxygen tubing held as close as possible to the newborn's face.

V. Abnormal Deliveries

A. Prolapsed Cord - condition where the cord presents through the birth canal before delivery of the head; presents a serious emergency which endangers the life of the unborn fetus.
   1. Size up
   2. Initial assessment
   3. Mother should have high flow oxygen
   4. History and physical exam
   5. Assess baseline vitals
   6. Treatment based on signs and symptoms
   7. Position mother with head down or buttocks raised using gravity to lessen pressure in birth canal.
   8. Insert sterile gloved hand into vagina pushing the presenting part of the fetus away from the pulsating cord.
   9. Rapidly transport, keeping pressure on presenting part and monitoring pulsations in the cord.

B. Breech birth presentation - breech presentation occurs when the buttocks or lower extremities are low in the uterus and will be the first part of the fetus delivered.
   1. Newborn at great risk for delivery trauma, prolapse cord more common, transport immediately upon recognition of breech presentation.

2. Delivery does not occur within 10 minutes.
3. Emergency medical care
   a. Immediate rapid transportation upon recognition.
   b. Place mother on oxygen.
   c. Place mother in head down position with pelvis elevated.

C. Limb presentation - occurs when a limb of the infant protrudes from the birth canal. Is more commonly a foot when infant is in breech presentation.
   1. Immediate rapid transportation upon recognition.
   2. Place mother on oxygen.
   3. Place mother in head down position with pelvis elevated.

D. Multiple births
   1. Be prepared for more than one resuscitation.
   2. Call for assistance.

E. Meconium - amniotic fluid that is greenish or brownish-yellow rather than clear; an indication of possible fetal distress during labor.
   1. Do not stimulate before suctioning oropharynx.
   2. Suction.
   3. Maintain airway.
   4. Transport as soon as possible.

F. Premature
   1. Always at risk for hypothermia.
   2. Usually requires resuscitation, should be done unless physically impossible.

VI. Gynecological emergencies

A. Vaginal bleeding
   1. Body substance isolation
   2. Airway

B. Trauma - external genitalia - treat as other bleeding soft tissue injuries; never pack vagina, provide oxygen and on-going patient assessment.

C. Alleged sexual assault - criminal assault situations require initial and on-going assessment/management and psychological care. Emergency medical care:
   1. Body substance isolation
   2. Airway
   3. Non-judgmental attitude during SAMPLE focused assessment.
   4. Crime scene protection.
   5. Examine genitalia only if profuse bleeding present.
   6. Use same sex EMT-Basics for care when possible.
   7. Discourage the patient to bathe, void, or clean wounds.
   8. Reporting requirements.

Procedural (How)

1. Demonstrate the steps to assist in the normal delivery.
2. Demonstrate necessary care procedures of the fetus as the head appears.
3. Demonstrate neonatal resuscitation procedures.
4. Demonstrate how and when to cut the umbilical cord.
5. Discuss the steps in delivery of the placenta.
6. Demonstrate the post-delivery care of mothers and neonates.
7. Demonstrate the procedures for the following abnormal deliveries: Breech birth, prolapsed cord, limb presentation.
8. Demonstrate the steps in emergency medical care of the mother with excessive bleeding.
9. Demonstrate the steps in the emergency care of the female patient with gynecological disorders.

Contextual (When, Where, Why)

Care of patients with prehospital conditions involving reproductive organs are not common. This private condition to the patient requires the most professional, safe and effective care by the EMT-Basic. Knowledge and skills practice in the laboratory setting, particularly for out-of-hospital childbirth, help the student maintain professionalism, understand these uncommon emergency care situations and support the patient as they seek definitive care in the receiving facility.

STUDENT ACTIVITIES

Auditory (Hear)

1. The student should hear a video tape of a mother in the final stages of labor which provides samples of mother's actions during this painful process.

Visual (See)

1. The student should see audio-visual aids or materials of labor and delivery showing: Late stages of labor normal delivery, clamping and cutting umbilical cord, suctioning infant's head during delivery, assessment and initial care of neonate, normal bleeding with delivery, delivery and care of placenta.

Kinesthetic (Do)

1. Student should practice the steps to assist in the normal delivery.
2. Student should practice necessary care procedures of the fetus as the head appears during delivery.

3. Student should practice neonatal resuscitation procedures.
4. Student should practice how and when to cut the umbilical cord using simple pieces of rope.
5. Student should practice the post-delivery care of mothers and neonates.
6. Student should practice completing a prehospital care report for patients with obstetrical/gynecological emergencies.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 4

Medical/Behavioral and Obstetrics/Gynecology

Lesson 4-10

Practical Lab: Medical/Behavioral and Obstetrics/Gynecology

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

- Demonstrate the cognitive objectives of Lesson 4-1:General Pharmacology.
- Demonstrate the cognitive objectives of Lesson 4-2: Respiratory Emergencies.
- Demonstrate the cognitive objectives of Lesson 4-3: Cardiovascular Emergencies.
- Demonstrate the cognitive objectives of Lesson 4-4: Diabetes/ Altered Mental Status.
- Demonstrate the cognitive objectives of Lesson 4-5: Allergies.
- Demonstrate the cognitive objectives of Lesson 4-6: Poisoning/Overdose.
- Demonstrate the cognitive objectives of Lesson 4-7: Environmental Emergencies.
- Demonstrate the cognitive objectives of Lesson 4-8: Behavioral Emergencies.
- Demonstrate the cognitive objectives of Lesson 4-9: Obstetrics/Gynecology.

AFFECTIVE OBJECTIVES

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

- Demonstrate the affective objectives of Lesson 4-1:General Pharmacology.
- Demonstrate the affective objectives of Lesson 4-2: Respiratory Emergencies.
- Demonstrate the affective objectives of Lesson 4-3: Cardiovascular Emergencies.
- Demonstrate the affective objectives of Lesson 4-4: Diabetes/Altered Mental Status.
- Demonstrate the affective objectives of Lesson 4-5: Allergies.
- Demonstrate the affective objectives of Lesson 4-6: Poisoning/Overdose.

- Demonstrate the affective objectives of Lesson 4-8: Behavioral Emergencies.
- Demonstrate the affective objectives of Lesson 4-9: Obstetrics/Gynecology.

PSYCHOMOTOR OBJECTIVES

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

- Demonstrate the psychomotor objectives of Lesson 4-1: General Pharmacology.
- Demonstrate the psychomotor objectives of Lesson 4-2: Respiratory Emergencies.
- Demonstrate the psychomotor objectives of Lesson 4-3: Cardiovascular Emergencies.
- Demonstrate the psychomotor objectives of Lesson 4-4: Diabetes/Altered Mental Status.
- Demonstrate the psychomotor objectives of Lesson 4-5: Allergies.
- Demonstrate the psychomotor objectives of Lesson 4-6: Poisoning/Overdose.
- Demonstrate the psychomotor objectives of Lesson 4-7: Environmental Emergencies.
- Demonstrate the psychomotor objectives of Lesson 4-8: Behavioral Emergencies.
- Demonstrate the psychomotor objectives of Lesson 4-9: Obstetrics/Gynecology.

PREPARATION

Motivation: The practical lesson is designed to allow the students additional time to perfect skills. It is of utmost importance that the students demonstrate proficiency of the skill, cognitive knowledge of the steps to perform a skill, and a healthy attitude towards performing that skill on a patient. This is an opportunity for the instructor and assistant instructors to praise progress and re-direct the students toward appropriate psychomotor skills. The material from all preceding lessons and basic life support should be incorporated into these practical skill sessions.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment.

- -

MATERIALS

AV Equipment: Typically none required.

EMS Equipment: Equipment from the lists in Lessons 4-1 through 4-9.

PERSONNEL

Primary Instructor: One proctor for the written evaluation.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in medical/behavioral and obstetrics/gynecology.

Recommended Minimum Time to Complete: Eight hours

APPLICATION

Procedural (How)

Instructor should demonstrate the procedural activities from Lesson 4-1: General Pharmacology.

Instructor should demonstrate the procedural activities from Lesson 4-2: Respiratory Emergencies.

Instructor should demonstrate the procedural activities from Lesson 4-3: Cardiovascular Emergencies.

Instructor should demonstrate the procedural activities from Lesson 4-4: Diabetic Emergencies/Altered Mental Status.

Instructor should demonstrate the procedural activities from Lesson 4-5: Allergies.

Instructor should demonstrate the procedural activities from Lesson 4-6: Poisoning/Overdose.

Instructor should demonstrate the procedural activities from Lesson 4-7: Environmental Emergencies.

Instructor should demonstrate the procedural activities from Lesson 4-8: Behavioral Emergencies.

Instructor should demonstrate the procedural activities from Lesson 4-9: Obstetrics/Gynecology.

Contextual (When, Where, Why)

Instructor should review contextual information from Lesson 4-1: General Pharmacology.

Instructor should review contextual information from Lesson 4-2: Respiratory Emergencies.

Instructor should review contextual information from Lesson 4-3: Cardiovascular Emergencies.

Instructor should review contextual information from Lesson 4-4: Diabetic Emergencies/Altered Mental Status.

Instructor should review contextual information from Lesson 4-5: Allergies.

Instructor should review contextual information from Lesson 4-6: Poisoning/Overdose.

Instructor should review contextual information from Lesson 4-7: Environmental Emergencies.

Instructor should review contextual information from Lesson 4-8: Behavioral Emergencies.

Instructor should demonstrate the procedural activities from Lesson 4-9: Obstetrics/Gynecology.

STUDENT ACTIVITIES

- -

Auditory (Hear)

The students should hear the auditory information from Lesson 4-1: General Pharmacology.
The students should hear the auditory information from Lesson 4-2: Respiratory Emergencies.

The students should hear the auditory information from Lesson 4-3: Cardiovascular Emergencies.

The students should hear the auditory information from Lesson 4-5: Allergies.

The students should hear the auditory information from Lesson 4-6: Poisoning/Overdose.

The students should hear the auditory information from Lesson 4-7: Environmental Emergencies.

The students should hear the auditory information from Lesson 4-8: Behavioral Emergencies.

The students should hear the auditory information from Lesson 4-9: Obstetrics/Gynecology.

Visual (See)

The students should see the visual material from Lesson 4-1: General Pharmacology.

The students should see the visual material from Lesson 4-2: Respiratory Emergencies.

The students should see the visual material from Lesson 4-3: Cardiovascular Emergencies.

The students should see the visual material from Lesson 4-4: Diabetic Emergencies/Altered Mental Status.

The students should see the visual material from Lesson 4-5: Allergies.

The students should see the visual material from Lesson 4-6: Poisoning/Overdose.

The students should see the visual material from Lesson 4-7: Environmental Emergencies.

The students should see the visual material from Lesson 4-8: Behavioral Emergencies.

The students should see the visual material from Lesson 4-9: Obstetrics/Gynecology.

Kinesthetic (Do)

The students should practice the kinesthetic activities from Lesson 4-1: General Pharmacology.

The students should practice the kinesthetic activities from Lesson 4-2: Respiratory Emergencies.

The students should practice the kinesthetic activities from Lesson 4-3: Cardiovascular Emergencies.

The students should practice the kinesthetic activities from Lesson 4-4: Diabetic Emergencies/Altered Mental Status.

The students should practice the kinesthetic activities from Lesson 4-5: Allergies.

The students should practice the kinesthetic activities from Lesson 4-6: Poisoning/Overdose.

The students should practice the kinesthetic activities from Lesson 4-7: Environmental Emergencies.

The students should practice the kinesthetic activities from Lesson 4-8: Behavioral Emergencies.

The students should practice the kinesthetic activities from Lesson 4-9: Obstetrics/Gynecology.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skills stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

What is unique in the local area concerning this topic?
from the instructor's course guide and attach with lesson plan.

MODULE 4

Medical/Behavioral and Obstetrics/Gynecology

Lesson 4-11

Evaluation: Medical/Behavioral and Obstetrics/Gynecology

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

- **!** Demonstrate knowledge of the cognitive objectives of Lesson 4-1: General Pharmacology.
- **!** Demonstrate knowledge of the cognitive objectives of Lesson 4-2: Respiratory Emergencies.
- **!** Demonstrate knowledge of the cognitive objectives of Lesson 4-3: Cardiovascular Emergencies.
- **!** Demonstrate knowledge of the cognitive objectives of Lesson 4-4: Diabetes/ Altered Mental Status.
- **!** Demonstrate knowledge of the cognitive objectives of Lesson 4-5: Allergies.
- **!** Demonstrate knowledge of the cognitive objectives of Lesson 4-6: Poisoning/Overdose.
- **!** Demonstrate knowledge of the cognitive objectives of Lesson 4-7: Environmental Emergencies.
- **!** Demonstrate knowledge of the cognitive objectives of Lesson 4-8: Behavioral Emergencies.
- **!** Demonstrate knowledge of the cognitive objectives of Lesson 4-9: Obstetrics/Gynecological.

AFFECTIVE OBJECTIVES

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

- **!** Demonstrate knowledge of the affective objectives of Lesson 4-1: General Pharmacology.

- Demonstrate knowledge of the affective objectives of Lesson 4-2: Respiratory Emergencies.
- Demonstrate knowledge of the affective objectives of Lesson 4-3: Cardiovascular Emergencies.
- Demonstrate knowledge of the affective objectives of Lesson 4-4: Diabetes/ Altered Mental Status.
- Demonstrate knowledge of the affective objectives of Lesson 4-5: Allergies.
- Demonstrate knowledge of the affective objectives of Lesson 4-6: Poisoning/Overdose.
- Demonstrate knowledge of the affective objectives of Lesson 4-8: Behavioral Emergencies.
- Demonstrate knowledge of the affective objectives of Lesson 4-9: Obstetrics/Gynecological.

PSYCHOMOTOR OBJECTIVES

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

- Demonstrate knowledge of the psychomotor objectives of Lesson 4-1: General Pharmacology.
- Demonstrate knowledge of the psychomotor objectives of Lesson 4-2: Respiratory Emergencies.
- Demonstrate knowledge of the psychomotor objectives of Lesson 4-3: Cardiovascular Emergencies.
- Demonstrate knowledge of the psychomotor objectives of Lesson 4-4: Diabetes/Altered Mental Status.
- Demonstrate knowledge of the psychomotor objectives of Lesson 4-5: Allergies.
- Demonstrate knowledge of the psychomotor objectives of Lesson 4-6: Poisoning/Overdose.
- Demonstrate knowledge of the psychomotor objectives of Lesson 4-7: Environmental Emergencies.
- Demonstrate knowledge of the psychomotor objectives of Lesson 4-8: Behavioral Emergencies.
- Demonstrate knowledge of the psychomotor objectives of Lesson 4-9: Obstetrics/Gynecological.

Motivation: Evaluation of the students' attainment of the cognitive and affective knowledge and psychomotor skills is an essential component of the EMT-Basic educational process. The modules are presented in a "building block" format. Once the students have demonstrated their knowledge and proficiency, the next lesson should be built upon that knowledge. This evaluation will help to identify students or groups of students having difficulty with a particular area. This is an opportunity for the instructor to evaluate his performance, and make appropriate modification to the delivery of material.

Prerequisites: Completion of Lessons 4-1 through 4-9.

MATERIALS

AV Equipment: Typically none required.

EMS Equipment: Equipment required to evaluate the students proficiency in the psychomotor skills of this module.

PERSONNEL

Primary Instructor: One proctor for the written evaluation.

Assistant Instructor: One practical skills examiner for each 6 students.

Recommended Minimum Time to Complete: One hour

Declarative (What)

I. Purpose of the evaluation

II. Items to be evaluated

III. Feed back from evaluation

APPLICATION

Procedural (How)

1. Written evaluation based on the cognitive and affective objectives of Lessons 4-1 through 4-9.

2. Practical evaluation stations based on the psychomotor objectives of Lessons 4-1 and 4-9.

Contextual (When, Where and Why)

The final lesson in this module is designed to bring closure to the module, and to assure that students are prepared to move to the next module.

This modular evaluation is given to determine the effectiveness of the presentation of materials and how well students have retained the material. This is an opportunity for the students to make necessary adjustments in study habits or for the instructor to adjust the manner which material is presented.

INSTRUCTOR ACTIVITIES

Supervise student evaluation.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

Identify students and/or groups of students who are having difficulty with this subject content. Complete a remediation sheet from the instructor's course guide. If students continue to have difficulty demonstrating knowledge of the cognitive and affective objectives, or demonstrating proficiency in psychomotor skills, the students should be counseled, remediated and re-evaluated. If improvements in cognitive, affective or psychomotor skills are not achieved, consideration regarding the ability of the student to progress in the program should be taken into account.

MODULE 5

Trauma

Lesson 5-1

Bleeding and Shock

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

5-1.1 List the structure and function of the circulatory system.(C-1)
5-1.2 Differentiate between arterial, venous and capillary bleeding.(C-3)
5-1.3 State methods of emergency medical care of external bleeding.(C-1)
5-1.4 Establish the relationship between body substance isolation and bleeding.(C-3)
5-1.5 Establish the relationship between airway management and the trauma patient.(C-3)
5-1.6 Establish the relationship between mechanism of injury and internal bleeding.(C-3)
5-1.7 List the signs of internal bleeding.(C-1)
5-1.8 List the steps in the emergency medical care of the patient with signs and symptoms of internal bleeding.(C-1)
5-1.9 List signs and symptoms of shock (hypoperfusion).(C-1)
5-1.10 State the steps in the emergency medical care of the patient with signs and symptoms of shock (hypoperfusion).(C-1)

AFFECTIVE OBJECTIVES

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

5-1.11 Explain the sense of urgency to transport patients that are bleeding and show signs of shock (hypoperfusion).(A-1)

PSYCHOMOTOR OBJECTIVES

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

5-1.12 Demonstrate direct pressure as a method of emergency medical care of external bleeding. (P-1,2)

5-1.13 Demonstrate the use of diffuse pressure as a method of emergency medical care of external bleeding.(P-1,2)

5-1.14 Demonstrate the use of pressure points and tourniquets as a method of emergency medical care of external bleeding.(P-1,2)

5-1.15 Demonstrate the care of the patient exhibiting signs and symptoms of internal bleeding.(P-1,2)

5-1.16 Demonstrate the care of the patient exhibiting signs and symptoms of shock (hypoperfusion).(P-1,2)

5-1.17 Demonstrate completing a prehospital care report for patient with bleeding and/or shock (hypoperfusion).(P-2)

PREPARATION

Motivation: Trauma is the leading cause of death in the United States for persons between the ages of 1 and 44. Understanding the mechanism of injury and relevant signs and symptoms of bleeding and shock (hypoperfusion) is of paramount importance when dealing with the traumatized patient.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to bleeding and shock (hypoperfusion). The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment:	Sterile dressings, bandages, splints, pneumatic antishock garment, triangular bandage, stick or rod, air splints, gloves, eye protection, blanket.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in bleeding and shock (hypoperfusion).

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in bleeding and shock.

Recommended Minimum Time to Complete: Two hours

PRESENTATION

Declarative (What)

I. Circulatory (Cardiovascular) System Review
   A. Anatomy review
      1. Heart
      2. Arteries
      3. Capillaries
      4. Veins
      5. Blood
      6. Physiology
      7. Perfusion
         a. Definition - circulation of blood through an organ structure.
         b. Perfusion delivers oxygen and other nutrients to the cells of all organ systems and the removes waste products.
         c. Hypoperfusion is the inadequate circulation of blood through an organ.

II. External Bleeding
   A. Body substance isolation must be routinely taken to avoid skin and mucous membrane exposure to body fluids.
      1. Eye protection
      2. Gloves
      3. Gown

4. Mask
5. Hand washing following each run.

B. Severity
1. The sudden loss of one liter (1000cc) of blood in the adult patient, 1/2 liter (500cc) of blood in the child, and 100 - 200cc of the blood volume in an infant is considered serious. (For example, a one year old only has 800cc of blood, therefore 150cc is a major blood loss).
2. The severity of blood loss must be based on the patient's signs and symptoms and the general impression of the amount of blood loss. If the patient exhibits signs and symptoms of shock (hypoperfusion), the bleeding is to be considered serious.
3. The natural response to bleeding is blood vessel contractions and clotting; however, a serious injury may prevent effective clotting from occurring.
4. Uncontrolled bleeding or significant blood loss leads to shock (hypoperfusion) and possibly death.

C. Types of bleeding
1. Arterial
   a. The blood spurts from the wound.
   b. Bright, red, oxygen rich blood.
   c. Arterial bleeding is the most difficult to control because of the pressure at which arteries bleed.
   d. As the patient's blood pressure drops, the amount of spurting may also drop.
2. Venous
   a. The blood flows as a steady stream.
   b. Dark, oxygen poor blood.
   c. Bleeding from a vein can be profuse; however, in most cases it is easier to control due to the lower venous pressure.
3. Capillary
   a. The blood oozes from a capillary and is dark red in color.
   b. The bleeding often clots spontaneously.

D. Emergency medical care of external bleeding
1. Body substance isolation
2. Maintain airway/artificial ventilation.
3. Bleeding control
   a. Apply finger tip pressure directly on the point of bleeding.

b. Elevation of a bleeding extremity may be used secondary to and in conjunction with direct pressure.

c. Large gaping wounds may require packing with sterile gauze and direct hand pressure if direct finger tip pressure fails to control bleeding.
d. If bleeding does not stop, remove dressing and assess for bleeding point to apply direct pressure. If diffuse bleeding is discovered, apply additional pressure.
e. Pressure points may be used in upper and lower extremities.

4. Methods to control external bleeding if direct pressure fails
   a. Splints
      (1) Reduction of motion of bone ends will reduce the amount and aggravation of tissue damage and bleeding associated with a fracture.
      (2) Splinting may allow prompt control of bleeding associated with a fracture.
   b. Pressure Splints
      (1) The use of air pressure splints can help control severe bleeding associated with lacerations of soft tissue or when bleeding is associated with fractures.
      (2) Pneumatic counterpressure devices (pneumatic antishock garment) can be used as an effective pressure splint to help control severe bleeding due to massive soft tissue injury to the lower extremities (leg compartments only) or traumatic pelvic hemorrhage (all compartments).
   c. Tourniquet
      (1) Use as a last resort to control bleeding of an amputated extremity when all other methods of bleeding control have failed.
      (2) Application of a tourniquet can cause permanent damage to nerves, muscles and blood vessels resulting in the loss of an extremity.
      (3) Procedures for applying a tourniquet:
         (a) Use a bandage 4 inches wide and 6 to 8 layers deep.
         (b) Wrap it around the extremity twice at a point proximal to the bleeding but as distal on the extremity as possible.

(c) Tie one knot in the bandage and place a stick or rod on top of the knot and tie the ends of the bandage over the stick in a square knot.
(d) Twist the stick until the bleeding stops.
(e) Once the bleeding has stopped, secure the stick or rod in position.
(f) Notify other emergency personnel who may care for the patient that a tourniquet has been applied.
(g) Document the use of a tourniquet and the time applied in the prehospital patient report.

(4) A continuously inflated blood pressure cuff may be used as a tourniquet until bleeding stops.

(5) Precautions with the use of a tourniquet:
(a) Use a wide bandage and secure tightly.
(b) Never use wire, rope, a belt, or any other material that may cut into the skin and underlying tissue.
(c) Do not remove or loosen the tourniquet once it is applied unless directed to do so by medical direction.
(d) Leave the tourniquet in open view.
(e) Do not apply a tourniquet directly over any joint, but as close to the injury as possible.

E. Special areas (bleeding from the nose, ears or mouth)

1. Potential causes:
a. Injured skull
b. Facial trauma
c. Digital trauma (nose picking)
d. Sinusitis and other upper respiratory tract infections
e. Hypertension (high blood pressure)
f. Coagulation disorders

2. Bleeding from the ears or nose may occur because of a skull fracture. If the bleeding is the result of trauma, do not attempt to stop the blood flow. Collect the blood with a loose dressing, which may also limit exposure to sources of infection.

3. Emergency medical care for epistaxis (nosebleed):
a. Place the patient in a sitting position leaning forward.
b. Apply direct pressure by pinching the fleshy portion of the nostrils together.
c. Keep the patient calm and quiet.

III. Internal Bleeding
- A. Severity
  1. Internal bleeding can result in severe blood loss with resultant shock (hypoperfusion) and subsequent death.
  2. Injured or damaged internal organs commonly lead to extensive bleeding that is concealed.
  3. Painful, swollen, deformed extremities may also lead to serious internal blood loss.
  4. Suspicion and severity of internal bleeding should be based on the mechanism of injury and clinical signs and symptoms.
- B. Relationship to mechanism of injury
  1. Blunt trauma
     - a. Falls
     - b. Motorcycle crashes
     - c. Pedestrian impacts
     - d. Automobile collisions
     - e. Blast injuries
     - f. Look for evidence of contusions, abrasions, deformity, impact marks, and swelling.
  2. Penetrating trauma
- C. Signs and symptoms of internal bleeding
  1. Pain, tenderness, swelling or discoloration of suspected site of injury.
  2. Bleeding from the mouth, rectum, or vagina, or other orifice.
  3. Vomiting bright red blood or dark coffee ground colored blood.
  4. Dark, tarry stools or stools with bright red blood
  5. Tender, rigid, and/or distended abdomen
  6. Late signs and symptoms of hypovolemic shock (hypoperfusion)
     - a. Anxiety, restlessness, combativeness or altered mental status
     - b. Weakness, faintness or dizziness
     - c. Thirst
     - d. Shallow rapid breathing
     - e. Rapid weak pulse
     - f. Pale, cool, clammy skin
     - g. Capillary refill greater than 2 seconds - infant and child patients only
     - h. Dropping blood pressure (late sign)
     - i. Dilated pupils that are sluggish to respond
     - j. Nausea and vomiting
- D. Emergency medical care

1. Body substance isolation
2. Maintain airway/artificial ventilation.
3. Administer oxygen if not already done during the initial assessment.
4. If bleeding is suspected in an extremity, control bleeding by direct pressure and application of a splint.
5. Immediate transport is critical for patient with signs and symptoms of shock (hypoperfusion).

IV. Shock (hypoperfusion syndrome)

A. Severity

1. Shock (hypoperfusion) results in inadequate perfusion of cells with oxygen and nutrients and inadequate removal of metabolic waste products.
2. Cell and organ malfunction and death can result from shock (hypoperfusion); therefore, prompt recognition and treatment is vital to patient survival.
3. Peripheral perfusion is drastically reduced due to the reduction in circulating blood volume.
4. Trauma patients develop shock (hypoperfusion) from the loss of blood from both internal and external sites. This type of shock (hypoperfusion) is referred to as hypovolemic or hemorrhagic shock.

B. Signs and symptoms of shock (hypoperfusion)

1. Mental states
   a. Restlessness
   b. Anxiety
   c. Altered mental status
2. Peripheral perfusion
   a. Delayed capillary refill greater than 2 seconds in normal ambient air temperature - infant and child patients only
   b. Weak, thready or absent peripheral pulses
   c. Pale, cool, clammy skin
3. Vital signs
   a. Decreased blood pressure (late sign)
   b. Increased pulse rate (early sign) - weak and thready
   c. Increased breathing rate
      (1) Shallow
      (2) Labored
      (3) Irregular
4. Other signs and symptoms

a. Dilated pupils
b. Marked thirst
c. Nausea and vomiting
d. Pallor with cyanosis to the lips

5. Infant and child patients can maintain their blood pressure until their blood volume is more than half gone, so by the time their blood pressure drops they are close to death. The infant or child in shock has less reserve.

C. Emergency medical care

1. Body substance isolation.
2. Maintain airway/artificial ventilation. Administer oxygen if indicated.
3. Control any external bleeding.
4. If signs of shock (hypoperfusion) are present and the lower abdomen is tender and pelvic injury is suspected, with no evidence of chest injury, apply and inflate the pneumatic antishock garment if approved by medical direction.
5. Elevate the lower extremities approximately 8 to 12 inches. If the patient has serious injuries to the pelvis, lower extremities, head, chest, abdomen, neck, or spine, keep the patient supine.
6. Splint any suspected bone or joint injuries.
7. Prevent loss of body heat by covering the patient with a blanket when appropriate.
8. Immediate transport.

APPLICATION

Procedural (How)

1. Review the methods of controlling external bleeding with emphasis on body substance isolation.
2. Review the methods used to treat internal bleeding.
3. Review the methods used to treat the patient in shock (hypoperfusion).

Contextual (When, Where, Why)

Bleeding and shock (hypoperfusion) are identified during the initial patient assessment after securing the scene and ensuring personal safety. Control of arterial or venous bleeding will be done upon immediate identification, after airway and breathing. Treatment of shock (hypoperfusion) and internal bleeding will be performed immediately following the initial assessment and prior to the transportation of the patient. Bleeding that is uncontrolled or excessive will lead to shock (hypoperfusion). Shock (hypoperfusion) will lead to inadequate tissue perfusion and eventual cell and organ death.

STUDENT ACTIVITIES

Auditory (Hear)

1. The students should hear simulated situations to identify signs and symptoms of external bleeding, internal bleeding, and shock (hypoperfusion).
2. The students should hear normal systolic and diastolic sounds associated with taking a blood pressure.

Visual (See)

1. The students should see audio-visual aids or materials of the various types of external bleeding and various signs of internal bleeding and shock (hypoperfusion).
2. The student should see audio-visual aids or materials of the proper methods to control bleeding, and treat for internal bleeding and shock (hypoperfusion).
3. The student should see a patient to identify major bleeding and signs of internal bleeding and shock (hypoperfusion).
4. The students should see, in simulated situations, the application of direct pressure, elevation, splints, counterpressure devices, cryotherapy, and tourniquets in the treatment of external bleeding.
5. The students should see, in simulated situations, the treatment of the internal bleeding and shock (hypoperfusion).
6. The students should see audio-visual aids or materials with known amounts of blood on gauze pads, vaginal pads, clothing, floors, and humans.

Kinesthetic (Do)

1. The students should practice application of direct pressure, elevation, splints, and tourniquets.
2. The students should practice the treatment of internal bleeding and shock (hypoperfusion).
3. The students should practice completing a prehospital care report for patients with bleeding and/or shock (hypoperfusion).

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 5

Trauma

Lesson 5-2

Soft Tissue Injuries

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

5-2.1 State the major functions of the skin.(C-1)
5-2.2 List the layers of the skin. (C-1)
5-2.3 Establish the relationship between body substance isolation (BSI) and soft tissue injuries.(C-3)
5-2.4 List the types of closed soft tissue injuries.(C-1)
5-2.5 Describe the emergency medical care of the patient with a closed soft tissue injury.(C-1)
5-2.6 State the types of open soft tissue injuries.(C-1)
5-2.7 Describe the emergency medical care of the patient with an open soft tissue injury.(C-1)
5-2.8 Discuss the emergency medical care considerations for a patient with a penetrating chest injury.(C-1)
5-2.9 State the emergency medical care considerations for a patient with an open wound to the abdomen.(C-1)
5-2.10 Differentiate the care of an open wound to the chest from an open wound to the abdomen.(C-3)
5-2.11 List the classifications of burns.(C-1)
5-2.12 Define superficial burn.(C-1)
5-2.13 List the characteristics of a superficial burn.(C-1)
5-2.14 Define partial thickness burn. (C-1)
5-2.15 List the characteristics of a partial thickness burn.(C-1)
5-2.16 Define full thickness burn. (C-1)

5-2.17 List the characteristics of a full thickness burn.(C-1)
5-2.18 Describe the emergency medical care of the patient with a superficial burn.(C-1)
5-2.19 Describe the emergency medical care of the patient with a partial thickness burn.(C-1)
5-2.20 Describe the emergency medical care of the patient with a full thickness burn.(C-1)
5-2.21 List the functions of dressing and bandaging.(C-1)
5-2.22 Describe the purpose of a bandage.(C-1)
5-2.23 Describe the steps in applying a pressure dressing.(C-1)
5-2.24 Establish the relationship between airway management and the patient with chest injury, burns, blunt and penetrating injuries.(C-1)
5-2.25 Describe the effects of improperly applied dressings, splints and tourniquets.(C-1)
5-2.26 Describe the emergency medical care of a patient with an impaled object.(C-1)
5-2.27 Describe the emergency medical care of a patient with an amputation.(C-1)
5-2.28 Describe the emergency care for a chemical burn.(C-1)
5-2.29 Describe the emergency care for an electrical burn.(C-1)

AFFECTIVE OBJECTIVES

No affective objectives identified.

PSYCHOMOTOR OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
5-2.29 Demonstrate the steps in the emergency medical care of closed soft tissue injuries.(P-1,2)
5-2.30 Demonstrate the steps in the emergency medical care of open soft tissue injuries.(P-1,2)
5-2.31 Demonstrate the steps in the emergency medical care of a patient with an open chest wound.(P-1,2)
5-2.32 Demonstrate the steps in the emergency medical care of a patient with open abdominal wounds.(P-1,2)
5-2.33 Demonstrate the steps in the emergency medical care of a patient with an impaled object.(P-1,2)
5-2.34 Demonstrate the steps in the emergency medical care of a patient with an amputation.(P-1,2)
5-2.35 Demonstrate the steps in the emergency medical care of an amputated part.(P-1,2)
5-2.36 Demonstrate the steps in the emergency medical care of a patient with superficial burns.(P-1,2)
5-2.37 Demonstrate the steps in the emergency medical care of a patient with partial thickness burns.(P-1,2)

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5-2.38 Demonstrate the steps in the emergency medical care of a patient with full thickness burns.(P-1,2)
5-2.39 Demonstrate the steps in the emergency medical care of a patient with a chemical burn.(P-1,2)
5-2.40 Demonstrate completing a prehospital care report for patients with soft tissue injuries.(P-2)

PREPARATION

Motivation: Soft tissue injuries are common and dramatic, but rarely life threatening. Soft tissue injuries range from abrasions to serious full thickness burns. It is necessary for the EMT-Basic to become familiar with the treatment of soft tissue injuries with emphasis on controlling bleeding, preventing further injury, and reducing contamination.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to soft tissue injuries. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment: Universal dressing, occlusive dressing, 4 x 4 gauze pads, self adherent bandages, roller bandages, triangular bandage, burn sheets, sterile water or saline.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in soft tissue injuries.

- -

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in soft tissue injuries.

Recommended Minimum Time to Complete: Two hours

PRESENTATION

Declarative (What)

I. Review the Skin
   A. Function
   B. Layers
II. Injuries
   A. Closed
      1. Types
         a. Contusion (bruise)
            (1) Epidermis remains intact
            (2) Cells are damaged and blood vessels torn in the dermis
            (3) Swelling and pain are typically present
            (4) Blood accumulation causes discoloration
         b. Hematoma
            (1) Collection of blood beneath the skin
            (2) Larger amount of tissue damage as compared to contusion
            (3) Larger vessels are damaged
            (4) May lose one or more liters of blood
         c. Crush injuries
            (1) Crushing force applied to the body
            (2) Can cause internal organ rupture
            (3) Internal bleeding may be severe with shock (hypoperfusion)

2. Emergency medical care
   a. Relationship to body substance isolation
      (1) Gloves
      (2) Hand washing
   b. Proper airway/artificial ventilation/oxygenation
   c. If shock (hypoperfusion) or internal bleeding is suspected - Treat for shock (hypoperfusion)
   d. Splint a painful, swollen, deformed extremity.
   e. Transport

B. Open
1. Types
   a. Abrasion
      (1) Outermost layer of skin is damaged by shearing forces.
      (2) Painful injury, even though superficial.
      (3) No or very little oozing of blood.
   b. Laceration
      (1) Break in skin of varying depth
      (2) May be linear (regular) or stellate (irregular) and occur in isolation or together with other types of soft tissue injury.
      (3) Caused by forceful impact with sharp object.
      (4) Bleeding may be severe.
   c. Avulsion - flaps of skin or tissue are torn loose or pulled completely off.
   d. Penetration/puncture
      (1) Caused by sharp pointed object
      (2) May be no external bleeding
      (3) Internal bleeding may be severe
      (4) Exit wound may be present
      (5) Examples:
         (a) Gun shot wound
         (b) Stab wound
   e. Amputations
      (1) Involves the extremities and other body parts
      (2) Massive bleeding may be present or bleeding may be limited
   f. Crush injuries
      (1) Damage to soft tissue and internal organs
      (2) May cause painful, swollen, deformed extremities
      (3) External bleeding may be minimal or absent

(4) Internal bleeding may be severe

2. Emergency medical care
   a. Relationship to body substance isolation
      (1) Gloves
      (2) Gown
      (3) Eye protection
      (4) Hand washing
   b. Maintain proper airway/artificial ventilation/oxygenation.

   c. Management of open soft tissue injuries.
      (1) Expose the wound.
      (2) Control the bleeding.
      (3) Prevent further contamination.
      (4) Apply dry sterile dressing to the wound and bandage securely in place.
      (5) Keep the patient calm and quiet.
      (6) Treat for shock (hypoperfusion) if signs and symptoms are present.
   d. Special considerations
      (1) Chest injuries - occlusive dressing to open wound
         (a) Administer oxygen if not already done
         (b) Position of comfort if no spinal injury suspected
      (2) Abdominal injuries - evisceration (organs protruding through the wound)
         (a) Do not touch or try to replace the exposed organ.
         (b) Cover exposed organs and wound with a sterile dressing, moistened with sterile water or saline, and secure in place.
         (c) Flex the patient's hips and knees, if uninjured.
      (3) Impaled objects
         (a) Do not remove the impaled object, unless it is through the cheek, it would interfere with chest compressions, or interferes with transport.
         (b) Manually secure the object.
         (c) Expose the wound area.
         (d) Control bleeding.
         (e) Utilize a bulky dressing to help stabilize the object.
      (4) Amputations - concerns for re-attachment
         (a) Wrap the amputated part in a sterile dressing.

(b) Wrap or bag the amputated part in plastic and keep cool.
(c) Transport the amputated part with the patient.
(d) Do not complete partial amputations.
(e) Immobilize to prevent further injury.

(5) Large open neck injury
(a) May cause air embolism.
(b) Cover with an occlusive dressing.
(c) Compress carotid artery only if necessary to control bleeding.

C. Burns

1. Classification - according to depth
a. Superficial - involves only the epidermis
(1) Reddened skin
(2) Pain at the site
b. Partial thickness - involves both the epidermis and the dermis, but does not involve underlying tissue.
(1) Intense pain
(2) White to red skin that is moist and mottled
(3) Blisters
c. Full thickness - burn extend through all the dermal layers and may involve subcutaneous layers, muscle, bone or organs.
(1) Skin becomes dry and leathery and may appear white, dark brown or charred
(2) Loss of sensation - little or no pain, hard to the touch, pain at periphery

2. Severity
a. Depth or degree of the burn
(1) Superficial
(2) Partial thickness
(3) Full thickness
b. Percentage of body area burned - size of the patient's hand is equal to 1%.
(1) Rule of nines
(a) Adult
i) Head and neck - 9%
ii) Each upper extremity - 9%
iii) Anterior trunk - 18%
iv) Posterior trunk - 18%
v) Each lower extremity - 18%

vi) Genitalia - 1%

(b) Infant

i) Head and neck - 18%
ii) Each upper extremity - 9%
iii) Anterior trunk - 18%
iv) Posterior trunk - 18%
v) Each lower extremity - 14%

c. Location of the burn
(1) Face and upper airway
(2) Hands
(3) Feet
(4) Genitalia

d. Pre-existing medical conditions

e. Age of the patient
(1) Less than five years of age
(2) Greater than fifty-five years of age

f. Determine severity
(1) Critical burns
(a) Full thickness burns involving the hands, feet, face, or genitalia
(b) Burns associated with respiratory injury
(c) Full thickness burns covering more than 10% of the body surface
(d) Partial thickness burns covering more than 30% of the body surface area
(e) Burns complicated by painful, swollen, deformed extremity
(f) Moderate burns in young children or elderly patients
(g) Burns encompassing any body part e.g. arm, leg, or chest.
(2) Moderate burns
(a) Full thickness burns of 2 to 10% of the body surface area excluding hands, feet, face, genitalia and upper airway
(b) Partial thickness burns of 15 to 30% of the body surface area
(c) Superficial burns of greater than 50% body surface area
(3) Minor burns

(a) Full thickness burns of less than 2% of the body surface area
(b) Partial thickness burns of less than 15% of the body surface area

3. Emergency medical care
   a. Stop the burning process, initially with water or saline.
   b. Remove smoldering clothing and jewelry.
   c. Body substance isolation
   d. Continually monitor the airway for evidence of closure.
   e. Prevent further contamination.
   f. Cover the burned area with a dry sterile dressing.
   g. Do not use any type of ointment, lotion or antiseptic.
   h. Do not break blisters.
   i. Transport.
   j. Know local protocols for transport to appropriate local facility.
4. Infant and child considerations
   a. Relative size
      (1) Greater surface area in relationship to the total body size.
      (2) Results in greater fluid and heat loss.
      (3) Any full thickness burn or partial thickness burn greater than 20%, or burn involving the hands, feet, face , airway or genitalia is considered to be a critical burn in a child.
      (4) Any partial thickness burn of 10 to 20% is considered a moderate burn in a child.
      (5) Any partial thickness burn less than 10% is considered a minor burn.
   b. Higher risk for shock (hypoperfusion), airway problem or hypothermia.
   c. Consider possibility of child abuse.
5. Chemical burns
   a. Take the necessary scene safety precautions to protect yourself from exposure to hazardous materials.
   b. Wear gloves and eye protection.
   c. Emergency medical care
      (1) Dry powders should be brushed off prior to flushing.
      (2) Immediately begin to flush with large amounts of water.

(3) Continue flushing the contaminated area when en route to the receiving facility.
(4) Do not contaminate uninjured areas when flushing.

6. Electrical burns
   a. Scene safety
      (1) Do not attempt to remove patient from the electrical source unless trained to do so.
      (2) If the patient is still in contact with the electrical source or you are unsure, do not touch the patient.
   b. Emergency medical care
      (1) Administer oxygen if indicated.
      (2) Monitor the patient closely for respiratory and cardiac arrest (consider need for AED).
      (3) Often more sever than external indications.
      (4) Treat the soft tissue injuries associated with the burn. Look for both an entrance and exit wound.

III. Dressing and Bandaging
   A. Function
      1. Stop bleeding.
      2. Protect the wound from further damage.
      3. Prevent further contamination and infection.
   B. Dressings
      1. Universal dressing
      2. 4 X 4 inch gauze pads
      3. Adhesive-type
      4. Occlusive
   C. Bandages
      1. Purpose - holds dressing in place
      2. Types
         a. Self-adherent bandages
         b. Gauze rolls
         c. Triangular bandages
         d. Adhesive tape
         e. Air splint

Procedural (How)

1. Show diagrams of the various layers of the skin.
2. Show diagrams of the various types of soft tissue injuries.
3. Demonstrate the procedure for treating a closed soft tissue injury.
4. Demonstrate the procedure for treating an open soft tissue injury.
5. Demonstrate the necessary body substance isolation that must be taken when dealing with soft tissue injuries.
6. Demonstrate the proper method for applying an occlusive dressing.
7. Demonstrate the proper method for stabilizing an impaled object.
8. Demonstrate the proper method of treating an evisceration.
9. Show a diagram illustrating a superficial, partial thickness, and full thickness burn.
10. Demonstrate the proper treatment for a superficial, partial thickness, and full thickness burn.
11. Show the various types of dressings and bandages.
12. Demonstrate the proper method for applying a universal dressing, 4 X 4 inch dressing, and adhesive type dressing.
13. Demonstrate the proper method for applying bandages: self-adherent, gauze rolls, triangular, adhesive tape, and air splints.
14. Demonstrate the proper method for applying a pressure dressing.

Contextual (When, Where, Why)

Soft tissue injuries, unless life threatening, will be treated after the initial assessment. The EMT-Basic will treat soft tissue injuries prior to the movement of the patient unless the patient condition warrants immediate transport. Major bleeding will be treated prior to the movement of the patient. Failure to treat soft tissue injuries could lead to severe external hemorrhage, further damage to the injury or further contamination.

STUDENT ACTIVITIES

Auditory (Hear)

1. The student should hear simulated situations in which the signs and symptoms of soft tissue injuries and procedures for treating soft tissue injuries are demonstrated.
2. The student should hear the sounds made by open sucking chest wounds.

Visual (See)

1. The student should see diagrams of the various layers of the skin.
2. The student should see diagrams of the various types of soft tissue injuries.
3. The student should see demonstrations for the procedure for treating a closed soft tissue injury.
4. The student should see demonstrations for the procedure for treating an open soft tissue injury.
5. The student should see demonstrations for the necessary body substance isolation that must be taken when dealing with soft tissue injuries.
6. The student should see demonstrations for the proper method for applying an occlusive dressing.
7. The student should see demonstrations for the proper method for stabilizing an impaled object.
8. The student should see demonstrations for the proper method of treating an evisceration.
9. The student should see diagrams illustrating a superficial, partial thickness, and full thickness burn.
10. The student should see demonstrations for the proper treatment for a superficial, partial thickness, and full thickness burn.
11. The student should see the various types of dressing and bandages.
12. The student should see demonstrations for the proper method for applying a universal dressing, 4 X 4 inch dressing, and adhesive type dressing.
13. The student should see demonstrations for the proper method for applying bandages: Self-adherent, gauze rolls, triangular, adhesive tape, and air splints.
14. The student should see demonstrations for the proper method for applying a pressure dressing.

Kinesthetic (Do)

1. The student should practice the steps in the emergency medical care of closed soft tissue injuries.
2. The student should practice the steps in the emergency medical care of open soft tissue injuries.
3. The student should practice the steps in the emergency medical care of a patient with an open chest wound.
4. The student should practice the steps in the emergency medical care of a patient with open abdominal wounds.
5. The student should practice the steps in the emergency medical care of a patient with an impaled object.
6. The student should practice the steps in the emergency medical care of a patient with superficial burns.

7. The student should practice the steps in the emergency medical care of a patient with partial thickness burns.
8. The student should practice the steps in the emergency medical care of a patient with full thickness burns.
9. The student should practice the steps in the emergency medical care of a patient with an amputation.
10. The student should practice the steps in the emergency medical care of the amputated part.
11. The student should practice the steps in the emergency medical care of a patient with a chemical burn.
12. The student should practice the steps in the emergency care of a patient with an electrical burn.
13. The student should practice completing a prehospital care report for patients with soft tissue injuries.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 5

Trauma

Lesson 5-3

Musculoskeletal Care

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

5-3.1 Describe the function of the muscular system.(C-1)
5-3.2 Describe the function of the skeletal system.(C-1)
5-3.3 List the major bones or bone groupings of the spinal column; the thorax; the upper extremities; the lower extremities.(C-1)
5-3.4 Differentiate between an open and a closed painful, swollen, deformed extremity.(C-1)
5-3.5 State the reasons for splinting.(C-1)
5-3.6 List the general rules of splinting.(C-1)
5-3.7 List the complications of splinting.(C-1)
5-3.8 List the emergency medical care for a patient with a painful, swollen, deformed extremity. (C-1)

AFFECTIVE OBJECTIVES

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

5-3.9 Explain the rationale for splinting at the scene versus load and go.(A-3)
5-3.10 Explain the rationale for immobilization of the painful, swollen, deformed extremity.(A-3)

PSYCHOMOTOR OBJECTIVES

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

5-3.11 Demonstrate the emergency medical care of a patient with a painful, swollen, deformed extremity.(P-1,2)

5-3.12 Demonstrate completing a prehospital care report for patients with musculoskeletal injuries.(P-2)

PREPARATION

Motivation: Musculoskeletal injuries are one of the most common types of injuries encountered by the EMT-Basic. These injuries are largely non-life threatening in nature; however, some may be life threatening. Prompt identification and treatment of musculoskeletal injuries is crucial in reducing pain, preventing further injury and minimizing permanent damage.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to musculoskeletal care. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment: Splints: Padded arm and leg, air, traction, cardboard, ladder, blanket, pillow, pneumatic antishock garment, improvised splinting material, e.g., magazines, etc.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in musculoskeletal injuries and splinting techniques.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in musculoskeletal care and splinting techniques.

Recommended Minimum
Time to Complete: Four hours

Declarative (What)

I. Musculoskeletal Review
   A. Anatomy review
   B. The skeletal system
II. Injuries to bones
   A. Mechanism of injury
      1. Direct force
      2. Indirect force
      3. Twisting force
   B. Bone or joint injuries
      1. Types
         a. Open - break in the continuity of the skin
         b. Closed - no break in the continuity of the skin
      2. Signs and symptoms
         a. Deformity or angulation
         b. Pain and tenderness
         c. Grating
         d. Swelling
         e. Bruising (discoloration)
         i. Exposed bone ends
         j. Joint locked into position
      3. Emergency medical care of bone or joint injuries
         a. Body substance isolation
         b. Administer oxygen if not already done and indicated.
         c. After life threats have been controlled, splint injuries in preparation for transport.
         d. Application of cold pack to area of painful, swollen, deformed extremity to reduce swelling.
         e. Elevate the extremity.
III. Splinting
   A. Reasons
      1. Prevent motion of bone fragments, bone ends or angulated joints.
      2. Minimize the following complications:
         a. Damage to muscles, nerves, or blood vessels caused by broken bones.

b. Conversion of a closed painful, swollen, deformed extremity to an open painful, swollen, deformed extremity.
c. Restriction of blood flow as a result of bone ends compressing blood vessels.
d. Excessive bleeding due to tissue damage caused by bone ends.
e. Increased pain associated with movement of bone
f. Paralysis of extremities due to a damaged spine.

B. General rules of splinting
1. Assess pulse, motor, and sensation distal to the injury prior to and following splint application and record findings.
2. Immobilize the joint above and below the injury.
3. Remove or cut away clothing.
4. Cover open wounds with a sterile dressing.
5. If there is a severe deformity or the distal extremity is cyanotic or lacks pulses, align with gentle traction before splinting.
6. Do not intentionally replace the protruding bones.
7. Pad each splint to prevent pressure and discomfort to the patient.
8. Splint the patient before moving when feasible and no life threats.
9. When in doubt, splint the injury when feasible and no life threats.
10. If patient has signs of shock (hypoperfusion), align in normal anatomical position and transport (Total body immobilization. Example: Backboard takes care of all immobilization on emergency basis).

C. Equipment
1. Rigid splints
2. Traction splints
3. Pneumatic splints (air, vacuum)
4. Improvised splints, pillow
5. Pneumatic Anti Shock Garment (as a splint)

D. Hazards of improper splinting
1. Compression of nerves, tissues and blood vessels from the splint
2. Delay in transport of a patient with life threatening injury
3. Splint applied too tight on the extremity reducing distal circulation
4. Aggravation of the bone or joint injury
5. Cause or aggravate tissue, nerve, vessel or muscle damage fr

E. Special considerations of splinting
1. Long bone splinting procedure
a. Body substance isolation
b. Apply manual stabilization.
c. Assess pulse, motor and sensory function.

d. If there is a severe deformity or the distal extremity is cyanotic or lacks pulses, align with gentle traction before splinting.
e. Measure splint.
f. Apply splint immobilizing the bone and joint above and below the injury.
g. Secure entire injured extremity.
h. Immobilize hand/foot in position of function.
i. Reassess pulse, motor, and sensation after application of splint and record.

2. Splinting a joint injury
   a. Body substance isolation
   b. Apply manual stabilization.
   c. Assess pulse, motor and sensory function.
   d. Align with gentle traction if distal extremity is cyanotic or lacks pulses and no resistance is met.
   e. Immobilize the site of injury.
   f. Immobilize bone above and below the site of injury.
   g. Reassess pulse, motor and sensation after application of splint and record.
3. Traction splinting
   a. Indications for use is a painful, swollen, deformed mid-thigh with no joint or lower leg injury.
   b. Contraindications of the use of a traction splint
      (1) Injury is close to the knee
      (2) Injury to the knee exists
      (3) Injury to the hip
      (4) Injured pelvis
      (5) Partial amputation or avulsion with bone separation, distal limb is connected only by marginal tissue. Traction would risk separation.
      (6) Lower leg or ankle injury.

   c. Traction splinting procedure
      (1) Assess pulse, motor, and sensation distal to the injury and record.
      (2) Body substance isolation
      (3) Perform manual stabilization of the injured leg.
      (4) Apply manual traction - required when using a bi-polar traction splint.
      (5) Prepare/adjust splint to proper length.

(6) Position splint under injured leg.
(7) Apply proximal securing device (ischial strap).
(8) Apply distal securing device (ankle hitch).
(9) Apply mechanical traction.
(10) Position/secure support straps.
(11) Re-evaluate proximal/distal securing devices.
(12) Reassess pulses, motor, sensation distal to the injury after application of the splint and record.
(13) Secure torso to the longboard to immobilize hip.
(14) Secure splint to the long board to prevent movement of splint.

APPLICATION

Procedural (How)

1. Show diagrams of the muscular system.
2. Show diagrams of the skeletal system.
3. Show audio-visual aids or materials of signs of open and closed type bone and joint injuries.
4. Demonstrate assessment of an injured extremity.
5. Demonstrate splinting procedures relevant to the general rules of splinting using: Rigid splints, traction splints, pneumatic splints, improvised splints, and pneumatic antishock garments.
6. Demonstrate procedure for splinting an injury with distal cyanosis or lacking a distal pulse.

Contextual (When, Where, Why)

Injuries to bones and joints require splinting prior to the movement of the patient unless life-threatening injuries are present. If life-threatening injuries are present, splinting should be done en route to the receiving facility when possible.

Failure to splint or improperly splinting a bone or joint injury can result in damage to soft tissue, organs, nerves, muscles; increased bleeding associated with the injury; permanent damage or disability; conversion of a closed injury to an open injury; and an increase in pain.

STUDENT ACTIVITIES

Auditory (Hear)

1. The student should hear simulations on various situations involving musculoskeletal injuries and the proper assessment and treatment.

Visual (See)

1. The student should see diagrams of the muscular system.
2. The student should see diagrams of the skeletal system.
3. The student should see audio-visual aids or materials of signs of open and closed bone and joint injuries.
4. The student should see a demonstration of an assessment of an injured extremity.
5. The student should see a demonstration of splinting procedures relevant to the general rules of splinting using: Rigid splints, traction splints, pneumatic splints, improvised splints, and pneumatic antishock garments.
6. The student should see a demonstration of the procedure for splinting an injury with distal cyanosis or lacking a distal pulse.

Kinesthetic (Do)

1. The student should practice assessment of an injured extremity.
2. The student should practice splinting procedures relevant to the general rules of splinting using: Rigid splints, traction splints, pneumatic splints, improvised splints, and pneumatic antishock garments.
3. The student should practice procedure for splinting an injury with distal cyanosis or lacking a distal pulse.
4. The student should practice completing a prehospital care report for patients with musculoskeletal injuries.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 5

Trauma

Lesson 5-4

Injuries to the Head and Spine

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

5-4.1 State the components of the nervous system.(C-1)
5-4.2 List the functions of the central nervous system.(C-1)
5-4.3 Define the structure of the skeletal system as it relates to the nervous system.(C-1)
5-4.4 Relate mechanism of injury to potential injuries of the head and spine.(C-3)
5-4.5 Describe the implications of not properly caring for potential spine injuries.(C-1)
5-4.6 State the signs and symptoms of a potential spine injury.(C-1)
5-4.7 Describe the method of determining if a responsive patient may have a spine injury.(C-1)
5-4.8 Relate the airway emergency medical care techniques to the patient with a suspected spine injury.(C-3)
5-4.9 Describe how to stabilize the cervical spine.(C-1)
5-4.10 Discuss indications for sizing and using a cervical spine immobilization device.(C-1)
5-4.11 Establish the relationship between airway management and the patient with head and spine injuries.(C-1)
5-4.12 Describe a method for sizing a cervical spine immobilization device.(C-1)
5-4.13 Describe how to log roll a patient with a suspected spine injury.(C-1)
5-4.14 Describe how to secure a patient to a long spine board.(C-1)
5-4.15 List instances when a short spine board should be used.(C-1)

5-4.16 Describe how to immobilize a patient using a short spine board.(C-1)
5-4.17 Describe the indications for the use of rapid extrication.(C-1)
5-4.18 List steps in performing rapid extrication.(C-1)
5-4.19 State the circumstances when a helmet should be left on the patient.(C-1)
5-4.20 Discuss the circumstances when a helmet should be removed.(C-1)
5-4.21 Identify different types of helmets.(C-1)
5-4.22 Describe the unique characteristics of sports helmets.(C-1)
5-4.23 Explain the preferred methods to remove a helmet.(C-1)
5-4.24 Discuss alternative methods for removal of a helmet.(C-1)
5-4.25 Describe how the patient's head is stabilized to remove the helmet.(C-1)
5-4.26 Differentiate how the head is stabilized with a helmet compared to without a helmet.(C-3)

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
5-4.27 Explain the rationale for immobilization of the entire spine when a cervical spine injury is suspected.(A-3)
5-4.28 Explain the rationale for utilizing immobilization methods apart from the straps on the cots.(A-3)
5-4.29 Explain the rationale for utilizing a short spine immobilization device when moving a patient from the sitting to the supine position.(A-3)
5-4.30 Explain the rationale for utilizing rapid extrication approaches only when they indeed will make the difference between life and death.(A-3)
5-4.31 Defend the reasons for leaving a helmet in place for transport of a patient.(A-3)
5-4.32 Defend the reasons for removal of a helmet prior to transport of a patient.(A-3)

PSYCHOMOTOR OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
5-4.33 Demonstrate opening the airway in a patient with suspected spinal cord injury.(P-1,2)
5-4.34 Demonstrate evaluating a responsive patient with a suspected spinal cord injury.(P-1,2)
5-4.35 Demonstrate stabilization of the cervical spine.(P-1,2)
5-4.36 Demonstrate the four person log roll for a patient with a suspected spinal cord injury.(P-1,2)
5-4.37 Demonstrate how to log roll a patient with a suspected spinal cord injury using two people.(P-1,2)
5-4.38 Demonstrate securing a patient to a long spine board.(P-1,2)
5-4.39 Demonstrate using the short board immobilization technique.(P-1,2)
5-4.40 Demonstrate procedure for rapid extrication.(P-1,2)
5-4.41 Demonstrate preferred methods for stabilization of a helmet. (P-1,2)

5-4.42 Demonstrate helmet removal techniques.(P-1,2)
5-4.43 Demonstrate alternative methods for stabilization of a helmet.(P-1,2)
5-4.44 Demonstrate completing a prehospital care report for patients with head and spinal injuries.(P-2)

PREPARATION

Motivation: Injuries to the head and spine are extremely serious and may result in severe permanent disability or death if improperly treated or missed in the assessment.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to injuries of the head and spine. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment: Long spine board, short spine immobilization device, cervical immobilization devices, helmet, head immobilization device, blanket roll, two inch tape.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in head and spinal injuries.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in head and spinal emergencies and treatment.

Recommended Minimum

PRESENTATION

Time to Complete: Four hours

Declarative (What)

I. The Nervous System Review
   A. Components
   B. Actions
II. The Skeletal System
   A. Functions
   B. Components
      1. Skull
      2. Spinal column
         a. 33 bones
         b. Surrounds and protects the spinal cord.
III. Injuries to the Spine
   A. Mechanism of injury
      1. Compression
         a. Falls
         b. Diving accidents
         c. Motor vehicle accidents
      2. Excessive flexion, extension, rotation
      3. Lateral bending
      4. Distraction
         a. Pulling apart of the spine
         b. Hangings
      5. Maintain a high index of suspicion
         a. Motor vehicle crashes
         b. Pedestrian - vehicle collisions
         c. Falls
         d. Blunt trauma
         e. Penetrating trauma to head, neck, or torso
         f. Motorcycle crashes
         g. Hangings

- h. Diving accidents
- i. Unconscious trauma victims

B. Signs and symptoms
1. Ability to walk, move extremities or feel sensation; or lack of pain to spinal column does not rule out the possibility of spinal column or cord damage.
2. Tenderness in the area of injury
3. Pain associated with moving
   - a. Do not ask the patient to move to try to elicit a pain response.
   - b. Do not move the patient to test for a pain response.
4. Tell the patient not to move while asking questions.
5. Pain independent of movement or palpation
   - a. Along spinal column
   - b. Lower legs
   - c. May be intermittent
6. Obvious deformity of the spine upon palpation
7. Soft tissue injuries associated with trauma
   - a. Head and neck to cervical spine
   - b. Shoulders, back or abdomen - thoracic, lumbar
   - c. Lower extremities - lumbar, sacral
8. Numbness, weakness or tingling in the extremities
9. Loss of sensation or paralysis below the suspected level of injury
10. Loss of sensation or paralysis in the upper or lower extremities
11. Incontinence

C. Assessing the potential spine injured patient
1. Responsive patient
   - a. Mechanism of injury
   - b. Questions to ask
     - (1) Does your neck or back hurt?
     - (2) What happened?
     - (3) Where does it hurt?
     - (4) Can you move your hands and feet?
     - (5) Can you feel me touching your fingers?
     - (6) Can you feel me touching your toes?
   - c. Inspect for contusions, deformities, lacerations, punctures, penetrations, swelling.
   - d. Palpate for areas of tenderness or deformity.
   - e. Assess equality of strength of extremities
     - (1) Hand grip
     - (2) Gently push feet against hands

2. Unresponsive patient
    a. Mechanism of injury
    b. Initial assessment
    c. Inspect for:
        (1) Contusions
        (2) Deformities
        (3) Lacerations
        (4) Punctures/penetrations
        (5) Swelling
    d. Palpate for areas of tenderness or deformity.
    e. Obtain information from others at the scene to determine information relevant to mechanism of injury or patient mental status prior to the EMT-Basic's arrival.

D. Complications
1. Inadequate breathing effort
2. Paralysis

E. Emergency medical care
1. Body substance isolation
2. Establish and maintain in-line immobilization.
    a. Place the head in a neutral in-line position unless the patient complains of pain or the head is not easily moved into position.
    b. Place head in alignment with spine.
    c. Maintain constant manual in-line immobilization until the patient is properly secured to a backboard with the head immobilized.
3. Perform initial assessment.
    a. Whenever possible, airway control must be done with in-line immobilization.
    b. Whenever possible, artificial ventilation must be done with in-line immobilization.
4. Assess pulse, motor and sensation in all extremities.
5. Assess the cervical region and neck.
6. Apply a rigid, cervical immobilization device.
    a. Properly size the cervical immobilization device. If it doesn't fit use a rolled towel and tape to the board and have rescuer hold the head manually.
    b. An improperly fit immobilization device will do more harm than good.
7. If found in a lying position, immobilize the patient to a long spine board.

a. Position the device.
b. Move the patient onto the device by log rolling.
   (1) One EMT-Basic must maintain in-line immobilization of the head and spine.
   (2) EMT-Basic at the head directs the movement of the patient.
   (3) One to three other EMT-Basics control the movement of the rest of the body.
   (4) Quickly assess posterior body if not already done in focused history and physical exam.
   (5) Position the long spine board under the patient.
   (6) Place patient onto the board at the command of the EMT-Basic holding in-line immobilization using a slide, proper lift, log roll or scoop stretcher so as to limit movement to the minimum amount possible. Which method to use must be decided based upon the situation, scene and available resources.
   (7) Pad voids between the patient and the board.
      (a) Adult
         i) Under the head
         ii) Voids under torso. Be careful of extra movement.
      (b) Infant and child - pad under the shoulders to the toes to establish a neutral position.
   (8) Immobilize torso to the board.
   (9) Immobilize the patient's head to the board.
   (10) Secure the legs to the board.
   (11) Reassess pulses, motor and sensation and record.

8. If the patient is found in a sitting position in a chair, immobilize with a short spine immobilization device. Exception: If the patient must be removed urgently because of his injuries, the need to gain access to others, or dangers at the scene, he must then be lowered directly onto a longboard and removed with manual immobilization provided.
   a. Position device behind the patient.
   b. Secure the device to the patient's torso.
   c. Evaluate torso fixation and adjust as necessary without excessive movement of the patient.
   d. Evaluate and pad behind the patient's head as necessary to maintain neutral in-line immobilization.
   e. Secure the patient's head to the device.

f. Insert a longboard under the patient's buttocks and rotate and lower him to it. If not possible, lower him to the long spine board.
g. Reassess pulses, motor and sensory in all extremities and record.

9. If the patient is found in a standing position, immobilize the patient to a long spine board.
   a. Position the device behind patient.
   b. Move the patient onto the device by:
      (1) One rescuer on each side of the patient, one additional rescuer at the foot facing the patient.
      (2) The rescuers on both sides of the patient reach with the hand closest to the patient under the arm to grasp the board, and use the hand farthest from the patient to secure the head.
      (3) Once the position is assured, they place the leg closest to the board behind the board and begin to tip the top backward. The rescuer at the foot of the board secures the board and the patient to prevent them from sliding, and the board is brought into a level horizontal position.
10. If the patient is critically injured, perform a rapid extrication.
11. Transport the patient immediately.
   a. Bring body into alignment.
   b. Transfer to long board without short spine board.

IV. Injuries to the Brain and Skull
A. Head injuries
1. Injuries to the scalp
   a. Very vascular, may bleed more than expected.
   b. Control bleeding with direct pressure.
2. Injury to the brain - injury of brain tissue or bleeding into the skull will cause an increase of pressure in the skull.

B. Related non-traumatic conditions
1. Non-traumatic injuries to the brain may occur due to clots or hemorrhaging.
2. Non-traumatic brain injuries can be a cause of altered mental status.
3. Signs and symptoms parallel that of traumatic injuries with the exception of evidence of trauma and a lack of mechanism of injury.

C. Skull injury - signs and symptoms
1. Mechanism of trauma

2. Contusions, lacerations, hematomas to the scalp
3. Deformity to the skull
4. Blood or fluid (cerebrospinal fluid) leakage from the ears or nose
5. Bruising (discoloration) around the eyes
6. Bruising (discoloration) behind the ears (mastoid process)

D. Head injury
1. Traumatic
2. Signs and symptoms
   a. Altered or decreasing mental status is the best indicator of a brain injury.
      (1) Confusion, disorientation, or repetitive questioning
      (2) Conscious - deteriorating mental status
      (3) Unresponsive
   b. Irregular breathing pattern
   c. Consideration of mechanism of injury
      (1) Deformity of windowshield
      (2) Deformity of helmet
   d. Contusions, lacerations, hematomas to the scalp
   e. Deformity to the skull
   f. Blood or fluid (cerebrospinal fluid) leakage from the ears and nose
   g. Bruising (discoloration) around the eyes
   h. Bruising (discoloration) behind the ears (mastoid process)
   i. Neurologic disability
   j. Nausea and/or vomiting
   k. Unequal pupil size with altered mental status
   l. Seizure activity may be seen.

E. Open head injury
1. Signs and symptoms
   a. Consideration of mechanism of injury
      (1) Deformity of windowshield
      (2) Deformity of helmet
   b. Contusions, lacerations, hematomas to the scalp
   c. Deformity to the skull
   d. Penetrating injury - do not remove impaled objects in the skull
   e. Soft area or depression upon palpation
   f. Exposed brain tissue if open
   g. Bleeding from the open bone injury
   h. Blood or fluid (cerebrospinal fluid) leakage from the ears and nose

i. Bruising (discoloration) around the eyes
j. Bruising (discoloration) behind the ears (mastoid process)
k. Nausea and/or vomiting

l. Possible signs and symptoms of a closed head injury may exist if brain injury has occurred.

F. Emergency medical care
1. Body substance isolation
2. Maintain airway/artificial ventilation/oxygenation.
3. Initial assessment with spinal immobilization should be done on scene with a complete detailed physical exam en route.
4. With any head injury, the EMT-Basic must suspect spinal injury. Immobilize the spine.
5. Closely monitor the airway, breathing, pulse, and mental status for deterioration.
6. Control bleeding.
a. Do not apply pressure to an open or depressed skull injury.
b. Dress and bandage open wound as indicated in the treatment of soft tissue injuries.
7. If a medical injury or non-traumatic injury exist, place patient on the left side.
8. Be prepared for changes in patient condition.
9. Immediately transport the patient.

V. Immobilization
A. Cervical spine immobilization devices
1. Indications
a. Any suspected injury to the spine based on mechanism of injury, history or signs and symptoms.
b. Use in conjunction with short and long backboards.
2. Sizing
a. Various types of rigid cervical immobilization devices exist, therefore, sizing is based on the specific design of the device.
b. An improperly sized immobilization device has a potential for further injury.
c. Do not obstruct the airway with the placement of a cervical immobilization device.
d. If it doesn't fit use a rolled towel and tape to the board and manually support the head. An improperly fit device will do more harm than good.
3. Precautions

a. Cervical immobilization devices alone do not provide adequate in-line immobilization.

b. Manual immobilization must always be used with a cervical immobilization device until the head is secured to a board.

B. Short backboards
1. Several different types of short board immobilization devices exist.
   a. Vest type devices
   b. Rigid short board
2. Provides stabilization and immobilization to the head, neck and torso.
3. Used to immobilize non-critical sitting patients with suspected spinal injuries.
4. General application
   a. Start manual in-line immobilization.
   b. Assess pulses, motor and sensory function in all extremities.
   c. Assess the cervical area.
   d. Apply a cervical immobilization device.
   e. Position short board immobilization device behind the patient.
   f. Secure the device to the patient's torso.
   g. Evaluate torso and groin fixation and adjust as necessary without excessive movement of the patient.
   h. Evaluate and pad behind the patient's head as necessary to maintain neutral in-line immobilization.
   i. Secure the patient's head to the device.
   j. Release manual immobilization of head.
   k. Rotate or lift the patient to the long spine board.
   l. Immobilize patient to long spine board.
   m. Reassess pulses, motor and sensory function in all extremities.

C. Long backboards (Full body spinal immobilization devices)
1. Several different types of long board immobilization devices exist.
2. Provide stabilization and immobilization to the head, neck and torso, pelvis and extremities.
3. Used to immobilize patients found in a lying, standing, or sitting position.
4. Sometimes used in conjunction with short backboards.
5. General application
   a. Start manual in-line immobilization.
   b. Assess pulses, motor and sensory function in all extremities.

c. Assess the cervical area.
d. Apply a cervical immobilization device.
e. Position the device.
f. Move the patient onto the device by log roll, suitable lift or slide, or scoop stretcher. A log roll is:
(1) One EMT-Basic must maintain in-line immobilization.
(2) EMT-Basic at the head directs the movement of the patient.
(3) One to three other EMT-Basics control the movement of the rest of the body.
(4) Quickly assess posterior body if not already done in initial assessment.
(5) Position the long spine board under the patient.
(6) Roll patient onto the board at the command of the EMT-Basic holding in-line immobilization.
g. Pad voids between the patient and the board.
(1) Adult
(a) Under the head as needed
(b) Under the torso as needed
(2) Infant and child - pad under the shoulders to the toes to establish a neutral position.
h. Immobilize torso to the board by applying straps across the chest and pelvis and adjust as needed.
i. Immobilize the patient's head to the board.
j. Fasten legs, proximal to and distal to the knees.
k. Reassess pulses, motor and sensation and record.

VI. Special Considerations
A. Rapid extrication
1. Indications
a. Unsafe scene
b. Unstable patient condition warrants immediate movement and transport.
c. Patient blocks the EMT-Basic's access to another, more seriously injured, patient.
d. Rapid extrication is based on time and the patient, and not the EMT-Basic's preference.
2. Procedure - refer to section on Lifting and Moving the Patient.

B. Helmet removal
1. Special assessment needs for patients wearing helmets.
a. Airway and breathing.

b. Fit of the helmet and patient's movement within the helmet.
c. Ability to gain access to airway and breathing.

2. Indications for leaving the helmet in place
   a. Good fit with little or no movement of the patient's head within the helmet.
   b. No impending airway or breathing problems.
   c. Removal would cause further injury to the patient.
   d. Proper spinal immobilization could be performed with helmet in place.
   e. No interference with the EMT-Basic's ability to assess and reassess airway and breathing.
3. Indications for removing the helmet
   a. Inability to assess and/or reassess airway and breathing.
   b. Restriction of adequate management of the airway or breathing.
   c. Improperly fitted helmet allowing for excessive patient head movement within the helmet.
   d. Proper spinal immobilization cannot be performed due to helmet.
   e. Cardiac arrest.
4. Types of helmets:
   a. Sports
      (1) Typically open anteriorly
      (2) Easier access to airway
   b. Motorcycle
      (1) Full face
      (2) Shield
   c. Other
5. General rules for removal of a helmet.
   a. The technique for removal of a helmet depends on the actual type of helmet worn by the patient.
   b. Take eyeglasses off before removal of the helmet.
   c. One EMT-Basic stabilizes the helmet by placing his hands on each side of the helmet with the fingers on the mandible to prevent movement.
   d. Second EMT-Basic loosens the strap.

   e. The second EMT-Basic places one hand on the mandible at the angle of the jaw and the other hand posteriorly at the occipital region.

f. The EMT-Basic holding the helmet pulls the sides of the helmet apart and gently slips the helmet halfway off the patient's head then stops.
g. The EMT-Basic maintaining stabilization of the neck repositions, slides the posterior hand superiorly to secure the head from falling back after complete helmet removal.
h. The helmet is removed completely.
i. The EMT-Basic then can proceed with spinal immobilization as indicated in the spinal immobilization section.

C. Infants and children - immobilize the infant or child on a rigid board appropriate for size (short, long or padded splint), according to the procedure outline in the spinal immobilization section. Special considerations:
1. Pad from the shoulders to the heels of the infant or child, if necessary to maintain neutral immobilization.
2. Properly size the cervical immobilization device. If it doesn't fit, use a rolled towel and tape to the board and manually support head. An improperly fit immobilization device will do more harm than good.

APPLICATION

Procedural (How)

1. Show diagrams or illustrations of the nervous system anatomy.
2. Show diagrams or illustrations of the structure of the skeletal system as it relates to the nervous system.
3. Show audio-visual aids or materials of related mechanism of injury to potential injuries of the head and spine.
4. Show audio-visual aids or materials of potential signs and symptoms of a potential spine injury.
5. Demonstrate the method of determining if a responsive patient may have a spine injury.

6. Demonstrate the airway emergency medical care techniques for the patient with a suspected spinal cord injury.
7. Demonstrate methods for sizing various cervical spine immobilization devices.
8. Demonstrate rapid extrication techniques.
9. Demonstrate how to stabilize the cervical spine.
10. Demonstrate how to immobilize a patient using a short spine board.
11. Demonstrate how to log roll a patient with a suspected spine injury.
12. Demonstrate how to secure a patient to a long spine board.
13. Demonstrate the preferred methods to remove sports, motorcycle and various other helmets.
14. Demonstrate alternative methods for removal of a helmet.
15. Demonstrate how the head is stabilized with a helmet compared to without a helmet.
16. Demonstrate how the patient's head is stabilized in order to remove a helmet.
17. Demonstrate sudden airway emergency medical care with helmet on.

Contextual (When, Where, Why)

For every patient who is involved in any type of traumatic incident in which the mechanism of injury and/or signs and symptoms indicate a possible spinal injury, complete spinal immobilization must be conducted. Critically injured or ill patients may be rapidly moved only with spinal immobilization techniques utilized. A short backboard or spinal immobilization device will be used on non-critically injured patients at the scene prior to movement of the patient. However, when patients present with life threats, or the scene is unsafe for the EMT-Basic, the patient is moved by a rapid extrication technique. Failure to immobilize the spine or treat the head injured patient will lead to increased patient morbidity and mortality.

STUDENT ACTIVITIES

Auditory (Hear)

1. Simulations in which immobilization techniques are needed and performed.
2. Simulations in which patients present with head injuries.

Visual (See)

1. The student should see audio-visual aids or materials of the nervous system anatomy.
2. The student should see audio-visual aids or materials of the structure of the skeletal system as it relates to the nervous system.
3. The student should see audio-visual aids or materials of mechanism of injury related to potential injuries of the head and spine.
4. The student should see audio-visual aids or materials of signs and symptoms of a potential spine injury.

5. The student should see a demonstration of the method of determining if a responsive patient may have a spine injury.
6. The student should see a demonstration of the airway emergency medical care techniques for the patient with a suspected spine injury.
7. The student should see a demonstration of the methods for sizing various cervical spine immobilization devices.
8. The student should see a demonstration of rapid extrication techniques.
9. The student should see a demonstration of how to stabilize the cervical spine.
10. The student should see a demonstration of how to immobilize a patient using a short spine board.
11. The student should see a demonstration of how to log roll a patient with a suspected spinal injury.
12. The student should see a demonstration of how to secure a patient to a long spine board.
13. The student should see a demonstration of the preferred methods to remove sports, motorcycle and various other helmets.
14. The student should see a demonstration of alternative methods for removal of a helmet.
15. The student should see a demonstration of how the head is stabilized with a helmet compared to without a helmet.
16. The student should see a demonstration of how the patient's head is stabilized in order to remove a helmet.
17. The student should see various types of long backboards.
18. The student should see various types of vest type immobilization devices.
19. The student should see various types of short backboards.
20. The student should see various types of helmets.
21. The student should see a demonstration of immobilization of an infant or child patient on a long backboard.

<u>Kinesthetic (Do)</u>

1. The student should practice opening the airway in a patient with suspected spinal cord injury.
2. The student should practice evaluating a responsive patient with a suspected spinal cord injury.
3. The student should practice stabilization of the cervical spine.
4. The student should practice using the short board immobilization technique.
5. The student should practice the four person log roll for a patient with a suspected spinal cord injury.
6. The student should practice how to log roll a patient with a suspected spinal cord injury using two people.
7. The student should practice securing a patient to a long spine board.

8. The student should practice helmet removal techniques.
9. The student should practice the procedure for rapid extrication.
10. The student should practice the preferred methods for stabilization of the helmet.
11. The student should practice alternative methods for stabilization of the helmet.
12. The student should practice preferred methods for stabilization of the head.
13. The student should practice alternative methods for stabilization of the head.
14. The student should practice completing a prehospital care report for patients with head and spinal injuries.
15. The student should practice the use of cervical immobilization devices, rolls and short boards for immobilizing the infant or child patient.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 5

Trauma

Lesson 5-5

Practical Lab: Trauma

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

- **!** Demonstrate the cognitive objectives of Lesson 5-1: Bleeding and Shock.
- **!** Demonstrate the cognitive objectives of Lesson 5-2: Soft Tissue Injuries.
- **!** Demonstrate the cognitive objectives of Lesson 5-3: Musculoskeletal Care.
- **!** Demonstrate the cognitive objectives of Lesson 5-4: Injuries to the Head and Spine.

AFFECTIVE OBJECTIVES

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

- **!** Demonstrate the affective objectives of Lesson 5-1: Bleeding and Shock.
- **!** Demonstrate the affective objectives of Lesson 5-3: Musculoskeletal Care.
- **!** Demonstrate the affective objectives of Lesson 5-4: Injuries to the Head and Spine.

PSYCHOMOTOR OBJECTIVES

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

- **!** Demonstrate the psychomotor objectives of Lesson 5-1: Bleeding and Shock.
- **!** Demonstrate the psychomotor objectives of Lesson 5-2: Soft Tissue Injuries.
- **!** Demonstrate the psychomotor objectives of Lesson 5-3: Musculoskeletal Care.
- **!** Demonstrate the psychomotor objectives of Lesson 5-4: Injuries to the Head and Spine.

Motivation: The practical lesson is designed to allow the students additional time to perfect skills. It is of utmost importance that the students demonstrate proficiency of the skill, cognitive knowledge of the steps to perform a skill, and a healthy attitude towards performing that skill on a patient.

This is an opportunity for the instructor and assistant instructors to praise progress and re-direct the students toward appropriate psychomotor skills. The material from all preceding lessons and basic life support should be incorporated into these practical skill sessions.

Prerequisites: BLS, Preparatory, Airway, Patient Assessment and Medical/Behavioral and Obstetrics/Gynecology.

MATERIALS

AV Equipment: Typically none required.

EMS Equipment: Equipment from the lists in Lessons 5-1 through 5-4.

PERSONNEL

Primary Instructor: One proctor for the written evaluation.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in trauma emergencies.

Recommended Minimum Time to Complete: Six hours

Procedural (How)

Instructor should demonstrate the procedural activities from Lesson 5-1: Bleeding and Shock.

Instructor should demonstrate the procedural activities from Lesson 5-2: Soft Tissue Injuries.

Instructor should demonstrate the procedural activities from Lesson 5-3: Musculoskeletal Care.

Instructor should demonstrate the procedural activities from Lesson 5-4: Injuries to the Head and Spine.

Contextual (When, Where, Why)

Instructor should review contextual information from Lesson 5-1: Bleeding and Shock.

Instructor should review contextual information from Lesson 5-2: Soft Tissue Injuries.

Instructor should review contextual information from Lesson 5-3: Musculoskeletal Care.

Instructor should review contextual information from Lesson 5-4: Injuries to the Head and Spine.

STUDENT ACTIVITIES

Auditory (Hear)

The students should hear the auditory information from Lesson 5-1: Bleeding and Shock.

The students should hear the auditory information from Lesson 5-2: Soft Tissue Injuries.

The students should hear the auditory information from Lesson 5-3: Musculoskeletal Care.

The students should hear the auditory information from Lesson 5-4: Injuries to the Head and Spine.

Visual (See)

The students should see the visual material from Lesson 5-1: Bleeding and Shock.

The students should see the visual material from Lesson 5-2: Soft Tissue Injuries.

The students should see the visual material from Lesson 5-3: Musculoskeletal Care.

The students should see the visual material from Lesson 5-4: Injuries to the Head and Spine.

Kinesthetic (Do)

The students should practice the kinesthetic activities from Lesson 5-1: Bleeding and Shock.

The students should practice the kinesthetic activities from Lesson 5-2: Soft Tissue Injuries.

The students should practice the kinesthetic activities from Lesson 5-3: Musculoskeletal Care.

The students should practice the kinesthetic activities from Lesson 5-4: Injuries to the Head and Spine.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skills stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 5

Trauma

Lesson 5-6

Evaluation: Trauma

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

- Demonstrate knowledge of the cognitive objectives of Lesson 5-1: Bleeding and Shock.
- Demonstrate knowledge of the cognitive objectives of Lesson 5-2: Soft Tissue Injuries.
- Demonstrate knowledge of the cognitive objectives of Lesson 5-3: Musculoskeletal Care.
- Demonstrate knowledge of the cognitive objectives of Lesson 5-4: Injuries to the Head and Spine.

AFFECTIVE OBJECTIVES

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

- Demonstrate knowledge of the affective objectives of Lesson 5-1: Bleeding and Shock.
- Demonstrate knowledge of the affective objectives of Lesson 5-3: Musculoskeletal Care.
- Demonstrate knowledge of the affective objectives of Lesson 5-4: Injuries to the Head and Spine.

PSYCHOMOTOR OBJECTIVES

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

- Demonstrate knowledge of the psychomotor objectives of Lesson 5-1: Bleeding and Shock.
- Demonstrate knowledge of the psychomotor objectives of Lesson 5-2: Soft Tissue Injuries.
- Demonstrate knowledge of the psychomotor objectives of Lesson 5-3: Musculoskeletal Care.
- Demonstrate knowledge of the psychomotor objectives of Lesson 5-4: Injuries to the Head and Spine.

PREPARATION

Motivation: Evaluation of the students attainment of the cognitive and affective knowledge and psychomotor skills is an essential component of the EMT-Basic educational process. The modules are presented in a "building block" format. Once the students have demonstrated their knowledge and proficiency, the next lesson should be built upon that knowledge. This evaluation will help to identify students or groups of students having difficulty with a particular area. This is an opportunity for the instructor to evaluate his performance, and make appropriate modifications to the delivery of material.

Prerequisites: Completion of Lessons 5-1 through 5-4.

MATERIALS

AV Equipment: Typically none required.

EMS Equipment:	Equipment required to evaluate the students proficiency in the psychomotor skills of this module.

PERSONNEL

Primary Instructor: One proctor for the written evaluation.

Assistant Instructor: One practical skills examiner for each 6 students.

Recommended Minimum
Time to Complete: One hour

PRESENTATION

Declarative (What)

I. Purpose of the evaluation

II. Items to be evaluated

III. Feed back from evaluation

APPLICATION

Procedural (How)

1. Written evaluation based on the cognitive and affective objectives of Lessons 5-1 through 5-4.

2. Practical evaluation stations based on the psychomotor objectives of Lessons 5-1 through 5-4.

Contextual (When, Where and Why)

The final lesson in this module is designed to bring closure to the module, and to assure that students are prepared to move to the next module.

This modular evaluation is given to determine the effectiveness of the presentation of materials and how well students have retained the material. This is an opportunity for the students to make necessary adjustments in study habits or for the instructor to adjust the manner in which material is presented.

INSTRUCTOR ACTIVITIES

Supervise student evaluation.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

REMEDIATION

Identify students and/or groups of students who are having difficulty with this subject content. Complete a remediation sheet from the instructor's course guide. If students continue to have difficulty demonstrating knowledge of the cognitive and affective objectives, or demonstrating proficiency in psychomotor skills, the students should be counseled, remediated and re-evaluated. If improvements in cognitive, affective or psychomotor skills are not achieved, consideration regarding the ability of the student to progress in the program should be taken into account.

MODULE 6

Infants and Children

Lesson 6-1

Infants and Children

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

6-1.1 Identify the developmental considerations for the following age groups:(C-1)
- ! infants
- ! toddlers
- ! pre-school
- ! school age
- ! adolescent

6-1.2 Describe differences in anatomy and physiology of the infant, child and adult patient.(C-1)
6-1.3 Differentiate the response of the ill or injured infant or child (age specific) from that of an adult.(C-3)
6-1.4 Indicate various causes of respiratory emergencies.(C-1)
6-1.5 Differentiate between respiratory distress and respiratory failure.(C-3)
6-1.6 List the steps in the management of foreign body airway obstruction.(C-1)
6-1.7 Summarize emergency medical care strategies for respiratory distress and respiratory failure.(C-1)
6-1.8 Identify the signs and symptoms of shock (hypoperfusion) in the infant and child patient.(C-1)
6-1.9 Describe the methods of determining end organ perfusion in the infant and child patient.(C-1)
6-1.10 State the usual cause of cardiac arrest in infants and children versus adults.(C-1)
6-1.11 List the common causes of seizures in the infant and child patient.(C-1)

6-1.12 Describe the management of seizures in the infant and child patient.(C-1)
6-1.13 Differentiate between the injury patterns in adults, infants, and children.(C-3)
6-1.14 Discuss the field management of the infant and child trauma patient.(C-1)
6-1.15 Summarize the indicators of possible child abuse and neglect.(C-1)
6-1.16 Describe the medical legal responsibilities in suspected child abuse.(C-1)
6-1.17 Recognize need for EMT-Basic debriefing following a difficult infant or child transport.(C-1)

AFFECTIVE OBJECTIVES

6-1.18 Explain the rationale for having knowledge and skills appropriate for dealing with the infant and child patient.(A-3)
6-1.19 Attend to the feelings of the family when dealing with an ill or injured infant or child.(A-1)
6-1.20 Understand the provider's own response (emotional) to caring for infants or children.(A-1)

PSYCHOMOTOR OBJECTIVES

6-1.21 Demonstrate the techniques of foreign body airway obstruction removal in the infant.(P-1,2)
6-1.22 Demonstrate the techniques of foreign body airway obstruction removal in the child.(P-1,2)
6-1.23 Demonstrate the assessment of the infant and child.(P-1,2)
6-1.24 Demonstrate bag-valve-mask artificial ventilations for the infant.(P-1,2)
6-1.25 Demonstrate bag-valve-mask artificial ventilations for the child.(P-1,2)
6-1.26 Demonstrate oxygen delivery for the infant and child.(P-1,2)

Motivation: Infant and child patients often cause anxiety for the prehospital care provider. This is caused by a lack of dealing with this special population as well as a fear of failure. Understanding the special factors involved, such as body size, developmental considerations and normal ranged vital signs of infant and child patients is important in their emergency medical care.

Prerequisites: BLS, Preparatory, Airway, Patient Assessment, History and Physical Exam for Medical and Trauma Patients.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to infants and children. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment: Exam gloves, stethoscope, blood pressure cuff, penlight.

PERSONNEL

Primary Instructor: One EMT-Basic instructor, knowledgeable with infants and children.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in infant and child emergencies.

Recommended Minimum Time to Complete: Three hours

PRESENTATION

Declarative (What)

I. Preparatory
   A. The human body
      1. Developmental concerns
         a. Newborns and infants - birth to 1 year of age.
            (1) Minimal stranger anxiety.
            (2) Do not like to be separated from parents.
            (3) Do not want to be suffocated by an oxygen mask.
            (4) Need to be kept warm - make sure hands and stethoscope are warmed before touching child.
            (5) Breathing rate best obtained at a distance - watch chest rise, note color and level of activity.
            (6) Examine heart and lungs first, head last. This is done to build confidence. It is best to obtain heart and lung sounds before the child becomes agitated.
         b. Toddlers - 1 year to 3 years
            (1) Do not like to be touched.
            (2) Do not like being separated from parents.
            (3) Do not like having clothing removed. Remove, exam, replace.
            (4) Do not want to be suffocated by an oxygen mask.
            (5) Assure child that he was not bad. Children think their illness/injury is punishment.
            (6) Afraid of needles.
            (7) Fear of pain.
            (8) Should be examined trunk to head approach. This is done to build confidence. It should be done before child becomes agitated.
         c. Preschool - 3 years to 6 years
            (1) Do not like to be touched.
            (2) Do not like being separated from parents.
            (3) Do not like having clothing removed. Remove, exam, replace.
            (4) Do not want to be suffocated by an oxygen mask.
            (5) Assure child that he was not bad. Children think that the illness/injury is a punishment.
            (6) Afraid of blood.

(7) Fear of pain.
(8) Fear of permanent injury.
(9) Modest.

d. School Age - 6 years to 12 years
(1) Afraid of blood.
(2) Fear of pain.
(3) Fear of permanent injury.
(4) Modest.
(5) Fear of disfigurement.

e. Adolescent - 12 years to 18 years
(1) Fear of permanent injury.
(2) Modest.
(3) Fear of disfigurement.
(4) Treat them as adults.
(5) These patients may desire to be assessed privately, away from parents or guardians.

B. Anatomical and physiological concerns - airway
1. Small airways throughout the respiratory system are easily blocked by secretions and airway swelling.
2. Tongue is large relative to small mandible and can block airway in an unconscious infant or child.
3. Positioning the airway is different in infants and children, do not hyperextend the neck.
4. Infants are obligate nose breathers, so suctioning a secretion filled nasopharynx can improve breathing problems in an infant.
5. Children can compensate well for short periods of time.
a. Compensate by increasing breathing rate and increased effort of breathing.
b. Compensation is followed rapidly by decompensation due to rapid respiratory muscle fatigue and general fatigue of the infant.

II. Airway
A. Essential skills - review from module 2-1, Airway, with emphasis on infants and children.
B. Specific skills
1. Airway opening
a. Position to open airway is different - head-tilt chin-lift - do not hyperextend.
b. Jaw thrust with spinal immobilization.

2. Suctioning
    a. Sizing
    b. Depth
    c. Technique
3. Clearing complete obstructions
    a. Infants <1 year old
        (1) Back blows/chest thrusts
        (2) Visual foreign body removal
    b. Children >1 year old
        (1) Abdominal thrusts
        (2) Visual foreign body removal
4. Airway adjuncts
    a. Oral airways
        (1) Adjunct, not for initial artificial ventilation
        (2) Should not have a gag reflex
        (3) Sizing
        (4) Techniques of insertion - use tongue depressor.
            (a) Insert tongue blade to the base of tongue.
            (b) Push down against the tongue while lifting upward.
            (c) Insert oropharyngeal airway directly in without rotation.
    b. Nasal airways
        (1) Adjunct not for initial artificial ventilation
        (2) Sizing
        (3) Technique of insertion
        (4) Should not be used in head trauma

III. Oxygen Therapy
A. Oxygen delivery
1. Nonrebreathers
2. Blow by techniques
    a. Hold tubing two inches from face
    b. Insert tubing into a paper cup

B. Artificial ventilations
1. Mask sizing/bag sizing
2. Trauma considerations
3. Mask seal
    a. Two hand
    b. One hand
4. Mouth-to-mask artificial ventilations

5. Use of bag-valve-mask
    a. Squeeze bag slowly and evenly enough to make chest rise adequately.
    b. Rates for child and infant are 20 breaths per minute.
    c. Provide oxygen at 100% concentration by using an oxygen reservoir.

IV. Assessment
- A. General impression of well versus sick child can be obtained from overall appearance.
    1. Assess mental status.
    2. Effort of breathing
    3. Color
    4. Quality of cry/speech
    5. Interaction with environment and parents
        a. Normal behavior for child of this age.
        b. Playing
        c. Moving around
        d. Attentive versus non-attentive
        e. Eye contact
        f. Recognizes parents
        g. Responds to parents calling
    6. Emotional state
    7. Response to the EMT-Basic
    8. Tone/body position
- B. Approach to evaluation
    1. Begin from across the room
        a. Mechanism of injury
        b. Assessment of surroundings
        c. General impression of well versus sick
        d. Respiratory assessment
            (1) Note chest expansion/symmetry
            (2) Effort of breathing
            (3) Nasal flaring
            (4) Stridor, crowing, or noisy
            (5) Retractions
            (6) Grunting
            (7) Respiratory rate
        e. Perfusion assessment - skin color
    2. Hands on approach to infant or child patient assessment
        a. Assess breath sounds
            (1) Present

(2) Absent
(3) Stridor
(4) Wheezing

b. Assess circulation
(1) Assess brachial or femoral pulse
(2) Asses peripheral pulses
(3) Assess capillary refill
(4) Assess blood pressure in children older than 3. Use appropriate size cuff.
(5) Assess skin color, temperature and moisture

c. Detailed physical exam - begin with a trunk to head approach.
(1) Situation and age dependant.
(2) Should help reduce the infant or child's anxiety.

V. Common Problems in Infants and Children

A. Airway obstructions

1. Partial airway obstruction - infant or child who is alert and sitting.
a. Stridor, crowing, or noisy
b. Retractions on inspiration
c. Pink
d. Good peripheral perfusion
e. Still alert, not unconscious.
f. Emergency medical care
(1) Allow position of comfort, assist younger child to sit up, do not lay down. May sit on parents lap.
(2) Offer oxygen
(3) Transport
(4) Do not agitate child
(5) Limited exam. Do not assess blood pressure.

2. Complete obstruction and altered mental status or cyanosis and partial obstruction.
a. No crying or speaking and cyanosis.
(1) Child's cough becomes ineffective
(2) Increased respiratory difficulty accompanied by stridor
(3) Victim loses consciousness
(4) Altered mental status
b. Clear airway.
(1) Infant foreign body procedures.
(2) Child foreign body procedures.

c. Attempt artificial ventilations with a bag-valve-mask and good seal.

B. Respiratory emergencies

1. Recognize the difference between upper airway obstruction and lower airway disease.
   a. Upper airway obstruction - stridor on inspiration
   b. Lower airway disease
      (1) Wheezing and breathing effort on exhalation
      (2) Rapid breathing (tachypnea) without stridor
2. Complete airway obstruction.
   a. No crying
   b. No speaking
   c. Cyanosis is present
   d. No coughing
3. Recognize signs of increased effort of breathing .
   a. Early respiratory distress is indicated by any of the following:
      (1) Nasal flaring
      (2) Intercostal retraction (neck muscles), supraclavicular, subcostal retractions
      (3) Stridor
      (4) Neck and abdominal muscles - retractions
      (5) Audible wheezing
      (6) Grunting
   b. The presence of signs of symptoms of early respiratory distress and any of the following:
      (1) Rate >60
      (2) Cyanosis
      (3) Decreased muscle tone
      (4) Severe use of accessory muscles
      (5) Poor peripheral perfusion
      (6) Altered mental status
      (7) Grunting
   c. Respiratory arrest
      (1) Breathing rate less than 10 per minute
      (2) Limp muscle tone
      (3) Unconscious
      (4) Slower, absent heart rate
      (5) Weak or absent distal pulses.
4. Emergency medical care
   a. Provide oxygen to all children with respiratory emergencies.

b. Provide oxygen and assist ventilation for severe respiratory distress.
   (1) Respiratory distress and altered mental status
   (2) Presence of cyanosis with oxygen
   (3) Respiratory distress with poor muscle tone
   (4) Respiratory failure
   (5) Provide oxygen and ventilate with bag-valve-mask for respiratory arrest.

C. Seizures
1. Seizures in children who have chronic seizures are rarely life-threatening. However, seizures, including febrile, should be considered life-threatening by the EMT.
2. May be brief or prolonged.
3. Assess for presence of injuries which may have occurred during seizures.
4. Caused by fever, infections, poisoning, hypoglycemia, trauma, decreased levels of oxygen or could be idiopathic in children.
5. History of seizures. Ask the following questions:
   a. Has the child had prior seizure(s)?
   b. If yes, is this the child's normal seizure pattern?
   c. Has the child taken his anti-seizure medications?
6. Emergency medical care
   a. Assure airway position and patency
   b. Position patient on side if no possibility of cervical spine trauma.
   c. Have suction ready.
   d. Provide oxygen and if in respiratory arrest or severe respiratory distress, assure airway position and patency and ventilate with bag-valve-mask.
   e. Transport. Although brief seizures are not harmful, there may be a more dangerous underlying condition.
7. Seizures can be caused by head injury.
8. Inadequate breathing and/or altered mental status may occur following a seizure.

D. Altered mental status
1. Caused by a variety of conditions
   a. Hypoglycemia
   b. Poisoning
   c. Post seizure
   d. Infection
   e. Head trauma

f. Decreased oxygen levels
g. Hypoperfusion (shock)

2. Emergency medical care
   a. Assure patency of airway.
   b. Be prepared to artificially ventilate/suction.
   c. Transport.

E. Poisonings
1. Common reason for infant and child ambulance calls
2. Identify suspected container through adequate history. Bring container to receiving facility if possible.
3. Emergency medical care
   a. Responsive patient
      (1) Contact medical control.
      (2) Consider need to administer activated charcoal.
      (3) Provide oxygen.
      (4) Transport.
      (5) Continue to monitor patient - may become unresponsive.
   b. Unresponsive patient
      (1) Assure patency of airway.
      (2) Be prepared to artificially ventilate.
      (3) Provide oxygen if indicated.
      (4) Call medical control.
      (5) Transport.
      (6) Rule out trauma, trauma can cause altered mental status.

F. Fever
1. Common reason for infant or child ambulance call
2. Many causes - rarely life threatening. A severe cause is meningitis.
3. Fever with a rash is a potentially serious consideration.
4. Emergency medical care: Transport. Be alert for seizures.

G. Shock (hypoperfusion)
1. Rarely a primary cardiac event.
   a. Common:
      (1) Diarrhea and dehydration
      (2) Trauma
      (3) Vomiting
      (4) Blood loss
      (5) Infection
      (6) Abdominal injuries
   b. Less common:

(1) Allergic reactions
(2) Poisoning
(3) Cardiac

2. Signs and symptoms
   a. Rapid respiratory rate
   b. Pale, cool, clammy skin
   c. Weak or absent peripheral pulses
   d. Delayed capillary refill
   e. Decreased urine output. Measured by asking parents about diaper wetting and looking at diaper.
   f. Mental status changes
   g. Absence of tears, even when crying
3. Emergency medical care
   a. Assure airway/oxygen.
   b. Be prepared to artificially ventilate.
   c. Manage bleeding if present.
   d. Elevate legs.
   e. Keep warm.
   f. Transport. Note need for rapid transport of infant and child patients with secondary exam completed en route, if time permits.

H. Near drowning
1. Artificial ventilation is top priority.
2. Consider possibility of trauma.
3. Consider possibility of hypothermia.
4. Consider possible ingestion, especially alcohol.
5. Protect airway, suction if necessary.
6. Secondary drowning syndrome - Deterioration after breathing normally from minutes to hours after event. All near drowning victims should be transported to the hospital.

I. Sudden Infant Death Syndrome (SIDS)
1. Signs and symptoms
   a. Sudden death of infants in first year of life.
   b. Causes are many and not clearly understood.
   c. Baby most commonly discovered in the early morning.
2. Emergency medical care
   a. Try to resuscitate unless rigor mortis.
   b. Parents will be in agony from emotional distress, remorse and imagined guilt.
   c. Avoid any comments that might suggest blame to the parents.

VI. Trauma
- A. Injuries are the number one cause of death in infants and children.
- B. Blunt injury is most common.
  - 1. The pattern of injury will be different from adults.
    - a. Motor vehicle crashes
      - (1) Motor vehicle passengers
        - (a) Unrestrained passengers have head and neck injuries.
        - (b) Restrained passengers have abdominal and lower spine injuries.
      - (2) Struck while riding bicycle - head injury, spinal injury, abdominal injury
      - (3) Pedestrian struck by vehicle - abdominal injury with internal bleeding, possible painful, swollen, deformed thigh, head injury.
    - b. Falls from height, diving into shallow water - head and neck injuries
    - c. Burns
    - d. Sports injuries - head and neck
    - e. Child abuse
- C. Specific body systems
  - 1. Head
    - a. The single most important maneuver is to assure an open airway by means of the modified jaw thrust.
    - b. Children are likely to sustain head injury along with internal injuries. Signs and symptoms of shock (hypoperfusion) with a head injury should cause you to be suspicious of other possible injuries.
    - c. Respiratory arrest is common secondary to head injuries and may occur during transport.
    - d. Common signs and symptoms are nausea and vomiting.
    - e. Most common cause of hypoxia in the unconscious head injury patient is the tongue obstructing the airway. Jaw-thrust is critically important.
    - f. Do not use sandbags to stabilize the head because the weight on child's head may cause injury if the board needs to be turned for emesis.
  - 2. Chest
    - a. Children have very soft pliable ribs.
    - b. There may be significant injuries without external signs.
  - 3. Abdomen

a. More common site of injury in children than adults.
b. Often a source of hidden injury.
c. Always consider abdominal injury in the multiple trauma patient who is deteriorating without external signs.
d. Air in stomach can distend abdomen and interfere with artificial ventilation efforts.

4. Extremities - extremity injuries are managed in the same manner as adults.

D. Other trauma considerations

1. Pneumatic antishock garments
   a. Use only if child fits, do not place infant in one leg of trouser.
   b. Indications - trauma with signs of severe hypoperfusion and pelvic instability.
   c. Do not inflate abdominal compartment.
2. Criticality of burns
   a. Cover with sterile dressing (non-stick, if possible, sterile sheets may be used).
   b. Identify candidates for burn centers per local protocol.

E. Emergency medical care

1. Assure airway position and patency. Use modified jaw thrust.
2. Suction as necessary with large bore suction catheter.
3. Provide oxygen.
4. Assist ventilations for severe respiratory distress and ventilate with a bag-valve-mask for respiratory arrest.
5. Provide spinal immobilization.
6. Transport immediately.

VII. Child Abuse and Neglect

A. Definition of abuse - improper or excessive action so as to injure or cause harm.

B. Definition of neglect - giving insufficient attention or respect to someone who has a claim to that attention.

C. EMT-Basic must be aware of condition to be able to recognize the problem.

D. Physical abuse and neglect are the two forms of child abuse that the EMT-Basic is likely to suspect.

E. Signs and symptoms of abuse

1. Multiple bruises in various stages of healing.
2. Injury inconsistent with mechanism described.
3. Repeated calls to the same address.
4. Fresh burns.
5. Parents seem inappropriately unconcerned.

6. Conflicting stories
7. Fear on the part of the child to discuss how the injury occurred.

F. Signs and symptoms of neglect
1. Lack of adult supervision.
2. Malnourished appearing child.
3. Unsafe living environment
4. Untreated chronic illness; e.g., asthmatic with no meds.

G. CNS injuries are the most lethal - shaken baby syndrome

H. Do not accuse in the field
1. Accusation and confrontation delays transportation.
2. Bring objective information to the receiving facility

I. Reporting required by state law.
1. Local regulations
2. Objective - what you see and what you hear - NOT what you think.

VIII. Infants and Children with Special Needs

A. This can include many different types of children.
1. Premature babies with lung disease
2. Babies and children with heart disease
3. Infants and children with neurologic disease
4. Children with chronic disease or altered function from birth

B. Often these children will be at home, technologically dependent.
1. Tracheostomy tube
a. Various types
b. Complications
(1) Obstruction
(2) Bleeding
(3) Air leak
(4) Dislodged
(5) Infection
c. Emergency medical care
(1) Maintain an open airway.
(2) Suction.
(3) Maintain position of comfort.
(4) Transport.
2. Home artificial ventilators
a. Various types
b. Parents familiar with operation
c. Emergency medical care
(1) Assure airway
(2) Artificially ventilate with oxygen
(3) Transport

C. Central Lines
   1. Intravenous lines (IVs) that are placed near the heart for long term use
   2. Complications
      a. Cracked line
      b. Infection
      c. Clotting off
      d. Bleeding
   3. Emergency medical care
      a. If bleeding, apply pressure.
      b. Transport.

D. Gastrostomy tubes and gastric feeding
   1. Description - tube place directly into stomach for feeding. Comes in many shapes. These patients usually cannot be fed by mouth.
   2. Be alert for breathing problems.
      a. Assure adequate airway.
      b. Have suction available.
      c. If a diabetic patient, be alert for altered mental status. Infant will become hypoglycemic quickly if they cannot be fed.
      d. Provide oxygen.
      e. Transport
         (1) Sitting
         (2) Lying on right side, head elevated

E. Shunts
   1. Description - device running from brain to abdomen to drain excess cerebral spinal fluid. Will find reservoir on side of skull.
   2. Change in mental status
   3. Prone to respiratory arrest
      a. Manage airway.
      b. Assure adequate artificial ventilation.
      c. Transport.

IX. Family Response

A. A child cannot be cared for in isolation from the family; therefore, you have multiple patients.

B. Striving for calm, supportive interaction with family will result in improved ability to deal with the child.
   1. Calm parents = calm child; agitated parents = agitated child
   2. Anxiety arises from concern over child's pain; fear for child's well-being
   3. Worsened by sense of helplessness
C. Parent may respond to EMT-Basic with anger or hysteria.
D. Parents should remain part of the care unless child is not aware or medical conditions require separation.
E. Parents should be instructed to calm child; can maintain position of comfort and/or hold oxygen.
F. Parents may not have medical training, but they are experts on what is normal or abnormal for their children and what will have a calming effect.

X. Provider Response
   A. Anxiety from lack of experience with treating children as well as fear of failure.
   B. Skills can be learned and applied to children.
   C. Stress from identifying patient with their own children.
   D. Provider should realize that much of what they learned about adults applies to children; they need to remember the differences.
   E. Infrequent encounters with sick children; advance preparation is important (practice with equipment and examining children).

APPLICATION

Procedural (How)

1. Demonstrate the techniques of foreign body airway obstruction removal in the infant.
2. Demonstrate the techniques of foreign body airway obstruction removal in the child.
3. Demonstrate bag-valve-mask artificial ventilations for the infant.
4. Demonstrate bag-valve-mask artificial ventilations for the child.
5. Demonstrate oxygen delivery for the infant and child.

6. Demonstrate the assessment of the infant and child.
7. Demonstrate in line cervical immobilization with and without artificial ventilation in infants and children.

Contextual (When, Where, Why)

Recognize physical and developmental peculiarities of infants and children of different ages and modify approach accordingly. The EMT-Basic must have an understanding of the unique aspects of dealing with infants and children. In addition, the EMT-Basic must realize the aspect of having multiple patients. A child cannot be cared for isolated from the family. A calm, professional reassuring EMT-Basic may help to minimize psychological impact of transport to parent and child.

STUDENT ACTIVITIES

Auditory (Hear)

1. Students should hear various infant and child airway sounds.
2. Students should hear the normal systolic and diastolic blood pressure sounds.
3. Students should hear parent information.

Visual (See)

1. Students should see audio-visual aids or materials of infant and child patients with common medical or traumatic complaints.
2. Students should see various infant or child equipment.

Kinesthetic (Do)

1. Students should practice working with the various infant and child devices that are available in their area.
2. Students should practice the techniques of foreign body airway obstruction removal in the infant.
3. Students should practice the techniques of foreign body airway obstruction removal in the child.
4. Students should practice bag-valve-mask artificial ventilations for the infant.
5. Students should practice bag-valve-mask artificial ventilations for the child.
6. Students should practice oxygen delivery for the infant and child.
7. Students should practice the assessment of the infant and child.
8. Students should practice in-line cervical immobilization and transportation of infant and child patients.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

What is unique in the local area concerning this topic?
from the instructor's course guide and attach with lesson plan.

MODULE 6

Infants and Children

Lesson 6-2

Practical Lab: Infants and Children

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

! Demonstrate the cognitive objectives of Lesson 6-1: Infants and Children.

AFFECTIVE OBJECTIVES

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

! Demonstrate the affective objectives of Lesson 6-1: Infants and Children.

PSYCHOMOTOR OBJECTIVES

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

! Demonstrate the psychomotor objectives of Lesson 6-1: Infants and Children.

PREPARATION

Motivation: The practical lesson is designed to allow the students additional time to perfect skills. It is of utmost importance that the students demonstrate proficiency of the skill,

cognitive knowledge of the steps to perform a skill, and a healthy attitude towards performing that skill on a patient.

This is an opportunity for the instructor and assistant instructors to praise progress and re-direct the students toward appropriate psychomotor skills. The material from all preceding lessons and basic life support should be incorporated into these practical skill sessions.

Prerequisites: BLS, Preparatory, Airway, Patient Assessment, Medical/Behavioral and Obstetrics/Gynecology and Trauma.

MATERIALS

AV Equipment: Typically none required.

EMS Equipment: Equipment from the list in Lesson 6-1.

PERSONNEL

Primary Instructor: One proctor for the written evaluation.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in infant and child emergencies.

Recommended Minimum Time to Complete: Three hours

APPLICATION

Procedural (How)

Instructor should demonstrate the procedural activities from Lesson 6-1: Infants and Children.

Contextual (When, Where, Why)

Instructor should review contextual information from Lesson 6-1: Infants and Children.

STUDENT ACTIVITIES

Auditory (Hear)

The students should hear the auditory information from Lesson 6-1: Infants and Children.

Visual (See)

The students should see the visual material from Lesson 6-1: Infants and Children.

Kinesthetic (Do)

The students should practice the kinesthetic activities from Lesson 6-1: Infants and Children.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skills stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content.

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 6

Infants and Children

Lesson 6-3

Evaluation: Infants and Children

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

! Demonstrate knowledge of the cognitive objectives of Lesson 6-1: Infants and Children

AFFECTIVE OBJECTIVES

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

! Demonstrate knowledge of the affective objectives of Lesson 6-1: Infants and Children.

PSYCHOMOTOR OBJECTIVES

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

! Demonstrate knowledge of the psychomotor objectives of Lesson 6-1: Infants and Children.

PREPARATION

Motivation: Evaluation of the students attainment of the cognitive and affective knowledge and psychomotor skills is an essential component of the EMT-Basic educational process. The modules are presented in a "building block" format. Once the students have demonstrated their knowledge and proficiency, the next lesson should be built upon that knowledge. This evaluation will help to identify students or groups of students having difficulty with a particular area. This is an opportunity for the instructor to evaluate his performance, and make appropriate modifications to the delivery of material.

Prerequisites: Completion of Lessons 6-1 and 6-2.

MATERIALS

AV Equipment: Typically none required.

EMS Equipment: Equipment required to evaluate the students proficiency in the psychomotor skills of this module.

PERSONNEL

Primary Instructor: One proctor for the written evaluation.

Assistant Instructor: One practical skills examiner for each 6 students.

Recommended Minimum Time to Complete: One hour

PRESENTATION

Declarative (What)

I. Purpose of the evaluation

II. Items to be evaluated

III. Feed back from evaluation

Procedural (How)

1. Written evaluation based on the cognitive and affective objectives of Lesson 6-1.

2. Practical evaluation stations based on the psychomotor objectives of Lesson 6-1.

Contextual (When, Where and Why)

The final lesson in this module is designed to bring closure to the module, and to assure that students are prepared to move to the next module.

This modular evaluation is given to determine the effectiveness of the presentation of materials and how well students have retained the material. This is an opportunity for the students to make necessary adjustments in study habits or for the instructor to adjust the manner in which material is presented.

INSTRUCTOR ACTIVITIES

Supervise student evaluation.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

REMEDIATION

Identify students and/or groups of students who are having difficulty with this subject content. Complete a remediation sheet from the instructor's course guide. If students continue to have difficulty demonstrating knowledge of the cognitive and affective objectives, or demonstrating proficiency in psychomotor skills, the students should be counseled, remediated and re-evaluated. If improvements in cognitive, affective or psychomotor skills are not achieved, consideration regarding the ability of the student to progress in the program should be taken into account.

MODULE 7

Operations

Lesson 7-1

Ambulance Operations

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

7-1.1 Discuss the medical and non-medical equipment needed to respond to a call.(C-1)

7-1.2 List the phases of an ambulance call.(C-1)

7-1.3 Describe the general provisions of state laws relating to the operation of the ambulance and privileges in any or all of the following categories:(C-1)
- Speed
- Warning lights
- Sirens
- Right-of-way
- Parking
- Turning

7-1.4 List contributing factors to unsafe driving conditions.(C-1)

7-1.5 Describe the considerations that should by given to:
- Request for escorts.
- Following an escort vehicle
- Intersections(C-1)

7-1.6 Discuss "Due Regard For Safety of All Others" while operating an emergency vehicle.(C-1)

7-1.7 State what information is essential in order to respond to a call. (C-1)

7-1.8 Discuss various situations that may affect response to a call.(C-1)

7-1.9 Differentiate between the various methods of moving a patient to the unit based upon injury or illness.(C-3)
7-1.10 Apply the components of the essential patient information in a written report.(C-2)
7-1.11 Summarize the importance of preparing the unit for the next response.(C-1)
7-1.12 Identify what is essential for completion of a call.(C-1)
7-1.13 Distinguish among the terms cleaning, disinfection, high-level disinfection, and sterilization.(C-3)
7-1.14 Describe how to clean or disinfect items following patient care.(C-1)

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
7-1.15 Explain the rationale for appropriate report of patient information.(A-3)
7-1.16 Explain the rationale for having the unit prepared to respond.(A-3)

PSYCHOMOTOR OBJECTIVES

No psychomotor objectives identified.

PREPARATION

Motivation: As an EMT-Basic, the student may be required to function in the prehospital environment. A solid foundation related to the operational aspects of prehospital care is required.

The EMT-Basic should be familiar with the medical and non-medical equipment for use in patient care. The EMT-Basic should also be aware of the phases of a response and their role.

Prerequisites: BLS, Preparatory, Airway and Patient Assessment, Physical Exam and SAMPLE history for Medical and Trauma Patients.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to ambulance operations. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment: An ambulance, properly stocked.

PERSONNEL

Primary Instructor: One EMT-Basic instructor, knowledgeable in ambulance and equipment operations.

Assistant Instructor: Not required.

Recommended Minimum Time to Complete: One hour

PRESENTATION

Declarative (What)

IV. Phases of an ambulance call
- A. Preparation for the call
  - 1. Equipment
    - a. Medical
      - (1) Basic supplies
      - (2) Patient transfer equipment
      - (3) Airways
      - (4) Suction equipment
      - (5) Artificial ventilation devices
      - (6) Oxygen inhalation equipment
      - (7) Cardiac compression equipment
      - (8) Basic wound care supplies

(9) Splinting supplies
(10) Childbirth supplies
(11) Medications
(12) Automated external defibrillator

b. Non-medical
(1) Personal safety equipment per local, state, and federal standards
(2) Pre-planned routes or comprehensive street maps

2. Personnel
a. Available for response
b. At least one EMT-Basic in patient compartment is minimum staffing for an ambulance - two is preferred.

3. Daily inspections
a. Inspection of vehicle systems
(1) Fuel
(2) Oil
(3) Engine cooling system
(4) Battery
(5) Brakes
(6) Wheels and tires
(7) Headlights
(8) Stoplights
(9) Turn signals
(10) Emergency warning lights
(11) Wipers
(12) Horn
(13) Siren
(14) Doors closing and latching
(15) Communication system
(16) Air conditioning/heating system
(17) Ventilation system

b. Equipment
(1) Checked and maintained
(2) Restocked and repaired
(3) Batteries for defibrillator, suction, oxygen, etc.

4. Utilization of safety precautions and seat belts.

B. Dispatch
1. Central access
2. 24-hour availability
3. Trained personnel
4. Dispatch information

a. Nature of call
b. Name, location, and callback number of caller
c. Location of patient
d. Number of patients and severity
e. Other special problems

C. En route
1. Seat belts
2. Notify dispatch - refer to Communications module
3. Essential information
a. Nature of the call
b. Location of the call

4. Driving the ambulance
   a. Emergency vehicle operations
      (1) It is recommended, and in some states mandated, that the driver of an emergency vehicle attend an approved driving course.
      (2) Characteristics of good ambulance operators
         (a) Physically fit
         (b) Mentally fit
         (c) Able to perform under stress
         (d) Positive attitude about abilities
         (e) Tolerant of other drivers
      (3) Safe driving is an important phase in the emergency medical care of the ill or injured patient.
         (a) The driver and all passengers should wear safety belts.
         (b) Become familiar with the characteristics of your vehicle.
         (c) Be alert to changes in weather and road conditions.
         (d) Exercise caution in use of red lights and siren.
         (e) Select appropriate route.
         (f) Maintain safe following distance.
         (g) Drive with due regard for safety of all others.
         (h) Know appropriateness of using lights and sirens.
         (i) Headlights are the most visible warning device on an emergency vehicle.
   b. Obtain additional information from dispatch.
   c. Assign personnel to specific duties.
   d. Assess specific equipment needs.
   e. Positioning the unit
      (1) For safety
         (a) Uphill from leaking hazards
         (b) 100 feet from wreckage
            i) In front of the wreckage or,
            ii) Beyond the wreckage
         (c) Set parking brake
         (d) Utilize warning lights

(e) Shut off headlights unless there is a need to illuminate the scene.

(2) To exit the scene. Avoid parking in a location that will hamper exit from the scene.

f. Laws, regulations and ordinances - review state and local laws, regulations or ordinances in the area relative to the operations of an emergency vehicle, including as needed:

(1) Vehicle parking or standing
(2) Procedures at red lights, stop signs and intersections
(3) Regulations regarding speed limits
(4) Direction of flow or specified turns
(5) Emergency or disaster routes
(6) Use of audible warning devices
(7) Use of visual warning devices
(8) School buses

g. Escorts and multiple vehicle response

(1) Extremely dangerous
(2) Used only if unfamiliar with location of patient or receiving facility

(a) No vehicle should use lights or siren.
(b) Provide a safe following distance.
(c) Recognize hazards of multiple vehicle response.

h. Intersection crashes - most common type

(1) Motorist arriving at intersection as light changes and does not stop.
(2) Multiple emergency vehicles following closely and waiting motorist does not expect more than one.
(3) Vision is obstructed by vehicles.

D. Arrival at scene

1. Notify dispatch
2. Size-up

a. Body substance isolation

(1) Should be a consideration prior to patient contact.
(2) Use gloves, gowns and eyewear when appropriate.

b. Scene safety - assess the scene for hazards.

(1) Is the emergency vehicle parked in a safe location?
(2) Is it safe to approach the patient?
(3) Does the victim require immediate movement because of hazards?

c. Mechanism of injury/nature of illness

(1) Medical
(a) Mass casualty incident
i) Number of patients.
ii) Obtain additional help.
iii) Begin triage.
(b) Spine stabilization if necessary.
(2) Trauma
(a) Mass casualty incident
i) Number of patients.
ii) Obtain additional help.
iii) Begin triage.
(b) Spine stabilization if necessary.
d. Total number of patients.
e. Need for additional help or assistance.
3. Actions at scene.
a. Organized
b. Rapid/efficient
c. Goal of transport in mind
E. Transferring the patient to the ambulance
1. Preparing the patient for transport
a. Completion of critical interventions
b. Check dressings and splints.
c. Patient covered and secured to moving device
2. Lifting and moving is accomplished using the guidelines of the lifting/moving module (Module 1, Lesson 1-5).
F. En route to the receiving facility
1. Notify dispatch.
2. On-going assessment should be continued.
3. Additional vital sign measurements should be obtained.
4. Notify receiving facility.
5. Reassure patient.
6. Complete prehospital care reports.
G. At receiving facility
1. Notify dispatch.
2. Transferring the patient at the facility
a. Reports
(1) Complete verbal report is given at bedside.
(2) Complete written report is completed and left prior to returning to service.

b. Lifting and moving is accomplished using the guidelines of the lifting/moving module (Module 1, Lesson 1-5).

H. En route to station
1. At station or receiving facility, notify dispatch.
2. Prepare for the next call.
a. Clean and disinfect the ambulance as needed.
b. Clean and disinfect ambulance equipment.
c. Restock the disposable supplies.

I. Post run
1. Refuel unit.
2. File reports.
3. Complete cleaning and disinfection procedures.
4. Notify dispatch.

V. Air Medical Consideration
A. Utilization
B. Landing zones
C. Safety

APPLICATION

Procedural (How)

None identified for this lesson.

Contextual (When, Where, Why)

The knowledge of ambulance operations is applied throughout the career of the EMT-Basic. Although some EMT-Basics may never acutely operate on a transporting unit, the knowledge can be applied to their situation.

STUDENT ACTIVITIES

Auditory (Hear)

1. Students should hear audio tapes of actual dispatch conversations with callers to the 9-1-1 system.
2. Students should hear audio tapes of actual dispatch information.

Visual (See)

1. Students should see an ambulance.
2. Students should see actual equipment or audio-visual aids or materials of ambulance equipment.

3. Students should see audio-visual aids or materials depicting an actual ambulance run.

Kinesthetic (Do)

1. Students should practice receiving and sending information to dispatch.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

Identify students or groups of students who are having difficulty with this subject content.

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 7

Operations

Lesson 7-2

Gaining Access

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

7-2.1 Describe the purpose of extrication.(C-1)
7-2.2 Discuss the role of the EMT-Basic in extrication.(C-1)
7-2.3 Identify what equipment for personal safety is required for the EMT-Basic.(C-1)
7-2.4 Define the fundamental components of extrication.(C-1)
7-2.5 State the steps that should be taken to protect the patient during extrication.(C-1)
7-2.6 Evaluate various methods of gaining access to the patient.(C-3)
7-2.7 Distinguish between simple and complex access.(C-3)

AFFECTIVE OBJECTIVES

No affective objectives identified.

PSYCHOMOTOR OBJECTIVES

No psychomotor objectives identified.

PREPARATION

Motivation: Although the EMT-Basic is not usually responsible for rescue and extrication, a fundamental understanding of the process is required.

Prerequisites: BLS, Preparatory, Airway, Patient Assessment, Physical Exam and SAMPLE history for Medical and Trauma Patients.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to extrication. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment: Exam gloves, stethoscopes, blood pressure cuffs, penlight.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in gaining access.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in extrication procedures.

Recommended Minimum Time to Complete: One hour

PRESENTATION

Declarative (What)

I. Fundamentals of Extrication
   A. Role of the EMT-Basic
      1. Non-rescue EMS
         a. Administer necessary care to the patient before extrication and assure that the patient is removed in a way to minimize further injury.

b. Patient care precedes extrication unless delayed movement would endanger life of the patient or rescuer.

c. Working with others
(1) The non-rescue EMS provider will need to work together with the providers of rescue.
(2) The non-rescue EMT-Basic should cooperate with the activities of the rescuers, and not allow their activities to interfere with patient care.

2. Rescue EMS
a. In some instances, the EMS providers are also the rescue providers.
b. A chain of command should be established to assure patient care priorities.
(1) Administer necessary care to the patient before extrication and assure that the patient is removed in a way to minimize further injury.
(2) Patient care precedes extrication unless delayed movement would endanger life of the patient or rescuer.

II. Equipment
A. Personal safety
1. The number one priority for all EMS personnel.
2. Protective clothing that is appropriate for the situation should be utilized.
B. Patient safety - following the safety of the EMS responders, the next priority is the safety of the patient.
1. The patient should be informed of the unique aspects of extrication.
2. The patient should be protected from broken glass, sharp metal and other hazards, including the environment.

III. Getting to the Patient
A. Simple access - does not require equipment.
1. Try opening each door.
2. Roll down windows.
3. Have patient unlock doors.
B. Complex access - requires use of tools, special equipment. These are separate programs that should be taken (Trench, High Angle, Basic Vehicle Rescue).

IV. Removing the Patient
A. Maintain cervical spine stabilization.
B. Complete initial assessment.
C. Provide critical interventions.

D. Immobilize spine securely.
   1. Short spine board
   2. Rapid extrication considerations
E. Move the patient, not the immobilization device.
F. Use sufficient personnel.
G. Choose path of least resistance.
H. Continue to protect patient from hazards.

APPLICATION

Procedural (How)

None identified for this lesson.

Contextual (When, Where, Why)

Gaining access is intended to be an overview of the actions required to extricate a patient. It is not the intent of this lesson to teach the EMT-Basic the techniques of extrication. A number of special classes are available to teach such specialized knowledge and skills. This lesson should emphasize the safety and medical aspects of this process.

STUDENT ACTIVITIES

Auditory (Hear)

None identified for this lesson.

Visual (See)

1. Students should see various crash scenes to determine if additional help will be necessary to remove the patient.
2. Students should see the various options of personal protective equipment.
3. Students should see patients being removed from vehicles.

Kinesthetic (Do)

1. Students should practice evaluating crash scenes to determine the need for complex rescue.

2. Students should practice removing patients from simulated crashed vehicles in the lab setting using short and long backboards.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 7

Operations

Lesson 7-3

Overviews

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

7-3.1 Explain the EMT-Basic's role during a call involving hazardous materials.(C-1)
7-3.2 Describe what the EMT-Basic should do if there is reason to believe that there is a hazard at the scene.(C-1)
7-3.3 Describe the actions that an EMT-Basic should take to ensure bystander safety.(C-1)
7-3.4 State the role the EMT-Basic should perform until appropriately trained personnel arrive at the scene of a hazardous materials situation.(C-1)
7-3.5 Break down the steps to approaching a hazardous situation.(C-1)
7-3.6 Discuss the various environmental hazards that affect EMS.(C-1)
7-3.7 Describe the criteria for a multiple-casualty situation.(C-1)
7-3.8 Evaluate the role of the EMT-Basic in the multiple-casualty situation.(C-3)
7-3.9 Summarize the components of basic triage.(C-1)
7-3.10 Define the role of the EMT-Basic in a disaster operation.(C-1)
7-3.11 Describe basic concepts of incident management.(C-1)
7-3.12 Explain the methods for preventing contamination of self, equipment and facilities.(C-1)
7-3.13 Review the local mass casualty incident plan.(C-1)

AFFECTIVE OBJECTIVES

No affective objectives identified.

PSYCHOMOTOR OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
7-3.16 Given a scenario of a mass casualty incident, perform triage.(P-2)

PREPARATION

Motivation: EMT-Basics respond to scenes that require special considerations. These include hazardous materials and multi-patient considerations. It is the intent of this lesson to provide the EMT-Basic with an overview of these areas.

Prerequisites: BLS, Preparatory, Airway, Patient Assessment, Physical Exam and SAMPLE History of Medical and Trauma Patients.

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to operations. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure meeting the objectives of the curriculum.

EMS Equipment: Triage tags.

PERSONNEL

Primary Instructor: One EMT-Basic instructor knowledgeable in hazardous materials, triage and disaster operations.

Assistant Instructor: Not required.

Recommended Minimum Time to Complete: Two hours

Declarative (What)

I. Hazardous Materials
   A. Common problem
   B. Actual extent unknown
   C. Safety is the primary concern
      1. EMT-Basic and crew
      2. Patient
      3. Public
   D. Approaching the scene
      1. Identification
         a. Occupancy
         b. Containers - size/shape
         c. Placards
         d. Shipping papers
         e. Senses
      2. General procedures
         a. Park upwind/uphill from the incident, safe distance.
         b. Keep unnecessary people away from area.
         c. Isolate the area.
            (1) Keep people out.
            (2) Do not enter unless fully protected with proper equipment and SCBA.
         d. Avoid contact with material.
         e. Remove patients to a safe zone, if no risk to EMT-Basic.
         f. Do not enter a HazMat area unless you are trained as a HazMat Tech and have proper training in SCBA.
   E. Environmental hazards
   F. Resources
      1. Local hazardous materials response team
      2. CHEMTREC 800-424-9300
      3. *Hazardous Materials, The Emergency Response Handbook*, published by the United States Department of Transportation
   G. National Fire Protection Association Haz Mat requirements for EMS providers
      1. NFPA 479
      2. OSHA 1910.120

II. Incident Management Systems
   A. An incident management system has been developed to assist with the control, direction, and coordination of emergency response resources.
      1. It provides an orderly means of communication and information for decision making.
      2. Interactions with other agencies are easier because of the single coordination.
   B. Structure - after an incident manager is determined, EMS sectors are established as needed.
      1. Extrication sector
      2. Treatment sector
      3. Transportation sector
      4. Staging sector
      5. Supply sector
      6. Triage sector
      7. Mobile command center
   C. Role of various individuals/organizations at the scene
      1. Individuals at the scene will be assigned to particular roles in one of the sectors.
      2. Upon arrival, the EMT-Basic should report to the sector officer for specific duties.
      3. Once assigned a specific task, the EMT-Basic should complete the task and report back to the sector officer.

III. Multiple Casualty Situations (MCS)
   A. Definition - an event that places a great demand on resources, be it equipment or personnel.
   B. Basic triage - sorting multiple casualties into priorities for emergency care or transportation to definitive care. Priorities are given in three levels.
      1. Highest priority
         a. Airway and breathing difficulties
         b. Uncontrolled or severe bleeding
         c. Decreased mental status
         d. Patients with severe medical problems
         e. Shock (hypoperfusion)
         f. Severe burns
      2. Second Priority
         a. Burns without airway problems
         b. Major or multiple bone or joint injuries
         c. Back injuries with or without spinal cord damage
      3. Lowest priority
         a. Minor painful, swollen, deformed extremities

b. Minor soft tissue injuries
c. Death

C. Procedures
1. Most knowledgeable EMS provider arriving on-scene first becomes triage officer.
2. Additional help should be requested.
3. Perform initial assessment on all patients first.
4. Assign available personnel and equipment to priority one patients.
5. Patient transport decisions are based on a variety of factors
   a. Prioritization
   b. Destination facilities
   c. Transportation resources
6. Triage officer remains at scene to assign and coordinate personnel, supplies and vehicles.

APPLICATION

Procedural (How)

1. Demonstrate how to recognize hazardous materials situations.
2. Demonstrate how to function within an incident management system.
3. Demonstrate how to complete a triage tag.
4. Demonstrate triage procedures.

Contextual (When, Where, Why)

The recognition of hazardous materials is an important aspect of emergency medical care. It is not the intent of the EMT-Basic course to make you proficient in dealing with hazardous materials. Dealing with the situation requires specialized training. It is more important for the EMT-Basic to recognize that a hazardous materials situation exists, and to prevent further illness or injury. This should be a consideration before you respond to a scene and as you size up the scene.

Disaster operations can be extremely difficult. Understanding the concept of incident management systems will help to manage the situation. As with hazardous materials, this program is not designed to make the EMT-Basic an incident manager.
The process of sorting patients and determining the priority of their care is a difficult process. It should begin upon arrival at scene, following determination that the scene is safe.

STUDENT ACTIVITIES

Auditory (Hear)

None identified for this lesson.

Visual (See)

1. Students should see audio-visual aids or materials of various situations to determine if a hazardous materials incident exists.
2. Students should see a copy of the Hazardous Materials Response Guidebook.
3. Students should see a triage tag.
4. Students should see a sample disaster plan.

Kinesthetic (Do)

1. Students should practice recognizing a hazardous materials incident and identify basic interventions that should be performed.
2. Students should practice participating in a simulated mass casualty incident.
3. Students should practice triaging patients at a simulated mass casualty incident.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine if the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 7

Operations

Lesson 7-4

Evaluation: Operations

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

- **!** Demonstrate knowledge of the cognitive objectives of Lesson 7-1: Ambulance Operations
- **!** Demonstrate knowledge of the cognitive objectives of Lesson 7-2: Gaining Access
- **!** Demonstrate knowledge of the cognitive objectives of Lesson 7-3: Overviews

AFFECTIVE OBJECTIVES

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

- **!** Demonstrate knowledge of the affective objectives of Lesson 7-1: Ambulance Operations

PSYCHOMOTOR OBJECTIVES

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

- **!** Demonstrate proficiency in the psychomotor objectives of Lesson 7-3: Overviews

Motivation: Evaluation of the student's attainment of the cognitive and affective knowledge and psychomotor skills is an essential component of the EMT-Basic educational process. The modules are presented in a "building block" format. Once the students have demonstrated their knowledge and proficiency, the next lesson should be built upon that knowledge. This evaluation will help to identify students or groups of students having difficulty with a particular area. This is an opportunity for the instructor to evaluate his performance, and make appropriate modifications to the delivery of material.

Prerequisites: Completion of Lessons 7-1 through 7-3.

MATERIALS

AV Equipment: Typically none required.

EMS Equipment: Equipment required to evaluate the students proficiency in the psychomotor skills of this module.

PERSONNEL

Primary Instructor: One proctor for the written evaluation.

Assistant Instructor: One practical skills examiner for each 6 students.

Recommended Minimum Time to Complete: One hour

Declarative (What)

I. Purpose of the evaluation

II. Items to be evaluated

III. Feed back from evaluation

APPLICATION

Procedural (How)

1. Written evaluation based on the cognitive and affective objectives of Lesson 7-1 through 7-3.
2. Practical evaluation stations based on the psychomotor objectives of Lesson 7-1 through 7-3.

Contextual (When, Where and Why)

The final lesson in this module is designed to bring closure to the module, and to assure that students are prepared to move to the next module.

This modular evaluation is given to determine the effectiveness of the presentation of materials and how well students have retained the material. This is an opportunity for the students to make necessary adjustments in study habits or for the instructor to adjust the manner in which material is presented.

INSTRUCTOR ACTIVITIES

Supervise student evaluation.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

Identify students and/or groups of students who are having difficulty with this subject content. Complete a remediation sheet from the instructor's course guide. If students continue to have difficulty demonstrating knowledge of the cognitive and affective objectives, or demonstrating proficiency in psychomotor skills, the students should be counseled, remediated and re-evaluated. If improvements in cognitive, affective or psychomotor skills are not achieved, consideration regarding the ability of the student to progress in the program should be taken into account.

MODULE 8

Advanced Airway (Elective)

Lesson 8-1

Advanced Airway

OBJECTIVES

C=Cognitive P=Psychomotor A=Application
1=Knowledge
2=Application
3=Problem Solving level

COGNITIVE OBJECTIVES

At the end of this lesson the EMT-Basic student will be able to:

8-1.1 Identify and describe the airway anatomy in the infant, child and the adult.(C-1)
8-1.2 Differentiate between the airway anatomy in the infant, child, and the adult.(C-1)
8-1.3 Explain the pathophysiology of airway compromise.(C-1)
8-1.4 Describe the proper use of airway adjuncts.(C-1)
8-1.5 Review the use of oxygen therapy in airway management.(C-1)
8-1.6 Describe the indications, contraindications, and technique for insertion of nasal gastric tubes.
8-1.7 Describe how to perform the Sellick maneuver (cricoid pressure).(C-1)
8-1.8 Describe the indications for advanced airway management.(C-1)
8-1.9 List the equipment required for orotracheal intubation.(C-1)
8-1.10 Describe the proper use of the curved blade for orotracheal intubation.(C-1)
8-1.11 Describe the proper use of the straight blade for orotracheal intubation.(C-1)
8-1.12 State the reasons for and proper use of the stylet in orotracheal intubation.(C-1)
8-1.13 Describe the methods of choosing the appropriate size endotracheal tube in an adult patient.(C-1)
8-1.14 State the formula for sizing an infant or child endotracheal tube.(C-1)
8-1.15 List complications associated with advanced airway management.(C-1)
8-1.16 Define the various alternative methods for sizing the infant and child endotracheal tube.(C-1)
8-1.17 Describe the skill of orotracheal intubation in the adult patient.(C-1)
8-1.18 Describe the skill of orotracheal intubation in the infant and child patient.(C-1)
8-1.19 Describe the skill of confirming endotracheal tube placement in the adult, infant and child patient.(C-1)
8-1.20 State the consequence of and the need to recognize unintentional esophageal intubation.(C-1)

8-1.21 Describe the skill of securing the endotracheal tube in the adult, infant and child patient.(C-1)

AFFECTIVE OBJECTIVES

At the end of this lesson the EMT-Basic student will be able to:

8-1.22 Recognize and respect the feelings of the patient and family during advanced airway procedures.(A-1)
8-1.23 Explain the value of performing advanced airway procedures.(A-2)
8-1.24 Defend the need for the EMT-Basic to perform advanced airway procedures.(A-3)
8-1.25 Explain the rationale for the use of a stylet.(A-2)
8-1.26 Explain the rationale for having a suction unit immediately available during intubation attempts.(A-2)
8-1.27 Explain the rationale for confirming breath sounds.(A-2)
8-1.28 Explain the rationale for securing the endotracheal tube.(A-3)

PSYCHOMOTOR OBJECTIVES

At the end of this lesson the EMT-Basic student will be able to:

8-1.29 Demonstrate how to perform the Sellick maneuver (cricoid pressure).(P-1,2)
8-1.30 Demonstrate the skill of orotracheal intubation in the adult patient.(P-1,2)
8-1.31 Demonstrate the skill of orotracheal intubation in the infant and child patient.(P-1,2)
8-1.32 Demonstrate the skill of confirming endotracheal tube placement in the adult patient.(P-1,2)
8-1.33 Demonstrate the skill of confirming endotracheal tube placement in the infant and child patient.(P-1,2)
8-1.34 Demonstrate the skill of securing the endotracheal tube in the adult patient.(P-1,2)
8-1.35 Demonstrate the skill of securing the endotracheal tube in the infant and child patient.(P-1,2)

PREPARATION

Motivation: Accurate assessment and management of the airway is critical to survival of illness and injury. It is the first assessment and treatment in basic and advanced life support. Often the patient with airway compromise requires advanced management and the first to arrive at such crises is an EMT-Basic. The EMT-Basic is now recognized for

their ability to provide care to the greatest number of patients. The management of the airway is paramount to the overall care of the patient. The use of advanced airway procedures should enhance patient care and outcomes.

Prerequisites: BLS, Preparatory, Airway Lesson 2-1

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to airway management. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meet the needs of the program. Materials should be edited to assure they meet the objectives of the curriculum.

EMS Equipment: Exam gloves, eye protection, basic airway adjuncts, adult, infant and child intubation manikins, stethoscopes(1:6), laryngoscope blades (0-4)(1:6), laryngoscope handles (1:6), stylets, endotracheal tubes in various sizes, "C" batteries, spare laryngoscope bulbs, lubricant, suction units, oxygen cylinders, bag-valve-mask (1:6), oxygen supply tubing, adult, infant and child throat models showing anatomy to include trachea and vocal cords, face masks.

PERSONNEL

Primary Instructor: One EMT-Basic instructor with knowledge in basic and advanced airway management techniques.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in basic and advanced airway management techniques.

Time to Complete: 12 hours

PRESENTATION

Declarative (What)

I. Airway Anatomy and Physiology Review
   A. Respiratory

1. Nose and mouth
2. Pharynx
   a. Oropharynx
   b. Nasopharynx
3. Epiglottis - a leaf shaped structure that prevents food and liquid from entering the trachea during swallowing.
4. Trachea (windpipe)
5. Cricoid cartilage - firm cartilage ring forming the lower portion of the larynx.
6. Larynx (voice box) - contains the vocal cords.
7. Bronchi - two major branches of the trachea to the lungs. Bronchus subdivides into smaller air passages ending at the alveoli.
8. Lungs
9. Diaphragm
   a. Inhalation (active)
      (1) Diaphragm and intercostal muscles contract, increasing the size of the thoracic cavity.
         (a) Diaphragm moves slightly downward, flares lower portion of rib cage.
         (b) Ribs move upward/outward.
      (2) Air flows into the lungs.
   b. Exhalation

(1) Diaphragm and intercostal muscles relax decreasing the size of the thoracic cavity.
    (a) Diaphragm moves upward.
    (b) Ribs move downward/inward.
(2) Air flows out of the lungs.

10. Respiratory physiology
    a. Alveolar/capillary exchange
        (1) Oxygen rich air enters the alveoli during each inspiration.
        (2) Oxygen poor blood in the capillaries passes into the alveoli.
        (3) Oxygen enters the capillaries as carbon dioxide enters the alveoli.
    b. Capillary/cellular exchange
        (1) Cells give up carbon dioxide to the capillaries.
        (2) Capillaries give up oxygen to the cells.
    c. Adequate breathing
        (1) Normal Rate
            (a) Adult - 12-20/minute
            (b) Child - 15-30/minute
            (c) Infant - 25-50/minute
        (2) Rhythm
            (a) Regular
            (b) Irregular
        (3) Quality
            (a) Breath sounds - present and equal bilaterally
            (b) Chest expansion - adequate and equal
            (c) Effort of breathing - adequate without use of accessory muscles
        (4) Depth (tidal volume) - adequate
    d. Inadequate breathing
        (1) Rate - outside of normal range.
        (2) Rhythm - irregular
        (3) Quality
            (a) Breath sounds - diminished or absent
            (b) Chest expansion - unequal or inadequate
            (c) Increased effort of breathing - use of accessory muscles - predominantly in infants and children
        (4) Depth (tidal volume) - inadequate/shallow

(5) The skin may be pale or cyanotic (blue) and cool and clammy.
(6) There may be retractions above the clavicles, between the ribs and below the rib cage, especially in children.
(7) Nasal flaring may be present, especially in children.
(8) In infants, there may be "seesaw" breathing where the abdomen and chest move in opposite directions.
(9) Agonal breathing (occasional gasping breaths) may be seen just before death.
(10) Slower than normal heart rate and absent/weak peripheral pulses in pediatric patients.

B. Infant and child anatomy considerations
1. Mouth and nose - in general, all structures are smaller and more easily obstructed than in adults.
2. Pharynx - infants' and children's tongues take up proportionally more space in the mouth than adults.
3. Trachea (windpipe)
a. Infants and children have narrower tracheas that are obstructed more easily by swelling.
b. The trachea is softer and more flexible in infants and children.
4. Subglottic - Narrowest area in infants and children is the cricoid cartilage.
5. Cricoid cartilage - like other cartilage in the infant and child, the cricoid cartilage is less developed and less rigid.
6. Diaphragm - chest wall is softer, infants and children tend to depend more heavily on the diaphragm for breathing.

II. Opening the Airway
A. Use the head-tilt, chin lift when there is no suspicion of neck injury. Review of technique from BLS course.
B. Use the jaw-thrust maneuver when the EMT-Basic suspects spinal injury. Review of technique from BLS course.
C. Assess need for suction.

III. Techniques of Suctioning
A. Purpose
1. Remove blood, other liquids and food particles from the airway.
2. Some suction units are inadequate for removing solid objects like teeth and foreign bodies or food.

3. A patient needs to be suctioned immediately when a gurgling sound is heard with artificial ventilation.

B. Types of units
1. Suction devices
a. Mounted
b. Portable
(1) Electrical
(2) Hand operated
2. Suction catheters
a. Hard or rigid
(1) Used to suction the mouth and oropharynx of an unresponsive patient.
(2) Should be inserted only as far as you can see.
(3) Use rigid catheter for infants and children, but take caution not to touch back of airway.
b. Soft (French)
(1) Useful for suctioning the nasopharynx and in other situations where a rigid catheter cannot be used.
(2) Should be measured so that it is inserted only as far as the base of the tongue.

C. Orotracheal suctioning
1. Indications
a. Obvious secretions
b. Poor compliance with the bag-valve-mask
2. Complications
a. Arrhythmias
b. Hypoxia
c. Coughing
d. Mucosa damage
e. Bronchospasm
3. Technique
a. Pre-oxygenate patient.
b. Hyperventilate the patient.
c. Check equipment. Use sterile technique.
d. Insert catheter without suction.
e. Advance catheter to desired location - typically the carina
f. Apply suction and withdraw the catheter in a twisting motion.

IV. Airway Adjuncts
A. Basic

1. If this module is taught during the basic airway module of instruction, there is no need to review this material.
2. If this module of instruction is not conducted during the basic airway lesson, then a review of basic knowledge and skill should be provided.

B. Advanced

1. Nasogastric tubes decompress stomach and proximal bowel in response to obstruction or trauma; for gastric lavage, in the presence of upper GI ingestion or bleeding, and for administration of medications and nutrition.
   a. Indications
      (1) Inability to artificially ventilate the infant or child patient because of gastric distension.
      (2) Unresponsive
   b. Contraindications - presence of major facial, head or spinal trauma. Orogastric technique is preferred.
   c. Complications
      (1) Tracheal intubation
      (2) Nasal trauma
      (3) Emesis
      (4) Passage into the cranium in cases of basilar skull fractures
   d. Equipment
      (1) Nasogastric tube, assorted sizes
         (a) Newborn/ infant - 8.0 French
         (b) Toddler/ preschool - 10.0 French
         (c) School- age - 12 French
         (d) Adolescent - 14 - 16 French
      (2) 20 cc syringe
      (3) Water soluble lubricant
      (4) Emesis basin
      (5) Tape
      (6) Stethoscope
      (7) Suction unit - suction catheters
   e. Insertion procedure - infants and children
      (1) Prepare and assemble all equipment.
      (2) Measure tube from tip of nose, around ear to below the xiphoid process.
      (3) Lubricate distal end of tube.
      (4) If trauma is not suspected, place them supine, with head turned to left side.

(5) Pass tube along the nasal floor.
(6) Check placement of tube by:
(a) Aspirating stomach contents.
(b) Auscultation over epigastrium while injecting 10-20 cc's of air into the tube.
(7) Aspirate stomach contents.
(8) Secure tube in place.

V. Sellick Maneuver (Cricoid pressure)
A. Purpose
1. Developed for use during intubation of patients in the operating room to prevent passive regurgitation related to medication-induced paralysis.
2. Should be used in an unresponsive patient without a cough or gag reflex to help prevent passive regurgitation and aspiration during endotracheal intubation.
B. Anatomical location
1. Cricoid cartilage is circumferentially cartilaginous.
2. The cricoid cartilage is inferior to the cricothyroid membrane.
3. To find the cricoid cartilage, the depression below the thyroid cartilage (Adam's apple) is palpated. This corresponds to the cricothyroid membrane.
C. Technique
1. A third provider should find the cricoid cartilage.
2. The rescuer then applies firm posterior pressure just lateral to the midline with the thumb and index fingers.
D. This procedure should be maintained until the patient is intubated.
E. Special considerations
1. Verify correct anatomy to avoid damage to other structures.
2. Difficult to locate in the child and small adult. Excessive pressure in infants and children may cause tracheal obstruction.
3. Available personnel
4. Time

VI. Advanced Airway Management
A. Orotracheal intubation
1. Purpose
a. Most effective means of controlling a patient's airway.
b. Use in apneic patients.
(1) Complete control of the airway
(2) Minimizes risk of aspiration
(3) Allows for better oxygen delivery.
(4) Allows for deeper suctioning.

2. Complications
   a. Heart rate should be continuously monitored. Stimulation of the airway may cause slow heart rates.
   b. Soft tissue trauma to lips teeth, tongue, gums, airway structures.
   c. Prolonged attempts may lead to inadequate oxygenation.
   d. Right main-stem intubation
   e. Esophageal intubation
   f. Vomiting
   g. Self extubation
   h. Be sure to reassess chest wall motion, breath sounds following every major move; e.g., from the scene to the ambulance, from the ambulance to the receiving facility because moving the patient is a primary cause of extubation in infants and children.
3. Equipment
   a. Body substance isolation
      (1) Gloves
      (2) Mask
      (3) Goggles
   b. Laryngoscope handle
      (1) Battery powered - spare batteries
      (2) Locking bar
   c. Laryngoscope blades
      (1) Straight blade
         (a) Assorted sizes - 0-4
         (b) Lifts the epiglottis to allow visualization of the glottic opening and vocal cords.
         (c) The straight blade is preferred in children and infants.
      (2) Curved blade
         (a) Assorted sizes - 0-4
         (b) Inserted into the vallecula to allow visualization of the glottic opening and vocal cords.
      (3) Assembly
         (a) Notch on blade locks on to locking bar of laryngoscope handle.
         (b) Lifting the blade up locks it into place and illuminates light.

(c) Check light. It should be "bright, white, and tight." Spare bulbs should be available - assorted sizes for each blade.

d. Endotracheal tubes
   (1) Assorted sizes of endotracheal tubes should be present.
      (a) Average sizes
         i) Adult male - 8.0-8.5mm i.d.
         ii) Adult Female - 7.0-8.00mm i.d.
         iii) Emergency Rule: 7.5 fits an adult in an emergency
      (b) Helpful to have one tube larger and one tube smaller than estimated available.
   (2) Components
      (a) 15mm adapter - allows attachment of bag-valve-mask.
      (b) Pilot balloon - verifies that cuff is inflated.
      (c) Cuff - holds approximately 10cc of air.
         i) Should be inflated until there is no leak of air around the endotracheal tube.
         ii) Infant and child endotracheal tubes are uncuffed. Used in patients less than eight.
      (d) Murphy eye - small hole on left side across from the bevel that decreases chance of obstruction.
      (e) Length of tube for adult - 33 centimeters
      (f) Helpful hints - average adult
         i) 15 centimeters to the cords
         ii) 20 centimeters teeth to sternal notch
         iii) 25 centimeters teeth to carina
         iv) Teeth and tube at 22

e. Stylet
   (1) Malleable metal that is inserted into the endotracheal tube to provide stiffness and shape of the tube.
   (2) Consider lubrication to allow for easy removal.
   (3) Once inserted, the stylet should be used to form a "hockey stick" shape for the endotracheal tube.

(4) Should not be inserted beyond the murphy eye. Best if kept 1/4" from the cuff, or proximal end of Murphy's eye.

f. Water-soluble lubricant - applied to the endotracheal tube for ease of insertion, and the stylet for ease of removal.

g. Syringe 10cc
   (1) Used to test the cuff prior to insertion of the endotracheal tube.
   (2) Following the verification of integrity of the pilot balloon, the syringe should remain attached.
   (3) Used to inflate the cuff once tube has been placed.

h. Securing device
   (1) There are a number of securing devices available, including tape and commercial devices.
   (2) Medical direction should approve taping technique or use of commercial device.
   (3) Should have oral airway or similar device as a bite block.

i. Suction unit - readily available to clear any fluid or particulate debris, a large bore catheter is needed to suction during intubation. Later, a french catheter can be used for endotracheal intubation.

j. Towels - helpful to raise the patient's shoulders or occiput to align the patient's airway.

B. Indications
   1. The inability to ventilate the apneic patient.
   2. Patient that is unresponsive to any painful stimuli.
   3. Patient with no gag reflex or coughing.
   4. The inability of the patient to protect his own airway, e.g., cardiac arrest, unresponsive

C. Techniques of insertion - adult patient
   1. Assure universal precautions.
   2. Assure adequate artificial ventilation by bag-valve-mask and oxygen.
   3. Patient must be hyperventilated at a rate of 24 breaths/minute prior to any intubation attempt.
   4. Assemble and test all equipment, including preparation for securing the tube.

5. Align the patient's head to assure ease of visualization.
   a. Unless trauma is suspected, tilt the head, lift the chin and attempt to visualize the cords. If unable to visualize the cords, raise the patient's shoulder one inch (may be more based on age). Attempt visualization again.
   b. If trauma is suspected, the patient must be intubated with the head and neck in a neutral position using in-line stabilization.
6. Holding the laryngoscope handle in your left hand, insert laryngoscope blade into right corner of mouth.
   a. With a sweeping motion lift tongue up and left out of the way.
   b. Insert blade into proper anatomical landmark.
      (1) Curved - vallecula
      (2) Straight - lifts epiglottis
   c. Lift scope up and away from the patient.
   d. Use great care to avoid using the teeth as a fulcrum.
7. Application of the Sellick maneuver during attempts at visualization may be beneficial.
   a. Cricoid pressure should be used if you suspect that the patient may vomit.
   b. Thyroid pressure should be used to assist in visualizing.
8. Visualize the glottic opening and the vocal cords. Do not lose sight of the vocal cords.
9. With right hand gently insert endotracheal tube until the cuff just passes the vocal cords. Note markings on tube at upper teeth or gum line and record.
10. Remove laryngoscope blade and extinguish the lamp.
11. Remove the stylet, if used.
12. Inflate the cuff with 5-10cc of air and remove syringe.
13. Continue to hold the endotracheal tube until secured.
14. Have partner attach the bag-valve-mask and deliver artificial ventilation.
15. Confirm placement.
    a. Remember that visualization of the tube passing through the cords is the only true way of confirming placement. All other methods are for verification.
    b. Rise and fall of patient's chest.
    c. Carbon dioxide detectors
    d. Auscultate breath sounds.

(1) Begin over epigastrium. No sounds should be heard during artificial ventilation.
(2) Listen to the left apex. Compare with the right apex. Breath sounds should be bilaterally equal.
(3) Listen to the left base. Compare to the right base. Breath sounds should be bilaterally equal.

e. Other methods
(1) Pulse oximetry
(2) Patient becomes more combative.

16. If breath sounds are bilaterally equal, and no sounds are heard in the epigastrium, the endotracheal tube should be secured in place using tape or a medical director approved commercial device.
a. The patient should then be artificially ventilated at an age appropriate rate.
b. Remember to note the distance that the tube has been inserted.
c. An oral airway may be inserted to act as a bite block.

17. If breath sounds are diminished or absent on the left, most likely a right main-stem intubation has occurred.
a. Deflate cuff and gently withdraw the tube while artificially ventilating and auscultating over the left chest.
b. Take care not to completely remove the endotracheal tube.
c. Compare the right and left breath sounds. If bilaterally equal, follow the previous directions regarding inflation of the cuff, securing the tube, and artificially ventilating the patient.

18. If sounds are only present in the epigastrium, an esophageal intubation has occurred.
a. An unrecognized esophageal intubation is fatal.
b. Deflate cuff and remove the tube and hyperventilate the patient for an additional 2-5 minutes prior to your second and final attempt.

19. Be sure to reassess breath sounds following every major move; e.g., from the scene to the ambulance, from the ambulance to the receiving facility.

D. Complications - adult patient
1. Trauma to lips teeth, tongue, gums, airway structures
2. Prolonged attempts may lead to hypoxia.
3. Right main-stem intubation
4. Esophageal intubation
5. Self-extubation

6. Vomiting

VII. Infant and Child Intubation

A. Anatomic and physiologic considerations

1. Mouth and nose - in general all structures are smaller and more easily obstructed than in adults.
2. Pharynx - child's tongue is proportionally larger and takes up more space in the mouth than an adult's.
3. Epiglottis - a leaf shaped tissue that prevents food and liquid from entering the trachea.
4. Glottic Opening - opening into the trachea covered by the epiglottis.
5. Vocal Cords
6. Trachea (windpipe) - children have narrower tracheas that can be obstructed more easily by swelling.
7. Cricoid cartilage
   a. Like other cartilage in the child the cricoid is less developed and less rigid.
   b. It is the narrowest part of the child's airway.
8. Diaphragm - chest wall is softer and children tend to depend more heavily on the diaphragm for breathing.
9. Special considerations for intubation
   a. Difficult to create a single, clear visual plane from the mouth through the pharynx to the glottis for orotracheal intubation.
   b. Because the cricoid ring is the narrowest part of the child's airway, sizing of the endotracheal tube must be selected based on the size of the cricoid ring rather than the glottic opening.

B. Orotracheal Intubation

1. Purpose
   a. Most effective means of controlling a patient's airway.
   b. Use in apneic patients.
      (1) Complete control of the airway.
      (2) Protection from aspiration.
      (3) Allows for better oxygen delivery.
      (4) Allows for deeper suctioning.
2. Complications
   a. Heart rate should be continuously monitored. Stimulation of the airway may cause slow heart rates.
   b. Soft tissue trauma to lips teeth, tongue, gums, airway structures.
   c. Prolonged attempts may lead to inadequate oxygenation.

d. Right main-stem intubation
e. Esophageal intubation
f. Vomiting
g. Self extubation
h. Be sure to reassess chest wall motion, breath sounds following every major move; e.g., from the scene to the ambulance, from the ambulance to the receiving facility because moving the patient is a primary cause of extubation in infants and children.

3. Indications
   a. When prolonged artificial ventilation is required.
   b. When adequate artificial ventilation cannot be achieved by other methods.
   c. Clearly apneic patient.
   d. Unresponsive patients without cough or gag reflex.
4. Advantages
   a. Prevents gastric distension.
   b. Minimizes risk of aspiration.
   c. Permits suctioning of airway secretions.
5. Equipment
   a. Universal precautions
      (1) Gloves
      (2) Mask
      (3) Goggles
   b. Bag-valve-mask with correct size mask (emphasize the importance of ventilating prior to and post intubation.
   c. Laryngoscope handle
      (1) Battery powered - spare batteries
      (2) Locking bar
   d. Laryngoscope blades
      (1) Straight blade
         (a) A straight blade is preferred in infants
            i) Provides greater displacement of the tongue
            ii) Provides for better visualization of the glottis
         (b) Assorted sizes - 0-4

(c) Lifts the epiglottis to allow visualization of the glottic opening and vocal cords

(2) Curved blade
- (a) Preferred in older children - broader base and flange provide displacement of the tongue.
- (b) Assorted sizes - 0-4
- (c) Inserted into the vallecula to allow visualization of the glottic opening and vocal cords

(3) Assembly
- (a) Notch on blade locks on to locking bar of laryngoscope handle
- (b) Lifting the blade up, locks into place and illuminates light.
- (c) Check light. It should be a "bright, white, steady, tight light." Spare bulbs should be available. Assorted sizes for each blade.

e. Endotracheal tubes

(1) Assorted sizes of endotracheal tubes should be present.
- (a) Average sizes
  - i) Best to have a chart or tape device to assist in sizing
  - ii) Infants and children
    - a) 3.0- 3.5 for newborns and small infants
    - b) 4.0 up to 1 year old
  - iii) Formula - 16+age in years divided by 4
  - iv) Alternate sizing
    - a) Size of little finger
    - b) Nasal sizing
- (b) Helpful to have one tube larger and one tube smaller than estimated available.

(2) Infant and child endotracheal tubes
- (a) Uncuffed tubes are used in patients less than 8 years old. The circular narrowing at the level of the cricoid cartilage serves as a functional cuff.
- (b) Cuffed tubes should be used for children older than 8 years.

(c) Should have a vocal cord marker to assure that the tip of the tube is placed in a midtracheal position.

(d) Helpful hints

i) 6 months to 1 year - 12 cm midtrachea to teeth

ii) 2 years - 14 cm midtrachea to teeth

iii) 4-6 years - 16 cm midtrachea to teeth

iv) 6 - 10 years - 18 cm midtrachea to teeth

v) 10 - 12 years - 20 cm midtrachea to teeth

f. Stylet

(1) Malleable metal that is inserted into the endotracheal tube to provide stiffness and shape of the tube.

(2) Should be lubricated to allow for easy removal.

(3) Once inserted, the stylet should be used to form a "hockey stick" shape for the endotracheal tube.

(4) Should not be inserted beyond the murphy eye.

(a) In pediatric patients the stylet should be kept just above the Murphy eye.

g. Water-soluble lubricant

(1) KY **J** gel

(2) Surgi-lube **J**

(3) Applied to the endotracheal tube and the stylet for ease of insertion

h. 10cc syringe

(1) Used to test the cuff of cuffed tubes prior to insertion of the endotracheal tube.

(2) Used to inflate the cuff once tube has been placed.

i. Securing device

(1) There are a number of securing devices available including tape, and commercial devices.

(2) Medical direction should approve taping technique or use of commercial device.

(3) Oropharyngeal or similar device as a bite block.

j. Suction unit - readily available in case of emesis. A large bore catheter is needed to suction during intubation. Later, a french catheter can be used for endotracheal intubation.

k. Towels - helpful to raise the patients shoulders or occiput to align the patients airway.

C. Techniques of insertion - infants and children

1. Assure adequate artificial ventilations by bag-valve-mask and oxygen.
2. Patient must be hyperventilated at an age appropriate rate prior to any intubation attempt.
3. Assemble and test all equipment.
4. Assure universal precautions.
5. Heart rate should be continuously monitored during intubation attempts.
    a. Mechanical stimulation of the airway may cause a slowing of the heart rate.
    b. If a slow heart rate is noted, the attempt should be interrupted to re-ventilate the infant or child.
6. Align the patient's head to assure ease of visualization.
    a. Unless trauma is suspected, tilt the head, lift the chin and attempt to visualize the cords. If unable to visualize the cords, raise the patient's shoulder one inch (may be more based on age). Attempt visualization again.
    b. If trauma is suspected, the patient must be intubated with the head and neck in a neutral position using in-line stabilization.
7. Very little force is necessary for intubation, touch is critical.
8. Holding the laryngoscope handle in your left hand, insert laryngoscope blade into right corner of mouth, following the natural contour of the pharynx.
    a. Once the blade is at the back of the tongue, with a sweeping motion control the tongue and lift it out of the way.
    b. Insert blade into proper anatomical landmark.
        (1) Curved - vallecula
        (2) Straight - lifts epiglottis
            (a) Epiglottis is made of cartilage which is less developed than an adults.
            (b) As a result, the epiglottis is more likely to block the airway and will require more attention in order to visualize the airway.
    c. Lift up and away from the patient.
    d. Use great care to avoid using the teeth as a fulcrum.
9. Application of the Sellick maneuver during attempts at visualization may be beneficial.
10. Visualize the glottic opening and the vocal cords.
11. Do not lose sight of the vocal cords.

12. With right hand gently insert endotracheal tube until the glottic marker, if present, is placed at the level of the vocal cords.
13. If a cuffed tube is used, the tube is inserted until the cuff just passes the vocal cords.
14. Continue to hold the endotracheal tube until secured.
15. Remove stylet, if used.
16. Remove laryngoscope blade and extinguish the lamp.
17. Have your partner attach the bag-valve-mask and deliver artificial ventilations.
18. Confirmation of placement
    a. In infants and children, assess for symmetrical rise and fall of the chest. This is the best indicator as breath sounds may be misleading.
    b. Assess for an improvement in heart rate, and skin color.
    c. Auscultate breath sounds.
        (1) Begin over epigastrium. There should be an absence of insufflation or gurgling sounds.
        (2) Listen to the left apex.
        (3) Compare with the right apex.
        (4) Breath sounds should be bilaterally equal.
        (5) Listen to the left base.
        (6) Compare to the right base.
        (7) Breath sounds should be bilaterally equal.
        (8) Listen at the sternal notch.
19. If breath sounds are bilaterally equal, and no sounds are heard in the epigastrium, the endotracheal tube should be secured in place using tape or a medical director approved commercial device. Remember to inflate the cuff, if a cuffed tube was used. After securing tube, reconfirm tube placement.
20. The patient should then be artificially ventilated at an age appropriate rate.
    a. Remember to note the distance that the tube has been inserted
    b. An oral airway may be inserted to act as a bite block.
21. If breath sounds are diminished or absent on the left, most likely a right main-stem intubation has occurred.
    a. Deflate cuff and gently withdraw the tube while artificially ventilating and auscultating over the left chest.
    b. Take care not to completely remove the endotracheal tube.

c. Compare the right and left breath sounds. If bilaterally equal, follow the previous directions regarding securing the tube, and artificially ventilating the patient.

22. If breath sounds are only present in the epigastrium, an esophageal intubation has occurred.
    a. An unrecognized esophageal intubation is fatal!
    b. Deflate cuff and remove the tube and hyperventilate the patient for an additional 2-5 minutes prior to your second and final attempt.
23. Once the tube is secured, the patient should be secured to an appropriate device to help minimize movement of the head which may dislodge the tube.
24. Be sure to reassess chest wall motion and breath sounds following every major move; e.g., from the scene to the ambulance, from the ambulance to the receiving facility.
25. If the tube is properly place but inadequate lung expansion occurs, search for one of the following possible causes.
    a. The tube is too small and a large air leak is present at the glottic opening.
        (1) Can be assessed by auscultation of the neck.
        (2) The tube should be replace with a larger tube.
        (3) In children older than 8, consider a cuffed tube.
    b. The pop-off valve on the bag-valve-mask has not been deactivated.
    c. There is a leak in the bag-valve device.
    d. The ventilator is delivering inadequate breaths.
    e. Blockage of the tube with secretions.
        (1) Can be treated with endotracheal suctioning.
        (2) If suctioning fails, the tube may have to be removed.

D. Complications
1. Heart rate should be continuously monitored. Stimulation of the airway may cause slow heart rates.
2. Soft tissue trauma to lips teeth, tongue, gums, airway structures.
3. Prolonged attempts may lead to inadequate oxygenation.
4. Right main-stem intubation
5. Esophageal intubation
6. Vomiting
7. Self extubation
8. Be sure to reassess chest wall motion, breath sounds following every major move; e.g., from the scene to the ambulance, from the ambulance to the receiving facility.

9. Collapse of a lung.

APPLICATION

Procedural (How)

1. Show charts of airways in infants, children and adults with illustrations of orotracheal intubation.
2. Show anatomical models of infants, children and adults demonstrating processes involved in advanced airway skills.
3. Demonstrate all basic skills of airway management.
4. Demonstrate the Sellick maneuver (cricoid pressure).
5. Show all devices used in advanced airway management.
6. Demonstrate assembly of blades to the laryngoscope handle.
7. Demonstrate methods of testing blades and handles.
8. Demonstrate techniques for selection and preparation of the orotracheal tube.
9. Demonstrate insertion of the stylet.
10. Demonstrate insertion of the blade into the oropharynx.
11. Demonstrate insertion of the endotracheal tube.
12. Demonstrate proper technique for removing the blade.
13. Demonstrate confirmation techniques.
14. Demonstrate methods of securing the tube.
15. Demonstrate methods of providing artificial ventilation with the tube.
16. Demonstrate cricoid pressure in orotracheal intubation.
17. Demonstrate all of the above with infants, children and neonatal patients.
18. Demonstrate patient assessment techniques post-intubation.
19. Demonstrate suctioning techniques with the endotracheal tube.

Contextual

Basic level EMTs have not been afforded the opportunity to properly manage the airway of patients for decades. It has long been recognized that the greatest need in patient care has been the need for better methods of managing and ultimately, controlling the airway.

All patients exhibiting respiratory distress should receive oxygen therapy. If the patient becomes unresponsive, begin with basic airway adjuncts and skills. If the patient is not breathing, intubation may be preferred.

STUDENT ACTIVITIES

Auditory (Hear)

1. The student should hear the associated sounds of orotracheal intubation.
2. The student should hear the click of the blade onto the handle.
3. The student should hear the sounds associated with the preparation of the tube.
4. The student should hear lung sounds in the confirmation of the orotracheal intubation.
5. The student should hear the sounds associated with orotracheal suction.
6. The student should hear the sounds associated with securing an endotracheal tube.

Visual (See)

1. The student should see the Sellick maneuver demonstrated.
2. The student should see audio-visual aids or materials of advanced airway management.
3. The student should see examples of infant and adult patients needing advanced airway management.
4. The student should see various laryngoscope handles used for advanced airway management.
5. The student should see various endotracheal tubes used for advanced airway management.
6. The student should see various straight and curved blades used for advanced airway management.
7. The student should see various stylets used for advanced airway management.
8. The student should see how to prepare the blade and handle.
9. The student should see how to prepare the tube.
10. The student should see how to check the tube.
11. The student should see how to insert the blade.
12. The student should see how to insert the tube.
13. The student should see how to remove the blade.
14. The student should see how to confirm placement of the tube.

15. The student should see how to correct misplaced tubes.
16. The student should see how to secure the tube.
17. The student should see how to continue monitoring the intubated patient.
18. The student should see how to suction the tube and the oropharynx.
19. The student should see how to wrap equipment post-intubation with regard to contamination.

Kinesthetic (Do)

1. The student should practice the Sellick maneuver.
2. The student should practice preparing a patient (infant, child, and adult) for advanced airway management.
3. The student should practice preparing equipment.
4. The student should practice attaching blades to the handle.
5. The student should practice selecting and preparing tubes.
6. The student should practice inserting stylets.
7. The student should practice inserting curved and straight blades.
8. The student should practice inserting tubes.
9. The student should practice artificially ventilating through the tube with a bag-valve-mask.
10. The student should practice assessing for confirmation.
11. The student should practice correcting misplaced tubes.
12. The student should practice securing the tube after placement.

EVALUATION

Written: Develop evaluation instruments, e.g., quizzes, verbal reviews, handouts, to determine of the students have met the cognitive and affective objectives of this lesson.

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skill stations to determine their compliance with cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 8

Advanced Airway (Elective)

Lesson 8-2

Practical Lab: Advanced Airway

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

! Demonstrate the cognitive objectives of Lesson 8-1: Advanced Airway Elective.

AFFECTIVE OBJECTIVES

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

! Demonstrate the affective objectives of Lesson 8-1: Advanced Airway Elective.

PSYCHOMOTOR OBJECTIVES

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

! Demonstrate the psychomotor objectives of Lesson 8-1: Advanced Airway Elective.

Motivation: The practical lesson is designed to allow the students additional time to perfect skills. It is of utmost importance that the students demonstrate proficiency of the skill, cognitive knowledge of the steps to perform a skill, and a healthy attitude towards performing that skill on a patient.

This is an opportunity for the instructor and assistant instructors to praise progress and re-direct the students toward appropriate psychomotor skills. The material from all preceding lessons and basic life support should be incorporated into these practical skill sessions.

Prerequisites: BLS, Preparatory and Airway.

MATERIALS

AV Equipment: Typically none required.

EMS Equipment: Equipment from the list in Lesson 8-1.

PERSONNEL

Primary Instructor: One proctor for the written evaluation.

Assistant Instructor: The instructor-to-student ratio should be 1:6 for psychomotor skill practice. Individuals used as assistant instructors should be knowledgeable in basic and advanced airway procedures for adults, infants and children.

Recommended Minimum Time to Complete: Four hours

APPLICATION

Procedural (How)

Instructor should demonstrate the procedural activities from Lesson 8-1: Advanced Airway Elective.

Contextual (When, Where, Why)

Instructor should review contextual information from Lesson 8-1: Advanced Airway Elective.

STUDENT ACTIVITIES

Auditory (Hear)

The students should hear the auditory information from Lesson 8-1: Advanced Airway Elective.

Visual (See)

The students should see the visual material from Lesson 8-1: Advanced Airway Elective.

Kinesthetic (Do)

The students should practice the kinesthetic activities from Lesson 8-1: Advanced Airway Elective.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

Practical: Evaluate the actions of the EMT-Basic students during role play, practice or other skills stations to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

REMEDIATION

Identify students or groups of students who are having difficulty with this subject content. Complete remediation sheet from the instructor's course guide.

ENRICHMENT

What is unique in the local area concerning this topic? Complete enrichment sheets from the instructor's course guide and attach with lesson plan.

MODULE 8

Advanced Airway (Elective)

Lesson 8-3

Evaluation: Advanced Airway

OBJECTIVES LEGEND

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

! Demonstrate knowledge of the cognitive objectives of Lesson 8-1: Advanced Airway Elective.

AFFECTIVE OBJECTIVES

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

! Demonstrate knowledge of the affective objectives of Lesson 8-1: Advanced Airway Elective.

PSYCHOMOTOR OBJECTIVES

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

! Demonstrate proficiency in the psychomotor objectives of Lesson 8-1: Advanced Airway Elective.

Motivation: Evaluation of the student's attainment of the cognitive and affective knowledge and psychomotor skills is an essential component of the EMT-Basic educational process. The modules are presented in a "building block" format. Once the students have demonstrated their knowledge and proficiency, the next lesson should be built upon that knowledge. This evaluation will help to identify students or groups of students having difficulty with a particular area. This is an opportunity for the instructor to evaluate his performance, and make appropriate modifications to the delivery of material.

Prerequisites: Completion of Lesson 8-1.

MATERIALS

AV Equipment: Typically none required.

EMS Equipment: Equipment required to evaluate the students proficiency in the psychomotor skills of this module.

PERSONNEL

Primary Instructor: One proctor for the written evaluation.

Assistant Instructor: One practical skills examiner for each 6 students.

Recommended Minimum Time to Complete: Two hours

PRESENTATION

Declarative (What)

I. Purpose of the evaluation

II. Items to be evaluated

III. Feed back from evaluation

APPLICATION

Procedural (How)

1. Written evaluation based on the cognitive and affective objectives of Lesson 8-1.

2. Practical evaluation stations based on the psychomotor objectives of Lesson 8-1.

Contextual (When, Where and Why)

The final lesson in this module is designed to bring closure to the module, and to assure that students are prepared to move to the next module.

This modular evaluation is given to determine the effectiveness of the presentation of materials and how well students have retained the material. This is an opportunity for the students to make necessary adjustments in study habits or for the instructor to adjust the manner in which material is presented.

INSTRUCTOR ACTIVITIES

Supervise student evaluation.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

Identify students and/or groups of students who are having difficulty with this subject content. Complete a remediation sheet from the instructor's course guide. If students continue to have difficulty demonstrating knowledge of the cognitive and affective objectives, or demonstrating proficiency in psychomotor skills, the students should be counseled, remediated and re-evaluated. If improvements in cognitive, affective or psychomotor skills are not achieved, consideration regarding the ability of the student to progress in the program should be taken into account.

APPENDIX A

APPENDIX A

The functional job analysis was developed by The Psychoeducational Clinic of the Ohio State University. It has been endorsed by the National Association of State EMS Directors and the National Council of State EMS Training Coordinators. It may be used to assist in student selection.

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FUNCTIONAL JOB ANALYSIS

The following functional job analysis was developed by the Psychoeducational Clinic of the Ohio State University, at the request of the Board of Directors of the National Registry of Emergency Medical Technicians. This job analysis was later endorsed by a committee comprised of members of the National Association of State EMS Directors and the National Council of State EMS Training Coordinators. The NREMT Board utilized this functional job analysis in the development of examination accommodations to meet the requirements of the Americans with Disabilities Act. Readers and persons interested in utilizing this functional job analysis should refer questions related to specific indicators to occupational rehabilitation specialists for interpretation.

EMT-Basic Characteristics

EMT-Basics work as part of a team. Thorough knowledge of theoretical procedures and ability to integrate knowledge and performance into practical situations are critical. Self-confidence, emotional stability, good judgement, tolerance for high stress, and a pleasant personality are also essential characteristics of the successful EMT-Basic at any level. EMT-Basics also must be able to deal with adverse social situations, which include responding to calls in districts known to have high crime rates.

Physical Demands

Aptitudes required for work of this nature are good physical stamina, endurance, and body condition which would not be adversely affected by lifting, carrying, and balancing at times, patients in excess of 125 pounds (250, with assistance). EMT-Basics must be able to work twenty-four-hour continuous shifts. Motor coordination is necessary for the well-being of the patient, the EMT-B, and co-worker over uneven terrain.

Comments

Driving the ambulance in a safe manner, accurately discerning street names through map reading, and the ability to correctly distinguish house numbers or business locations are essential to task completion in the most expedient manner possible. Use of the telephone for transmitting and responding to physician's advice is also essential. The ability to concisely and accurately describe orally to physicians and other concerned staff one's impression of the patient's condition is critical as EMT-Basics work in emergency conditions in which there may be no time for deliberation. EMT-Basics must also be able to accurately summarize all data in the form of a written report. Verbal and reasoning skills are used more extensively than math. Math does play a part, however, in determining medication ratios per patient's body weight.

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Job Analysis Schedule

1. **ESTABLISH JOB TITLE:** Emergency Medical Technician - Basic
2. **CODE 079026 WTA GROUP:** Occupations in medicine and health
3. **JOB SUMMARY:** Administers life support care to injured and sick persons in prehospital settings as authorized and directed by physician. Assesses nature and extent of injury or illness to establish and prioritize medical procedures to be followed.

4. **WORK PERFORMED RATINGS:**

Worker Functions	Data	People	Things	
		3	7	4

Work Field: 930
M.P.S.M.S: 939 Medical and other health services. (Materials, Products, Subject Matter, and Services)

5. **WORKER TRAITS RATINGS:**
Scale: Level 6, highest level; level 1, lowest level.
G.E.D. 1 2 3 4 5 6
General Education Development
Overall Rating - Level 4

Reasoning development (R)

Level 4 - Apply principles of rational systems to solve practical problems and deal with a variety of concrete variables in situations where only limited standardization exists. Interpret a variety of instructions furnished in written, oral, diagrammatic, or schedule form.

*** NOTE:** There appears to be components of level 5 in terms of dealing with several abstract and concrete variables. There were not enough components to rate this as a level 5.

Mathematical development (M)

Level 3 - Compute discount, interest, profit, and loss; commission, markup, and selling price; ratio and proportion and percentage. Calculate surfaces, volumes, weights, and measures.

Language development (L)

Level 4 - Reading: Reads novels, poems, newspapers, periodicals, journals, manuals, dictionaries, thesauruses, and encyclopedias.

Writing: Prepare business letters, expositions, summaries, and reports, using prescribed format and conforming to all rules of punctuation, grammar, diction, and style.

Speaking: Participate in panel discussions, dramatizations, and debates. Speak extemporaneously on a variety of subjects.

*** NOTE:** In the analyst's opinion, the General Educational Development level appears to be an area in which skill levels could be separated, particularly the math. Precise reading of medications, however, is essential, e.g., Tylenol vs. Tegretol.

SVP 1 2 3 4 5 6 7 8 9
Special Vocational Preparation (Time requirement)
Level 4 - Over three months and including six months

Aptitudes: G 3 V 3 N 3 S 3 P 2 Q 2/3 K 2 F 1/2 M 2 E 2 C 1

Scale: Level 1, highest degree of particular aptitude; level 5, lowest degree of particular aptitude.

G - Intelligence

Level G-3:1 Renders general nursing care to patients in hospital, infirmary, sanitarium, or similar institution:
Intelligence is required to learn and apply principles of anatomy, physiology, microbiology, nutrition, psychology, and patient care used in nursing; to make independent judgements in absence of doctor; and to determine methods and treatments to use when caring for patients with varying illnesses or injuries.

V - Verbal Aptitude

Level V-3:9 Questions patients to obtain their medical history, personal data, and to determine if they are allergic to dental drugs or have any complicating illnesses. Converses with patient in reassuring manner; explains post-operative care, oral hygiene, and importance of preventive dentistry to patients.

N - Numerical Aptitude(The ability to perform arithmetic operations quickly and accurately)

Level 3 - No illustrations in EMS field.

Level N-3:2 Treats patients with disabilities, disorders, and injuries to relieve pain, develop or restore function, and maintain maximum performance, using physical means such as exercise, massage, heat, water, light, and electricity as prescribed by physician:

Numerical aptitude is required to interpret clinical tests such as range of motion, muscle response, and functional tests to ascertain extent of physical loss; to determine intensity and duration of manual or mechanical therapy treatment or procedures such as weight lifting, diathermy, traction, or electro-therapy.

S - Spatial Aptitude

Level S-3:1 Treats patients with disabilities, disorders, and injuries to relieve pain, develop or restore function, and maintain maximum performance, using physical means such as exercise, massage, heat, water, light, and electricity, as prescribed by doctor:

Spatial aptitude is required to visualize anatomic positions and the relationship between the point of forces and the area affected (as in traction); and to place treatment devices or administer manual treatment in relationship to the affected body part.

P - Form Perception

Level P-2:6 Diagnoses and treats diseases and disorders of animals. Ability to make visual comparisons and discriminations and see slight differences in shapes and shadings of figures and widths and lengths of lines. Form perception is required to perceive pertinent details of size, shape, and form in skeletal structure, organs, tissue, and specimens of various animals.

Q - Clerical Perception

Level Q-2:19 (for Paramedic and Intermediate) - Renders general nursing care to patients in hospital, infirmary, sanitarium, or similar institution: Notes pertinent detail in written instructions, especially amounts and strengths of medications to administer; accurately perceives numbers when reading instruments, preparing medications, and filling syringes for injections; accurately records data on patients' charts such as temperature, respiration, pulse count, blood pressure, medications and dosage administered.

Level Q-3:3 (for Basic) - Prepares and compiles records in hospital nursing unit, such as obstetrics, pediatrics, or surgery:

Clerical perception is required to post information to patients' charts from doctors' and nurses' notes and laboratory reports; to file charts in chart racks; to make up daily diet sheet for unit; and to maintain inventory of drugs and supplies.

K - Motor Coordination

K-2:5 Renders general nursing care to patients in hospital, infirmary, sanitarium, or similar institution:
Coordinates vision and finger and hand movements to give injections with hypodermic needle, medication, position or remove dressings, and to measure medicines.

F - Finger Dexterity

F-1:2 No description for EMT-Basic, however, Level 2 is recommended due to ability to wrap bandages and apply splints.

M - Manual Dexterity

Level M-2:12 Renders general nursing care to patients in hospital, infirmary, sanitarium, or similar situation. Controls and extinguishes fires, protects life and property, and maintains equipment as volunteer or employee of city, township, or industrial plant. Manual dexterity is required during emergency situations, in positioning ladders and nets; clasping rungs to climb ladders; and in giving artificial respiration.

E - Eye-Hand-Foot Coordination

No description given. Level 2 recommended as job may require balancing of ladders, stairs, or walking on uneven terrain while carrying patient. Eye-Hand-Foot coordination required to permit ambulance operation and balancing, lifting, positioning, and transporting patient.

C - Color Discrimination

C-1:4 Performs surgery to correct deformities, repair injuries, prevent diseases, and to improve functions in patients:

Uses color discrimination and color memory in making diagnosis of patient's affliction or condition, by recognizing any deviations in color of diseased tissue from healthy tissue; evaluating color characteristics such as hue and saturation of affected body parts; and making determination as to extent or origin of condition.

Temperaments D F I J M P R S T V

J - Adaptability to making generalizations, evaluations or decisions based on sensory or judgmental criteria.

M - Adaptability to making generalizations, judgments, or decisions based on measurable or verifiable criteria.

P - Adaptability to dealing with people beyond giving and receiving instructions.

S - Adaptability to performing under stress when confronted with emergency, critical, unusual, or dangerous situations; or in situations in which working speed and sustained attention are 'make or break' aspects of the job.

T - Adaptability to situations requiring the precise attainment of set limits, tolerances, or standards.

V - Adaptability to performing a variety of duties, often changing from one task to another of a different nature without loss of efficiency or composure.

Interests 1a 1b 2a 2b 3a 3b 4a 4b 5a 5b

2b - A preference for activities of a scientific and technical nature.

4a - A preference for working for the presumed good of the people.

Physical Demands S L M H V 2 3 4 5 6

Explanation of terms:

1. Strengths

2. Climbing and/or balancing
3. Stooping, kneeling, crouching and/or crawling
4. Reaching, handling, and fingering and/or feeling
5. Talking and hearing
6. Seeing

Environmental Conditions I O **B** **2** **3** **4** **5** **6** **7**

Explanation of terms:

1. Work location (I = Indoors, O = Outdoors, B = Both)
2. Extreme cold, with or without temperature changes
3. Extreme heat, with or without temperature changes
4. Wet and/or humid
5. Noise and/or vibration
6. Hazards
7. Atmospheric conditions

- -

U.S. DEPARTMENT OF LABOR
MANPOWER ADMINISTRATION
Physical Demands and Environmental Conditions

ESTAB. JOB TITLE EMT-Paramedic **ESTAB. & SCHED. NO.**
DOT TITLE & CODE 079.010

Code: F = Frequently
O = Occasionally
NP = Not present

PHYSICAL DEMANDS				COMMENTS
1. STRENGTH				
a.	Standing		45%	1a. Very little time is spent sitting down, except for incident report writing.
	Walking		50%	
	Sitting		5%	
b.	Lifting	F	1b.	EMTs are required to assist in lifting and carrying injured or sick persons to ambulance, removal from ambulance, and into emergency care setting.
	Carrying		F	
	Pushing		O	
	Pulling		O	
2.	**CLIMBING**		F	2. Climbing and balancing are required for safe transport of patient.
	BALANCING	F		
3.	**STOOPING**		F	3. Patients are often found injured or sick in locations where removal is possible only through EMT's stooping, kneeling, crouching, or crawling.
	KNEELING		F	
	CROUCHING		F	
	CRAWLING		F	
4.	**REACHING**		F	4. Transporting life saving equipment, arm extension, handling carefully patients in fragile conditions, feeling to assess vital signs are part of the nature of this position.
	HANDLING		F	
	FINGERING		F	
	FEELING		F	

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5.	**TALKING**		5. Responding to patients, physicians, and co-workers through hearing is necessary in transmitting patient information and following directions.
	Ordinary	F	
	Other	NP	
	HEARING		
	Ord. Conv.	F	
	Other	F	
6.	**SEEING**		6. Sight is used to drive ambulances, distinguish landmarks, and visually inspect patients.
	Acuity, Near	F	
	Acuity, Far	F	
	Depth Percptn	F	
	Accommodat	F	
	Color Vision	F	
	Field of Vision	F	

RATINGS: S L M H VH 2 3 4 5 6

Analyst Cathy Cain Date 1/25/92 **Estab. Reviewer**
Reviewer Date Title Date

7. GENERAL EDUCATION High school graduate or equivalent. Must be at least 18 years old.

8. VOCATIONAL PREPARATION

- **a. College:** None, however, some EMT courses are taught at local colleges.
- **b. Vocational Education Courses:** For EMT-Basic - 110 hours specialized training.
- **c. Apprenticeship:** None
- **d. Implant Training:** None
- **e. On-the-Job Training:** During course of training, students will have engaged in various clinical experiences in supervised hospital and field settings. Amount of time spent varies.
- **f. Performance on Other Jobs:** None

9. EXPERIENCE None

10. ORIENTATION None

11. LICENSES, ETC. Certification or Licensure.

12. RELATION TO OTHER JOBS AND WORKERS

Promotion: From EMT-Basic to EMT/ Intermediate to (based on training)
Transfers: None
Supervision Received: Physicians
Supervision Given: None

- -

13. **MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS** Ambulance, radio/telephone, extrication devices, cardiac monitors, defibrillator, injection needles, pneumatic anti-shock garments, stretchers, "jaws-of-life".
14. **MATERIALS AND PRODUCTS** Bandages and tape

APPENDIX B

APPENDIX B

The following minimum data material represents the minimum patient and administrative data that should be obtained on every call. This material is also found in the Documentation Lesson of this curriculum.

MINIMUM DATA SET

As part of the design of the revised curriculum, a minimum data set of information was established. It is important to emphasize this information to the students. This set includes the following information:

Patient information

1. Chief complaint
2. Level of consciousness (AVPU) - mental status
3. Systolic blood pressure for patients greater than 3 years old
4. Skin perfusion (capillary refill) for patients less than 3 years old
5. Skin color and temperature
6. Pulse rate
7. Respiratory rate and effort

Administrative information

1. Time Incident Reported
2. Time Unit Notified
3. Time of Arrival at Patient
4. Time Unit Left Scene
5. Time of Arrival at Destination
6. Time of Transfer of Care

As consensus is achieved in documentation, it is strongly recommended that the language utilized from the Uniform Prehospital EMS Data Conference be used for patient and administrative information. Once this material is approved and becomes available, it should be incorporated into the content of this curriculum.

APPENDIX C

APPENDIX C

The following document is a reprint from the Basic Cardiac Life Support Heartsaver Guide, 1993 published by the American Heart Association. This material is provided to assist with the lesson on cardiac emergencies.

Although cardiopulmonary resuscitation is a prerequisite to the curriculum, it should be reinforced throughout the instructional program. The skill sheets may be copied and used in the evaluation of the required skills.

INSTRUCTORS SHOULD INSERT PAGES 24 - 37 and PAGES 50 - 59 of the AMERICAN HEART ASSOCIATION <u>BASIC LIFE SUPPORT HEARTSAVER GUIDE</u>

APPENDIX D

APPENDIX D

The following information is reproduced with permission from the American Medical Association. It should be utilized in conjunction with the cardiopulmonary resuscitation skill sheets (appendix C). This material may be beneficial when used with the Cardiac Emergencies Lesson of the curriculum.

INSTRUCTORS SHOULD INSERT THE FOLLOWING JAMA REPRINT MATERIAL INTO THIS SPACE:

PART 2, Adult Basic Life Support, Pages 2184 - 2198,

APPENDIX E

APPENDIX E

The following objective list provides detailed information concerning each lesson. The information includes: lesson, title, hours, number of cognitive, affective, and psychomotor objectives in each lesson, total number of cognitive, affective, and psychomotor objectives, percentage of cognitive objectives and percentage of hours. This material may be beneficial in designing the instructional program.

No.	Lesson	Title	Hours	Cognitive	Affective	Psychomotor
1	1-1	Introduction to Emergency Care	1.5	7	2	0
2	1-2	Well-Being of the EMT-Basic	1.5	10	1	2
3	1-3	Medical/Legal-Ethical Issues	1.5	12	3	0
4	1-4	The Human Body	2.5	2	0	0
5	1-5	Baseline Vital Signs/SAMPLE History	2	26	5	6
6	1-6	Lifting and Moving Patients	3	12	1	2
7	1-7	Evaluation: Preparatory Module	1	*	*	*
Subtotal Preparatory Module			**13**	**69**	**12**	**10**
8	2-1	Airway	4	22	2	17
9	2-2	Practical Lab: Airway	2	*	*	*
10	2-3	Evaluation: Airway Module	1	*	*	*
Subtotal Airway Module			**7**	**22**	**2**	**17**
11	3-1	Scene Size-up	0.5	6	2	1
12	3-2	Initial Assessment	1	19	2	7
13	3-3	Focused History and Physical: Trauma	4	6	1	1
14	3-4	Focused History and Physical: Medical	2	4	1	2
15	3-5	Detailed Physical Exam	1	4	1	1
16	3-6	On-going Assessment	1	3	3	1
17	3-7	Communications	1	9	1	3

No.	Lesson	Title	Hours	Cognitive	Affective	Psychomotor
18	3-8	Documentation	1.5	6	4	1
19	3-9	Practical Lab: Patient Assessment	8	*	*	*
20	3-10	Evaluation: Patient Assessment Module	1	*	*	*
Subtotal Patient Assessment Module			**21**	**57**	**15**	**17**
21	4-1	General Pharmacology	1	5	1	2
22	4-2	Respiratory Emergencies	2.5	10	2	2
23	4-3	Cardiovascular Emergencies	7	43	3	8
24	4-4	Diabetic Emergencies/Altered Mental Status	2	5	1	4
25	4-5	Allergies	2	7	1	5
26	4-6	Poisoning/Overdose	2	7	2	6
27	4-7	Environmental Emergencies	2	8	0	4
28	4-8	Behavioral Emergencies	1.5	8	1	2
29	4-9	Obstetrics	2	18	1	10
30	4-10	Practical Lab: Medical/Behavioral/Obstetrics	8	*	*	*
31	4-11	Evaluation: Medical/Behavioral/Obstetrics	1	*	*	*
Subtotal Medical Module			**31**	**111**	**12**	**43**
32	5-1	Bleeding and Shock	2	10	1	6
33	5-2	Soft Tissue Injuries	2	29	0	12
34	5-3	Musculoskeletal Care	4	8	2	2
35	5-4	Injuries to the Head and Spine	4	26	6	12

No.	Lesson	Title	Hours	Cognitive	Affective	Psychomotor
36	5-5	Practical Lab: Trauma	6	*	*	*
37	5-6	Evaluation Trauma	1	*	*	*
Subtotal Trauma Module			**19**	**73**	**9**	**32**
38	6-1	Infants and Children	3	17	3	6
39	6-2	Practical Lab: Infants and Children	3	*	*	*
40	6-3	Evaluation: Infants and Children	1	*	*	*
Subtotal Infants and Children			**7**	**17**	**3**	**6**
41	7-1	Ambulance Operations	1	14	2	0
42	7-2	Gaining Access	1	7	0	0
43	7-3	Overviews	2	14	0	1
44	7-4	Evaluation: Operations	1	*	*	*
Subtotal Operations Module			**5**	**35**	**2**	**1**
45		Final Written Evaluation	2	*	*	*
46		Final Practical Evaluation	5	*	*	*
Total - Core Curriculum			**110**	**385**	**55**	**127**
O1	8-1	Advanced Airway	6	21	7	7
O2	8-2	Practical Lab: Advanced Airway	4	*	*	*
O3	8-3	Evaluation: Advanced Airway	2	*	*	*

No.	Lesson	Title	Hours	Cognitive	Affective	Psychomotor	T
Total Optional Advanced Airway			12	21	7	7	
* Objectives in this lesson are included in other lessons.							

APPENDIX F

APPENDIX F

The following enrichment lesson sheets should be copied and used as needed to assist with augmenting the core curriculum.

These sheets are designed to be used as a template to assure that added materials may be presented in similar format and style to the other lessons. These sheets may be added to any of the lessons in the core curriculum.

C=Cognitive P=Psychomotor A=Affective
1 = Knowledge level
2 = Application level
3 = Problem-solving level

COGNITIVE OBJECTIVES

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

!

!

!

AFFECTIVE OBJECTIVES

!

!

!

PSYCHOMOTOR OBJECTIVES

!

!

!

Motivation:

Prerequisites:

MATERIALS

AV Equipment: Utilize various audio-visual materials relating to the _____. The continuous design and development of new audio-visual materials relating to EMS requires careful review to determine which best meets the needs of the program. Materials should be edited to assure the objectives of the curriculum are met.

EMS Equipment:

PERSONNEL

Primary Instructor:

Assistant Instructor:

Recommended Minimum
Time to complete:

Declarative (What)
(Usually in outline form)

APPLICATION

Procedural (How)

1.

2.

3.

Contextual (When, Where, Why)

1.

2.

3.

STUDENT ACTIVITIES

Auditory (Hear)

1.

2.

3.

Visual (See)

1.

2.

3.

Kinesthetic (Do)

1.

2.

3.

INSTRUCTOR ACTIVITIES

Supervise student practice.
Reinforce student progress in cognitive, affective, and psychomotor domains.
Redirect students having difficulty with content (complete remediation forms).

EVALUATION

Written:	Develop evaluation instruments e.g. quiz, oral reviews, and handouts, to determine if the students have met the cognitive and affective objectives of this lesson.
Practical:	Evaluate the actions of the EMT-B students during the role play, practice or other skill stations, to determine their compliance with the cognitive and affective objectives and their mastery of the psychomotor objectives of this lesson.

Identify students or groups of students that are having difficulty with this subject content. Complete remediation sheet from the instructor's guide.

APPENDIX G

APPENDIX G

The following remediation sheet should be completed after every class for individual students or groups of students having difficulty with knowledge, skills, and/or attitude. The primary instructor or an assistant instructor should work with the individual or group as soon as possible to assure that they achieve success in the program.

EMT-Basic National Standard Curriculum
Remediation Sheet

Date:	Student:
Area of Difficulty:	
Action Plan:	
Completed:	

Date:	Student:
Area of Difficulty:	
Action Plan:	
Completed:	

Date:	Student:
Area of Difficulty:	
Action Plan:	
Completed:	

Date:	Student:
Area of Difficulty:	

Action Plan:	
Completed:	

APPENDIX H

APPENDIX H

The following skill sheets are to be used in conjunction with the core curriculum and are organized in the order of the corresponding lessons. They should be copied and provided to each student at the beginning of the program and should be used to assist in the evaluation of those skills throughout the program.

The last three sheets are designed for use with the Advanced Airway Elective Module. The last two of these are not presented as a component of the Advanced Airway Module. They may prove to be beneficial to those electing to perform those skills as enrichment to the core curriculum.

MOUTH-TO-MASK WITH SUPPLEMENTAL OXYGEN

	Points Possible	Points Awarded
Takes or verbalizes body substance isolation precautions	1	
Connects one-way valve to mask	1	
Opens airway (manually or with adjunct)	1	
Establishes and maintains a proper mask to face seal	1	
Ventilates the patient at the proper volume and rate *(800-1200 ml per breath/10-20 breaths per minute)*	1	
Connects mask to high concentration oxygen	1	
Adjusts flow rate to greater than 15 L/min or greater	1	
Continues ventilation at proper volume and rate *(800-1200 ml per breath/10-20 breaths per minute)*	1	
NOTE: the examiner must witness ventilations for at least 30 seconds		
TOTAL:	8	

CRITICAL CRITERIA

___ Did not take or verbalize body substance isolation precautions

___ Did not adjust liter flow to 15 L/min or greater

___ Did not provide proper volume per breath
(more than 2 ventilations per minute are below 800 ml)

___ Did not ventilate the patient at 10-20 breaths per minute

___ Did not allow for complete exhalation

AIRWAY MAINTENANCE
OROPHARYNGEAL AIRWAY

	Points Possible	Points Awarded
akes or verbalizes body substance isolation precautions	1	
elects appropriate size airway	1	
easures airway	1	
serts airway without pushing the tongue posteriorly	1	
OTE: The examiner must advise the candidate that the patient is gagging and becoming conscious		
emoves oropharyngeal airway	1	

SUCTION

OTE: The examiner must advise the candidate to suction the patient's oropharynx/nasopharynx		
urns on/prepares suction device	1	
ssures presence of mechanical suction	1	
serts suction tip without suction	1	
oplies suction to the oropharynx/nasopharynx	1	

NASOPHARYNGEAL AIRWAY

OTE: The examiner must advise the candidate to insert a nasopharyngeal airway		
elects appropriate size airway	1	
easures airway	1	
erbalizes lubrication of the nasal airway	1	
ully inserts the airway with the bevel facing toward the septum	1	
TOTAL:	13	

CRITICAL CRITERIA

__ Did not take or verbalize body substance isolation precautions

__ Did not obtain a patent airway with the oropharyngeal airway

__ Did not obtain a patent airway with the nasopharyngeal airway

OXYGEN ADMINISTRATION

	Points Possible	Points Awarded
akes or verbalizes body substance isolation precautions	1	
ssembles regulator to tank	1	
pens tank	1	
hecks for leaks	1	
hecks tank pressure	1	
taches nonrebreather mask	1	
efills reservoir	1	
djusts liter flow to 15 L/min or greater	1	
pplies and adjusts mask to the patient's face	1	
OTE: The examiner must advise the candidate to apply a nasal cannula to the patient.		
taches nasal cannula to oxygen	1	
djusts liter flow up to 6 L/min	1	
pplies nasal cannula to the patient	1	
OTE: The examiner must advise the candidate to discontinue oxygen therapy.		
emoves the nasal cannula	1	
uts off the regulator	1	
elieves the pressure within the regulator	1	
TOTAL:	15	

CRITICAL CRITERIA

____ Did not take or verbalize body substance isolation precautions

____ Did not assemble the tank and regulator without leaks

____ Did not adjust the device to the correct liter flow for the non-rebreather mask (15 L/min)

____ Did not prefill the reservoir bag

____ Did not adjust the device to the correct liter flow for the nasal cannula (up to 6 L/min)

Cardiac Arrest Management/AED

	Points Possible	Points Awarded
SSESSMENT		
kes or verbalizes body substance isolation precautions	1	
iefly questions rescuer about arrest events	1	
rects rescuer to stop CPR	1	
rifies absence of spontaneous pulse	1	
rns on defibrillator power	1	
taches automated defibrillator to patient	1	
sures all individuals are standing clear of the patient	1	
tiates analysis of rhythm	1	
livers shock (up to three successive shocks)	1	
rifies absence of spontaneous pulse	1	
RANSITION		
rects resumption of CPR	1	
thers additional information on arrest event	1	
nfirms effectiveness of CPR (ventilation and compressions)	1	
TEGRATION		
rects insertion of a simple airway adjunct (oropharyngeal/nasopharyngeal)	1	
rects ventilation of patient	1	
sures high concentration of oxygen connected to the ventilatory adjunct.	1	
sures CPR continues without unnecessary/prolonged interruption.	1	
-evaluates patient/CPR in approximately one minute	1	
peats defibrillator sequence	1	
RANSPORTATION		
rbalizes transportation of patient	1	
TOTAL:	20	

CRITICAL CRITERIA

__ Did not take or verbalize body substance isolation precautions
__ Did not evaluate the need for immediate use of the AED
__ Did not direct initiation/resumption of ventilation/compressions at appropriate times.
__ Did not assure all individuals were clear of patient before delivering each shock
__ Did not operate the AED properly (inability to deliver shock)

PATIENT ASSESSMENT/MANAGEMENT

MEDICAL

	Points Possible	Points Awarded
erbalizes body substance isolation precautions	1	
IZE-UP		

es the scene is safe		1	
es the mechanism of injury/nature of illness		1	
es the number of patients		1	
additional help if necessary		1	
stabilization of spine		1	
ASSESSMENT			
s general impression of the patient		1	
es chief complaint/apparent life threats		1	
es responsiveness/level of consciousness		1	
irway and breathing	Assessment Initiates appropriate oxygen therapy Assures adequate ventilation	1 1 1	
irculation	Assesses/controls major bleeding Assesses pulse Assesses skin (color, temperature and condition)	1 1 1	
priority patients/makes transport decision		1	
D PHYSICAL EXAM AND HISTORY/RAPID ASSESSMENT			
Symptoms (Assess history of present illness)		1	

ory	**Cardiac**	**Altered Level of Consciousness**	**Allergic Reaction**	**Poisoning/ Overdose**	**Environmental Emergency**	**Obstetrics**	**Behavioral**
s? ? ? ions?	*Onset? *Provokes? *Quality? *Radiates? *Severity? *Time? *Interventions?	*Description of the episode *Onset? *Duration? *Associated symptoms? *Evidence of trauma? *Interventions? *Seizures? *Fever?	*History of allergies? *What were you exposed to? *How were you exposed? *Effects? *Progressions? *Interventions?	*Substance? *When did you ingest/become exposed? *How much did you ingest? *Over what time period? *Interventions? *Estimated weight? *Effects?	*Source? *Environment? *Duration? *Loss of consciousness? *Effects - General or local?	*Are you pregnant? *How long have you been pregnant? *Pain or contractions? *Bleeding or discharge? *Do you feel the need to push? *Last menstrual period? *Crowning?	*How do you feel? *Determine suicidal tendencies *Is the patient a threat to self or others? *Is there a medical problem? *Past medical history? *Interventions? *Medications?

	1	
ns	1	
cal history	1	
	1	
ding to present illness (rule out trauma)	1	
s focused physical examination ses affected body part/system or, if indicated, completes rapid assessment	1	
(Obtains baseline vital signs)	1	
ENTIONS Obtains medical direction or verbalizes standing order for medication interventions and verbalizes proper additional intervention/treatment	1	
ORT (Re-evaluates transport decision)	1	
s detailed physical examination	1	
G ASSESSMENT (verbalized)		
nitial assessment	1	
ital signs	1	
ocused assessment regarding patient complaint or injuries	1	
terventions	1	
TOTAL:	31	

CRITICAL CRITERIA

__Did not take or verbalize body substance isolation precautions if necessary
__Did not determine scene safety
__Did not obtain medical direction or verbalize standing orders for medication interventions
__Did not provide high concentration of oxygen
__Did not evaluate and find conditions of airway, breathing, circulation
__Did not manage/provide airway, breathing, hemorrhage control or treatment for shock
__Did not differentiate patient's needing transportation versus continued assessment at the scene
__Does detailed or focused history/physical examination before assessing airway, breathing and circulation

EPINEPHRINE AUTO-INJECTOR

	Points Possible	Points Awarded
Takes or verbalizes body substance isolation	1	
Contacts medical direction for authorization	1	
Obtains patient's auto-injector	1	
Assures injector is prescribed for the patient	1	
Checks medication for expiration date	1	
Checks medication for cloudiness or discoloration	1	
Removes safety cap from the injector	1	
Selects appropriate injection site (thigh or shoulder)	1	
Pushes injector firmly against site	1	
Holds injector against site for a minimum of ten (10) seconds	1	
Properly discards auto-injector	1	
Verbalizes monitoring the patient while transporting	1	
TOTAL:	12	

CRITICAL CRITERIA:

___ Did not contact medical direction for authorization
___ did not check medication for prescription, cloudiness or discoloration
___ Did not use an appropriate injection site
___ Used the injector against the injection site for ten (10) seconds or longer
___ Did not discard auto-injector into appropriate container

PATIENT ASSESSMENT/MANAGEMENT
TRAUMA

		Points Possible	Points Awarded
Takes or verbalizes body substance isolation precautions		1	
SCENE SIZE-UP			
Determines the scene is safe		1	
Determines the mechanism of injury		1	
Determines the number of patients		1	
Requests additional help if necessary		1	
Considers stabilization of spine		1	
INITIAL ASSESSMENT			
Verbalizes general impression of patient		1	
Determines chief complaint/apparent life threats		1	
Determines responsiveness		1	
Assesses airway and breathing	Assessment Initiates appropriate oxygen therapy Assures adequate ventilation Injury management	1 1 1 1	
Assesses circulation	Assesses for and controls major bleeding Assesses pulse Assesses skin (color, temperature and condition)	1 1 1	
Identifies priority patients/makes transport decision		1	
FOCUSED PHYSICAL EXAM AND HISTORY/RAPID TRAUMA ASSESSMENT			
Selects appropriate assessment (focused or rapid assessment)		1	
Obtains baseline vital signs		1	
Obtains S.A.M.P.L.E. history		1	
DETAILED PHYSICAL EXAMINATION			
Assesses the head	Inspects and palpates the scalp and ears Assesses the eyes Assesses the facial area including oral and nasal area	1 1 1	
Assesses the neck	Inspects and palpates the neck Assesses for JVD Assesses for tracheal deviation	1 1 1	
Assesses the chest	Inspects Palpates Auscultates the chest	1 1 1	
Assesses the abdomen/pelvis	Assesses the abdomen Assesses the pelvis Verbalizes assessment of genitalia/perineum as needed	1 1 1	
Assesses the extremities	1 point for each extremity includes inspection, palpation, and assessment of pulses, sensory and motor activities	4	
Assesses the posterior	Assesses thorax Assesses lumbar	1 1	
Manages secondary injuries and wounds appropriately **1 point for appropriate management of each injury/wound up to a maximum of 2 points**		2	
Verbalizes reassessment of the vital signs		1	
	TOTAL:	41	

CRITICAL CRITERIA

__Did not take or verbalize body substance isolation precautions
__Did not assess for spinal protection
__Did not provide for spinal protection when indicated
__Did not provide high concentration of oxygen
__Did not evaluate and find conditions of airway, breathing, circulation (hypoperfusion)
__Did not manage/provide airway, breathing, hemorrhage control or treatment for shock (hypoperfusion)
__Did not differentiate patient's needing transportation versus continued on scene survey
__Does other detailed physical examination before assessing airway, breathing and circulation
__Did not transport patient within ten (10) minute time limit

BLEEDING CONTROL/SHOCK MANAGEMENT

	Points Possible	Points Awarded
Takes or verbalizes body substance isolation precautions	1	
Applies direct pressure to the wound	1	
Elevates the extremity	1	
Applies a dressing to the wound	1	
Bandages the wound	1	
Note: The examiner must now inform the candidate that the wound is still continuing to bleed.		
Applies an additional dressing to the wound	1	
Note: The examiner must now inform the candidate that the wound is still continuing to bleed. The second dressing does not control the bleeding.		
Locates and applies pressure to appropriate arterial pressure point	1	
Note: The examiner must now inform the candidate that the bleeding is controlled and the patient is in compensatory shock.		
Applies high concentration oxygen	1	
Properly positions the patient	1	
Initiates steps to prevent heat loss from the patient	1	
Indicates need for immediate transportation	1	
TOTAL:	11	

CRITICAL CRITERIA

____ Did not take or verbalize body substance isolation precautions
____ Did not apply high concentration of oxygen
____ Applies tourniquet before attempting other methods of bleeding control
____ Did not control hemorrhage in a timely manner
____ Did not indicate a need for immediate transportation

IMMOBILIZATION SKILLS
LONG BONE

	Points Possible	Points Awarded
Takes or verbalizes body substance isolation precautions	1	
Directs application of manual stabilization	1	
Assesses motor, sensory and distal circulation	1	
NOTE: The examiner acknowledges present and normal		
Measures splint	1	
Applies splint	1	
Immobilizes the joint above the injury site	1	
Immobilizes the joint below the injury site	1	
Secures the entire injured extremity	1	
Immobilizes hand/foot in the position of function	1	
Reassesses motor, sensory and distal circulation	1	
Note: The examiner acknowledges present and normal		
TOTAL:	10	

CRITICAL CRITERIA

__ Grossly moves injured extremity

__ Did not immobilize adjacent joints

__ Did not assess motor, sensory and distal circulation after splinting

IMMOBILIZATION SKILLS
JOINT INJURY

	Points Possible	Points Awarded
Takes or verbalizes body substance isolation precautions	1	
Directs application of manual stabilization of the injury	1	
Assesses motor, sensory and distal circulation	1	
NOTE: The examiner acknowledges present and normal		
Selects proper splinting material	1	
Immobilizes the site of the injury	1	
Immobilizes bone above injured joint	1	
Immobilizes bone below injured joint	1	
Reassesses motor, sensory and distal circulation	1	
NOTE: The examiner acknowledges present and normal		
TOTAL:	8	

CRITICAL CRITERIA

___ Did not support the joint so that the joint did not bear distal weight

___ Did not immobilize bone above and below injured joint

___ Did not reassess motor, sensory and distal circulation after splinting

IMMOBILIZATION SKILLS
TRACTION SPLINTING

	Points Possible	Points Awarded
Takes or verbalizes body substance isolation precautions	1	
Directs application of manual stabilization of the injured leg	1	
Directs the application of manual traction	1	
Assesses motor, sensory and distal circulation	1	
NOTE: The examiner acknowledges present and normal.		
Prepares/adjusts splint to the proper length	1	
Positions the splint at the injured leg	1	
Applies the proximal securing device (e.g..ischial strap)	1	
Applies the distal securing device (e.g..ankle hitch)	1	
Applies mechanical traction	1	
Positions/secures the support straps	1	
Re-evaluates the proximal/distal securing devices	1	
Reassesses motor, sensory and distal circulation	1	
NOTE: The examiner acknowledges present and normal.		
NOTE: The examiner must ask candidate how he/she would prepare the patient for transportation.		
Verbalizes securing the torso to the long board to immobilize the hip	1	
Verbalizes securing the splint to the long board to prevent movement of the splint	1	
TOTAL:	14	

CRITICAL CRITERIA

___ Loss of traction at any point after it is assumed
___ Did not reassess motor, sensory and distal circulation after splinting
___ The foot is excessively rotated or extended after splinting
___ Did not secure the ischial strap before taking traction
___ Final immobilization failed to support the femur or prevent rotation of the injured leg
___ Secures leg to splint before applying mechanical traction

NOTE: If the Sager splint is used without elevating the patient's leg, application of manual traction is not necessary. The candidate should be awarded 1 point as if manual traction were applied.

NOTE: If the leg is elevated at all, manual traction must be applied before elevating the leg. The ankle hitch may be applied before elevating the leg and used to pull manual traction.

SPINAL IMMOBILIZATION
LYING PATIENT

	Points	Points

	Possible	Awarded
Takes or verbalizes body substance isolation precautions	1	
Directs assistant to place/maintain head in neutral in-line position	1	
Directs assistant to maintain manual immobilization of the head	1	
Assesses motor, sensory and distal circulation in extremities	1	
Applies appropriate size extrication collar	1	
Positions the immobilization device appropriately	1	
Moves patient onto device without compromising the integrity of the spine	1	
Applies padding to voids between the torso and the board as necessary	1	
Immobilizes the patient's torso to the device	1	
Evaluates and pads behind the patient's head as necessary	1	
Immobilizes the patient's head to the device	1	
Secures the patient's legs to the device	1	
Secures the patient's arms to the device	1	
Reassesses motor, sensory and distal circulation in extremities	1	
TOTAL:	14	

CRITICAL CRITERIA

__ Did not immediately direct or take manual immobilization of the head
__ Releases or orders release of manual immobilization before it was maintained mechanically
__ Patient manipulated or moved excessively causing potential spinal compromise
__ Device moves excessively up, down, left or right on patient's torso
__ Head immobilization allows for excessive movement
__ Upon completion of immobilization, head is not in the neutral position
__ Did not reassess motor, sensory and distal circulation after immobilization
__ Immobilizes head to the board before securing torso

SPINAL IMMOBILIZATION
SEATED PATIENT

	Points Possible	Points Awarded
Takes or verbalizes body substance isolation precautions	1	
Directs assistant to place/maintain head in neutral in-line position	1	
Directs assistant to maintain manual immobilization of the head	1	
Assesses motor, sensory and distal circulation in extremities	1	
Applies appropriate size extrication collar	1	
Positions the immobilization device behind the patient	1	
Secures the device to the patient's torso	1	
Evaluates torso fixation and adjusts as necessary	1	
Evaluates and pads behind the patient's head as necessary	1	
Secures the patient's head to the device	1	
Verbalizes moving the patient to a long board	1	
Reassesses motor, sensory and distal circulation in extremities	1	
TOTAL:	12	

CRITICAL CRITERIA

___ Did not immediately direct or take manual immobilization of the head
___ Releases or orders release of manual immobilization before it was maintained mechanically
___ Patient manipulated or moved excessively causing potential spinal compromise
___ Device moves excessively up, down, left or right on patient's torso
___ Head immobilization allows for excessive movement
___ Torso fixation inhibits chest rise resulting in respiratory compromise
___ Upon completion of immobilization, head is not in the neutral position
___ Did not reassess motor, sensory and distal circulation after immobilization
___ Immobilized head to the board before securing the torso

VENTILATORY MANAGEMENT
ENDOTRACHEAL INTUBATION

NOTE: If a candidate elects to initially ventilate with a BVM attached to a reservoir and oxygen, full credit must be awarded for steps denoted by "**" if the first ventilation is delivered within the initial 30 seconds

		Points Possible	Points Awarded
Takes or verbalizes body substance isolation precautions		1	
Opens airway manually		1	
Elevates tongue and inserts simple airway adjunct (oropharyngeal or nasopharyngeal airway)		1	
NOTE: The examiner now informs the candidate no gag reflex is present and the patient accepts the adjunct			
**Ventilates the patient immediately using a BVM device unattached to oxygen		1	
**Hyperventilates the patient with room air		1	
NOTE: The examiner now informs the candidate that ventilation is being performed without difficulty			
Attaches the oxygen reservoir to the BVM		1	
Attaches BVM to high flow oxygen		1	
Ventilates the patient at the proper volume and rate (*800-1200 ml per breath/10-20 breaths per minute*)		1	
NOTE: After 30 seconds, the examiner auscultates and reports breath sounds are present and equal bilaterally and medical control has ordered intubation. The examiner must now take over ventilation.			
Directs assistant to hyperventilate patient		1	
Identifies/selects proper equipment for intubation		1	
Checks equipment	Checks for cuff leaks Checks laryngoscope operation and bulb tightness	1 1	
NOTE: The examiner must remove the OPA and move out of the way when the candidate is prepared to intubate			
Positions the head properly		1	
Inserts the laryngoscope blade while displacing the tongue		1	
Elevates the mandible with the laryngoscope		1	
Introduces the ET tube and advances it to the proper depth		1	
Inflates the cuff to the proper pressure and disconnects the syringe		1	
Directs ventilation of the patient		1	
Confirms proper placement by auscultation bilaterally and over the epigastrium		1	
NOTE: The examiner must ask, "If you had proper placement, what would you expect to hear?"			
Secures the ET tube (*may be verbalized*)		1	
TOTAL:		20	

CRITICAL CRITERIA

__ Did not take or verbalize body substance isolation precautions
__ Did not initiate ventilations within 30 seconds after applying gloves or interrupts ventilations for greater than 30 seconds at any time.
__ Did not voice or provide high oxygen concentrations (15 L/min or greater)
__ Did not ventilate patient at a rate of at least 10/minute
__ Did not provide adequate volume per breath (maximum of 2 errors/minute permissible)
__ Did not hyperventilate the patient prior to intubation
__ Did not successfully intubate within 3 attempts
__ Used the patients teeth as a fulcrum

__ Did not assure proper tube placement by auscultation bilaterally and over the epigastrium
__ If used, the stylet extended beyond the end of the ET tube
__ Inserts any adjunct in a manner that would be dangerous to the patient

VENTILATORY MANAGEMENT
DUAL LUMEN AIRWAY DEVICE (PTL OR COMBI-TUBE) INSERTION FOLLOWING AN UNSUCCESSFUL ENDOTRACHEAL INTUBATION ATTEMPT

	Points Possible	Points Awarded
Continues body substance isolation precautions	1	
Confirms the patient is being properly ventilated	1	
Directs assistant to hyperventilate the patient	1	
Checks/prepares airway device	1	
Lubricates distal tip of the device (*may be verbalized*)	1	
Removes the oropharyngeal airway	1	
Extends the patient's head	1	
Performs a tongue-jaw lift	1	
Inserts airway device to proper depth	1	
Inflates pharyngeal and distal cuffs	1	
Removes syringe	1	
Ventilates through proper first lumen	1	
Confirms placement by observing chest rise and auscultating over the epigastrium and bilaterally over the chest	1	
NOTE: The examiner states, "You do not see rise and fall of the chest and hear sounds only over the epigastrium."		
Ventilates through the alternate lumen	1	
Confirms placement by observing chest rise and auscultating over the epigastrium and bilaterally over the chest	1	
NOTE: The examiner confirms adequate chest rise, bilateral breath sounds and absent sounds over the epigastrium.		
Secures tube at the appropriate step in sequence	1	
TOTAL:	16	

CRITICAL CRITERIA

_ Did not take or verbalize body substance isolation precautions.
_ Interrupts ventilation for greater than 30 seconds.
_ Did not direct hyperventilation of the patient prior to placement of the device.
_ Did not assure proper placement of the device.
_ Did not successfully ventilate patient.

_ Did not provide high flow oxygen (15 L/min or greater)
_ Inserts any adjunct in a manner that would be dangerous to the patient

VENTILATORY MANAGEMENT
ESOPHAGEAL OBTURATOR AIRWAY INSERTION FOLLOWING
AN UNSUCCESSFUL ENDOTRACHEAL INTUBATION ATTEMPT

	Points Possible	Points Awarded
Continues body substance isolation precautions	1	
Confirms the patient is being properly ventilated	1	
Directs assistant to hyperventilate the patient	1	
Identifies/selects proper equipment	1	
Assembles airway	1	
Tests cuff	1	
Inflates mask	1	
Lubricates tube (*may be verbalized*)	1	
Removes the oropharyngeal airway	1	
Positions head properly with neck in the neutral or slightly flexed position	1	
Grasps and elevates tongue and mandible	1	
Inserts tube in the same direction as the curvature of the pharynx	1	
Advances tube until the mask is sealed against the face	1	
Ventilates the patient while maintaining a tight mask seal	1	
Confirms placement by observing chest rise and auscultating over the epigastrium and bilaterally over the chest	1	
NOTE: The examiner confirms adequate chest rise, bilateral breath sounds and absent sounds over the epigastrium		
Inflates the cuff to the proper pressure and disconnects the syringe	1	
Continues ventilation of the patient	1	
Total:	17	

Critical Criteria

__ Did not take or verbalize body substance isolation precautions
__ Interrupts ventilation for more than 30 seconds
__ Did not direct hyperventilation of the patient prior to placement of the device
__ Did not assure proper placement of the device
__ Did not successfully ventilate the patient
__ Did not provide high flow oxygen (15 L/min or greater)
__ Inserts any adjunct in a manner that would be dangerous to the patient

APPENDIX I

APPENDIX I

The flow chart has been developed to assist in the performance of the assessment of all patients, regardless of age or chief complaint. The five components of assessment (scene size-up, initial assessment, focused history and physical exam - medical and trauma, detailed assessment, and on-going assessment) should have the appropriate components conducted as part of the assessment process. The flow chart should be used in conjunction with the lesson plan for each specific area and should be copied and provided to each student prior to implementation.

APPENDIX J

APPENDIX J

This document is provided with permission of the American Heart Association. It should be used in conjunction with the Cardiac Emergencies Lesson. This material will be beneficial in assisting with the instruction of automated external defibrillation.

INSTRUCTORS SHOULD INSERT THE FOLLOWING INFORMATION FROM THE TEXTBOOK OF ADVANCED CARDIAC LIFE SUPPORT, 1987, 1990:

Chapter 20, Automated External Defibrillation, Pages 287 - 299

APPENDIX K

APPENDIX K

The following four sections of information are provided by the American Medical Association and the American Heart Association. This material will assist in the instruction of the Infants and Children Module and the infants and children material in both the Airway Module and the Advanced Airway Elective Module.

APPENDIX L

APPENDIX L

The following are the objectives from the entire EMT-Basic National Standard Curriculum. These were obtained by compiling the cognitive, affective and psychomotor objectives from each lesson.

This appendix should be copied and provided to the students in the beginning of the program to assist in their understanding of what is required to successfully complete the program.

These objectives should be provided to each instructor involved in the program so they can be aware of their requirements and the requirements of their fellow instructors.

LESSON OBJECTIVES

MODULE 1 Preparatory

Lesson 1-1 *INTRODUCTION TO EMERGENCY MEDICAL CARE*

COGNITIVE OBJECTIVES

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

1-1.1 Define Emergency Medical Services (EMS) systems. (C-1)
1-1.2 Differentiate the roles and responsibilities of the EMT-Basic from other prehospital care providers.(C-3)
1-1.3 Describe the roles and responsibilities related to personal safety.(C-1)
1-1.4 Discuss the roles and responsibilities of the EMT-Basic towards the safety of the crew, the patient and bystanders.(C-1)
1-1.5 Define quality improvement and discuss the EMT-Basic's role in the process.(C-1)
1-1.6 Define medical direction and discuss the EMT-Basic's role in the process.(C-1)
1-1.7 State the specific statutes and regulations in your state regarding the EMS system.(C-1)

AFFECTIVE OBJECTIVES

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

1-1.8 Assess areas of personal attitude and conduct of the EMT-Basic.(A-3)
1-1.9 Characterize the various methods used to access the EMS system in your community.(A-3)

PSYCHOMOTOR OBJECTIVES

No psychomotor objectives identified.

Lesson 1-2 *WELL-BEING OF THE EMT-BASIC*

COGNITIVE OBJECTIVES

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

1-2.1 List possible emotional reactions that the EMT-Basic may experience when faced with trauma, illness, death and dying. (C-1)
1-2.2 Discuss the possible reactions that a family member may exhibit when confronted with death and dying.(C-1)

1-2.3 State the steps in the EMT-Basic's approach to the family confronted with death and dying.(C-1)
1-2.4 State the possible reactions that the family of the EMT-Basic may exhibit due to their outside involvement in EMS.(C-1)
1-2.5 Recognize the signs and symptoms of critical incident stress.(C-1)
1-2.6 State possible steps that the EMT-Basic may take to help reduce/alleviate stress.(C-1)
1-2.7 Explain the need to determine scene safety. (C-2)
1-2.8 Discuss the importance of body substance isolation (BSI).(C-1)
1-2.9 Describe the steps the EMT-Basic should take for personal protection from airborne and bloodborne pathogens.(C-1)
1-2.10 List the personal protective equipment necessary for each of the following situations:(C-1)
- Hazardous materials
- Rescue operations
- Violent scenes
- Crime scenes
- Exposure to bloodborne pathogens
- Exposure to airborne pathogens

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
1-2.11 Explain the rationale for serving as an advocate for the use of appropriate protective equipment. (A-3)

PSYCHOMOTOR OBJECTIVES

1-2.12 Given a scenario with potential infectious exposure, the EMT-Basic will use appropriate personal protective equipment. At the completion of the scenario, the EMT-Basic will properly remove and discard the protective garments. (P-1,2)
1-2.13 Given the above scenario, the EMT-Basic will complete disinfection/cleaning and all reporting documentation.(P-1,2)

Lesson 1-3 *MEDICAL/LEGAL AND ETHICAL ISSUES*

COGNITIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
1-3.1 Define the EMT-Basic scope of practice. (C-1)
1-3.2 Discuss the importance of Do Not Resuscitate [DNR] (advance directives) and local or state provisions regarding EMS application.(C-1)
1-3.3 Define consent and discuss the methods of obtaining consent.(C-1)

1-3.4 Differentiate between expressed and implied consent. (C-3)
1-3.5 Explain the role of consent of minors in providing care.(C-1)
1-3.6 Discuss the implications for the EMT-Basic in patient refusal of transport.(C-1)
1-3.7 Discuss the issues of abandonment, negligence, and battery and their implications to the EMT-Basic.(C-1)
1-3.8 State the conditions necessary for the EMT-Basic to have a duty to act.(C-1)
1-3.9 Explain the importance, necessity and legality of patient confidentiality.(C-1)
1-3.10 Discuss the considerations of the EMT-Basic in issues of organ retrieval.(C-1)
1-3.11 Differentiate the actions that an EMT-Basic should take to assist in the preservation of a crime scene. (C-3)
1-3.12 State the conditions that require an EMT-Basic to notify local law enforcement officials.(C-1)

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
1-3.13 Explain the role of EMS and the EMT-Basic regarding patients with DNR orders.(A-3)
1-3.14 Explain the rationale for the needs, benefits and usage of advance directives.(A-3)
1-3.15 Explain the rationale for the concept of varying degrees of DNR.(A-3)

PSYCHOMOTOR OBJECTIVES

No psychomotor objectives identified.

Lesson 1-4 *THE HUMAN BODY*

COGNITIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
1-4.1 Identify the following topographic terms: medial, lateral, proximal, distal, superior, inferior, anterior, posterior, midline, right and left, mid-clavicular, bilateral, mid-axillary. (C-1)
1-4.2 Describe the anatomy and function of the following major body systems: Respiratory, circulatory, musculoskeletal, nervous and endocrine. (C-1)

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AFFECTIVE OBJECTIVES

No affective objectives identified.

PSYCHOMOTOR OBJECTIVES

No psychomotor objectives identified.

Lesson 1-5 *BASELINE VITAL SIGNS AND SAMPLE HISTORY*

COGNITIVE OBJECTIVES

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

1-5.1 Identify the components of the extended vital signs.(C-1)
1-5.2 Describe the methods to obtain a breathing rate.(C-1)
1-5.3 Identify the attributes that should be obtained when assessing breathing.(C-1)
1-5.4 Differentiate between shallow, labored and noisy breathing. (C-3)
1-5.5 Describe the methods to obtain a pulse rate.(C-1)
1-5.6 Identify the information obtained when assessing a patient's pulse.(C-1)
1-5.7 Differentiate between a strong, weak, regular and irregular pulse.(C-3)
1-5.8 Describe the methods to assess the skin color, temperature, condition (capillary refill in infants and children).(C-1)
1-5.9 Identify the normal and abnormal skin colors.(C-1)
1-5.10 Differentiate between pale, blue, red and yellow skin color. (C-3)
1-5.11 Identify the normal and abnormal skin temperature.(C-1)
1-5.12 Differentiate between hot, cool and cold skin temperature. (C-3)
1-5.13 Identify normal and abnormal skin conditions.(C-1)
1-5.14 Identify normal and abnormal capillary refill in infants and children.(C-1)
1-5.15 Describe the methods to assess the pupils.(C-1)
1-5.16 Identify normal and abnormal pupil size.(C-1)
1-5.17 Differentiate between dilated (big) and constricted (small) pupil size.(C-3)
1-5.18 Differentiate between reactive and non-reactive pupils and equal and unequal pupils. (C-3)
1-5.19 Describe the methods to assess blood pressure.(C-1)
1-5.20 Define systolic pressure.(C-1)
1-5.21 Define diastolic pressure.(C-1)
1-5.22 Explain the difference between auscultation and palpation for obtaining a blood pressure.(C-1)
1-5.23 Identify the components of the SAMPLE history.(C-1)
1-5.24 Differentiate between a sign and a symptom. (C-3)
1-5.25 State the importance of accurately reporting and recording the baseline vital signs.(C-1)
1-5.26 Discuss the need to search for additional medical identification.(C-1)

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AFFECTIVE OBJECTIVES

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

1-5.27 Explain the value of performing the baseline vital signs.(A-2)
1-5.28 Recognize and respond to the feelings patients experience during assessment.(A-1)
1-5.29 Defend the need for obtaining and recording an accurate set of vital signs.(A-3)
1-5.30 Explain the rationale of recording additional sets of vital signs.(A-1)
1-5.31 Explain the importance of obtaining a SAMPLE history.(A-1)

PSYCHOMOTOR OBJECTIVES

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

1-5.32 Demonstrate the skills involved in assessment of breathing.(P-1,2)
1-5.33 Demonstrate the skills associated with obtaining a pulse. (P-1,2)
1-5.34 Demonstrate the skills associated with assessing the skin color, temperature, condition, and capillary refill in infants and children.(P-1,2)
1-5.35 Demonstrate the skills associated with assessing the pupils. (P-1,2)
1-5.36 Demonstrate the skills associated with obtaining blood pressure.(P-1,2)
1-5.37 Demonstrate the skills that should be used to obtain information from the patient, family, or bystanders at the scene. (P-1,2)

Lesson 1-6 *LIFTING AND MOVING PATIENTS*

COGNITIVE OBJECTIVES

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

1-6.1 Define body mechanics. (C-1)
1-6.2 Discuss the guidelines and safety precautions that need to be followed when lifting a patient.(C-1)
1-6.3 Describe the safe lifting of cots and stretchers.(C-1)
1-6.4 Describe the guidelines and safety precautions for carrying patients and/or equipment.(C-1)
1-6.5 Discuss one-handed carrying techniques.(C-1)
1-6.6 Describe correct and safe carrying procedures on stairs.(C-1)
1-6.7 State the guidelines for reaching and their application. (C-1)
1-6.8 Describe correct reaching for log rolls.(C-1)
1-6.9 State the guidelines for pushing and pulling.(C-1)
1-6.10 Discuss the general considerations of moving patients.(C-1)
1-6.11 State three situations that may require the use of an emergency move.(C-1)
1-6.12 Identify the following patient carrying devices:

- Wheeled ambulance stretcher
- Portable ambulance stretcher

- ! Stair chair
- ! Scoop stretcher
- ! Long spine board
- ! Basket stretcher
- ! Flexible stretcher (C-1)

AFFECTIVE OBJECTIVES

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

1-6.13 Explain the rationale for properly lifting and moving patients.(A-3)

PSYCHOMOTOR OBJECTIVES

1-6.14 Working with a partner, prepare each of the following devices for use, transfer a patient to the device, properly position the patient on the device, move the device to the ambulance and load the patient into the ambulance:

- ! Wheeled ambulance stretcher
- ! Portable ambulance stretcher
- ! Stair chair
- ! Scoop stretcher
- ! Long spine board
- ! Basket stretcher
- ! Flexible stretcher (P-1,2)

1-6.15 Working with a partner, the EMT-Basic will demonstrate techniques for the transfer of a patient from an ambulance stretcher to a hospital stretcher.(P-1,2)

MODULE 2 Airway

Lesson 2-1 *AIRWAY*

COGNITIVE OBJECTIVES

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

2-1.1 Name and label the major structures of the respiratory system on a diagram. (C-1)
2-1.2 List the signs of adequate breathing.(C-1)
2-1.3 List the signs of inadequate breathing.(C-1)
2-1.4 Describe the steps in performing the head-tilt chin-lift.(C-1)
2-1.5 Relate mechanism of injury to opening the airway. (C-3)
2-1.6 Describe the steps in performing the jaw thrust.(C-1)
2-1.7 State the importance of having a suction unit ready for immediate use when providing emergency care.(C-1)
2-1.8 Describe the techniques of suctioning.(C-1)

2-1.9 Describe how to artificially ventilate a patient with a pocket mask.(C-1)
2-1.10 Describe the steps in performing the skill of artificially ventilating a patient with a bag-valve-mask while using the jaw thrust.(C-1)
2-1.11 List the parts of a bag-valve-mask system.(C-1)
2-1.12 Describe the steps in performing the skill of artificially ventilating a patient with a bag-valve-mask for one and two rescuers.(C-1)
2-1.13 Describe the signs of adequate artificial ventilation using the bag-valve-mask.(C-1)
2-1.14 Describe the signs of inadequate artificial ventilation using the bag-valve-mask.(C-1)
2-1.15 Describe the steps in artificially ventilating a patient with a flow restricted, oxygen-powered ventilation device.(C-1)
2-1.16 List the steps in performing the actions taken when providing mouth-to-mouth and mouth-to-stoma artificial ventilation.(C-1)
2-1.17 Describe how to measure and insert an oropharyngeal (oral) airway.(C-1)
2-1.18 Describe how to measure and insert a nasopharyngeal (nasal) airway.(C-1)
2-1.19 Define the components of an oxygen delivery system.(C-1)
2-1.20 Identify a nonrebreather face mask and state the oxygen flow requirements needed for its use.(C-1)
2-1.21 Describe the indications for using a nasal cannula versus a nonrebreather face mask. (C-1)
2-1.22 Identify a nasal cannula and state the flow requirements needed for its use.(C-1)

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
2-1.23 Explain the rationale for basic life support artificial ventilation and airway protective skills taking priority over most other basic life support skills.(A-3)

2-1.24 Explain the rationale for providing adequate oxygenation through high inspired oxygen concentrations to patients who, in the past, may have received low concentrations.(A-3)

PSYCHOMOTOR OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
2-1.25 Demonstrate the steps in performing the head-tilt chin-lift. (P-1,2)
2-1.26 Demonstrate the steps in performing the jaw thrust.(P-1,2)
2-1.27 Demonstrate the techniques of suctioning.(P-1,2)
2-1.28 Demonstrate the steps in providing mouth-to-mouth artificial ventilation with body substance isolation (barrier shields).(P-1,2)
2-1.29 Demonstrate how to use a pocket mask to artificially ventilate a patient.(P-1,2)

2-1.30 Demonstrate the assembly of a bag-valve-mask unit.(P-1,2)
2-1.31 Demonstrate the steps in performing the skill of artificially ventilating a patient with a bag-valve-mask for one and two rescuers.(P-1,2)
2-1.32 Demonstrate the steps in performing the skill of artificially ventilating a patient with a bag-valve-mask while using the jaw thrust.(P-1,2)
2-1.33 Demonstrate artificial ventilation of a patient with a flow restricted, oxygen-powered ventilation device.(P-1,2)
2-1.34 Demonstrate how to artificially ventilate a patient with a stoma.(P-1,2)
2-1.35 Demonstrate how to insert an oropharyngeal (oral) airway.(P-1,2)
2-1.36 Demonstrate how to insert a nasopharyngeal (nasal) airway.(P-1,2)
2-1.37 Demonstrate the correct operation of oxygen tanks and regulators.(P-1,2)
2-1.38 Demonstrate the use of a nonrebreather face mask and state the oxygen flow requirements needed for its use.(P-1,2)
2-1.39 Demonstrate the use of a nasal cannula and state the flow requirements needed for its use.(P-1,2)
2-1.40 Demonstrate how to artificially ventilate the infant and child patient.(P-1,2)
2-1.41 Demonstrate oxygen administration for the infant and child patient.(P-1,2)

MODULE 3 Patient Assessment

Lesson 3-1 *SCENE SIZE-UP*

COGNITIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
3-1.1 Recognize hazards/potential hazards.(C-1)

3-1.2 Describe common hazards found at the scene of a trauma and a medical patient. (C-1)
3-1.3 Determine if the scene is safe to enter.(C-2)
3-1.4 Discuss common mechanisms of injury/nature of illness.(C-1)
3-1.5 Discuss the reason for identifying the total number of patients at the scene.(C-1)
3-1.6 Explain the reason for identifying the need for additional help or assistance.(C-1)

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
3-1.7 Explain the rationale for crew members to evaluate scene safety prior to entering.(A-2)
3-1.8 Serve as a model for others explaining how patient situations affect your evaluation of mechanism of injury or illness.(A-2)

PSYCHOMOTOR OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
3-1.9 Observe various scenarios and identify potential hazards. (P-1)

Lesson 3-2 ***INITIAL ASSESSMENT***

COGNITIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
3-2.1 Summarize the reasons for forming a general impression of the patient.(C-1)
3-2.2 Discuss methods of assessing altered mental status.(C-1)
3-2.3 Differentiate between assessing the altered mental status in the adult, child and infant patient.(C-3)
3-2.4 Discuss methods of assessing the airway in the adult, child and infant patient.(C-1)
3-2.5 State reasons for management of the cervical spine once the patient has been determined to be a trauma patient.(C-1)
3-2.6 Describe methods used for assessing if a patient is breathing.(C-1)
3-2.7 State what care should be provided to the adult, child and infant patient with adequate breathing.(C-1)
3-2.8 State what care should be provided to the adult, child and infant patient without adequate breathing.(C-1)

3-2.9 Differentiate between a patient with adequate and inadequate breathing.(C-3)

3-2.10 Distinguish between methods of assessing breathing in the adult, child and infant patient.(C-3)
3-2.11 Compare the methods of providing airway care to the adult, child and infant patient.(C-3)
3-2.12 Describe the methods used to obtain a pulse.(C-1)
3-2.13 Differentiate between obtaining a pulse in an adult, child and infant patient.(C-3)
3-2.14 Discuss the need for assessing the patient for external bleeding.(C-1)
3-2.15 Describe normal and abnormal findings when assessing skin color.(C-1)
3-2.16 Describe normal and abnormal findings when assessing skin temperature.(C-1)
3-2.17 Describe normal and abnormal findings when assessing skin condition.(C-1)
3-2.18 Describe normal and abnormal findings when assessing skin capillary refill in the infant and child patient.(C-1)
3-2.19 Explain the reason for prioritizing a patient for care and transport.(C-1)

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
3-2.20 Explain the importance of forming a general impression of the patient.(A-1)
3-2.21 Explain the value of performing an initial assessment.(A-2)

PSYCHOMOTOR OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
3-2.22 Demonstrate the techniques for assessing mental status.(P-1,2)
3-2.23 Demonstrate the techniques for assessing the airway.(P-1,2)
3-2.24 Demonstrate the techniques for assessing if the patient is breathing.(P-1,2)
3-2.25 Demonstrate the techniques for assessing if the patient has a pulse.(P-1,2)
3-2.26 Demonstrate the techniques for assessing the patient for external bleeding.(P-1,2)
3-2.27 Demonstrate the techniques for assessing the patient's skin color, temperature, condition and capillary refill (infants and children only).(P-1,2)
3-2.28 Demonstrate the ability to prioritize patients.(P-1,2)

Lesson 3-3 ***FOCUSED HISTORY AND PHYSICAL EXAM - TRAUMA PATIENTS***

COGNITIVE OBJECTIVES

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

3-3.1 Discuss the reasons for reconsideration concerning the mechanism of injury.(C-1)

3-3.2 State the reasons for performing a rapid trauma assessment.(C-1)

3-3.3 Recite examples and explain why patients should receive a rapid trauma assessment.(C-1)

3-3.4 Describe the areas included in the rapid trauma assessment and discuss what should be evaluated.(C-1)

3-3.5 Differentiate when the rapid assessment may be altered in order to provide patient care.(C-3)

3-3.6 Discuss the reason for performing a focused history and physical exam.(C-1)

AFFECTIVE OBJECTIVES

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

3-3.7 Recognize and respect the feelings that patients might experience during assessment.(A-1)

PSYCHOMOTOR OBJECTIVES

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

3-3.8 Demonstrate the rapid trauma assessment that should be used to assess a patient based on mechanism of injury.(P-1,2)

Lesson 3-4 ***FOCUSED HISTORY AND PHYSICAL EXAM - MEDICAL PATIENTS***

COGNITIVE OBJECTIVES

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

3-4.1 Describe the unique needs for assessing an individual with a specific chief complaint with no known prior history.(C-1)

3-4.2 Differentiate between the history and physical exam that is performed for responsive patients with no known prior history and patients responsive with a known prior history.(C-3)

3-4.3 Describe the unique needs for assessing an individual who is unresponsive or has an altered mental status.(C-1)

3-4.4 Differentiate between the assessment that is performed for a patient who is unresponsive or has an altered mental status and other medical patients requiring assessment.(C-3)

AFFECTIVE OBJECTIVES

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

3-4.5 Attend to the feelings that these patients might be experiencing.(A-1)

PSYCHOMOTOR OBJECTIVES

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

3-4.6 Demonstrate the patient care skills that should be used to assist with a patient who is responsive with no known history.(P-1,2)

3-4.7 Demonstrate the patient care skills that should be used to assist with a patient who is unresponsive or has an altered metal status.(P-1,2)

Lesson 3-5 *DETAILED PHYSICAL EXAM*

COGNITIVE OBJECTIVES

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

3-5.1 Discuss the components of the detailed physical exam.(C-1)
3-5.2 State the areas of the body that are evaluated during the detailed physical exam.(C-1)
3-5.3 Explain what additional care should be provided while performing the detailed physical exam.(C-1)
3-5.4 Distinguish between the detailed physical exam that is performed on a trauma patient and that of the medical patient.(C-3)

AFFECTIVE OBJECTIVES

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

3-5.5 Explain the rationale for the feelings that these patients might be experiencing.(A-3)

PSYCHOMOTOR OBJECTIVES

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

3-5.6 Demonstrate the skills involved in performing the detailed physical exam.(P-1,2)

Lesson 3-6 *ON-GOING ASSESSMENT*

COGNITIVE OBJECTIVES

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

3-6.1 Discuss the reasons for repeating the initial assessment as part of the on-going assessment.(C-1)
3-6.2 Describe the components of the on-going assessment.(C-1)
3-6.3 Describe trending of assessment components.(C-1)

AFFECTIVE OBJECTIVES

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

3-6.4 Explain the value of performing an on-going assessment.(A-2)
3-6.5 Recognize and respect the feelings that patients might experience during assessment.(A-1)
3-6.6 Explain the value of trending assessment components to other health professionals who assume care of the patient.(A-2)

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PSYCHOMOTOR OBJECTIVES

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

3-6.7 Demonstrate the skills involved in performing the on-going assessment.(P-1,2)

Lesson 3-7 *COMMUNICATIONS*

COGNITIVE OBJECTIVES

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

3-7.1 List the proper methods of initiating and terminating a radio call.(C-1)
3-7.2 State the proper sequence for delivery of patient information.(C-1)
3-7.3 Explain the importance of effective communication of patient information in the verbal report.(C-1)
3-7.4 Identify the essential components of the verbal report.(C-1)
3-7.5 Describe the attributes for increasing effectiveness and efficiency of verbal communications.(C-1)
3-7.6 State legal aspects to consider in verbal communication.(C-1)
3-7.7 Discuss the communication skills that should be used to interact with the patient.(C-1)
3-7.8 Discuss the communication skills that should be used to interact with the family, bystanders, individuals from other agencies while providing patient care and the difference between skills used to interact with the patient and those used to interact with others.(C-1)
3-7.9 List the correct radio procedures in the following phases of a typical call:(C-1)

- To the scene.
- At the scene.
- To the facility.
- At the facility.
- To the station.
- At the station.

AFFECTIVE OBJECTIVES

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

3-7.10 Explain the rationale for providing efficient and effective radio communications and patient reports.(A-3)

PSYCHOMOTOR OBJECTIVES

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

3-7.11 Perform a simulated, organized, concise radio transmission.(P-2)
3-7.12 Perform an organized, concise patient report that would be given to the staff at a receiving facility.(P-2)

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3-7.13 Perform a brief, organized report that would be given to an ALS provider arriving at an incident scene at which the EMT-Basic was already providing care.(P-2)

Lesson 3-8 ***DOCUMENTATION***

COGNITIVE OBJECTIVES

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

3-8.1 Explain the components of the written report and list the information that should be included on the written report.(C-1)
3-8.2 Identify the various sections of the written report.(C-1)
3-8.3 Describe what information is required in each section of the prehospital care report and how it should be entered.(C-1)
3-8.4 Define the special considerations concerning patient refusal. (C-1)
3-8.5 Describe the legal implications associated with the written report.(C-1)
3-8.6 Discuss all state and/or local record and reporting requirements.(C-1)

AFFECTIVE OBJECTIVES

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

3-8.7 Explain the rationale for patient care documentation.(A-3)
3-8.8 Explain the rationale for the EMS system gathering data.(A-3)
3-8.9 Explain the rationale for using medical terminology correctly.(A-3)
3-8.10 Explain the rationale for using an accurate and synchronous clock so that information can be used in trending.(A-3)

PSYCHOMOTOR OBJECTIVES

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

3-8.11 Complete a prehospital care report.(P-2)

MODULE 4 Medical

Lesson 4-1 ***GENERAL PHARMACOLOGY***

COGNITIVE OBJECTIVES

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

4-1.1 Identify which medications will be carried on the unit.(C-1)
4-1.2 State the medications carried on the unit by the generic name. (C-1)

4-1.3 Identify the medications with which the EMT-B may assist the patient with administering. (C-1)

4-1.4 State the medications the EMT-B can assist the patient with by the generic name.(C-1)
4-1.5 Discuss the forms in which the medications may be found. (C-1)

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
4-1.6 Explain the rationale for the administration of medications.(A-3)

PSYCHOMOTOR OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
4-1.7 Demonstrate general steps for assisting patient with self administration of medications.(P-2)
4-1.8 Read the labels and inspect each type of medication.(P-2)

Lesson 4-2 ***RESPIRATORY EMERGENCIES***

COGNITIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
4-2.1 List the structure and function of the respiratory system.(C-1)
4-2.2 State the signs and symptoms of a patient with breathing difficulty.(C-1)
4-2.3 Describe the emergency medical care of the patient with breathing difficulty.(C-1)
4-2.4 Recognize the need for medical direction to assist in the emergency medical care of the patient with breathing difficulty.(C-3)
4-2.5 Describe the emergency medical care of the patient with breathing distress.(C-1)
4-2.6 Establish the relationship between airway management and the patient with breathing difficulty.(C-3)
4-2.7 List signs of adequate air exchange.(C-1)
4-2.8 State the generic name, medication forms, dose, administration, action, indications and contraindications for the prescribed inhaler.(C-1)
4-2.9 Distinguish between the emergency medical care of the infant, child and adult patient with breathing difficulty.(C-3)
4-2.10 Differentiate between upper airway obstruction and lower airway disease in the infant and child patient.(C-3)

AFFECTIVE OBJECTIVES

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

4-2.11 Defend EMT-Basic treatment regimens for various respiratory emergencies.(A-1)
4-2.12 Explain the rationale for administering an inhaler.(A-3)

PSYCHOMOTOR OBJECTIVES

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

4-2.13 Demonstrate the emergency medical care for breathing difficulty.(P-1,2)
4-2.14 Perform the steps in facilitating the use of an inhaler.(P-2)

Lesson 4-3 *CARDIOVASCULAR EMERGENCIES*

COGNITIVE OBJECTIVES

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

4-3.1 Describe the structure and function of the cardiovascular system.(C-1)
4-3.2 Describe the emergency medical care of the patient experiencing chest pain/discomfort.(C-1)
4-3.3 List the indications for automated external defibrillation (AED).(C-1)
4-3.4 List the contraindications for automated external defibrillation.(C-1)
4-3.5 Define the role of EMT-B in the emergency cardiac care system.(C-1)
4-3.6 Explain the impact of age and weight on defibrillation.(C-1)
4-3.7 Discuss the position of comfort for patients with various cardiac emergencies.(C-1)
4-3.8 Establish the relationship between airway management and the patient with cardiovascular compromise.(C-3)
4-3.9 Predict the relationship between the patient experiencing cardiovascular compromise and basic life support.(C-2)
4-3.10 Discuss the fundamentals of early defibrillation. (C-1)
4-3.11 Explain the rationale for early defibrillation.(C-1)
4-3.12 Explain that not all chest pain patients result in cardiac arrest and do not need to be attached to an automated external defibrillator.(C-1)
4-3.13 Explain the importance of prehospital ACLS intervention if it is available.(C-1)
4-3.14 Explain the importance of urgent transport to a facility with Advanced Cardiac Life Support if it is not available in the prehospital setting.(C-1)
4-3.15 Discuss the various types of automated external defibrillators.(C-1)
4-3.16 Differentiate between the fully automated and the semiautomated defibrillator.(C-3)

4-3.17 Discuss the procedures that must be taken into consideration for standard operations of the various types of automated external defibrillators.(C-1)
4-3.18 State the reasons for assuring that the patient is pulseless and apneic when using the automated external defibrillator.(C-1)
4-3.19 Discuss the circumstances which may result in inappropriate shocks.(C-1)
4-3.20 Explain the considerations for interruption of CPR, when using the automated external defibrillator.(C-1)
4-3.21 Discuss the advantages and disadvantages of automated external defibrillators.(C-1)
4-3.22 Summarize the speed of operation of automated external defibrillation.(C-1)
4-3.23 Discuss the use of remote defibrillation through adhesive pads.(C-1)
4-3.24 Discuss the special considerations for rhythm monitoring.(C-1)
4-3.25 List the steps in the operation of the automated external defibrillator.(C-1)
4-3.26 Discuss the standard of care that should be used to provide care to a patient with persistent ventricular fibrillation and no available ACLS.(C-1)
4-3.27 Discuss the standard of care that should be used to provide care to a patient with recurrent ventricular fibrillation and no available ACLS.(C-1)
4-3.28 Differentiate between the single rescuer and multi-rescuer care with an automated external defibrillator.(C-3)
4-3.29 Explain the reason for pulses not being checked between shocks with an automated external defibrillator.(C-1)
4-3.30 Discuss the importance of coordinating ACLS trained providers with personnel using automated external defibrillators.(C-1)
4-3.31 Discuss the importance of post-resuscitation care.(C-1)
4-3.32 List the components of post-resuscitation care.(C-1)
4-3.33 Explain the importance of frequent practice with the automated external defibrillator.(C-1)
4-3.34 Discuss the need to complete the Automated Defibrillator: Operator's Shift Checklist.(C-1)
4-3.35 Discuss the role of the American Heart Association (AHA) in the use of automated external defibrillation.(C-1)
4-3.36 Explain the role medical direction plays in the use of automated external defibrillation.(C-1)
4-3.37 State the reasons why a case review should be completed following the use of the automated external defibrillator.(C-1)

4-3.38 Discuss the components that should be included in a case review.(C-1)
4-3.39 Discuss the goal of quality improvement in automated external defibrillation.(C-1)
4-3.40 Recognize the need for medical direction of protocols to assist in the emergency medical care of the patient with chest pain.(C-3)
4-3.41 List the indications for the use of nitroglycerin.(C-1)
4-3.42 State the contraindications and side effects for the use of nitroglycerin.(C-1)
4-3.43 Define the function of all controls on an automated external defibrillator, and describe event documentation and battery defibrillator maintenance.(C-1)

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
4-3.44 Defend the reasons for obtaining initial training in automated external defibrillation and the importance of continuing education.(A-3)
4-3.45 Defend the reason for maintenance of automated external defibrillators.(A-3)
4-3.46 Explain the rationale for administering nitroglycerin to a patient with chest pain or discomfort.(A-3)

PSYCHOMOTOR OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
4-3.47 Demonstrate the assessment and emergency medical care of a patient experiencing chest pain/discomfort.(P-1,2)
4-3.48 Demonstrate the application and operation of the automated external defibrillator.(P-1,2)
4-3.49 Demonstrate the maintenance of an automated external defibrillator.(P-1,2)
4-3.50 Demonstrate the assessment and documentation of patient response to the automated external defibrillator.(P-1,2)
4-3.51 Demonstrate the skills necessary to complete the Automated Defibrillator: Operator's Shift Checklist.(P-1,2)
4-3.52 Perform the steps in facilitating the use of nitroglycerin for chest pain or discomfort.(P-2)
4-3.53 Demonstrate the assessment and documentation of patient response to nitroglycerin.(P-1,2)
4-3.54 Practice completing a prehospital care report for patients with cardiac emergencies.(P-2)

Lesson 4-4 ***DIABETES/ALTERED MENTAL STATUS***

COGNITIVE OBJECTIVES

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

4-4.1 Identify the patient taking diabetic medications with altered mental status and the implications of a diabetes history.(C-1)

4-4.2 State the steps in the emergency medical care of the patient taking diabetic medicine with an altered mental status and a history of diabetes.(C-1)
4-4.3 Establish the relationship between airway management and the patient with altered mental status.(C-3)
4-4.4 State the generic and trade names, medication forms, dose, administration, action, and contraindications for oral glucose.(C-1)
4-4.5 Evaluate the need for medical direction in the emergency medical care of the diabetic patient.(C-3)

AFFECTIVE OBJECTIVES

4-4.6 Explain the rationale for administering oral glucose.(A-3)

PSYCHOMOTOR OBJECTIVES

4-4.7 Demonstrate the steps in the emergency medical care for the patient taking diabetic medicine with an altered mental status and a history of diabetes.(P-1,2)
4-4.8 Demonstrate the steps in the administration of oral glucose.(P-1,2)
4-4.9 Demonstrate the assessment and documentation of patient response to oral glucose.(P-1,2)
4-4.10 Demonstrate how to complete a prehospital care report for patients with diabetic emergencies.(P-2)

Lesson 4-5 ***ALLERGIES***

COGNITIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
4-5.1 Recognize the patient experiencing an allergic reaction.(C-1)
4-5.2 Describe the emergency medical care of the patient with an allergic reaction.(C-1)
4-5.3 Establish the relationship between the patient with an allergic reaction and airway management.(C-3)

4-5.4 Describe the mechanisms of allergic response and the implications for airway management.(C-1)
4-5.5 State the generic and trade names, medication forms, dose, administration, action, and contraindications for the epinephrine auto-injector.(C-1)
4-5.6 Evaluate the need for medical direction in the emergency medical care of the patient with an allergic reaction.(C-3)
4-5.7 Differentiate between the general category of those patients having an allergic reaction and those patients having an allergic reaction and requiring immediate medical care, including immediate use of epinephrine auto-injector.(C-3)

AFFECTIVE OBJECTIVES

4-5.8 Explain the rationale for administering epinephrine using an auto-injector.(A-3)

PSYCHOMOTOR OBJECTIVES

4-5.9 Demonstrate the emergency medical care of the patient experiencing an allergic reaction.(P-1,2)
4-5.10 Demonstrate the use of epinephrine auto-injector.(P-1,2)
4-5.11 Demonstrate the assessment and documentation of patient response to an epinephrine injection.(P-1,2)
4-5.12 Demonstrate proper disposal of equipment.(P-1,2)
4-5.13 Demonstrate completing a prehospital care report for patients with allergic emergencies.(P-2)

Lesson 4-6 ***POISONING/OVERDOSE***

COGNITIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
4-6.1 List various ways that poisons enter the body.(C-1)
4-6.2 List signs/symptoms associated with poisoning.(C-1)
4-6.3 Discuss the emergency medical care for the patient with possible overdose.(C-1)
4-6.4 Describe the steps in the emergency medical care for the patient with suspected poisoning.(C-1)
4-6.5 Establish the relationship between the patient suffering from poisoning or overdose and airway management.(C-3)
4-6.6 State the generic and trade names, indications, contraindications, medication form, dose, administration, actions, side effects and re-assessment strategies for activated charcoal.(C-1)

4-6.7 Recognize the need for medical direction in caring for the patient with poisoning or overdose.(C-3)

AFFECTIVE OBJECTIVES

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

4-6.8 Explain the rationale for administering activated charcoal.(A-3)
4-6.9 Explain the rationale for contacting medical direction early in the prehospital management of the poisoning or overdose patient.(A-3)

PSYCHOMOTOR OBJECTIVES

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

4-6.10 Demonstrate the steps in the emergency medical care for the patient with possible overdose.(P-1,2)
4-6.11 Demonstrate the steps in the emergency medical care for the patient with suspected poisoning.(P-1,2)
4-6.12 Perform the necessary steps required to provide a patient with activated charcoal.(P-2)
4-6.13 Demonstrate the assessment and documentation of patient response.(P-1,2)
4-6.14 Demonstrate proper disposal of administration of activated charcoal equipment.(P-1,2)
4-6.15 Demonstrate completing a prehospital care report for patients with a poisoning/overdose emergency.(P-1,2)

Lesson 4-7 ***ENVIRONMENTAL EMERGENCIES***

COGNITIVE OBJECTIVES

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

4-7.1 Describe the various ways that the body loses heat.(C-1)
4-7.2 List the signs and symptoms of exposure to cold.(C-1)
4-7.3 Explain the steps in providing emergency medical care to a patient exposed to cold.(C-1)
4-7.4 List the signs and symptoms of exposure to heat.(C-1)
4-7.5 Explain the steps in providing emergency care to a patient exposed to heat.(C-1)
4-7.6 Recognize the signs and symptoms of water-related emergencies.(C-1)
4-7.7 Describe the complications of near drowning.(C-1)
4-7.8 Discuss the emergency medical care of bites and stings.(C-1)

AFFECTIVE OBJECTIVES

No affective objectives identified.

PSYCHOMOTOR OBJECTIVES

4-7.9 Demonstrate the assessment and emergency medical care of a patient with exposure to cold.(P-1,2)
4-7.10 Demonstrate the assessment and emergency medical care of a patient with exposure to heat.(P-1,2)
4-7.11 Demonstrate the assessment and emergency medical care of a near drowning patient.(P-1,2)
4-7.12 Demonstrate completing a prehospital care report for patients with environmental emergencies.(P-2)

Lesson 4-8 *BEHAVIORAL EMERGENCIES*

COGNITIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
4-8.1 Define behavioral emergencies.(C-1)
4-8.2 Discuss the general factors that may cause an alteration in a patient's behavior.(C-1)
4-8.3 State the various reasons for psychological crises.(C-1)
4-8.4 Discuss the characteristics of an individual's behavior which suggests that the patient is at risk for suicide.(C-1)
4-8.5 Discuss special medical/legal considerations for managing behavioral emergencies.(C-1)
4-8.6 Discuss the special considerations for assessing a patient with behavioral problems. (C-1)
4-8.7 Discuss the general principles of an individual's behavior which suggests that he is at risk for violence.(C-1)
4-8.8 Discuss methods to calm behavioral emergency patients.(C-1)

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
4-8.9 Explain the rationale for learning how to modify your behavior toward the patient with a behavioral emergency.(A-3)

PSYCHOMOTOR OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
4-8.10 Demonstrate the assessment and emergency medical care of the patient experiencing a behavioral emergency.(P-1,2)
4-8.11 Demonstrate various techniques to safely restrain a patient with a behavioral problem.(P-1,2)

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Lesson 4-9 ***OBSTETRICS/GYNECOLOGY***

COGNITIVE OBJECTIVES

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

4-9.1 Identify the following structures: Uterus, vagina, fetus, placenta, umbilical cord, amniotic sac, perineum.(C-1)
4-9.2 Identify and explain the use of the contents of an obstetrics kit.(C-1)
4-9.3 Identify predelivery emergencies.(C-1)
4-9.4 State indications of an imminent delivery.(C-1)
4-9.5 Differentiate the emergency medical care provided to a patient with predelivery emergencies from a normal delivery.(C-3)
4-9.6 State the steps in the predelivery preparation of the mother.(C-1)
4-9.7 Establish the relationship between body substance isolation and childbirth.(C-3)
4-9.8 State the steps to assist in the delivery.(C-1)
4-9.9 Describe care of the baby as the head appears.(C-1)
4-9.10 Describe how and when to cut the umbilical cord.(C-1)
4-9.11 Discuss the steps in the delivery of the placenta.(C-1)
4-9.12 List the steps in the emergency medical care of the mother post-delivery.(C-3)
4-9.13 Summarize neonatal resuscitation procedures.(C-1)
4-9.14 Describe the procedures for the following abnormal deliveries: Breech birth, prolapsed cord, limb presentation.(C-1)
4-9.15 Differentiate the special considerations for multiple births.(C-3)
4-9.16 Describe special considerations of meconium.(C-1)
4-9.17 Describe special considerations of a premature baby.(C-1)
4-9.18 Discuss the emergency medical care of a patient with a gynecological emergency.(C-1)

AFFECTIVE OBJECTIVES

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

4-9.19 Explain the rationale for understanding the implications of treating two patients (mother and baby).(A-3)

PSYCHOMOTOR OBJECTIVES

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

4-9.20 Demonstrate the steps to assist in the normal cephalic delivery.(P-1,2)
4-9.21 Demonstrate necessary care procedures of the fetus as the head appears.(P-1,2)
4-9.22 Demonstrate infant neonatal procedures.(P-1,2)
4-9.23 Demonstrate post delivery care of infant.(P-1,2)
4-9.24 Demonstrate how and when to cut the umbilical cord.(P-1,2)
4-9.25 Attend to the steps in the delivery of the placenta.(P-1,2)

4-9.26 Demonstrate the post-delivery care of the mother.(P-1,2)
4-9.27 Demonstrate the procedures for the following abnormal deliveries: vaginal bleeding, breech birth, prolapsed cord, limb presentation.(P-1,2)
4-9.28 Demonstrate the steps in the emergency medical care of the mother with excessive bleeding. (P-1,2)
4-9.29 Demonstrate completing a prehospital care report for patients with obstetrical/gynecological emergencies.(P-2)

MODULE 5 Trauma

Lesson 5-1 *BLEEDING AND SHOCK*

COGNITIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
5-1.1 List the structure and function of the circulatory system.(C-1)
5-1.2 Differentiate between arterial, venous and capillary bleeding.(C-3)
5-1.3 State methods of emergency medical care of external bleeding.(C-1)
5-1.4 Establish the relationship between body substance isolation and bleeding.(C-3)
5-1.5 Establish the relationship between airway management and the trauma patient.(C-3)
5-1.6 Establish the relationship between mechanism of injury and internal bleeding.(C-3)
5-1.7 List the signs of internal bleeding.(C-1)
5-1.8 List the steps in the emergency medical care of the patient with signs and symptoms of internal bleeding.(C-1)
5-1.9 List signs and symptoms of shock (hypoperfusion).(C-1)
5-1.10 State the steps in the emergency medical care of the patient with signs and symptoms of shock (hypoperfusion).(C-1)

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
5-1.11 Explain the sense of urgency to transport patients that are bleeding and show signs of shock (hypoperfusion).(A-1)

PSYCHOMOTOR OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
5-1.12 Demonstrate direct pressure as a method of emergency medical care of external bleeding. (P-1,2)
5-1.13 Demonstrate the use of diffuse pressure as a method of emergency medical care of external bleeding.(P-1,2)

5-1.14 Demonstrate the use of pressure points and tourniquets as a method of emergency medical care of external bleeding.(P-1,2)
5-1.15 Demonstrate the care of the patient exhibiting signs and symptoms of internal bleeding.(P-1,2)
5-1.16 Demonstrate the care of the patient exhibiting signs and symptoms of shock (hypoperfusion).(P-1,2)
5-1.17 Demonstrate completing a prehospital care report for patient with bleeding and/or shock (hypoperfusion).(P-2)

Lesson 5-2 *SOFT TISSUE INJURIES*

COGNITIVE OBJECTIVES

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

5-2.1 State the major functions of the skin.(C-1)
5-2.2 List the layers of the skin. (C-1)
5-2.3 Establish the relationship between body substance isolation (BSI) and soft tissue injuries.(C-3)
5-2.4 List the types of closed soft tissue injuries.(C-1)
5-2.5 Describe the emergency medical care of the patient with a closed soft tissue injury.(C-1)
5-2.6 State the types of open soft tissue injuries.(C-1)
5-2.7 Describe the emergency medical care of the patient with an open soft tissue injury.(C-1)
5-2.8 Discuss the emergency medical care considerations for a patient with a penetrating chest injury.(C-1)
5-2.9 State the emergency medical care considerations for a patient with an open wound to the abdomen.(C-1)
5-2.10 Differentiate the care of an open wound to the chest from an open wound to the abdomen.(C-3)
5-2.11 List the classifications of burns.(C-1)
5-2.12 Define superficial burn.(C-1)
5-2.13 List the characteristics of a superficial burn.(C-1)
5-2.14 Define partial thickness burn. (C-1)
5-2.15 List the characteristics of a partial thickness burn.(C-1)
5-2.16 Define full thickness burn. (C-1)
5-2.17 List the characteristics of a full thickness burn.(C-1)
5-2.18 Describe the emergency medical care of the patient with a superficial burn.(C-1)

5-2.19 Describe the emergency medical care of the patient with a partial thickness burn.(C-1)

5-2.20 Describe the emergency medical care of the patient with a full thickness burn.(C-1)
5-2.21 List the functions of dressing and bandaging.(C-1)
5-2.22 Describe the purpose of a bandage.(C-1)
5-2.23 Describe the steps in applying a pressure dressing.(C-1)
5-2.24 Establish the relationship between airway management and the patient with chest injury, burns, blunt and penetrating injuries.(C-1)
5-2.25 Describe the effects of improperly applied dressings, splints and tourniquets.(C-1)
5-2.26 Describe the emergency medical care of a patient with an impaled object.(C-1)
5-2.27 Describe the emergency medical care of a patient with an amputation.
5-2.28 Describe the emergency care for a chemical burn.(C-1)
5-2.29 Describe the emergency care for an electrical burn.(C-1)

AFFECTIVE OBJECTIVES

No affective objectives identified.

PSYCHOMOTOR OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
5-2.29 Demonstrate the steps in the emergency medical care of closed soft tissue injuries.(P-1,2)
5-2.30 Demonstrate the steps in the emergency medical care of open soft tissue injuries.(P-1,2)
5-2.31 Demonstrate the steps in the emergency medical care of a patient with an open chest wound.(P-1,2)
5-2.32 Demonstrate the steps in the emergency medical care of a patient with open abdominal wounds.(P-1,2)
5-2.33 Demonstrate the steps in the emergency medical care of a patient with an impaled object.(P-1,2)
5-2.34 Demonstrate the steps in the emergency medical care of a patient with an amputation.(P-1,2)
5-2.35 Demonstrate the steps in the emergency medical care of an amputated part.(P-1,2)
5-2.36 Demonstrate the steps in the emergency medical care of a patient with superficial burns.(P-1,2)
5-2.37 Demonstrate the steps in the emergency medical care of a patient with partial thickness burns.(P-1,2)
5-2.38 Demonstrate the steps in the emergency medical care of a patient with full thickness burns.(P-1,2)
5-2.39 Demonstrate the steps in the emergency medical care of a patient with a chemical burn.(P-1,2)

5-2.40 Demonstrate completing a prehospital care report for patients with soft tissue injuries.(P-2)

Lesson 5-3 ***MUSCULOSKELETAL CARE***

COGNITIVE OBJECTIVES

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

5-3.1 Describe the function of the muscular system.(C-1)
5-3.2 Describe the function of the skeletal system.(C-1)
5-3.3 List the major bones or bone groupings of the spinal column; the thorax; the upper extremities; the lower extremities.(C-1)
5-3.4 Differentiate between an open and a closed painful, swollen, deformed extremity.(C-1)
5-3.5 State the reasons for splinting.(C-1)
5-3.6 List the general rules of splinting.(C-1)
5-3.7 List the complications of splinting.(C-1)
5-3.8 List the emergency medical care for a patient with a painful, swollen, deformed extremity.(C-1)

AFFECTIVE OBJECTIVES

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

5-3.9 Explain the rationale for splinting at the scene versus load and go.(A-3)
5-3.10 Explain the rationale for immobilization of the painful, swollen, deformed extremity.(A-3)

PSYCHOMOTOR OBJECTIVES

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

5-3.11 Demonstrate the emergency medical care of a patient with a painful, swollen, deformed extremity.(P-1,2)
5-3.12 Demonstrate completing a prehospital care report for patients with musculoskeletal injuries.(P-2)

Lesson 5-4 ***INJURIES TO THE HEAD AND SPINE***

COGNITIVE OBJECTIVES

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

5-4.1 State the components of the nervous system.(C-1)
5-4.2 List the functions of the central nervous system.(C-1)
5-4.3 Define the structure of the skeletal system as it relates to the nervous system.(C-1)

5-4.4 Relate mechanism of injury to potential injuries of the head and spine.(C-3)
5-4.5 Describe the implications of not properly caring for potential spine injuries.(C-1)
5-4.6 State the signs and symptoms of a potential spine injury.(C-1)
5-4.7 Describe the method of determining if a responsive patient may have a spine injury.(C-1)
5-4.8 Relate the airway emergency medical care techniques to the patient with a suspected spine injury.(C-3)
5-4.9 Describe how to stabilize the cervical spine.(C-1)
5-4.10 Discuss indications for sizing and using a cervical spine immobilization device.(C-1)
5-4.11 Establish the relationship between airway management and the patient with head and spine injuries.(C-1)
5-4.12 Describe a method for sizing a cervical spine immobilization device.(C-1)
5-4.13 Describe how to log roll a patient with a suspected spine injury.(C-1)
5-4.14 Describe how to secure a patient to a long spine board.(C-1)
5-4.15 List instances when a short spine board should be used.(C-1)
5-4.16 Describe how to immobilize a patient using a short spine board.(C-1)
5-4.17 Describe the indications for the use of rapid extrication.(C-1)
5-4.18 List steps in performing rapid extrication.(C-1)
5-4.19 State the circumstances when a helmet should be left on the patient.(C-1)
5-4.20 Discuss the circumstances when a helmet should be removed. (C-1)
5-4.21 Identify different types of helmets. (C-1)
5-4.22 Describe the unique characteristics of sports helmets. (C-1)
5-4.23 Explain the preferred methods to remove a helmet. (C-1)
5-4.24 Discuss alternative methods for removal of a helmet. (C-1)
5-4.25 Describe how the patient's head is stabilized to remove the helmet.(C-1)
5-4.26 Differentiate how the head is stabilized with a helmet compared to without a helmet. (C-3)

AFFECTIVE OBJECTIVES

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

5-4.27 Explain the rationale for immobilization of the entire spine when a cervical spine injury is suspected.(A-3)
5-4.28 Explain the rationale for utilizing immobilization methods apart from the straps on the cots.(A-3)
5-4.29 Explain the rationale for utilizing a short spine immobilization device when moving a patient from the sitting to the supine position.(A-3)
5-4.30 Explain the rationale for utilizing rapid extrication approaches only when they indeed will make the difference between life and death.(A-3)
5-4.31 Defend the reasons for leaving a helmet in place for transport of a patient.(A-3)

5-4.32 Defend the reasons for removal of a helmet prior to transport of a patient.(A-3)

PSYCHOMOTOR OBJECTIVES

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

5-4.33 Demonstrate opening the airway in a patient with suspected spinal cord injury.(P-1,2)
5-4.34 Demonstrate evaluating a responsive patient with a suspected spinal cord injury.(P-1,2)
5-4.35 Demonstrate stabilization of the cervical spine.(P-1,2)
5-4.36 Demonstrate the four person log roll for a patient with a suspected spinal cord injury. (P-1,2)
5-4.37 Demonstrate how to log roll a patient with a suspected spinal cord injury using two people.(P-1,2)
5-4.38 Demonstrate securing a patient to a long spine board.(P-1,2)
5-4.39 Demonstrate using the short board immobilization technique.(P-1,2)
5-4.40 Demonstrate procedure for rapid extrication.(P-1,2)
5-4.41 Demonstrate preferred methods for stabilization of a helmet. (P-1,2)
5-4.42 Demonstrate helmet removal techniques.(P-1,2)
5-4.43 Demonstrate alternative methods for stabilization of a helmet.(P-1,2)
5-4.44 Demonstrate completing a prehospital care report for patients with head and spinal injuries.(P-2)

MODULE 6 Infants and Children

Lesson 6-1 ***INFANTS AND CHILDREN***

COGNITIVE OBJECTIVES

6-1.1 Identify the developmental considerations for the following age groups:(C-1)
- **!** infants
- **!** toddlers
- **!** pre-school
- **!** school age
- **!** adolescent

6-1.2 Describe differences in anatomy and physiology of the infant, child and adult patient.(C-1)
6-1.3 Differentiate the response of the ill or injured infant or child (age specific) from that of an adult.(C-3)
6-1.4 Indicate various causes of respiratory emergencies.(C-1)
6-1.5 Differentiate between respiratory distress and respiratory failure.(C-3)
6-1.6 List the steps in the management of foreign body airway obstruction.(C-1)
6-1.7 Summarize emergency medical care strategies for respiratory distress and respiratory failure.(C-1)
6-1.8 Identify the signs and symptoms of shock (hypoperfusion) in the infant and child patient.(C-1)
6-1.9 Describe the methods of determining end organ perfusion in the infant and child patient.(C-1)
6-1.10 State the usual cause of cardiac arrest in infants and children versus adults.(C-1)
6-1.11 List the common causes of seizures in the infant and child patient.(C-1)
6-1.12 Describe the management of seizures in the infant and child patient.(C-1)
6-1.13 Differentiate between the injury patterns in adults, infants, and children.(C-3)
6-1.14 Discuss the field management of the infant and child trauma patient.(C-1)
6-1.15 Summarize the indicators of possible child abuse and neglect.(C-1)
6-1.16 Describe the medical legal responsibilities in suspected child abuse.(C-1)
6-1.17 Recognize need for EMT-Basic debriefing following a difficult infant or child transport.(C-1)

AFFECTIVE OBJECTIVES

6-1.18 Explain the rationale for having knowledge and skills appropriate for dealing with the infant and child patient.(A-3)
6-1.19 Attend to the feelings of the family when dealing with an ill or injured infant or child.(A-1)
6-1.20 Understand the provider's own response (emotional) to caring for infants or children.(A-1)

PSYCHOMOTOR OBJECTIVES

6-1.21 Demonstrate the techniques of foreign body airway obstruction removal in the infant.(P-1,2)
6-1.22 Demonstrate the techniques of foreign body airway obstruction removal in the child.(P-1,2)
6-1.23 Demonstrate the assessment of the infant and child.(P-1,2)
6-1.24 Demonstrate bag-valve-mask artificial ventilations for the infant.(P-1,2)
6-1.25 Demonstrate bag-valve-mask artificial ventilations for the child.(P-1,2)
6-1.26 Demonstrate oxygen delivery for the infant and child.(P-1,2)

MODULE 7 Operations

Lesson 7-1 *AMBULANCE OPERATIONS*

COGNITIVE OBJECTIVES

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

7-1.1 Discuss the medical and non-medical equipment needed to respond to a call.(C-1)
7-1.2 List the phases of an ambulance call.(C-1)
7-1.3 Describe the general provisions of state laws relating to the operation of the ambulance and privileges in any or all of the following categories:(C-1)
- Speed
- Warning lights
- Sirens
- Right-of-way
- Parking
- Turning

7-1.4 List contributing factors to unsafe driving conditions.(C-1)
7-1.5 Describe the considerations that should by given to:
- Request for escorts.
- Following an escort vehicle.
- Intersections.(C-1)

7-1.6 Discuss "Due Regard For Safety of All Others" while operating an emergency vehicle.(C-1)
7-1.7 State what information is essential in order to respond to a call. (C-1)
7-1.8 Discuss various situations that may affect response to a call.(C-1)
7-1.9 Differentiate between the various methods of moving a patient to the unit based upon injury or illness.(C-3)
7-1.10 Apply the components of the essential patient information in a written report.(C-2)
7-1.11 Summarize the importance of preparing the unit for the next response.(C-1)
7-1.12 Identify what is essential for completion of a call.(C-1)

7-1.13 Distinguish among the terms cleaning, disinfection, high-level disinfection, and sterilization.(C-3)
7-1.14 Describe how to clean or disinfect items following patient care.(C-1)

AFFECTIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
7-1.15 Explain the rationale for appropriate report of patient information.(A-3)
7-1.16 Explain the rationale for having the unit prepared to respond.(A-3)

PSYCHOMOTOR OBJECTIVES

No psychomotor objectives identified.

Lesson 7-2 ***GAINING ACCESS***

COGNITIVE OBJECTIVES

At the completion of this lesson, the EMT-Basic student will be able to:
7-2.1 Describe the purpose of extrication.(C-1)
7-2.2 Discuss the role of the EMT-Basic in extrication.(C-1)
7-2.3 Identify what equipment for personal safety is required for the EMT-Basic.(C-1)
7-2.4 Define the fundamental components of extrication.(C-1)
7-2.5 State the steps that should be taken to protect the patient during extrication.(C-1)
7-2.6 Evaluate various methods of gaining access to the patient.(C-3)
7-2.7 Distinguish between simple and complex access.(C-3)

AFFECTIVE OBJECTIVES

No affective objectives identified.

PSYCHOMOTOR OBJECTIVES

No psychomotor objectives identified.

Lesson 7-3 ***OVERVIEWS***

COGNITIVE OBJECTIVES

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

7-3.1 Explain the EMT-Basic's role during a call involving hazardous materials.(C-1)
7-3.2 Describe what the EMT-Basic should do if there is reason to believe that there is a hazard at the scene.(C-1)
7-3.3 Describe the actions that an EMT-Basic should take to ensure bystander safety.(C-1)
7-3.4 State the role the EMT-Basic should perform until appropriately trained personnel arrive at the scene of a hazardous materials situation.(C-1)
7-3.5 Break down the steps to approaching a hazardous situation.(C-1)
7-3.6 Discuss the various environmental hazards that affect EMS.(C-1)
7-3.7 Describe the criteria for a multiple-casualty situation.(C-1)
7-3.8 Evaluate the role of the EMT-Basic in the multiple-casualty situation.(C-3)
7-3.9 Summarize the components of basic triage.(C-1)
7-3.10 Define the role of the EMT-Basic in a disaster operation.(C-1)
7-3.11 Describe basic concepts of incident management.(C-1)
7-3.12 Explain the methods for preventing contamination of self, equipment and facilities.(C-1)
7-3.13 Review the local mass casualty incident plan.(C-1)

AFFECTIVE OBJECTIVES

No affective objectives identified.

PSYCHOMOTOR OBJECTIVES

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

7-3.16 Given a scenario of a mass casualty incident, perform triage.(P-2)

MODULE 8 **Advanced Airway (Elective)**

Lesson 8-1 ***ADVANCED AIRWAY***

COGNITIVE OBJECTIVES

At the end of this lesson the EMT-Basic student will be able to:

8-1.1 Identify and describe the airway anatomy in the infant, child and the adult.(C-1)
8-1.2 Differentiate between the airway anatomy in the infant, child, and the adult.(C-1)
8-1.3 Explain the pathophysiology of airway compromise.(C-1)
8-1.4 Describe the proper use of airway adjuncts.(C-1)
8-1.5 Review the use of oxygen therapy in airway management.(C-1)
8-1.6 Describe the indications, contraindications, and technique for insertion of nasal gastric tubes.
8-1.7 Describe how to perform the Sellick maneuver (cricoid pressure).(C-1)
8-1.8 Describe the indications for advanced airway management.(C-1)
8-1.9 List the equipment required for orotracheal intubation.(C-1)
8-1.10 Describe the proper use of the curved blade for orotracheal intubation.(C-1)
8-1.11 Describe the proper use of the straight blade for orotracheal intubation.(C-1)
8-1.12 State the reasons for and proper use of the stylet in orotracheal intubation.(C-1)
8-1.13 Describe the methods of choosing the appropriate size endotracheal tube in an adult patient.(C-1)
8-1.14 State the formula for sizing an infant or child endotracheal tube.(C-1)
8-1.15 List complications associated with advanced airway management.(C-1)
8-1.16 Define the various alternative methods for sizing the infant and child endotracheal tube.(C-1)
8-1.17 Describe the skill of orotracheal intubation in the adult patient.(C-1)
8-1.18 Describe the skill of orotracheal intubation in the infant and child patient.(C-1)
8-1.19 Describe the skill of confirming endotracheal tube placement in the adult, infant and child patient.(C-1)
8-1.20 State the consequence of and the need to recognize unintentional esophageal intubation.(C-1)
8-1.21 Describe the skill of securing the endotracheal tube in the adult, infant and child patient.(C-1)

AFFECTIVE OBJECTIVES

At the end of this lesson the EMT-Basic student will be able to:

8-1.22 Recognize and respect the feelings of the patient and family during advanced airway procedures.(A-1)
8-1.23 Explain the value of performing advanced airway procedures.(A-2)
8-1.24 Defend the need for the EMT-Basic to perform advanced airway procedures.(A-3)
8-1.25 Explain the rationale for the use of a stylet.(A-2)
8-1.26 Explain the rationale for having a suction unit immediately available during intubation attempts.(A-2)
8-1.27 Explain the rationale for confirming breath sounds.(A-2)
8-1.28 Explain the rationale for securing the endotracheal tube.(A-3)

PSYCHOMOTOR OBJECTIVES

At the end of this lesson the EMT-Basic student will be able to:

8-1.29 Demonstrate how to perform the Sellick maneuver (cricoid pressure).(P-1,2)
8-1.30 Demonstrate the skill of orotracheal intubation in the adult patient.(P-1,2)
8-1.31 Demonstrate the skill of orotracheal intubation in the infant and child patient.(P-1,2)
8-1.32 Demonstrate the skill of confirming endotracheal tube placement in the adult patient.(P-1,2)
8-1.33 Demonstrate the skill of confirming endotracheal tube placement in the infant and child patient.(P-1,2)
8-1.34 Demonstrate the skill of securing the endotracheal tube in the adult patient.(P-1,2)
8-1.35 Demonstrate the skill of securing the endotracheal tube in the infant and child patient.(P-1,2)

APPENDIX M

APPENDIX M

The following information is the equipment list for the lessons of the Emergency Medical Technician-Basic National Standard Curriculum. This list was completed by compiling the equipment lists from each lesson.

This particular appendix may be useful for the individual or committee to obtain equipment necessary to successfully offer the whole EMT-Basic National Standard Curriculum program.

EMS EQUIPMENT

MODULE 1 **Preparatory**

Lesson 1-1 *Introduction to Emergency Medical Care*
None required.

Lesson 1-2 *Well-Being of the EMT-Basic*
Eye protection, gowns, gloves, masks, forms for reporting exposures.

Lesson 1-3 *Medical/Legal and Ethical Issues*
None required.

Lesson 1-4 *The Human Body*
Anatomy models

Lesson 1-5 *Baseline Vital Signs and SAMPLE History*
Exam gloves, stethoscope (dual and single head)(1:6), blood pressure cuffs (adult, infant and child)(1:6), penlights (1:6).

Lesson 1-6 *Lifting and Moving Patients*
Wheeled stretcher, stair chair, scoop stretcher, flexible stretcher, ambulance, long and short backboards, bed.

Lesson 1-7 *Evaluation: Preparatory Module*
Equipment required to evaluate the students proficiency in the psychomotor skills of this module.

MODULE 2 **Airway**

Lesson 2-1 *Airway*
Pocket mask, bag-valve-mask, flow restricted, oxygen-powered ventilation device, oral airways, nasal airways, suction units, suction catheters, oxygen tank, regulator, nonrebreather mask, nasal cannula, tongue blade, and lubricant.

Lesson 2-2 *Practical Skills Lab: Airway*
Equipment from the list in Lesson 2-1: Airway.

Lesson 2-3 *Evaluation: Airway Module*
Equipment required to evaluate the student's proficiency in the psychomotor skills of this module.

MODULE 3 **Patient Assessment**

Lesson 3-1 *Scene Size-Up*
None required.

Lesson 3-2 *Initial Assessment*
Exam gloves, airway management and cardiac equipment.

Lesson 3-3 *Focused History and Physical Exam - Trauma Patients*
Exam gloves, stethoscope (dual and single head)(1:6), blood pressure cuffs (adult, child and infant)(1:6), penlight (1:6).

Lesson 3-4 *Focused History and Physical Exam - Medical Patients*
Exam gloves, stethoscope (dual and single head)(1:6), blood pressure cuffs (adult, child and infant)(1:6), penlight (1:6).

Lesson 3-5 *Detailed Physical Exam*
Exam gloves, stethoscope (dual and single head)(1:6), blood pressure cuffs (adult, child and infant)(1:6), penlight (1:6).

Lesson 3-6 *On-Going Assessment*
Exam gloves, stethoscope (dual and single head)(1:6), blood pressure cuffs (adult, child and infant)(1:6), penlight.

Lesson 3-7 *Communications*
None required.

Lesson 3-8 *Documentation*
Copies of a prehospital care report and a vital sign trended report.

Lesson 3-9 *Practical Skills Lab: Patient Assessment*
Equipment from the lists in Lessons 3-1 through 3-8.

Lesson 3-10 *Evaluation: Patient Assessment Module*
Equipment required to evaluate the students proficiency in the psychomotor skills of this module.

MODULE 4 **Medical**

Lesson 4-1 *General Pharmacology*
None required.

Lesson 4-2 *Respiratory Emergencies*
Handheld inhaler suitable for training purposes and various spacer devices.

Lesson 4-3 *Cardiovascular Emergencies*
CPR manikins, artificial ventilation manikins, automated external defibrillator, NTG training bottle, defibrillation manikin.

Lesson 4-4 *Diabetes/Altered Mental Status*
Exam gloves, stethoscope (6:1), blood pressure cuff (6:1), penlight, tube of glucose, suitable glucose substitute.

Lesson 4-5 *Allergies*
Epinephrine auto-injector, epinephrine auto-injector trainer, synthetic skin mannequin for injection.

Lesson 4-6 *Poisoning/Overdose*
Activated charcoal, suction equipment.

Lesson 4-7 *Environmental Emergencies*
Exam gloves, stethoscopes, blood pressure cuffs, penlight.

Lesson 4-8 *Behavioral Emergencies*
Stretcher, restraints.

Lesson 4-9 *Obstetrics/Gynecology*
Childbirth kit, airway management equipment, eye protection, gloves.

Lesson 4-10 *Practical Skills Lab: Medical/Behavioral Emergencies and Obstetrics/Gynecology*
Equipment from lists in Lessons 4-1 through 4-9.

Lesson 4-11 *Evaluation: Medical Behavioral Emergencies and Obstetrics/Gynecology*
Equipment required to evaluate the students proficiency in the psychomotor skills of this module.

MODULE 5 Trauma

Lesson 5-1 *Bleeding and Shock*
Sterile dressings, bandages, splints, pneumatic antishock garment, triangular bandage, stick or rod, air splints, gloves, eye protection, blanket.

Lesson 5-2 *Soft Tissue Injuries*
Universal dressing, occlusive dressing, 4 x 4 gauze pads, self adherent bandages, roller bandages, triangular bandage, burn sheets, sterile water or saline.

Lesson 5-3 *Musculoskeletal Care*
Splints: Padded arm and leg, air, traction, cardboard, ladder, blanket, pillow, pneumatic antishock garment, improvised splinting material, e.g., magazines, etc.

Lesson 5-4 *Injuries to the Head and Spine*
Long spine board, short spine immobilization device, cervical immobilization devices, helmet, head immobilization device, blanket roll, two inch tape.

Lesson 5-5 *Practical Skills Lab: Trauma*
Equipment from the lists in Lessons 5-1 through 5-4.

Lesson 5-6 *Evaluation: Trauma Module*
Equipment required to evaluate the students proficiency in the psychomotor skills of this module.

MODULE 6 Infants and Children

Lesson 6-1 *Infants and Children*
Exam gloves, stethoscope, blood pressure cuff, penlight.

Lesson 6-2 *Practical Skills Lab: Infants and Children*
Equipment from the list in Lesson 6-1.

Lesson 6-3 *Evaluation: Infants and Children*
Equipment required to evaluate the students' proficiency in the psychomotor skills of this module.

MODULE 7 Operations

Lesson 7-1 *Ambulance Operations*
An ambulance, properly stocked.

Lesson 7-2 *Gaining Access*
Exam gloves, stethoscopes, blood pressure cuffs, penlight.

Lesson 7-3 *Overviews*
Triage tags.

Lesson 7-4 *Evaluation: Operations*
Equipment required to evaluate the students proficiency in the psychomotor skills of this module.

MODULE 8 Advanced Airway (Elective)

Lesson 8-1 *Advanced Airway*
Exam gloves, eye protection, basic airway adjuncts, adult, infant and child intubation manikins, stethoscopes (1:6), laryngoscope blades (0-4)(1:6), laryngoscope handles (1:6), stylets, endotracheal tubes in various sizes, "C" batteries, spare laryngoscope bulbs, lubricant, suction units, oxygen cylinders, bag-valve-mask (1:6), oxygen supply tubing, adult, infant and child throat models showing anatomy to include trachea and vocal cords, face masks.

Lesson 8-2 *Practical Lab: Advanced Airway Elective*
Equipment from the list in Lesson 8-1.

Lesson 8-3 *Evaluation: Advanced Airway Elective*
Equipment required to evaluate the students proficiency in the psychomotor skills of this module.