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Course Outline for EMS 53

EMT-P MEDICAL SYNDROMES

Effective: Fall 2010

I. CATALOG DESCRIPTION:
EMS 53 — EMT-P MEDICAL SYNDROMES — 5.00 units

Overview of the patient assessment techniques for the paramedic. Overview of the medical patient and presentation of principle of toxicology and infectious diseases and their management in a prehospital setting. Prerequisite: EMS 52 (completed with a grade of “C” or higher). 4 hours lecture, 3 hour laboratory.

4.00 Units Lecture 1.00 Units Lab

Prerequisite
EMS 52 - EMT-P Pharm and Airway
with a minimum grade of C

Grading Methods:
Letter Grade

Discipline:

	MIN
Lecture Hours:	72.00
Lab Hours:	54.00
Total Hours:	126.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:
Before entering the course a student should be able to:

A. EMS52
1. create a treatment plan intended to mitigate emergencies and improve the overall health of the patient using knowledge of emergency medical pharmacology
2. compare and contrast the names, mechanism of action, indications, contraindications, complications, routes of administration, side effects, interactions, dose, and any specific administration considerations, for all of the emergency medications and intravenous fluids utilized by the local training institution. Individual training programs have the authority to add any medication used locally by paramedic providers
3. apply to patient assessment and management, a fundamental knowledge of the medications carried by paramedics that may be administered to a patient during an emergency
4. demonstrate knowledge of the following topics:, Medication safety, medication legislation, medication naming, classifications and schedules
5. summarize general principles of pharmacokinetics
6. articulate general principles of: Medication storage and security, Autonomic pharmacology, Metabolism and excretion, Mechanism of action, Phases of medication activity, Medication response relationships
7. give various examples of medication interactions and medication toxicity
8. describe medication routes of administration
9. list all medications within the scope of practice of the paramedic and techniques of administering said medications to a patient
10. list each of the following topics within the scope of practice of the paramedic: Names of medication, Actions of medication, Indications of medication, Contraindications and Complications of medication, Side effects, Interactions and, Dosages for the medications Administered
11. calculate and regulate the flow rate for an IV infusion given the volume, drop factor, and time frame
12. re-establish an IV infusion that becomes compromised
13. remove air from IV tubing
14. discontinue an IV infusion
15. calculate the volume of medication to be administered when given an ordered dosage
16. read drug container labels, and identify components (i.e. name, concentration, expiration date, etc.)
17. withdraw solutions from ampoules and vials with an appropriately sized syringe
18. assemble a preloaded syringe (e.g., Bristoject, Abbojet, preload cartridges, etc.)
19. correctly administer an IV push medication
20. administer IM injections via the: dorsogluteal, ventrogluteal, vastus lateralis, and deltoid sites
21. administer subcutaneous injections
22. calculate, mix, and administer an IV medication infusion using microdrip Tubing
23. using a comprehensive knowledge of anatomy, physiologies, and pathophysiology of the respiratory system, construct an

assessment to develop and implement a treatment plan with the goal of assuring a patent airway, adequate mechanical ventilation, and respiration for patients of all ages
24. demonstrate knowledge and possesses a breadth of knowledge within the scope of practice of the paramedic on the following topics: Airway anatomy, Airway assessment, Techniques of assuring a patent airway
25. demonstrate knowledge of the following topics: Anatomy of the respiratory system, physiology, and pathophysiology of respiration of pulmonary ventilation, oxygenation and respiration, assessment and management of adequate and inadequate respiration, supplemental oxygen therapy
26. discuss the following topics: Assessment and management of adequate and inadequate ventilation, artificial ventilation, Minute ventilation, Alveolar ventilation, Effect of artificial ventilation on cardiac output
27. describe In step-by-step fashion, the generic procedure of rapid sequence Intubation
28. perform the suctioning technique in the following situations: Oropharyngeal, Endotracheal, Nasopharyngeal, Tracheotomy
29. secure a patent airway using an endotracheal tube, King LT airway or other supraglottic airway device
30. maintain the patient's airway and/or provide ventilations using the: Oropharyngeal airway, Positive pressure ventilator, nasopharyngeal airway, endotracheal tube, Pocket mask, Laryngeal mask assembly, Bag-valve-mask

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

A. develop a treatment plan using knowledge of the pathophysiology of infectious medical diseases
B. develop a comprehensive treatment/disposition plan for a patient with a medical complaint of toxicological poisoning
C. summarize how principles of body substance isolation relate to the following topics: Infection implications on human anatomy and physiology, Epidemiology of infectious diseases, pathophysiology of infectious diseases, and psychosocial impact of infectious diseases
D. summarize the presentations, prognosis, and management of the following toxidromes and poisonings: Cholinergics , Anticholinergics, Sympathomimetics , Sedative/hypnotics, Opiates, Alcohol intoxication and withdrawal, Over-the-counter and prescription medications, Carbon monoxide, Illegal drugs, Herbal preparations
E. explain how the paramedic will manage the following diseases outside of the hospital in an emergent and non-emergent patient: HIV-related disease, Hepatitis, Pneumonia, and meningococcal meningitis
F. demonstrates a comprehensive knowledge of: Tuberculosis, Tetanus, Viral diseases, Sexually transmitted disease, Gastroenteritis, Fungal infections, Rabies, Scabies and lice, Lyme disease, Rocky Mountain Spotted Fever, Antibiotic resistant infections
G. demonstrate a comprehensive knowledge of the following topics: Hypersensitivity, Allergic and anaphylactic reactions
H. demonstrate a comprehensive knowledge of: Collagen vascular disease, Transplant related problems

V. CONTENT:

A. Scene Safety
    1. Common scene hazards
    2. Evaluation of the scene
B. Scene management
    1. Impact of the environment on patient care
    2. Addressing hazards
    3. Violence
    4. Need for additional or specialized resources
    5. Standard precautions
    6. Multiple patient situations
C. Primary Survey/Primary Assessment
    1. Initial General Impression - based on the patient’s age appropriate appearance
    2. Level of Consciousness
    3. Airway status
    4. Breathing status
    5. Circulatory status
    6. Disability - Brief neurological evaluation
    7. Exposure - Patient completely undressed
    8. Identifying life threats
D. Assessment of vital functions
E. Integration of treatment/procedures needed to preserve life
F. Evaluating priority of patient care and transport
    1. Primary assessment: stable
    2. Primary assessment: potentially unstable
    3. Primary assessment: unstable
G. Components of the patient history
    1. Overview
H. Interviewing Techniques
    1. Setting the stage
    2. Learning about the present illness
    3. Direct questions
    4. Taking a history on sensitive topics
    5. Taking a history in the trauma patient
I. Components of the patient history
    1. Chief complaint
    2. Present problem
    3. past medical history
    4. Family history or blood relatives with
    5. Personal social history as it relates to illness risk factors
    6. Review of body systems
    7. Clinical reasoning
    8. Concluding questions
J. Cultural Competence
    1. Definition of culture
    2. Developing cultural sensitivity
    3. Definitions in cultural discussion
    4. F. Cultural Orientations
    5. Cultural impact on disease
    6. Religious beliefs that impact patient care
    7. Cultural characteristics related to health care
    8. Dietary practices
    9. Family relationships
K. Special challenges
    1. Silence
    2. Overly talkative patients

3. Patients with multiple symptoms
4. Anxious patients
5. Reassurance
6. Anger and hostility
7. Intoxication
8. Crying
9. Depression
10. Confusing behaviors or histories
11. Limited intelligence
12. Language barriers
13. Hearing problems
14. Blind patients
15. Talking with family and friends

L. Integration of therapeutic communication, history taking techniques, patient presentation and assessment findings -- Development of field impression
M. Treatment Plan -- Modify initial treatment plan
N. Age-related considerations
    1. Pediatrics
    2. Geriatrics
    3. Functional Assessment
O. Techniques of Physical Examination
    1. Major Body Systems
    2. Major Anatomical Regions
P. Physical examination techniques will vary from patient to patient depending on the chief complaint, present illness, and history
Q. Physical examination – approach and overview
    1. Examination techniques
    2. General Approach
    3. Overview of a comprehensive examination
R. Mental Status
    1. Appearance and behavior
    2. Speech and language
    3. Mood
    4. Thought and perceptions
    5. Assess insight and judgment
    6. Memory and attention
S. Techniques of Physical Exam: General Survey
    1. Introduction
    2. Physical findings in relation to development
    3. Body Structure
    4. Level of consciousness
    5. Skin signs
    6. Age variation
T. Vital Signs
    1. Introduction
    2. Respiration
    3. Circulation
    4. Perfusion
U. Examination by anatomical region or system
    1. Skin, hair and nails
    2. Lymphatic System
    3. Head and Neck
    4. Eyes
    5. Ears, Nose, Throat, Neck
    6. Chest and Lungs
    7. Heart and blood vessels
    8. Abdomen
    9. Genitalia
    10. Anus, Rectum
    11. Musculoskeletal system
    12. Neurological System
V. Modifying the assessment for the patient with a life threatening emergency
    1. Head to toe approach
    2. Primary before Secondary
W. Monitoring Devices
    1. Continuous ECG monitoring
    2. 12-Lead ECG Interpretation
    3. Carbon Dioxide Monitoring
    4. Basic Blood Chemistry
    5. Other Monitoring Devices
X. Patient reassessment
    1. How and When to Reassess
    2. Patient Evaluation: Reassessment
    3. Documentation
    4. Age-related Considerations
Y. Pathophysiology
    1. Immunity
    2. Immune response
    3. Allergic reaction
A@. Assessment
    1. Mild allergic reaction
    2. Moderate allergic reaction
    3. Severe allergic reaction/ anaphylaxis
AA. Anaphylactoid Reaction
AB. Managing an allergic reaction
    1. Provide treatment specific to assessment findings and severity of reaction
    2. Remove allergen if possible
    3. Protect the airway -- Consider intubation
    4. Ventilate if needed
    5. Intravenous access
    6. Pharmacologic interventions

AC. Collagen vascular disease
    1. Systemic lupus erythmatosis
    2. Scleroderma
AD. Transplant-related problems
    1. Types of solid organ transplant
    2. Assessment considerations
    3. Common complications related to immunosuppression
AE. Consider age-related variations in pediatric and geriatric patients
AF. Communication and documentation
AG. Transport decisions
AH. Patient education and prevention
AI. Public health principles and agencies responsible for public health
    1. Demographic
    2. Epidemiology diseases
AJ. Pathophysiology of Infectious Disease
    1. Infectious agents
    2. Factors that affect agent's ability to cause disease
    3. Chain of infection
    4. Body's response
    5. Stages of infectious disease
AK. Standard Precautions, personal protective equipment, and cleaning and disposing of equipment and supplies.
    1. Principles of standard precautions
    2. Current hand washing guidelines
    3. Current recommendations for standard precautions
    4. Current recommendations for cleaning or sterilization of equipment
    5. Current recommendations for disposing of contaminated linens and supplies
    6. including sharps
AL. Specific diseases and conditions
    1. HIV and AIDS
    2. Hepatitis
    3. Pneumonia
    4. Meningitis
    5. Tuberculosis
    6. Tetanus
    7. Viral diseases
    8. Other viral diseases
    9. Sexually transmitted diseases
    10. Gastroenteritis
    11. Drug resistant bacterial conditions
    12. Fungal infections
    13. Rabies
    14. Scabies/Lice
    15. Lyme Disease
    16. Antibiotic Resistant Infections
AM. Consider age-related variations in pediatric and geriatric patients
AN. Communication and documentation for a patient with a communicable or infectious disease
AO. Transport decisions including special infection control procedures.
AP. Patient and family teaching regarding communicable or infectious diseases and their spread.
AQ. Legal requirements regarding reporting communicable or infectious diseases/conditions
    1. Exposure of health care provider
    2. Required reporting to the health department or other heath care agency
AR. Epidemiology of toxicology emergencies
    1. Review of epidemiology of poisoning
    2. National Resources for Poisoning
    3. Types of toxicological emergencies
    4. Pharmacokinetics
    5. Routes of absorption
    6. Poisoning by ingestion
    7. Poisoning by inhalation
    8. Poisoning by injection
AS. Poisoning by absorption
AT. Toxic syndromes (Toxidromes) including drugs of abuse
    1. Introduction--Pathophysiology, incidence, toxic agents, risk factors, methods of transmission, complications
    2. Cholinergics
    3. Anticholinergic
    4. Marijuana and cannabis compounds
    5. Sympathomimetics/Stimulates
    6. Barbiturates/sedatives/ hypnotics
    7. Hallucinogens
    8. Opiates
AU. Huffing Agent (Halogenated Hydrocarbons)
AV. Alcoholism
    1. Introduction—Epidemiology, risk factors, morbidity/ mortality complications
    2. Pathophysiology of long term and acute alcohol abuse and withdrawal
AW. Poisonings and exposures
AX. Chemicals
AY. Household Poisons
    1. Pesticides
    2. Household Cleaning poisonings
    3. Poisonous Plants
    4. Assessment findings and symptoms for patients with poisoning/exposure to household poisons
    5. Management for a patient with chemical poisoning/exposure to household poisons
B@. Medication overdose-- Introduction--Pathophysiology, incidence, toxic agents, risk factors, complications
    1. Cardiac medications
    2. Psychiatric medications
    3. Non-prescription pain medications including Salicylates and Acetaminophen
    4. Other
    5. Assessment findings and symptoms for patients with medication overdose
    6. Management for a patient with medication overdose
BA. General Treatment modalities for Poisonings

1. Facilitated Airway Control
2. Respiratory Support
3. Circulation Support
4. Antidote Therapy
5. Decontamination

BB. Communication and documentation for patients with toxicological emergencies
BC. Transport decisions with toxicological emergencies
BD. Age-related variations for pediatric and geriatric patients
BE. Patient education and prevention of toxicological emergencies and drug and alcohol abuse

VI. METHODS OF INSTRUCTION:

A. **Lecture** -
B. **Discussion** - Group Discussion
C. **Lab** - Skills Laboratory
D. Learning Resource Center use Preceptor monitored medical procedure training in a clinical settings
E. Simulated problem solving
F. Oral and written reports
G. Reading Assignments
H. **Audio-visual Activity** - Selected Video and AV Aids

VII. TYPICAL ASSIGNMENTS:

A. Complete workbook exercises after completing lecture readings.
B. Present simulated patient case history reports.
C. Prepare a class presentation on assigned lecture topics related to course.

VIII. EVALUATION:

A. **Methods**

1. Other:
   a. Multiple Choice Examinations, including a Midterm and Final Examination
   b. Short Essay Examinations
   c. Midterm Examination
   d. Final Examination
   e. Oral Presentations
   f. Practical Skills Examinations using national standard score sheets

B. **Frequency**

1. Recommend weekly examinations
2. Homework assigned for each topic completed
3. Midterm and Final Exam at end of Course

IX. TYPICAL TEXTS:

1. Bryan E. Bledsoe et. al. *Paramedic Care; Principles & Practice, Vol. 1-5.* 3rd ed., Brady-Prentice Hall Health, 2008.
2. Bryan E. Bledsoe et. al. *Student Workbook for Paramedic Care; Principles & Practice, Vol. 1-5.* 3rd ed., Brady-Prentice Hall Health, 2008.

X. OTHER MATERIALS REQUIRED OF STUDENTS:

A. Stethoscope
B. Penlight