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Course Outline for EMS 11

PARAMEDIC THEORY 2

Effective: Fall 2019

I. CATALOG DESCRIPTION:
EMS 11 — PARAMEDIC THEORY 2 — 6.00 units

This course provides paramedic didactic education and training following the current Department of Transportation National Emergency Services Education Standards (NEMSES) and California Code of Regulations, Title 22. Includes cognitive content associated with: Medical emergencies, special patient populations, and EMS operations.

6.00 Units Lecture

Prerequisite
EMS 10 - Paramedic Theory 1
with a minimum grade of C

EMS 12 - Paramedic Laboratory 1
with a minimum grade of C

Corequisite
EMS 13 - Paramedic Laboratory 2

Grading Methods:
Letter Grade

Discipline:
- Emergency Medical Technologies

	MIN
Lecture Hours:	108.00
Expected Outside of Class Hours:	216.00
Total Hours:	324.00

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. EMS10
1. Integrate comprehensive knowledge of EMS systems, the safety/well-being of the paramedic, and medical/legal and ethical issues which is intended to improve the health of EMS personnel, patients, and the community.
2. Integrate a complex depth and comprehensive breadth of knowledge of the anatomy and physiology of all human systems
3. Integrate comprehensive anatomical and medical terminology and abbreviations into the written and oral communication with colleagues and other health care professionals.
4. Integrate comprehensive knowledge of pathophysiology of major human systems
5. Integrate comprehensive knowledge of life span development.
6. Apply fundamental knowledge of principles of public health and epidemiology including public health emergencies, health promotion, and illness and injury prevention.
7. Integrate comprehensive knowledge of pharmacology to formulate a treatment plan intended to mitigate emergencies and improve the overall health of the patient.
8. Integrate complex knowledge of anatomy, physiology, and pathophysiology into the 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.
9. Integrate scene and patient assessment findings with knowledge of epidemiology and pathophysiology to form a field impression. This includes developing a list of differential diagnoses through clinical reasoning to modify the assessment and formulate a treatment plan.
10. Integrate assessment findings with principles of epidemiology and pathophysiology to formulate a field impression to implement a comprehensive treatment/disposition plan for an acutely injured patient
11. Integrate comprehensive knowledge of causes and pathophysiology into the management of cardiac arrest and peri-arrest states.
12. Integrate a comprehensive knowledge of the causes and pathophysiology into the management of shock, respiratory failure

or arrest with an emphasis on early intervention to prevent arrest.

B. EMS12
1. Relate assessment findings to underlying pathological and physiological changes in the patient's condition.
2. Integrate and synthesize the multiple determinants of health and clinical care.
3. Perform psychomotor skills within the National EMS Scope of Practice Model and state scope of practice including: airway and breathing, patient assessment, pharmacologic interventions, and trauma patient management.
4. Formulate a field impression based on an analysis of comprehensive assessment findings, anatomy, physiology, pathophysiology, and epidemiology.
5. Perform a comprehensive history and physical examination to identify factors affecting the health and health needs of a patient.
6. Communicate in a manner that is culturally sensitive and intended to improve the patient outcome.
7. Create a treatment plan intended to mitigate emergencies and improve the overall health of the patient using knowledge of emergency medical pharmacology.
8. 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.
9. 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.
10. Demonstrate knowledge of the following topics:, Medication safety, medication legislation, medication naming, classifications and schedules; give various examples of medication interactions and medication toxicity.
11. Identify medication routes of administration.
12. Calculate and regulate the flow rate for an IV infusion given the volume, drop factor, and time frame.
13. Perform the following tasks according to the NREMT ALS Psychomotor Skill Sheet Standards: withdraw solutions from ampoules and vials with an appropriately sized syringe, assemble a preloaded syringe (e.g., Bristoject, Abbojet, preload cartridges, etc.), administer an IV push medication, administer IM injections via the: dorsogluteal, ventrogluteal, vastus lateralis, and deltoid sites, administer subcutaneous injections, calculate, mix, and administer an IV medication infusion using microdrip Tubing.
14. 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.
15. 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.
16. Discuss the assessment and management of adequate and inadequate ventilation.
17. Describe In step-by-step fashion, the generic procedure of rapid sequence intubation.
18. Perform the suctioning technique in the following situations: Oropharyngeal, Endotracheal, Nasopharyngeal, Tracheotomy.
19. Secure a patent airway using an endotracheal tube, King LT airway or other supraglottic airway device.
20. Perform the following procedures under the guidance of a clinical laboratory instructor Intraosseous insertion of an IO needle, enteral and parenteral administration of approved prescription medications, Access indwelling catheters and implanted central IV ports, administer medications by IV infusion, Maintain infusion of blood or blood products, perform blood sampling, thrombolytic initiation, administer physician approved medications, place a Morgan Lens.
21. Identify assessment findings of a simulated patient presentation and formulate a field treatment plan for a patient with a major traumatic systems and minor traumatic injuries.
22. Formulate a comprehensive treatment/disposition plan for an acutely injured patient.

IV. MEASURABLE OBJECTIVES:

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

1. Integrate assessment findings with principles of epidemiology and pathophysiology to formulate a field impression and implement a comprehensive treatment/disposition plan for a patient with a medical complaint
2. Integrate assessment findings with principles of epidemiology and pathophysiology to formulatIntegrate comprehensive knowledge of causes and pathophysiology into the management of cardiac arrest and peri-arrest states.
3. Integrate a comprehensive knowledge of the causes and pathophysiology into the management of shock, respiratory failure or arrest with an emphasis on early intervention to prevent arrest.
4. Integrate assessment findings with principles of pathophysiology and knowledge of psychosocial needs to formulate a field impression and implement a comprehensive treatment/disposition plan for patients with special needs.
5. Demonstrate knowledge of operational roles and responsibilities to ensure safe patient, public, and personnel safety.

V. CONTENT:

A. Medicine
1. Medical Overview
2. Neurology
   a. Altered mental status
   b. Stroke
   c. Transient Ischemic Attack
   d. Seizures
   e. Headache
   f. Dementia/Parkinsons
   g. Wernicke's encephalopathy
3. Abdominal and Gastrointestinal Disorders
   a. Peptic ulcer disease
   b. Colitis
   c. Crohn's Disease
   d. Bowel obstruction
   e. Hernia
4. Immunology
   a. Rheumatoid arthritis
   b. Lupus
   c. Anaphalaxis
5. Infectious Diseases
   a. Tuberculosis
   b. AIDS
   c. SARS
   d. Hepatitis
   e. Pneumonia
   f. Meningitis
   g. Lyme disease
   h. MRSA

6. Endocrine Disorders
    a. Diabetes mellitus
    b. Cushing's disease
    c. Hypo/Hyper thyroidism
7. Psychiatric
    a. Assessment of the acute psychiatric emergency
    b. Acute psychosis
    c. Agitated delirium
    d. Cognitive disorders
    e. Personality disorders
    f. Medication management of an acute psychiatric patient
8. Cardiovascular
    a. Acute Coronary Syndrome
    b. Cardiac Arrest
    c. Congestive Heart Failure
    d. Myocardial infarction
    e. Cardiac tamponade
    f. Cardiogenic shock
    g. Aortic aneurysm/dissection
    h. Thromboembolic disease
    i. Valvular disease
    j. Congenital heart disease
9. Toxicology
    a. Medication overdose
    b. Hallucinogens
    c. Opiates
    d. Alcoholism
    e. Household poisons
10. Respiratory
    a. Emphysema
    b. Pulmonary edema
    c. Bronchitis
11. Hematology
    a. Sickle cell disease
    b. Hemophilia
    c. Disseminated Intravascular Coagulation
12. Genitourinary/Renal
    a. Kidney stones
    b. Complicaitons of renal dialysis
13. Gynecology
    a. Vaginal bleeding
    b. Care of the sexual assault patient
    c. Pelvic inflammatory disease
    d. Ovarian cysts

B. Non-Traumatic Musculoskeletal Disorders
C. Diseases of the Eyes, Ears, Nose and Throat
1. Hyphema
2. Epistaxis
3. Rhinitis
4. Pharyngitis
5. Peritonsilar abcess

D. Special Populations
1. Obstetrics
    a. Complications related to pregnancy
        1. Gestational diabetes
    b. Complications of labor
    c. Complications of delivery
        1. Caudal or breech presentation
        2. Nucchal cord
2. Neonatal Care
    a. Meconium post delivery
    b. Hypothermia
3. Pediatrics
    a. Assessment of the pediatric patient
    b. Abuse and neglect
4. Geriatrics
    a. Assessment of the geriatric patient
    b. Abuse and neglect
    c. Polypharmacy
5. Patients with Special Challenges
    a. Homelessness and Poverty
    b. Bariatric patient
    c. Hospice patients
    d. Tracheostomy patients
    e. Developmentally disabled patients

E. EMS Operations
1. Principles of Safely Operating a Ground Ambulance
2. Incident Management
3. Multiple Casualty Incidents
    a. Scene size up
    b. Vehicle apparatus positioning
    c. START Triage
4. Hazardous Materials Awareness
5. Mass Casualty Incidents due to Terrorism and Disaster
    a. Situational awarenes of scene safety
    b. Use of personal protective equipment

VI. METHODS OF INSTRUCTION:

A. **Written exercises and case studies** -

B. **Student Presentations** -
C. **Audio-visual Activity** -
D. **Lecture** -
E. **Directed Study** -
F. **Discussion** -
G. **Individualized Instruction** -
H. **Classroom Activity** -

VII. TYPICAL ASSIGNMENTS:
A. Textbook readings
    1. Read Chapter 41, Obstetrics
B. Homework questions
    1. Complete practice actifities for Chapter 41
C. Written reports
    1. Prepare a report on the simulated patient case involving nucchal cord presentation.
D. Oral presentations
    1. Report the Nucchal cord case to the class and instructor.
E. Manipulative demonstrations
    1. Demonstrate how to safely and properly manage an infant being born with a nucchal cord presentation.

VIII. EVALUATION:
Methods/Frequency

A. Exams/Tests
    Psychomotor skills exams
B. Class Participation
    Weekly discussion groups of case studies
C. Class Work
    Weekly quizzes

IX. TYPICAL TEXTS:
1. Andrew Pollak MD FAAOS - Series Editor. *Emergency Care in the Streets.* 8th ed., JB Learning, 2018.
2. American Heart Association. *Pediatric Advanced Life Support.* 3rd ed., American Heart Association, 2018.
3. American Heart Association. *Advanced Cardiac Life Support.* 15th ed., American Heart Association-Emergency Care Commitee, 2015.

X. OTHER MATERIALS REQUIRED OF STUDENTS:
A. Computer access with an internet connection