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Course Outline for EMS 57
EMT-P SPECIAL PATIENT POPULATIONS
Effective: Spring 2011

I. CATALOG DESCRIPTION:

EMS 57 — EMT-P SPECIAL PATIENT POPULATIONS — 4.00 units

Overview with an emphasis on evaluation and in hospital management of patients presenting with behavioral emergencies. Emphasis on the special medical needs of the geriatric patient. Focus on ambulance operations to include hazardous incidents, multicase incidents and mass casualty incidents caused by weapons of mass destruction or acts of terrorism. Supervised clinical sessions at a hospital emergency department, labor and delivery suite, pediatric clinic, to include exposure to emergency, cardiac, surgical, obstetric, and pediatric patients with a clinical preceptor. Prerequisite: Emergency Medical Services 57 (completed with a grade "C" or higher). 3 hours lecture, 3 hours laboratory.

3.00 Units Lecture 1.00 Units Lab

Prerequisite

EMS 56 - EMT-P Trauma and Shock
with a minimum grade of C

Grading Methods:

Letter Grade

Discipline:

	MIN
Lecture Hours:	54.00
Lab Hours:	54.00
Total Hours:	108.00

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. EMS56

1. discuss the underlying causes and pathophysiology of traumatic injuries and shock states
2. demonstrate knowledge of the causes and pathophysiology of shock, respiratory failure or arrest with an emphasis on early intervention to prevent arrest
3. perform the following procedures under the guidance of a clinical preceptor 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
4. 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
5. 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:

- A. discuss the underlying principles of pathophysiology and knowledge of patients suffering from environmental emergencies, obstetrical, pediatric, and geriatric emergencies
- B. formulate a comprehensive treatment/disposition plan for patients with special needs
- C. formulate a treatment/disposition plan for patients suffering from environmental emergencies, obstetrical, pediatric, and geriatric emergencies
- D. discuss underlying principles of pathophysiology for patients with special needs
- E. demonstrate knowledge of operational roles and responsibilities to ensure patient, public, and personnel safety in managing a complex incident such as a hazardous materials event, multi casualty incident and mass casualty incident caused by weapons of mass destruction
- F. perform the following procedures under the guidance of a clinical preceptor 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

V. CONTENT:

A. Environmental Emergencies

1. Incidence
 - a. Morbidity/Mortality
 - b. Risk Factors
 - c. Prevention
2. Submersion incidents
 - a. Pathophysiology
 - b. Special Assessment considerations
 - c. Special management considerations
3. Temperature-related illness
 - a. Pathophysiology
 - b. Special Assessment considerations
 - c. Special management considerations
4. Bites and Envenomations
 - a. Injuries of concern
 - b. Pathophysiology of bites and envenomations
 - c. Signs and Symptoms
 - d. Unique management considers of bites and stings
5. Electrical injury – Lightning strikes
 - a. Pathophysiology
 - b. Special Assessment considerations
 - c. Special management considerations
6. High altitude illness
 - a. Pathophysiology
 - b. Special Assessment considerations
 - c. Special management considerations

B. Obstetrics and Neonatal Care

1. Introduction
 - a. Anatomy and physiology review of the female reproductive system
 - b. Female reproductive cycle
 - c. Cultural values affecting pregnancy
 - d. Special considerations of adolescent pregnancy
2. Physiology
 - a. Normal anatomical, physiological, and psychological changes in pregnancy
 - b. Identify normal events of pregnancy
 - c. Conception and fetal development
 - d. Development and functions of the placenta
3. General system physiology, assessment, and management of the obstetrical patient.
 - a. Premonitory signs of labor
 - b. Stages of labor and delivery
 - c. Assessment of the Pregnant Patient
 - d. Management of a normal delivery obstetrical patient
 - e. Postpartum Care
4. Complications Related to Pregnancy
 - a. Abuse
 - b. Substance abuse
 - c. Supine hypotensive disorder
 - d. Diabetes mellitus
 - e. Various cardiac disorders
 - f. Bleeding Related to Pregnancy: pathophysiology, assessment, complications, management
 - g. Placental problems: pathophysiology, assessment, management
 - h. Hyperemesis gravidum
 - i. Hypertensive disorders: pathophysiology, assessment, management
 - j. Rh sensitization
 - k. Infections
5. High Risk Pregnancy: pathophysiology, assessment, complications, management
 - a. Precipitous labor and birth
 - b. Post term pregnancy
 - c. Meconium staining
 - d. Fetal macrosomia
 - e. Multiple gestation
 - f. Intrauterine fetal death
 - g. Amniotic fluid embolism
 - h. Hydramnios
 - i. Cephalopelvic disproportion
6. Complications of Labor: pathophysiology, assessment, complications, management
 - a. Premature rupture of membranes
 - b. Preterm labor
 - c. Uterus rupture
 - d. Fetal distress
7. Complications of Delivery: pathophysiology, assessment, complications, management
 - a. Cephalic presentation
 - b. Breech
 - c. Shoulder dystocia
 - d. Nuchal cord
 - e. Prolapse of cord
 - f. Postpartum Complications: pathophysiology, assessment, complications, management

C. Newborns and Neonates

1. Introduction
 - a. Newborn
 - b. Neonate
2. General pathophysiology, assessment and management
 - a. Epidemiology
 - b. Pathophysiology
 - c. Assessment of the newborn
 - d. Treatment
3. Specific situations
 - a. Meconium stained amniotic fluid

- b. Epidemiology
- c. Apnea in the neonate
- d. Diaphragmatic hernia in the neonate
- e. Bradycardia in the neonate
- f. Premature infants
- g. Respiratory distress/ cyanosis in the neonate
- h. Seizures in the neonate
- i. Fever in the neonate
- j. Hypothermia in the neonate
- k. Hypoglycemia in the neonate
- l. Vomiting in the neonate
- m. Diarrhea in the neonate
- n. Common birth injuries in the newborn

D. Pediatric patients

1. Pediatric Anatomical Variations and Assessment
 - a. Head compared to an adult's
 - b. Airway compared to an adult's
 - c. Chest and lungs compared to an adult's
 - d. Abdomen compared to an adult's
 - e. Extremities compared to adult's
 - f. Skin and body surface area compared to an adult's
 - g. Respiratory system compared to an adult's
 - h. Nervous system and spinal column compared to an adult's
 - i. Metabolic differences compared to an adult
2. Growth and Development
 - a. Infancy
 - b. Toddler years
3. Pediatrics: Specific Pathophysiology, Assessment, and Management
 - a. Respiratory Compromise
 - b. Non Cardiogenic Shock
 - c. Cardiac
 - d. Neurologic
 - e. Endocrinology
 - f. Hematologic/Oncologic/Immunologic
 - g. Gastrointestinal
 - h. Toxicologic
4. Abuse and Neglect
 - a. Introduction
 - b. Assessment
 - c. Management
 - d. Sudden Infant Death Syndrome
 - e. Introduction
 - f. Assessment
 - g. Management
5. Local EMS criteria for death in the field

E. Geriatric patients

1. Normal and Abnormal Changes associated with aging
 - a. Normal changes associated with aging primarily occur due to deterioration of organ systems;
 - b. Pathological changes in the elderly are sometimes difficult to discern from normal aging changes.
 - c. Cardiovascular
 - d. Respiratory
 - e. Neurovascular
 - f. Gastrointestinal
 - g. Genitourinary
 - h. Endocrine
 - i. Musculoskeletal
 - j. Integumentary
2. Sensory changes
 - a. Vision
 - b. Hearing
 - c. Pain Perception -- inability to differentiate hot from cold
3. Pharmacokinetic change
 - a. Physiological changes that impact pharmacokinetics
 - b. Implications of altered pharmacokinetics
 - c. Difficulty in compliance of drug therapy
4. Polypharmacy
 - a. Multiple chronic diseases mean multiple medications
 - b. Drug dosages may not have been adjusted for multiple meds
 - c. Drug interactions may cause problems
 - d. Consider polypharmacy as a reason for problems
5. Psychosocial and economic aspects
 - a. Demographics and "graying of America"
 - b. Psychosocial issues
6. Specific conditions that occur more frequently in the elderly
 - a. Myocardial infarction
 - b. Congestive Heart Failure
 - c. Aortic Dissection
 - d. Syncope
 - e. Hypertension
 - f. Pneumonia
 - g. Pulmonary Embolism
 - h. Asthma
 - i. Emphysema and chronic bronchitis
 - j. Stroke.
 - k. Transient Ischemic Attacks (TIA)
 - l. Alzheimer's Disease
 - m. Dementia
 - n. Delirium- a sudden change in behavior, consciousness, or cognitive processes generally due to
 - o. GI Gastrointestinal bleeding- is caused by disease processes, inflammation, infection and
 - p. Biliary disease is disorders of the liver and gallbladder.
 - q. Chronic Renal Failure- is the inability of the kidneys to excrete waste, concentrate urine, or control electrolyte balance

- in the body.
 - r. Urinary Tract Infection
 - s. Endocrine
 - t. Inflammatory arthritis
 - u. Osteoarthritis
 - v. Immunological system anatomical and physiological changes, and pathophysiology
 - w. Pressure Ulcers- is the decay of body tissue due to pressure on a site. This results in a lack of blood supply and oxygen to the tissues.
 - x. Herpes Zoster- a highly contagious virus that is manifested by a painful rash that affects the ganglion of a nerve and appears along the affected nerve pathway.
- F. Patients with special challenges
1. Abuse and neglect
 - a. Introduction
 - b. History
 - c. Assessment
 - d. Management
 - e. Legal aspects
 - f. Risk profile of abuse victim
 - g. Risk profile of the abuser/assailant
 - h. Documentation
 2. Homelessness/Poverty
 - a. Advocate for patient rights and appropriate care
 - b. Identify facilities that will treat regardless of payment
 - c. Prevention strategies will likely be absent, increasing the probability of disease
 - d. Familiarity with assistance resources offered in community
 - e. It is estimated that 41 million Americans and one-third of people living in poverty have no health insurance, and insurance coverage held by many others would not carry them through a catastrophic illness
 - f. Financial challenges for health care can quickly result from loss of a job and depletion of savings
 - g. Financial challenges combined with medical conditions that require uninterrupted treatment (e.g., TB, HIV/AIDS, diabetes, hypertension, mental disorders) or that occur in the presence of unexpected illness or injury, can deprive the patient of basic health care services
 - h. In addition, poor health is closely associated with homelessness, where rates of chronic or acute health problems are extremely high
 3. Bariatric Patients
 - a. Definition
 - b. Risk factors:
 - c. Associated with an increased risk for the following:
 - d. Long-term health effects
 - e. Special considerations
 - f. Patient handling issues
 - g. Technology Assisted/Dependent
 - h. Ventilation devices
 - i. Apnea monitoring/Pulse Oximetry
 - j. Long term vascular access devices
 - k. Dialysis shunts
 - l. Nutritional support (i.e. gastric tubes)
 - m. Elimination diversion
 4. Hospice Care and Terminally Ill
 - a. What is hospice?
 - b. EMS Intervention
 - c. DNR (do not resuscitate) orders
 5. Tracheostomy care/Dysfunction
 6. Technology Assisted Patients
 - a. Profile of patients requiring adaptive devices
 - b. Adaptive devices
 - c. Assessment
 - d. Management approach
 7. Pediatrics Developmental Disabilities
 - a. Impaired or insufficient development of the brain that causes an inability to learn at the usual rate (developmental delay)
 - b. Causes include the following:
 - c. Signs of developmental delay
 - d. Accommodations that may be necessary when providing patient care include allowing adequate time for obtaining a history, performing assessment and patient management procedures, and preparing the patient for transport
 - e. Down Syndrome
 - f. Autism
 8. Emotionally impaired
 - a. People with emotional impairments include those with the following:
 - b. Special considerations
 9. Physical Needs/Challenges
 - a. Hearing Impairments
 - b. Visual Impairments
 - c. Speech impairments
 - d. Paraplegia/Quadriplegia
 10. Patients with Communicable Diseases
 - a. Overview
 - b. Special considerations
 11. Terminally Ill Patients
 - a. Overview
 - b. Special considerations
 12. Mental Needs/Challenges
 - a. Mental illness refers to any form of psychiatric disorder
 - b. Psychoses
 - c. Neuroses
 - d. Special considerations
 - e. If the patient appears to be paranoid or shows anxious behavior, ask the patient's permission before beginning any assessment or performing any procedure
 - f. These patients experience illness and injury like all other patients
 13. Specific Challenges Created by Chronic Conditions\
 - a. Arthritis
 - b. Cancer

- c. Cerebral Palsy (CP)
- d. Cystic Fibrosis (CF) (mucoviscidosis)
- e. Multiple Sclerosis (MS)
- f. Muscular Dystrophy
- g. Poliomyelitis (polio)
- h. Previously head-injured patients
- i. Spina Bifida
- j. Myasthenia Gravis
- G. EMS Operations, Hazardous Materials, and Mass Casualty Incidents
 - 1. Safe Vehicle Extrication
 - a. Role of EMS in Vehicle Extrication
 - b. Personal Safety
 - c. Patient Safety
 - d. Situational Safety
 - e. Determine Number of Patients (implement local multiple casualty incident protocols if necessary)
 - 2. Use of Simple Hand Tools
 - a. Hammer
 - b. Center Punch
 - c. Pry Bar
 - d. Hack Saw
 - e. Come-Along
 - 3. Special Considerations for Patient Care
 - a. Removing Patient
 - b. Assist With Rapid Extrication
 - c. Move Patient, Not Device
 - d. Use Sufficient Personnel
 - e. Use Path of Least Resistance
 - 4. Risks and Responsibilities of Operating on the Scene of a Natural or Man-Made Disaster
 - a. Role of EMS
 - b. Safety

VI. METHODS OF INSTRUCTION:

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

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. Oral Presentations Skills Laboratory Evaluation using standardized NREMT
- B. **Frequency**
 - 1. Recommend weekly examinations.
 - 2. Homework assigned for each topic completed
 - 3. Midterm and Final examination 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
- C. Clinical Rotation garment approved by Clinical site