

Introducing Emergency Medicine to Medical Students

Lecture Objectives:

1. Describe a curriculum for medical students on an emergency medicine rotation.
2. Review methods of assessment for differentiating medical students' abilities while on rotation in the emergency department.
3. Review important supplemental educational materials for providing assistance with advising medical students interested in becoming emergency physicians.
4. Compare medical student rotations in emergency medicine among different institutions and health care systems internationally.

References:

Website – saem.org – Pages for medical students, section for medical student educators, section for faculty development

DeBehnke et al. Undergraduate Curriculum. *Academic Emergency Medicine*. Nov. 1998;5:1110-1113.

Goals for global EM curriculum: (DeBehnke *et al*)

The first year of the EM curriculum should focus on first aid for common emergencies.

The overall goal of the second year curriculum is to integrate the basic concepts of clinical emergency care with the course work in pathology, pathophysiology and pharmacology.

The third year curriculum should address the diagnosis and management of common emergencies with continued emphasis on basic procedural skills.

The fourth year curriculum should develop the student's bedside skills including diagnosis and management of life threatening conditions in the undifferentiated patients.

Example Curriculum:

(taken from the Michigan State College of Human Medicine fourth year EM elective rotation)

Goals: During the Emergency Medicine Clerkship, students will:

1. Acquire a core knowledge base in emergency medicine, including recognition of life-threatening conditions and initial basic resuscitation
2. Be exposed to unscreened, undifferentiated patients with common presenting complaints of acute illness and injury
3. Develop skills in quickly establishing a doctor/patient relationship with a diverse ED patient population, while assessing the patient's complaint in an effective and efficient manner.
4. Learn clinical problem solving in emergency medicine, including prioritization, rapid decision making, concurrent therapy and diagnosis, and cost-effective clinical differentiation of common and catastrophic problems.
5. Develop and improve skills in basic emergency medicine and ambulatory procedures.
6. Gain an understanding of the teamwork concept, and the relationship between the emergency department and other hospital departments, medical staff consultants, and pre-hospital systems.
7. Continually develop professional attributes and behaviors.

Implementation:

- 1) The case of each patient seen by the student will be presented to an emergency medicine faculty, emphasizing the pertinent history and physical, differential diagnosis, management and disposition plan. The student will be given immediate feedback and teaching. The student will participate in ongoing care.
- 2) Students will perform selected emergency medicine procedures (phlebotomy; IVs; NG tube placement; urinary catheterization; suturing and wound care; lumbar puncture; basic and advanced airway procedures; radiographic and ECG interpretation) under supervision.
- 3) Problem oriented case discussions, procedure labs, computer based CD and Internet modules, and lectures will complement the clinical experience. Required readings will be assigned.

Specific Topic Objectives:

At the end of the clerkship, the student is expected to have achieved the following objectives through reading, observation, lecture attendance and direct clinical experiences.

AIRWAY:

1. Identify six indications for intubation
2. List the maximum delivered oxygen concentration using nasal cannula, partial rebreather mask, Venturi mask and non-rebreather mask
3. Describe the proper technique for orally intubating a patient
4. Describe the process for rapid sequence intubation.

CHEST PAIN:

1. Given case examples of patients with chest pain, identify which patient is likely to have ischemic heart disease.
2. Match the correct description of ECG findings with the following: classic MI, subendocardial infarction, and unstable angina.
3. Identify a patient as 1) qualifying for thrombolytic therapy, 2) needing ICU admission, 3) intermediate care admission, or 4) discharge scenarios with appropriate follow-up.
4. Identify clinical history and physical findings consistent with chest pain caused by dissecting aortic aneurysm, pulmonary embolism, pneumothorax or musculoskeletal pain.
5. Describe appropriate therapy for the treatment of cardiac arrhythmias including ventricular tachycardia, heart blocks, bradycardia and asystole.
6. Choose the key points of information that distinguishes between patients having a hypertensive urgency or emergency.

TRAUMA:

1. Identify the mechanisms of injury with a high potential for serious injury.
2. Outline the components of a primary and secondary trauma survey.
3. Identify the five immediate life-threatening problems to be constantly addressed throughout the management of a trauma patient.
4. Estimate the depth and percent body surface area involvement of a burn and calculate the appropriate fluid resuscitation.
5. Discuss the indications for obtaining radiographs of the cervical spine in a conscious traumatized patient.
6. Given a set of multiple trauma cases, identify those patients requiring immediate surgical intervention.

SHOCK:

1. Discuss the etiologies and pathophysiologic mechanisms of shock.
2. Identify the physical findings associated with patients in shock.
3. Discuss the appropriate initial therapy for a patient in shock secondary to: sepsis, neurogenic injury, hemorrhage, and cardiac failure.
4. Insert at least three successful IV lines.

VAGINAL BLEEDING:

1. Describe the evaluation and management of a patient with a suspected ectopic pregnancy.
2. Discuss the causes of vaginal bleeding in a nonpregnant patient.
3. Discuss the evaluation and treatment of pregnant patient with vaginal bleeding in the second or third trimester.

TOXICOLOGY:

1. Discuss the initial stabilization of a patient who has taken an overdose.
2. Describe the five general principles of the management of poisoned patients.
3. Identify which patients should have: an emetic, gastric lavage, charcoal and/or whole bowel irrigation.
4. Identify three major toxic effects of cyclic antidepressants.
5. List the appropriate management principles of alcohol intoxication.

FEBRILE ILLNESS:

1. Discuss the evaluation of a fever in a neonate, infant, toddler and older child.
2. Discuss the indications for hospitalization in an adult with a fever.
3. Given a list of infections, match the likely causative organism and the appropriate antibiotic or symptomatic therapy.
4. Demonstrate or verbalize the procedure for a lumbar puncture.

ENVIRONMENTAL EXPOSURE:

1. Identify the risk factors for the development of a heat illness.
2. List the rewarming techniques used for a patient with hypothermia, from the least invasive to the most invasive.
3. Discuss the treatment of the near-drowning victim.

MUSCULOSKELETAL PAIN/INJURY:

1. Describe the evaluation and management of a patient with low back pain.
2. Discuss the indications for obtaining radiographs of common extremity injuries.
3. Describe the management of common extremity sprains.
4. Discuss the management for common dislocations.
5. Demonstrate the ability to make basic splints: volar, thumb spica, ulnar gutter, posterior arm, leg, and stirrup (sugar tong).

ABNORMAL BEHAVIOR:

1. Describe the evaluation of a suicidal patient.
2. Describe the evaluation and management of a violent patient in the Emergency Department – including protective measures for staff and the patient.
3. Differentiate those symptoms that are most representative of organic disorders from those more representative of functional disorders.

HEADACHE:

1. Match key historical findings with their significance in diagnosing headache etiologies.
2. List the indications for obtaining a head CT scan in a patient with a headache.
3. Describe the narcotic and non-narcotic therapeutics available for treatment of a migraine headache.
4. For patients with a headache being discharged, describe three problems that the patient should be aware of that should prompt a return to the Emergency Department.

WOUND CARE:

1. Identify the factors associated with impaired wound healing.
2. Discuss anesthetic use, suturing techniques and dressings for repairing common wounds.
3. List the indications for the use of tetanus toxoid, tetanus immunoglobulin, rabies and antibiotic prophylaxis.
4. Demonstrate the correct technique for suturing a simple wound.

RESUSCITATION:

1. Choose the most important factor, which determines the patient's outcome from a cardiac arrest.
2. List the two most important treatment modalities in the ACLS algorithm for a patient in ventricular fibrillation.
3. Discuss at least four methods for oxygenating, ventilating and obtaining control of the airway of a patient.
4. Describe where and how to obtain peripheral or central access in a patient in cardiac arrest.

ALTERED MENTAL STATUS:

1. List the critical actions in the management of a comatose patient.
2. Describe the diagnostic studies used to evaluate the patient with altered mental status.
3. Identify the indications for a head CT scan in the evaluation of the patient with altered mental status.
4. Discuss the management of seizures in the Emergency Department.
5. Discuss the diagnostic studies and disposition in a patient with syncope.
6. Describe the mini-mental status exam.

EM Clerkship Evaluation

Student Name: _____

Institution/Medical School: _____

Rotation Evaluator: _____

Dates of Rotation: _____

PERFORMANCE	Outstanding	Excellent	Good	Average	Below Average
Medical Knowledge					
Formulation of Differential Diagnosis					
Clinical Judgment					
Data Collection & Documentation					
Procedural Skills					
Total Patient Care					
Motivation					
Responsibility					
Maturity, Poise					
Professionalism					

	Honors	High Pass	Pass	Low Pass	Fail
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Overall Grade

SPECIFIC COMMENTS:

Signature: _____

Title: _____ Date: _____