DES MOINES UNIVERSITY
OSTEOPATHIC AND PODIATRIC MEDICINE • HEALTH SCIENCES

EMERGENCY MEDICINE

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General Description

Required Rotation (in 3rd or 4th year)

The clinical rotation in emergency medicine is a four (4) week experience structured to develop the student's decision-making, cognitive skills and to apply didactic material in a clinical setting. All students will be required to complete this rotation in either their third or fourth year of osteopathic medical school. By the nature of emergency department staffing, students may be required to work evenings, nights, or weekend shifts. It is an expectation that students will staff the emergency department for no less than thirty-six hours, and no more than sixty hours per week.

Purpose

Clinical experiences are intended to assist the students' transition from didactics to integrated clinical evaluation, decision-making, and management of patients with emergency medical problems. In addition to gaining specific skills in emergency medicine during this rotation, the student should also continue to develop skill in systematic medical problem solving and patient management abilities, establish or reinforce patterns of independent learning and self-evaluation, and improve skills in communication and medical record keeping.

At the completion of this rotation, the student should have enhanced broad educational goals, including:

- development of systematic medical problem solving and patient management abilities in the emergency setting;
- expanded knowledge of common emergencies, their diagnosis and management
- improved emergency clinical skills, including both diagnostic and therapeutic procedures

Students are expected to assist in the management of common emergency problems, under supervision. The student should also develop fundamental psychomotor skills by performing routine basic procedures under direct supervision.

Objectives

We recognize that four weeks is insufficient time to cover a comprehensive list of objectives. Clearly, subjects addressed in any clinical rotation are dependent on the number of patients and kinds of disease entities presenting to a particular service. Nevertheless, certain minimum content **must** be addressed, either by clinical exposure or by didactic materials so that students are prepared for Board examinations and other testing. Therefore, each of the following sections contains relatively broad, basic objectives for which students are responsible. Affective objectives are fundamental.

Affective Objectives

1. Gain confidence in the rapid establishment of a patient- physician relationship in the emergency setting.
2. Understand how to react (attitude and behavior) and assist in an emergency situation.
3. Understand the psychosocial, social and economic status of emergency department patients, in particular those issues relating to alcohol or drug use and abuse.

Basic Psychomotor Objectives

At the completion of the emergency medicine rotation, the student should be able to apply osteopathic medical principles and practices to:

1. Perform and record an abbreviated history, focused physical examination, and obtain other pertinent history quickly and efficiently.
2. Rapidly assess emergency department patients, recognizing the signs and symptoms that distinguish a significantly ill patient from one with a minor illness.
3. Establish a differential diagnosis of common illnesses presenting in an emergency setting.
4. Prioritize patient management.
5. Demonstrate knowledge of advanced and basic life support and resuscitation methods.
6. Use laboratory tests appropriately.
7. Initiate treatment with supervision.
8. Recognize the need for and appropriateness of consultation and/or referral.
9. Anticipate possible treatment actions, reactions, and interactions.

In addition, students should be able to demonstrate

1. knowledge of advanced and basic life support and resuscitation
2. knowledge of first hour management in medical and surgical emergencies
3. knowledge of pertinent pathophysiology in the urgent and emergent patient, to include shock, fluid imbalance, and cardiopulmonary resuscitation.
4. knowledge of rapid stabilization techniques for critically ill patients
5. knowledge of chest tube placement, endotracheal intubation, suturing techniques and other techniques as directed.
6. knowledge of when to transfer a patient to a higher-level facility
7. familiarity with EMTALA laws governing medical screening, transfer and disposition of a patient
8. understanding of clearing a C-spine (NEXUS Criteria and Canadian CSpine Rules)

Basic Cognitive Objectives

For each of the following core emergency medicine areas, the student should be able to:

- obtain a rapid, accurate history.
- perform an appropriate, focused physical examination.
- develop a working differential diagnosis.
- outline an approach to management (considering all available therapeutic methods) and disposition:

1. Abdominal emergencies
    - blunt or penetrating trauma
    - gastrointestinal hemorrhage
    - perforated viscus
    - intestinal obstruction
    - appendicitis
    - pancreatitis
    - diverticulitis
    - cholecystitis
    - incarcerated hernia
2. Airway emergencies
    - epiglottitis
    - foreign body aspiration
    - facial and tracheal trauma
3. Cardiovascular emergencies
    - unstable angina pectoris
    - acute myocardial infarction
    - cardiac arrest
    - penetrating and blunt cardiac trauma
    - acute cardiac rhythm disturbances
    - hypertensive emergencies
    - pulmonary edema

4. Dental emergencies
    - post extraction hemorrhage
    - tooth avulsion or fracture
    - dental abscess
5. Endocrine emergencies
    - diabetic ketoacidosis
    - insulin shock and other severe hypoglycemic states
    - thyroid storm
6. ENT emergencies
    - foreign body, ear canal/nasal passages
    - epistaxis
    - labyrinthitis
    - tonsillar abscess
7. Eye emergencies
    - corneal abrasion
    - acute glaucoma
    - intraocular foreign bodies
    - hyphema
    - conjunctivitis
    - iritis
    - trauma
    - orbital vs periorbital cellulitis
8. Fluid and electrolyte disturbances
    - sodium, potassium and calcium imbalances
    - metabolic/respiratory acidosis/alkalosis
    - severe dehydration
9. Obstetric/Gynecologic emergencies
    - ectopic pregnancy
    - spontaneous abortion
    - post-abortion complications (e.g. sepsis, retained products of conception, etc)
    - severe uterine bleeding
    - ovarian torsion
    - sexual assault
10. Hematologic emergencies
    - acute blood loss
    - sickle cell crisis
11. Infectious emergencies
    - meningitis/encephalitis
    - sepsis/SIRS
    - pyelonephritis
    - abscess
    - tetanus/rabies
12. Musculoskeletal emergencies
    - fractures/dislocations
    - spinal trauma
13. Neurologic emergencies
    - cerebral infarction (stroke) and TIA
    - seizure
    - vertebrobasilar syndrome
    - concussion
    - dementia vs delirium
    - subdural and subarachnoid hemorrhage
14. Psychologic emergencies
    - mania
    - suicidal ideation/suicide attempt
    - anxiety disorders
    - clinical depression

15. Pulmonary emergencies
    - asthma
    - acute bronchitis/pneumonia
    - acute respiratory failure
16. Toxicologic emergencies
    - intoxication of unknown type
    - carbon monoxide inhalation
    - narcotic overdose
    - polydrug ingestion
    - EtOH
17. Trauma
    - multisystem trauma
    - burns
    - gunshot and stab wounds
    - lacerations
    - shock
18. Urologic emergencies
    - ureterolithiasis
    - testicular torsion
    - renal trauma (blunt and penetrating)
    - UTI/urosepsis

Implementation

Course objectives are to be accomplished in a university-affiliated hospital or clinical facility, under supervision. Basic objectives **must** be covered during the rotation to assure adequate student preparation for the end of rotation exam (COMAT) as well as Board examinations. The use of diverse methods appropriate to the individual and the clinical site are encouraged, but patient-centered teaching is optimal.

Didactic methods to achieve required objectives include:

- reading assignments
- lectures, including those prepared and given by the student
- computer-assisted programs (if available)
- student attendance at/participation in formal clinical presentations by medical faculty
- emergency medicine case study assignments

Clinically oriented teaching methods may include:

- supervised and critiqued clinical workups of patients admitted to the emergency medical service
- assignment of limited co-management responsibilities under supervision
- assigned, case-oriented reading case presentations

Three levels of achievement are identified:

- familiarity with a variety of medical procedures through observation and assisting
- proficiency in clinical procedures through actual supervised performance
- Awareness of the availability of various medical procedures and their use.

Evaluation of student should be completed on the E*Value on-line system within one week from completion of the rotation. On the last day of service, the supervising physician should review the student's performance with the student. A student's signature simply indicates that the student has received a grade directly from the attending; it does not indicate agreement with the grade received.

Texts and Resources

Required Assignment Text

Tintinalli,J., Tintinalli's Emergency Medicine, A Comprehensive Study Guide 7th Ed. 2011 McGraw-Hill
The following chapters are to be read during the rotation:

- 1 - Emergency Medical Services
- 6 – Disaster Preparedness & Response
- 13 – Basic Cardiopulmonary Resuscitation in Adults
- 14 – Resuscitation of Neonates
- 15 – Resuscitation of Children
- 16 – Resuscitation issues in Pregnancy
- 17 – Ethical Issues of Resuscitation
- 19 – Acid-Base Disorders
- 20 – Blood Gases
- 21 – Fluids & Electrolytes
- 22 – Cardiac Rhythm disturbances
- 23 – Pharmacology of Antiarrhythmics
- 24 – Pharmacology of Vasopressor Agents
- 25 – Approach to the patient in shock
- 26 – Fluid & Blood resuscitation
- 27 – Anaphylaxis, Acute Allergic Reactions & Angioedema
- 28 – Noninvasive Airway Management
- 29 – Pediatric Airway Management
- 30 – Tracheal intubation and mechanical ventilation
- 38 – Acute Pain management in Adults
- 39 – Pain management in infants and children
- 40 – Local & regional anesthesia
- 41 – Procedural Sedation
- 43 – Evaluation of wounds
- 44 – Wound preparation
- 45 – Methods for Wound Closure
- 52 – Chest Pain: Cardiac or not
- 53 – Acute Coronary Syndromes
- 54 – Cardiogenic Shock
- 56 – Syncope
- 57 – Congestive Heart Failure
- 60 – Thromboembolism
- 61 – Systemic and pulmonary hypertension
- 62 – Aortic Dissection and Related Aortic Syndromes
- 63 – Aneurysm of the Aorta and Major Arteries
- 63 – Occlusive Arterial Disease
- 65 – Respiratory Distress
- 68 – Pneumonia
- 72 – Acute Asthma in Adults
- 73 – COPD
- 74 – Acute Abdominal Pain
- 91 – Acute Renal Failure
- 100 – Abdominal Pain and Pelvic Pain in the Nonpregnant Patient
- 101 – Ectopic Pregnancy & Emergencies in the First 20 weeks of Pregnancy
- 104 – Emergencies after 20 weeks of Pregnancy
- 110 – Emergency Care of Children
- 111 – Neonatal Emergencies
- 113 – Fever & Serious Bacterial infection
- 144 – Sexually Transmitted Diseases
- 159 – Headache & Facial Pain

- 161 – Stroke and TIA
- 162 - Altered Mental Status
- 170 – General Management of Poisoned Patients
- 202 – Frostbite and cold injuries
- 204 – Heat emergencies
- 205 – Bites & Stings
- 220 – Diabetic Ketoacidosis
- 226 – Anemia
- 236 – Eye emergencies
- 237 – Common Disorders of the Ear
- 239 – Epistaxis & Nasal fractures
- 243 – Approach to Skin Disorders in the ED
- 244 – Treatment of Skin Disorders in the ED
- 250 – Trauma in Adults
- 251 – Trauma in Children
- 252 – Geriatric Trauma
- 253 – Trauma in Pregnancy
- 254 – Head Trauma in Adults and Children
- 255 – Spine & Spinal Cord trauma
- 265 – Initial Evaluation and Management of Orthopedic Injuries
- 276 – Neck and back pain
- 283 – Behavioral Disorders: Emergency Assessment
- 285 – Psychotropic Medications and Rapid Tranquilization
- 290 – Child Abuse and Neglect
- 291 – Female and male sexual assault
- 293 – Abuse of the elderly and impaired

Required Reference Texts

Johns Hopkins, Harriet Lane Handbook, W.B. Saunders.
Manual of Medical Therapeutics, Washington University, Lippincott Williams and Wilkins.
Hall, B., Sauer's Manual of Skin Diseases, Lippincott, Williams and Wilkins.

Additional Helpful Reading Resources

Lang Series:

1. Current Emergency Diagnosis and Treatment
2. Current Medical Diagnosis and Treatment
3. Current Pediatric Diagnosis and Treatment
4. Current Surgical Diagnosis and Treatment

Assignments

1. From the assignment text, read the appropriate sections for each of the core areas listed in the Cognitive Objectives section.
2. Supplement readings for patients seen each day from the required reference texts. Be prepared for daily discussion at the direction of the preceptor physician.

Emergency Medicine POST-ROTATION EXAMINATION

Des Moines University Department of Specialty Medicine requires the completion of the NBOME-COMAT Emergency Medicine subject examination with a passing standard score of 80 or greater. The NBOME-COMAT Emergency Medicine exam is a web-based exam administered by the NBOME. This exam is accessed via the NBOME website consists of 125 test items, with a 2.5 hour time limit and a 5 minute tutorial prior to starting the exam. A DMU approved proctor at your rotation site must proctor your exam. This exam will provide the student an opportunity to be informed of his or her progress nationally. **The emergency medicine examination must be taken on the Thursday or Friday of the last week of the required emergency medicine rotation. However, if this is not possible, you must contact the department via phone or email for consideration of an extension in completing this exam. In addition, the student's first emergency medicine rotation (will be their required rotation) and as such, this is the time when they will be required to take the NBOME-COMAT in Emergency Medicine.**

This examination is based on the objectives in this syllabus, the material learned in the required readings, and the lectures delivered during the first two years of classroom, laboratory and simulation experiences that each student has completed prior to beginning the clerkship .The breakdown of topics for this post rotation exam can be found at the following link http://www.nbome.org/comat-pd.asp. The post rotation exam should be arranged, by the student, through the DMU Specialty Medicine Department and the approved DMU proctor at the site. This exam will provide the student an opportunity to be informed of his or her progress in the clerkship.

A remediation COMAT exam will be available to those not receiving the standard score of 80 or above on the initial exam. The emergency medicine retake exam is to be taken within two-weeks of the exam failure email notification**.**

Those failing the retake by not receiving a standard score of 80 or above will fail the rotation and thus be required to re-take the rotation. The student will be notified by the Specialty Medicine Department Academic Assistant once the grades are received.

For any passing score on the retake exam, a standard score of 80 will be reported to the office of Clinical Affairs.

The student is responsible for making all arrangements including: scheduling of the exam time with the Division of Specialty Medicine, scheduling time away from their rotation that they are presently on, and all travel arrangements and expenses.

Failure to complete the required examinations within the specified time period will result in failure of the rotation.