

Adult Emergency Medicine Rotation

King Abdulaziz University Hospital
6th year pharmacy interns

Rotation Title: **Adult Emergency Medicine**

Rotation Length: **4 weeks**

Primary Preceptor(s) Name(s): **Hussain Bakhsh, PharmD, BCPS**

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Hours: Variable

General Description

The Adult Emergency Medicine rotation is a required learning experience at King Abdulaziz University Hospital. There are 63 beds in the emergency department (ED) including a 3-bed triage bay, and a 5 bed fast track unit. ED staff is comprised of physicians, nurses, respiratory therapists, and the ED Pharmacist (EDP). Hospital staff physicians and consultants from specialty disciplines including cardiology, neurology, surgery may also participate in the care of patients in the ED. The EDP is responsible for ensuring safe and effective medication use for all patients in the ED during the hours of 08:00-14:00. These goals are achieved by the EDPs participation in multidisciplinary resuscitation efforts including cardiac arrest, rapid sequence intubation, chest pain and stroke team activations, and procedural sedation. Additionally, the EDP performs medication order verification, collects medication history information, and provides consultative services for drug therapy management.

The emergency medicine rotation will help students become familiar with the key skills utilized as a clinical pharmacist in the Emergency Department (ED). It will provide the student with the opportunity be exposed and participate in the essential roles of the pharmacist in the ED; including optimization of medication use through interaction with the Emergency Medicine team; order review; drug therapy monitoring; participation in high-risk procedures including resuscitation and other time dependent emergencies; monitoring use of high-risk medications; medication procurement and preparation; and provision of drug information. The goal of this rotation is to provide a clinical pharmacy practice environment for students to become familiar with the role of the pharmacist in the ED, obtain experience in working with an interdisciplinary team and to work to optimize pharmacotherapeutic management and improve patient care and safety through helping to provide the services listed above. The student will participate in several activities to improve the student's working knowledge and experience with ED patients – which include a wide scope of severity from ambulatory to the critically ill.

Goals and Objectives

The preceptor and student should agree on which goals and objectives are appropriate for the rotation based on rotation site, rotation objectives delineated by School/College of Pharmacy, rotation length, and student interests. The following are a list of potential goals and objectives:

1. Outline the workflow and pharmacy operations in the Emergency Department, as well as outline patient flow from prehospital setting to hospital admission and identify opportunities for practice improvement
2. Demonstrate ability to accurately and safely interpret medication orders, including identification and resolution of problems, compound and dispense medications.
3. Develop collaborative professional relationships and demonstrate good communication skills when providing verbal information, presentations and recommendations to the medical team.
4. Discuss pharmacotherapeutic topics and issues in the emergency medicine setting as detailed in the potential topics component.

Activities

During the course of the rotation, the student should participate in some of the following activities as assigned by the preceptor:

1. Attend and participate in all medical and traumatic emergencies under the supervision of the clinical pharmacist/preceptor.
2. Complete and discuss all assigned readings on time as assigned by preceptor. Prepare and lead at least one topic discussion on a relevant emergency medicine topic.
3. Review medication profiles and pertinent laboratory data for assigned patients in the emergency department setting for appropriateness of therapeutic regimens, drug interactions, and endpoint monitoring.
4. Monitor and evaluate drug therapy for assigned emergency medicine patients and make recommendations to optimize outcomes in the areas of drug selection, dose, and indications for use.
5. Be proactive in identifying, preventing, and resolving drug-related problems.
6. Monitor several patients' progress on the floor post-admission.
7. Perform medication history and reconciliation on all assigned patients.
8. Present and discuss assigned patients with preceptor.
9. Recognize and report Adverse Drug Reactions (ADRs) on the appropriate ADR form as directed by preceptor.
10. Provide responses to questions regarding drug therapy, drug administration and other pharmacotherapeutic issues.
11. Answer drug information questions upon request in a timely manner, utilizing appropriate resources.
12. Provide written, referenced responses to drug information questions as directed by preceptor.
13. Present a formal oral/written patient case presentation as directed by preceptor.
14. Present a journal club article on a relevant clinical publication as directed by preceptor.
15. Participate in emergency medicine initiatives and assist in ensuring and monitoring compliance with guidelines.
16. Participate in all assigned pharmacy and interdisciplinary meetings relative to care of emergency medicine patients such as:
 - a. P & T Committee
 - b. ED and department of pharmacy meetings that discuss the medication use system and patient safety (e.x. Patient safety committee, pharmacy medication management meeting)
 - c. Pharmacy Practice Meeting
 - d. Emergency Medicine Conference
 - e. Pharmacy Department Student and Resident Conferences
 - f. Various other meetings as directed
17. Complete other activities as assigned by preceptor.

Topic Discussions

As time permits, preceptors should schedule time when they can discuss various topics with the student. Background readings should be provided when available. The student should be expected to lead at least one topic discussion towards the end of the rotation.

Potential Topics

Please check Appendix A at the end of the rotation tool. It is an expanded list of suggested topics, adapted from the PGY2 ASHP PGY 2 residency for emergency medicine.

Projects

The student may be assigned at least one longitudinal emergency medicine project. The preceptor and student should choose a project during the second week of rotation (see example projects listed below). Some projects listed may be more appropriate for students on extended- length (e.g., several months in length) rotations, which should be considered when determining project(s) to be completed. Student should present findings / deliverables to the appropriate audience during the rotation.

Example Projects

- Review use of blood products for reversal of NOACs
- Update of CDC vaccination recommendations
- DUE of medication shortages and impact on LOS in ED and alternative treatments

Evaluation

- The preceptor will evaluate the student on achievement of the predefined goals and objectives for the rotation. Students will also be asked for any specific personal goals for the rotation.
- Students will also be evaluated on their interactions with pharmacists, pharmacy technicians, physicians, nurses, and other staff within the organization, as well as daily discussions with the preceptor concerning patient care and discussion topics.
- The evaluation will include an oral mid-point evaluation to assess progress. The preceptor and student will complete a final written evaluation at the conclusion of the rotation according to school of pharmacy criteria.

Website Resources

Website	Resource
American Society of Health-System Pharmacists (ASHP)	http://www.ashp.org/
ASHP Emergency Care Resource Center	http://www.ashp.org/emergencycare
Infectious Disease Society of America (IDSA)	http://www.idsociety.org/
IDSA Practice Guidelines	http://www.idsociety.org/IDSA_Practice_Guidelines/
Institute for Safe Medication Practices	http://www.ismp.org/
American College of Emergency Physicians	http://www.acep.org/
American Family Physician	http://www.aafp.com/
The American Journal of Emergency Medicine	http://www.ajemjournal.com/
The Eastern Association for the Surgery of Trauma (EAST)	http://www.east.org/
EAST Practice Management Guidelines	http://www.east.org/resources/treatment-guidelines
CDC STD Guidelines	http://www.cdc.gov/std/treatment/2010/default.htm
The Emergency Pharmacist Research Center	http://www.emergencypharmacist.org/
Micromedex	http://www.micromedex.com/

- Tintinalli's Emergency Medicine – A Comprehensive Study Guide, 7th edition, by Judith E. Tintinalli, M.D., et al., McGraw-Hill Book Co., 2011. <http://www.accessmedicine.com/resourceTOC.aspx?resourceID=40>
- Acad Emerg Med; The 3-Minute Emergency Medicine Medical Student Presentation: A Variation on a Theme. Davenport C., Honigman B., Druck J. 2008 Jul; 15(7):683-7

Professional Emergency Medicine Organizations

Website	Resource
American Academy of Emergency Medicine (AAEM)	http://www.aaem.org/index.php
American College of Osteopathic Emergency Physicians (ACOEP)	http://www.acoep.org/
American College of Emergency Physicians	http://www.acep.org/
Society for Academic Emergency Medicine (SAEM)	http://www.saem.org/
American Academy of Clinical Toxicology	http://www.clintox.org/
American Trauma Society	http://www.amtrauma.org/

Educational Organizations

Website	Resource
American Osteopathic Board E.M.	http://www.aobem.org/
E.M. Resident Association (EMRA)	http://www.emra.org/
Society for Academic Emergency Medicine (SAEM)	http://www.saem.org/

Emergency Medicine Journals

Website	Resource
Academic Emergency Medicine	http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1553-2712
Annals of Emergency Medicine	http://www.annemergmed.com/
Clinical Pediatric Emergency Medicine	http://www.clinpedemergencymed.com/
Clinical Toxicology	http://informahealthcare.com/loi/ctx
Emergency Medicine News	http://journals.lww.com/em-news/Pages/default.aspx
Pediatric Emergency Medicine	http://journals.lww.com/pec-online/pages/default.aspx
Resuscitation	http://www.resuscitationjournal.com/
The Journal of Emergency Medicine	http://www.jem-journal.com/
The Journal of Medical Toxicology	http://www.springer.com/biomed/pharmacology+%26+toxicology/journal/13181
The Journal of Trauma and Acute Care Surgery	http://journals.lww.com/jtrauma/pages/default.aspx

Other Useful Websites

1. www.uptodate.com
2. www.mdconsult.com
3. www.pubmed.com
4. www.dynamed.com
5. www.emedicine.com
6. www.emcrit.org

Appendix A: Suggested topics

Adapted from the ASHP – PGY-2 Residency for Emergency Medicine

<http://www.ashp.org/DocLibrary/Accreditation/Regulations-Standards/Emergency-Medicine.aspx>

1. Cardiovascular
 - a. Acute Aortic Dissection
 - b. Acute Coronary Syndromes
 - c. Acute Decompensated Heart Failure/Congestive Heart Failure Exacerbations*
 - d. Arrhythmias
 - e. Hypertensive Emergencies
 - f. Pericardial Tamponade
 - g. Ventricular Assist Devices
2. Dermatology
 - a. Erythema Multiforms
 - b. Poison Ivy
 - c. Rash
 - d. Stevens Johnson Syndrome/Toxic Epidermal Necrolysis
 - e. Tinea
3. Ears, Nose, and Throat
 - a. Epiglottitis
 - b. Epistaxis
 - c. Otitis
 - d. Peritonsillar abscess
 - e. Pharyngitis
4. Endocrine/Metabolic
 - a. Acid-base Disorders
 - b. Adrenal Crises/Insufficiency
 - c. Diabetic ketoacidosis/Hyperosmolar Hyperglycemic State
 - d. Fluid and Electrolytes
 - e. Hypoglycemia/Hyperglycemia
 - f. Syndrome of Inappropriate Antidiuretic Hormone Secretion
 - g. Thyroid Disorders
5. Environmental Emergencies/Bioterrorism and Mass Casualty
 - a. Altitude Illness
 - b. Bites/Stings/Envenomations
 - c. Carbon Monoxide Exposure

- d. Decontamination/ Advanced HAZMAT Life Support
- e. Electrical Injury/Lightning
- f. Emergency Preparedness
- g. National Incident Management System
- h. Drowning/Near Drowning
- i. Occupational Exposures
- j. Poisonous Plants
- k. Thermoregulation

6. Gastrointestinal

- a. Acute appendicitis
- b. Crohn's/Diverticulitis/Ulcerative Colitis
- c. Cholecystitis/Cholangitis/Pancreatitis
- d. Constipation (Acute/Chronic)
- e. Diarrhea
- f. GERD/Gastritis/Peptic Ulcer Disease
- g. Gastrointestinal Bleeding
- h. Nausea/Vomiting
- i. Obstruction

7. Gout

- a. Acute Exacerbation

8. Hematology

- a. Anemia
- b. Acquired Bleeding Disorders/Hemolytic Anemia
- c. Blood Loss and Replacement
- d. Clotting Disorders
- e. Coagulopathies
- f. Drug-induced Hematologic Disorders
- g. Hemophilia and von Willebrand Disease
- h. Platelet Disorders
- i. Sickle Cell
- j. Thromboembolic Disease
- k. Thrombosis

9. Hepatic

- a. Complications of Cirrhosis
- b. Hepatic Failure
- c. Jaundice

10. Infectious Diseases

- a. CNS Infections
- b. Endocarditis
- c. Infections in the Immunocompromised Host
- d. Intra-abdominal Infections
- e. Needle Stick Injuries
- f. Pulmonary Infections
- g. Sepsis
- h. Sexually Transmitted Diseases
- i. Skin and Soft Tissue Infections
- j. Surgical Prophylaxis

- k. Travel Related Illness (Food, Vector, Water borne)
- l. Unexplained Fever
- m. Urinary Tract Infections
- n. Vaccinations
- o. Vermin
- p. Viral
- q. Wound Infections/Human or Animal Bites

11. Neurology

- a. Altered Mental Status
- b. Ataxia and Gait Disturbances
- c. Headache
- d. Intracranial Hemorrhage
- e. Intracranial Pressure Management
- f. Ischemic Stroke
- g. Seizures
- h. Trigeminal neuralgia
- i. Vertigo

12. Obstetrics and Gynecology

- a. Ectopic Pregnancy
- b. Emergencies (Prenatal/Perinatal/Delivery/Postpartum)
- c. Hyperemesis
- d. Miscarriage/Spontaneous Abortion
- e. Preeclampsia/Eclampsia/HELLP
- f. Vaginal Bleeding

13. Ocular/Ophthalmology

- a. Conjunctivitis
- b. Emergencies
- c. Foreign body

14. Pain Management

- a. Acute Pain
- b. Acute Exacerbation of Chronic Pain
- c. Sedation (Moderate/Deep/Procedural)

15. Pediatric and Neonatal

- a. Age-specific Dosing Recommendations
- b. Febrile Seizure
- c. Pertussis
- d. RSV

16. Pulmonary

- a. Asthma Emergencies
- b. Acute Chronic Obstructive Pulmonary Disorder Exacerbation
- c. Drug-induced Pulmonary Disease
- d. Pulmonary Embolism
- e. Respiratory Distress

17. Psychosocial

- a. Acute Agitation/Psychosis
- b. Behavioral/Effective Disorders
- c. Substance Abuse/Withdrawal

18. Renal and Genitourinary

- a. Acute Renal Failure
- b. Emergencies in Renal Failure and Dialysis Patients
- c. Rhabdomyolysis
- d. Urolithiasis

19. Resuscitation and Life Support

- a. Anaphylaxis/Acute Allergic Reactions/Angioedema
- b. Basic Life Support/Advanced Cardiac Life Support/Pediatric Advanced Life Support
- c. Alternate Routes for Medication Administration (IV, IO, Nasal)
- d. Rapid Sequence Intubation/Post Intubation Management
- e. Shock States
- f. Ventilator Management
- g. Post Cardiac Arrest Induced Hypothermia

20. Toxicology

- a. Approach to Toxicology Patient
- b. Antidotes
- c. Decontamination
- d. Toxidromes

21. Trauma

- a. Advanced Trauma Life Support
- b. Alleged/Sexual Assault
- c. Closed Head Injury/Traumatic Brain Injury
- d. Initial Burn/Trauma Management and Stabilization/Advanced Burn Life Support
- e. Neonates
- f. Pediatrics
- g. Pregnancy
- h. Spinal Cord Injury
- i. Wound Management
- j. Primary and Secondary Trauma Survey
- k. Shock Trauma
- l. Antibiotic Prophylaxis/Tetanus Prophylaxis
- m. Musculoskeletal Trauma
- n. Thoracic and Abdominal Traumas