

## 5. PEM Fellow Rotation in Toxicology

### **Experience:**

The toxicology rotation is a one month long rotation completed in the first year of PEM subspecialty training. During this time, PEM fellows gain familiarity with the assessment and management of toxicologic problems while functioning as part of the toxicology team based at the New Mexico Poison and Drug Information Center (NMPDIC). This is done primarily through daily rounds in which the toxicology team discusses interesting cases from those calls received during the prior 24 hours from the region. Discussion is comprehensive covering all topics from initial presentation, assessment, and management, to toxicologic mechanisms, ongoing management and advanced medical decision making.

### **Goals:**

1. Provide the knowledge required to manage poisoned patients in the ED, outpatient clinic or in the hospital
2. Review the basic pharmacology and pathophysiology relevant to medical toxicology.

### **Objectives:**

After completing this rotation, the fellow will demonstrate the ability to:

#### **Patient Care**

1. Identify the pertinent aspects of the history and physical exam relevant to acute poisoning with particular emphasis on clinical recognition of major toxic syndromes (toxidromes) and drug withdrawal.
2. Demonstrate knowledge of the importance of airway management and cardiovascular support in a toxic ingestion.
3. Explain the principles, methods and controversies of decontamination techniques (e.g. gastric lavage, activated charcoal and whole bowel irrigation).
4. Demonstrate knowledge of the indications for and limitations of diagnostic tests and their relevance to the patient's toxic exposure.
5. Provide appropriate advice regarding use of antidotes and their usefulness in a given patient.
6. Identify the psychosocial needs of patients with toxic ingestions.
7. Participate in decision making regarding disposition from the ED of the poisoned patient: discharge, observation, admission to an inpatient ward or admission to an intensive care unit.
8. Describe the proper technique for handling a HAZMAT (hazardous materials) contaminated patient in the prehospital environment and the ED.

#### **Medical Knowledge**

1. Describe the evaluation and management of a patient who presents with an acute overdose, accidental or environmental exposure.
2. Describe the steps in the evaluation and general management of a poisoned patient including stabilization, risk assessment, decontamination, screening and observation.
3. Describe the evaluation and general management of common presentations of poisoning including dysrhythmia (bradycardia, tachycardia), hypotension, hypertension, coma, seizure and agitation.
4. Describe the presenting symptoms and any specific treatments for several common poisonings:

- a. Acetaminophen
- b. Anti-psychotic medications
- c. Barbiturates/Benzodiazepines/Other sedatives
- d. Beta-Blockers
- e. Calcium Channel Blockers
- f. Carbon Monoxide
- g. Caustic Ingestions
- h. Cocaine/Amphetamines/MDMA
- i. Cyanide/Hydrogen Sulfide
- j. Digitalis
- k. Envenomations: Snakes, Spiders and Scorpions
- l. Hallucinogens
- m. Hydrocarbons
- n. Hydrofluoric acid
- o. Iron
- p. Lithium
- q. Mushroom/plants
- r. Opioids
- s. Organophosphates/Carbamate Pesticides
- t. Phenytoin/Tegretol/Valproic Acid/Newer Anti-epileptics
- u. Salicylates
- v. SSRI's and Serotonin Syndrome
- w. Toxic alcohols: ethanol, isopropanol, methanol and ethylene glycol
- x. Tricyclic Anti-depressants

#### Practice-based Learning and Improvement

1. Effectively search the medical literature, analyze the literature and determine its relevance for specific patients.
2. Effectively use online medical resources.
3. Actively participate in Toxicology rounds and lectures.
4. Facilitate professional learning with peers.
5. Review challenging cases to identify better patient care management strategies.

#### Interpersonal and Communication Skills

1. Demonstrate active listening skills including appropriate non-verbal behavior.
2. Demonstrate respect for individual patient concerns and perceptions.
3. Effectively communicate and collaborate with the RMPDC team including physicians, pharmacy students, medical students, toxicology fellows, emergency medicine and pediatric residents.
4. Effectively utilize the resources of the RMPDC.

#### Professionalism

1. Maintain confidentiality of patient information according to hospital and HIPAA regulations.
2. Demonstrate sensitivity and compassion to a variety of patient populations.
3. Demonstrate appropriate respect for other health care professionals.
4. Demonstrate respect for diversity of opinion, age, gender and ethnicity.
5. Develop awareness of ethical and medical-legal considerations in the care of patients with toxic ingestions.
6. Apply sensitivity when evaluating cultural influences on patient and family behavior.
7. Respond to pages and messages promptly,

8. Be punctual and respectful of others' time.

#### Systems-based Practice

1. Recognize system errors and recommend quality improvements.
2. Demonstrate an awareness of and skill in resource-efficient care.
3. Demonstrate advocacy for patients within the health care system.

#### **Policies on Duty Hours, Supervision and Expectations during Toxicology Rotation**

**Duty Hours:** Daily bedside and chart rounds with the toxicology team, conferences at UNMH and NMPDIC. Hours 0800-1400 on weekdays. During this month the subspecialty residents will do six 8-10 hour shifts in UNMH PED.

**Supervision:** Toxicology rounds supervised by the NMPDIC attending toxicologist as well as the toxicology fellows. Attending physicians are emergency medicine with subspecialty certification in toxicology.

**Evaluation:** Toxicology faculty are responsible for supplying the program director with a written evaluation of the subspecialty resident's rotation using a global evaluation form and informing the resident and program director of any problems or issues which may arise during the month. Acceptable performance will be dependent on attendance and acceptable performance for level on all six ACGME clinical competency areas.

#### **Expectations:**

1. Attend lectures and rounds every day unless formally excused by one of the fellows or attendings.
2. Participate in rounds, attending lectures and independent study.
3. Prepare and deliver a twenty minute presentation on a specific topic in toxicology.
4. Prepare and deliver a 5- to 10- minutes presentation on an interesting question regarding patient management.
5. Assist in research activities (e.g., performing literature searches, locating and copying articles from the library for other rotating residents/fellows, etc.)
6. Complete a two hour Poison Center observation, including listening to incoming calls.
7. Mandatory conferences include UNMH M&M and the NMPDIC research meetings.