

Rotation: Clinical Toxicology
Orientation (rev 6/00)

Residents and Doctorate Students - UNIVERSITY HOSPITAL

Location: Central New York Poison Control Poison Control Center
University Hospital at Syracuse
550 Genesee Street

Faculty: Richard Cantor, M.D. Medical Director
Christine Stork, Pharm.D., ABAT Director
Poison Information Specialists, R.N. CSPI

Prerequisite:

1. A prior medicine/renal/critical care rotation
2. A prior pharmacokinetics rotation
OR Pharm.D.

Goal: At the end of this rotation, the student should have a comprehensive approach to the poisoned patient as defined by:

- Ability to manage exposures when the specific toxin cannot be identified or when inadequate information is known regarding a specific toxin.
- Ability to appropriately evaluate and initiate therapy for a number of commonly presenting toxins.
- Ability to appropriately include toxins in the differential diagnosis of any patient.

Curriculum

1. Core curriculum and learning objectives

A. Initial approach to the poisoned patient

The student should be able to:

1. Perform an adequate primary patient survey & stabilization
2. Obtain an appropriate history
3. Obtain a physical examination noting specific properties relevant to toxic exposures.
4. Generate a differential diagnosis based upon findings in history and physical examination.
5. Design a reasonable management plan.

B. Gastrointestinal decontamination

The student should be able to:

1. Provide a definition for the most common modes of gastrointestinal decontamination (syrup of ipecac, activated charcoal, multiple doses of activated charcoal (MDAC), and whole bowel irrigation)
2. Choose the appropriate mode of gastrointestinal decontamination given a patient and to give advantages and disadvantages for each option
3. Be able to describe how to perform each gastrointestinal decontamination procedure and know the potential complications of each

C. Enhanced Elimination

The student should be able to:

1. Provide a definition for the most common modes of enhanced elimination (forced diuresis, MDAC, ion trapping, hemodialysis, hemoperfusion, exchange transfusion, immunotherapy)
2. Choose the appropriate mode of enhanced elimination given a patient and a drug's characteristics
3. Compile the agents that are most commonly removed through forced diuresis, MDAC, ion trapping, hemodialysis, hemoperfusion, exchange transfusion, immunotherapy and the indications for each therapy.

D. The student should be able to describe and identify the following toxidromes when presented with a patient:

anticholinergic, cholinergic, opioid, adrenergic, sedative-hypnotic

*** The student should be able to provide a differential diagnosis for each toxidrome and identify, rule out or treat the most lethal agent in each class

E. The student should be able to describe each of the following toxins in terms of epidemiology, clinical and laboratory presentation, confounding toxins and treatment: (the list of toxins is not all inclusive, rather it should serve as a guide, other toxins will be discussed when pertinent)

1. analgesics: acetaminophen, aspirin, NSAIDS
2. psychotropics: tricyclic antidepressants (all antidepressants), antipsychotics, lithium
3. pulmonary medications: theophylline, caffeine, beta agonists
4. dyshemoglobinemias: MethHb, CO, CN
5. toxic alcohols: methanol, ethylene glycol, isopropanol

6. PO and IV hypoglycemic agents
7. Cardiac medications: BB, CCB, digoxin etc.
8. heavy metals, iron
9. sedative hypnotics, opioids
10. hydrocarbons, caustics
11. hallucinogens
12. anticonvulsants
13. substance withdrawal
14. herbal preparations
15. mothball toxins
16. Pesticides: organophosphates/carbamates, herbicides, rodenticides
17. snake envenomations
18. drug interactions relevant to toxicology

F. The student should develop a working knowledge of the poison control center, it's utility in the health care system and how to best utilize it.

G. The student should gain a knowledge differences in pharmacokinetics that exist in the overdose setting and be able to apply them in terms of absorption, distribution, metabolism and elimination

H. The student should develop a working knowledge of the Emergency Department and the types of pharmaceutical care activities that ED pharmacotherapists are involved in.

2. Application of learning objectives

A. Students will be expected to participate in the following activities:

1. Morning review of night cases, ED rounds
2. All ED conferences and others that are designated
3. All PCC case conferences and journal clubs

B. Student responsibilities will include:

1. Call backs on designated cases (these cases become your responsibility to follow on with the guidance of faculty)
2. In person follow up on all University Hospital (and possibly those from other institutions)
3. Participation in daily discussion
4. Two to three projects on a topic related to toxicology
5. A 30 minute prepared case presentation and discussion to be given at Wednesday ED case conference.
6. One day spent with the poison information specialists observing handling of home as well as hospital calls (part of this day will be spent with our health educator to gain information on community outreach and poison prevention)
7. Five call days including two weekend days under the guidance of the attending on call.

8. Five 8 hour shifts in the Emergency Department, evaluating patients for pharmaceutical care issues.
9. One hour per week working with the hyperbaric center of Central New York

Evaluation of learning objectives

A. Oral project presentations with written material and references	(35%)
B. Attendance at all required activities (8:00 AM to 4 PM most days)	(10%)
C. Appearance/attitude	(10%)
D. Completion of follow up cases	(25%)
E. Case related evaluation (see tool)	(20%)
 TOTAL	 (100%)

Clinical Toxicology Rotation

Orientation:

1. References:

*Text are maintained in the poison specialists office, you are encouraged to bring references of your own
Poisondex and Drugdex are available through the poison specialists computers, please ask for help
Searches can be completed at the University Hospital Library*

2. Personal items:

*You can place your personal items in the poison specialists room or in the conference room
While you are working on cases or reading primary literature or texts, feel free to use the conference
room or the medical director's office if it is not occupied
The kitchen is free for your use, please clean up*

3. Schedule:

Day 1 - orientation/reading materials (start at 9 AM)

Day 2 beginning of rotation

8:00 AM ED rounds and review of night cases

8:30 AM - 12:00 PM call backs on cases / reading on cases/ see inpatients

/ primary literature review / work on projects

1:00 PM - 3:00 PM case discussion (variable)

3:00 PM - 4:00 PM Rounds, further follow / current cases at university

* 1 day with poison specialists and the health educator

* 5, 8 hour shifts spent in University Hospital's Emergency Department under the guidance of an attending.

* One hour per week working with the hyperbaric center of Central New York and on-call to see hyperbarics of carbon monoxide cases. (Mondays 10-11)

* ED conference Wednesdays AM (9-11)

* ED conference Wednesday PM (1-4, go to PGY 1 conference at 3 PM)

* ED Grand Rounds, 2nd Wed of the month (11-12)

*PCC case conference / journal club – Thursdays (1:30-2:30)

*Pharmacology/Toxicology Rounds, Daily at 3:00 PM

* Please report other meetings that are not listed

4. Daily responsibilities:

1. Call backs on active (these cases are the "sicker cases from the night before, do not write notes on the follow up sheets, only patient information and recommendations should be placed there)

- once you are ready to call back on a case (read about the toxin first), please run the case past the attending on call before calling back

-please make EVERY effort to follow cases, we realize it is not always easy, but very important

-a APAP level with time is required on every intentional overdose

2. In person follow up on all University Hospital inpatients (and possibly those from other institutions)

-please get all the follow up information, but run future recommendations by the attending on call before giving them

3. Participation in daily discussion

-this will be a discussion on the follow up cases, primary literature that impacts treatment may also be given to you

4. Two to three projects on a topic related to toxicology

-these should be small areas of toxicology that we DO NOT know about as yet. Feel free if there is a subject of interest, but as about you topic before doing it

5. A 30 minute presentation at ED Tuesday morning Case conference.

-The conference could be toxin or problem (i.e. seizure) focused. It will be given towards the end of the rotation (3 or 4th week) and should include audiovisual information along with a handout with references. Each conference should include a pertinent research related topic.

6. Five days on call, two of these days during the weekend.

-The attending on call will contact the resident for all pertinent active cases. The resident will then become the primary provider with continued attending guidance. All follow-up and recommendations should be reported to the poison information specialists immediately and appropriately documented on the patient's chart as soon as possible.

7. One day spent with the poison information specialists observing handling of home as well as hospital calls. Part of this days will be spent with a health educator to gain information on community outreach and poison prevention

-on these days you will act as an observer only

Evaluation of learning objectives

Due dates will be set:

- A. Oral project presentations with written material and references (2-3/rotation)
- B. Attendance at all required activities (Times are 8:00 AM to 4 PM most days)
- C. Appearance/attitude - please wear appropriate neat attire
- D. Completion of follow up cases, please photocopy and hand in these in each day

Evaluation Tool for Student Case Management

Resident Name: _____

Reviewer Name: _____

Date of Case: _____

Date of Review: _____

Toxin: _____

Please rate the following areas:

(1-poor, 2-minimal, 3-adequate, 4-good, 5-excellent, 0- NA)

Vital Signs _____

Tox History _____

Physical _____

Diagnostic Tests _____

Overall _____

Appropriate review by attending _____

Appropriate initial recommendations _____

Appropriate follow-up _____

Anything you would have changed in the management or documentation:
