

Objectives for Emergency Clinical Toxicology Rotation
McGill Royal College Emergency Medicine Program.
Royal Victoria Hospital Emergency Department

General Objectives.

The emergency clinical toxicology rotation based at the Royal Victoria Hospital Emergency Department is designed for residents seeking to acquire more clinical expertise in emergency toxicology. Residents have to acquire an understanding of physiology, pharmacology and toxicology as well as be able to apply this knowledge in clinical practice.

It is expected that at the end of their rotation, residents will have acquired more knowledge to recognize signs and symptoms of intoxication which is the effect of a drug beyond the scope of what is considered its therapeutic effect. They should be able to initiate diagnostic measures and treatment as well as identify situations where further or additional expertise is required and collaborate effectively with other consultants.

Emphasis will be placed on the recognition, appropriate management of intoxications encountered in the emergency department and their modalities of treatment. As well, the resident should demonstrate knowledge of the differential diagnostic exercised when approaching the unknown overdose with use of collateral information, physical exams clues, laboratory results and electrocardiogram.

Most of the training will occur as a member of the Clinical Toxicology Consulting service of the Royal Victoria Hospital. Residents will also be exposed to the area of Clinical Toxicology during Emergency Medicine shifts with the clinical toxicologists. They will encounter patients presenting with deliberate self-poisoning, accidental intoxications, intoxications resulting from deliberate recreational use of substances, occupational hazards or environment. Collaborative work with the Centre Anti-Poison du Quebec will be mandatory.

The length of the rotation will be one year.

SCHEDULES AND ACTIVITIES.

- ◇ Clinical toxicology service consultations daily weekdays 8-17h except days out of town
- ◇ Daily rounds on admitted patients to the team weekdays
- ◇ Weekly lectures and journal club in Clinical Toxicology
- ◇ Weekly Emergency Medicine rounds on Wednesday morning 8h30-12h
- ◇ 2-3 weekly shifts in the Emergency Department up to 8 shifts per month
- ◇ 2 months at the Centre Anti-Poison du Quebec or other PCC of choice
- ◇ Days visiting Hyperbaric facilities and detox facilities in Montreal
- ◇ Out of hospital on-call for the Toxicology Consulting Team to the MUHC
 - 1 in 4 weekdays
 - 2 weekends per month.

DATE: Sept 16 / 08

FOR YOUR
APPROVAL: SM Metormin

SPECIFIC OBJECTIVES

Medical Expert and Clinical Decision-maker

Residents should be able to

- Obtain a history that is accurate, pertinent and concise for the nature of the problem
- Perform physical examination that is sufficient to initiate a diagnosis or management plan
- Discriminate types of poisoning with the knowledge of the different toxidromes.
- Diagnose and treat withdrawal states
- Identify the need for gastrointestinal decontamination and the benefits and risks of
 - Gastric lavage
 - Emesis
 - Single and multiple dose activated charcoal
 - Cathartics
 - Whole Bowel irrigation
- Demonstrate the ability to interpret accurately the results of common diagnostics tests.
 - Anion gap
 - Specific drug levels
- Demonstrate knowledge in
 - Principles of therapeutics ; pharmacokinetics, pharmacodynamics and their application to toxicology
 - Adverse drug reaction and interactions
 - Principle of drug abuse, drug dependence, drug withdrawal and tolerance
 - A practical classification of poisoning
- Demonstrate knowledge in the mechanism of toxicity, usual toxic dose, stabilization and treatment modalities of the following
 - Analgesics
 - Acetaminophene
 - NSAID's
 - Aspirin
 - Opioids methadone
 - Autonomic agents
 - Anticholinergic
 - Antihistamines
 - Serotonergics
 - Cholinergics
 - Methylxanthines
 - Benzodiazepines
 - Over the counter non benzodiazepines sedatives
 - Sympathomimetics
 - Chemicals and substance of abuse
 - Alcohol
 - Cannabinoids
 - Cocaine, amphetamines
 - Psychostimulants
 - CNS depressants
 - GHB
 - Nicotine and tobacco
 - Opiods
 - CNS drugs
 - Anticonvulsants
 - Antidepressants (TCA's, MAOI)
 - Antipsychotics
 - SSRI's and SNRI
 - Lithium
 - Hallucinogens
 - Anxiolytics
 - Cardiovascular
 - Antidysrhythmics
 - Anticoagulants
 - Antihypertensives
 - Inotropes
 - Nitrates and nitrites
 - Endocrine
 - Insulin
 - Antidiabetics drugs
 - Environmental
 - Cleansers
 - Claustics
 - Biological incidents
 - Chemical incidents
 - Household products
 - Hydrocarbons
 - Toxic alcohols, Solvents
 - Fumes
 - Gastrointestinal agents

- Heavy metals
 - Arsenic
 - Lead
 - Lithium
 - Mercury
 - Hematology
 - Antiplatelets
 - Anticoagulants
 - Toxic gases
 - Carbon monoxide
 - Cyanide
 - Hydrogen sulphide
 - Hydrogen fluoride
 - Pesticides, herbicides and rodenticides
 - Organophosphates
 - Carbamates
 - Iron
 - Thallium
 - Metal fumes
 - Smoke inhalation
 - Simple asphyxiants
 - Products of combustion
- Demonstrate knowledge of mechanisms of action and indications for the following antidotes
 - chelation
 - agents
 - calcium
 - methylene blue
 - opioids antagonists
 - oxygen and HBO
 - physostigmine
 - pyridoxine
 - pralidoximes
 - benzodiazepine antagonists
 - activated charcoal
 - cyanide treatment
 - desferioxamine
 - glucagon
 - atropine
 - protamine
 - thiamine
 - vitamin K
 - folic acid

Communicator

Residents should be able to demonstrate effective communication skills by their ability to

- work harmoniously within the team
- being able to formulate a clear plan of action and convey information to other colleagues
- deliver information to patient and families in a sensitive manner using the appropriate vocabulary for their understanding of the situation
- understand the different levels of risk perception and elaborate a strategy for effective risk communication to patients, family and other professional
- link effectively with the provincial Poison Center, summarize the evidence to allow for better consultation and follow-up on the cases
- leave legible and pertinent written documentation enabling another professional to access the information pertaining to the case.

Collaborator

Residents should be able to identify and act as leader of the multidisciplinary team require for the management of poisoned patients in the Emergency Department. More specifically, residents should be able to contact and request assistance of other allied health professionals when dealing with

- high risk suicidal patients
- high risk of aggression patients
- suspicious poisoning
- occupational poisoning with other potential victims
- patient requiring enhanced elimination modalities
- patient requiring ventilatory or monitoring support

Manager

Residents should understand and be able to apply in their practice

- principles of HAZMAT
- principles of risk assessment
- Principles of telephone consultation and interaction with Poison Control
- Principles of administration of a regional Poison Control and quality assurance
- providing effective consultation when a referral from an outside hospital is made and be able to utilize resources judiciously in accepting a transfer for an intoxicated patient i.e. for the risk posed by the intoxication, is it clinically indicated to transfer the patient and are the cost incurred by the transfer justified by the expected outcome of this intoxication should the patient not be transferred.

Health Advocate

Residents should be able to recognize and advise patients and their families regarding the general epidemiology and prevention of poisonings and more specifically :

- inappropriate use of medications
- dangerous interactions between medications
- Risks of polypharmacy and excessive over the counter medications use.
- Health issues pertaining to drug and illicit substance abuse
- Social issues relating to the behavior of deliberate self harm and poisoning.
- Use of Poison Control Center for prevention and surveillance of poisonings

Scholar

Residents should be able to demonstrate an intellectual approach to medical practice in the following areas during participation on patient rounds, teaching sessions, journal clubs and interdisciplinary meetings.

- Continuing medical education;
 - show interest in self-education skills by demonstrating knowledge in the evolving concepts in the management of poisoned patients and new pharmacological developments .
- Critical Appraisal of the Medical Literature;
 - demonstrate the ability to research the medical literature (papers, online information, databases, conference abstracts), and identify the best available evidence for any patient related question.
 - Identify limitations in current toxicological research
- Scientific interest
 - Show interest in other scientific areas closely related to clinical toxicology such as biochemistry, basic pharmacology, agricultural and occupational toxicology by recognizing potential implication of these fields into clinical practice
 - Demonstrate ability in identifying areas in toxicology where gaps in knowledge or expertise exists by retrieving the essentials of the literature, summarizing the evidence to date and develop research ideas to fill these gaps while being able to demonstrate the clinical relevance of finding answers to the question at hand.
- Teaching skills
 - Residents should be able to explain the mechanisms of poisoning and share knowledge with others in a manner that helps others to develop their own skills.
 - Should be available to answer questions or discuss common toxicological problems

Professional

Residents should be familiar with medical, legal, psychiatric and social aspects of toxicology. They should approach situations with the highest level of integrity and honesty. They should show responsibility and reliability in the exercise of their function and demonstrate awareness of their own limitations and seek advice appropriately. Resident should more specifically demonstrate professionalism in the following issues:

- Obtaining consent for therapeutic modality or research study inclusion by the patient or the next of kin.
- Respect patient's rights to confidentiality and neutrality in the face of authorities involvement whilst fulfilling social and legal obligations as per the medical ethics code and the local regulations.
- Recognize the limitation of medical practice in the face of threat or aggression and decide when appropriate to involve legal authorities.
- Recognize the impact of the delivery of care of impaired judgment and inability to decide for one self or some intoxicated patients. Seek appropriate advice from consultants to achieve the best therapeutic or management plan for these patients.