



McGill

**Neurology Residency
Program**
Department of Neurology &
Neurosurgery

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Adult Neurology Residency Training Program McGill University Rotation Specific Objectives

EEG/Epilepsy Rotation

Outline of the Rotation

Since 2003, The EEG rotation and epilepsy service rotations have been combined into a two period block, performed during the PGY3 at the Montreal Neurological Hospital (MNH). The Epilepsy service at the MNH consists of 8 beds (5 monitored) and has approximately 240 admissions annually. Most of the service requirements are performed by a nurse clinician/case manager.

During the first 2 weeks of this rotation, residents are to familiarize themselves with how to read and interpret normal and abnormal electroencephalograms. Such learning is meant to continue for the entire 8 week rotation but will be most intense during the initial 2 weeks. The resident will attend one or two EEG sessions (2 to 3 hours per session) daily for the first 2 weeks and will be under the supervision of the EEG staff member. Every week the resident will read and interpret a number of EEG's for the sessions he/she will attend.

During their experience on the inpatient epilepsy service, residents are exposed to patients with a wide range of epileptic problems. There are patients with uncertain diagnosis where the primary aim is clarification. Patients with pseudoseizures often require clarification by in patient investigation as well. Patients with generalized epilepsy often require further investigation and initiation of changes in treatment in the hospital. The majority of patients suffer from partial seizures and a great many of these are surgical candidates. The patients present a wide range of medical, cognitive, psychiatric and social economic problems. The investigation is complex and is never routine. The major studies are neurophysiological, neuropsychological, psychiatric, and imaging both advanced MRI and function of imaging including SPECT and more recently increased access to positron emission tomography. There have recently been a valuable deluge of new antiepileptic drugs available most of which are familiar to the members of the staff and are currently used in our work.

The epilepsy service resident prepares and presents the case presentation at the weekly seizure conference.

EEG/Epilepsy Rotation Specific Objectives

1. Medical Expert/Clinical Decision-Maker

General Requirements

- Demonstrate diagnostic and therapeutic skills for ethical and effective patient care.
- Access and apply relevant information to clinical practice.
- Demonstrate effective consultation services with respect to patient care, education and legal opinions.

Specific Objectives

Provide scientifically based, comprehensive and effective diagnosis and management for patients with neurological disorders.

Clinical

For a patient with an epileptic or allied disorder, the resident will be able to:

- Obtain a complete neurological history from adults and children obtaining a collateral history where necessary, particularly from those who have witnessed the seizures.
- Perform an appropriate physical examination.
- Determine whether a patient's symptoms and signs are the result of an epileptic disorder or psychological disorder.
- Formulate an appropriate differential and provisional diagnosis of the seizure type and epilepsy syndrome, if appropriate.
- Outline an appropriate plan of laboratory investigation.
- Outline an appropriate therapeutic plan.
- Exhibit appropriate clinical judgment in outlining a differential diagnosis and an investigative and therapeutic plan, taking into account matters such as the patient's age, general health, risk and cost of investigative procedures, risk and cost of therapeutic interventions, and epidemiology of the disease.

Technical Skills

The resident is expected to become familiar the basic principles and general technical aspects of the electroencephalogram (EEG) recording

- Understand and identify the routine recording montages
- Identify a normal and abnormal EEG recording
- Identify focal and generalized epileptiform/epileptic discharges
- Identify the EEG patterns associated with drowsiness/sleep, encephalopathies, periodic discharges, focal slowing, response to stimulation and intermittent photic stimulation
- Be familiar with video-telemetry recordings
- Be exposed to specialized recordings (e.g. sphenoidal electrodes, depth electrodes)

Knowledge

- Acquire and understand the neuroanatomic principles and pathological substrates of epilepsy.
- Become familiar with the neurophysiological principles, the basic mechanisms of epileptogenesis and the basic principles of electroencephalography.
- Learn clinical epileptology. They should become familiar with the international classification of epileptic seizures, the clinical and EEG manifestations of the various epilepsy syndromes, the investigation and treatment of epileptic patients and in the differential diagnosis of paroxysmal and neurological events in addition to the epilepsies. They should become familiar with the evaluation and treatment of seizures associated with non neurological medical conditions and of status epilepticus.
- Learn clinical neuropharmacology: i. Neuropharmacology of the AEDs, ii. principles of drug therapy (the choice of AEDs, when and how to initiate drug therapy, when and how to monitor drug therapy, when and how to withdraw and discontinue drug therapy), iii. principles of clinical use of specific AEDs, iv. drug toxicity, interaction and teratogenicity.

- Acquire expertise in surgical treatment of the epilepsy mainly in the decision making process and will have the opportunity of following the patients both before and after surgery giving them an understanding of functional neurosurgery.
- Learn about the psychosocial aspect of epilepsy: i. Cognitive effects, ii. psychiatric aspects, iii. legal aspect

2. Communicator

General Requirements

- Establish therapeutic relationships with patients/families.
- Obtain and synthesize relevant history from patients/families/communities.
- Listen effectively.
- Discuss appropriate information with patients/families and the health care team.

Specific Requirements

Communicate effectively with patients, their families and medical colleagues (particularly referring physicians), and other health care professionals in both the inpatient and outpatient settings. The resident will:

- Communicate effectively and regularly with patients and their families.
- Be considerate and compassionate in communicating with patients and families, willingly provide accurate information appropriate to the clinical situation, with a reasonable attempt at prognosis.
- Communicate effectively and appropriately with the epilepsy service nurse practitioner, other nurses and paramedical personnel.
- When ordering investigative procedures, ensure there has been adequate communication about the patient with the person who will actually be doing and/or reporting the diagnostic study.

Counsel patients and others about aspects of prevention of recurrent seizures, including predisposing and precipitating factors. The resident will:

- Recognize that complete patient care requires that, in addition to the need for making a correct diagnosis, a search for risk factors for the disorder be undertaken.

- Recognize that treatment for a patient with an epileptic disorder may require in addition to specific medical and surgical interventions, the elimination of risk factors and genetic counselling.

3. Collaborator

General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Specific Requirements

Be an effective teacher of other physicians (including medical students and house officers), other health care personnel, and patients. The resident will:

- Provide instruction to medical students and more junior physicians at a level appropriate to their clinical education and professional competence.
- Willingly share knowledge with others with whom they are associated, thus ensuring the most effective delivery of health care to patients.
- Participate in multi-disciplinary ward rounds where and when appropriate.
- Work effectively with the epilepsy service nurse practitioner

4. Manager

General Requirements

- Utilize resources effectively to balance patient care, learning needs, and outside activities.
- Allocate finite health care resources wisely.
- Work effectively and efficiently in a health care organization.
- Utilize information technology to optimize patient care, life-long learning and other activities.

Specific Requirements

Be proficient in professional skills related to the diagnosis and treatment of the epileptic disorders.

Demonstrate the following professional skills in time management:

- Recognize that effective use of time depends upon punctuality.
- Recognize that effective use of time requires planning.
- Develop speed as well as accuracy in clinical skills.
- Reserve time for reading and keeping current with the neurological literature.
- Establish routines for carrying out regular activities and adhere to them.

Maintain complete and accurate medical records:

- Record and maintain a complete and accurate medical record for every patient seen; this record will include the patient's history and the findings on physical examination (including the neurological examination), a differential diagnosis, a provisional diagnosis, a plan for management, appropriate progress notes, and a comprehensive discharge summary.

Effectively coordinate the work of the health care team:

- Organize and supervise the more junior physicians and medical students on a ward and/or consultation service in a manner that ensures the efficient and effective delivery of health care for the patients.
- Indicate, by the treatment plan, that for the optimal treatment of many patients with neurological disorder, a team approach is necessary -- members of the team may include nurses, rehabilitation personnel (physiotherapists, occupational therapists, speech therapists, etc.), psychologists, social workers, etc.
- Identify where an important role(s) can be played by disease focused lay groups with regard to helping the patient and/or family and to facilitate its happening.

5. Health Advocate

General Requirements

Identify the important determinants of health affecting patients.

Contribute effectively to improved health of patients and communities.

Recognize and respond to those issues where advocacy is appropriate.

Specific Requirements

Learn about community resources and related patient support groups; provide assistance to access programs (e.g. home care, occupational and physiotherapy, drug plans, application for nursing homes etc) and participate in their activities.

Educate, be able to generate and access information (e.g. printed material, video tapes web sites) and be available as a resource person to counsel patients effectively on neurological disorders.

Counsel patients on the importance of taking responsibility for their own well-being and recognize the important determinants predisposing to recurrent seizures (sleep deprivation, medication compliance, etc.) and the teratogenic effects of anti-epileptic drugs.

Understand the role of national and international bodies(e.g. International League Against Epilepsy) in the promotion of neurological health, and the prevention, detection, and treatment of epileptic disorders.

6. Scholar

General Requirements

Develop, implement and monitor a personal continuing education strategy.

Critically appraise sources of medical information.

Facilitate learning of patients, house staff/students and other health professionals.

Contribute to development of new knowledge.

Specific Requirements

Be able to critically assess the neurological literature as it relates to patient diagnosis, investigation and treatment:

- Develop criteria for evaluating neurological literature.
- Critically assess the neurological literature using these criteria.
- Be familiar with the design of experimental and observational studies, especially randomized controlled trials.
- Be able to calculate absolute risk reductions, relative risk reductions and numbers needed to treat or harm.

Be able to participate in clinical or basic science studies as a member of a research team:

- Be able to describe principles of good research.

- Use the above principles, and be able to judge whether a research project is properly designed.
- Be prepared to present research findings to peers at local, national or international conferences.

7. Professional

General Requirements

Deliver highest quality care with integrity, honesty and compassion.

Exhibit appropriate personal and interpersonal professional behaviours with patients/families, peer residents. And other health care professionals.

Practice medicine ethically consistent with obligations of a physician.

Specific Requirements

Demonstrate personal and professional attitudes consistent with a consulting physician role:

- Periodically review his/her own personal and professional performance against national standards set for the specialty.
- Be willing to include the patient in discussions concerning appropriate diagnostic and management procedures.
- Show appropriate respect for the opinions of fellow consultants and referring physicians in the management of patient problems and be willing to provide means whereby differences of opinion can be discussed and resolved.

Be willing and able to appraise accurately his/her own professional performances and show that he/she recognizes his/her own limitations with regard to skill and knowledge by appropriately consulting other physicians and paramedical personnel when caring for the patient.

Be willing and able to keep his/her practice current through reading and other modes of continuing medical education and develop a habit of maintaining current his/her clinical skill and knowledge base through continuing medical education.