

Department of Neurology and Neurosurgery Clinical and Research Fellowship Application Form

Type of Fellowship

Clinical EEG Fellowship at the Montreal Neurological Institute and Hospital: **1 year**.

Number of positions: 1 per year

Name of Fellowship Supervisors

François Dubeau, MD

Jean Gotman, PhD

Eliane Kobayashi, MD, PhD

Bernard Rosenblatt, MD (MCH)

Martin Veilleux, MD

Fellowship Information

This is a one year fellowship concentrating on EEG in the adult population: Montreal Neurological Hospital (9 months) with a rotation in paediatric EEG at the Montreal Children Hospital (3 months).

Fellowship includes training in the acquisition and interpretation of EEGs across the age range from neonate to adult. The trainee will learn the basic underlying neurophysiology and the neuroanatomy of the electroencephalogram and have an understanding of the basic mechanisms in a variety of neurological and neurosurgical disorders including epilepsy, degenerative, infectious, toxi-metabolic, traumatic and vascular disorders. Trainee will review normal features of the EEG from the neonatal period to adolescence and adulthood; EEG abnormalities in epileptic disorders, structural lesions of the brain, metabolic, infectious and degenerative disorders; and effects of drugs and other substances on EEG activity. The candidate will also be given exposure to EEG in epileptic patient monitored both with scalp EEG and invasive intracerebral EEG recordings, to EEG in the neuro-intensive care unit for critically-ill patients in status epilepticus, with subarachnoid haemorrhage due to ruptured aneurysm, in coma or unexplained confusional state, and to EEG in the operating room (electrocorticogram). Candidate will benefit of an introductory exposure to magnetoencephalography and Near Infra-Red Spectroscopy.

Clinical research may include work in EEG and neuro-ICU, in epilepsy EEG monitoring, invasive EEG and EEG/fMRI, in EEG monitoring in trauma patients and in magnetoencephalography.

Name of the Teaching Faculties

- F Andermann, M Aubé, A Bernasconi, F Dubeau, E Kobayashi, M Veilleux and I Woods: clinical adult EEG.
- F Dubeau: intracerebral EEG monitoring.
- J Gotman: EEG analysis, EEG/fMRI and source localization.
- E Kobayashi and C Grova: magnetoencephalography.
- C Grova: Near Infra-Red Spectroscopy.
- M Angle: neuro-ICU.
- F Andermann, ME Di Lenge, C Poulin, B Rosenblatt and B Zifkin (MCH): pediatric EEG and evoked potentials.

The teaching faculty has a broad range of experience in electroencephalography and continuous EEG monitoring, co-registered EEG/fMRI, magnetoencephalography and intra-operative EEG monitoring. The department has expertise in clinical care, teaching and research that covers a broad area of clinical neurophysiology, epilepsy, epilepsy surgery, ICU monitoring and EEG/fMRI.

Academic Facilities

The EEG fellowship ties in with the adult epilepsy and neurology training programs with availability of academic half day, neurology and neurosurgery rounds (weekly) and epilepsy conferences (weekly), and with a research group lab meeting (weekly). There is an active research program offering resources for fellowship trainees doing a clinical research project in electrophysiology related to epilepsy, trauma or neuro-ICU. The EEG department at the MNH benefits of the expertise of highly qualified EEG technicians who help trainees and fellows learning the various technical aspects of EEG recording. Library access and materials relevant to fellowship training are available easily 7-days/week. The Neuro provides a unique environment for trainees where you find experts in clinical and basic neurosciences touching a large spectrum of interests and regularly interacting together.

Fellow Duties and Responsibilities

The EEG Clinical Neurophysiology fellow participates in the EEG lab activities and is responsible for the interpretation, reading and report on routine and continuous EEGs performed every day (there are ~ 4000 routine and continuous EEGs performed per year at the MNH, and another ~ 1500 routine EEGs from outside hospitals). There are no on call requirements during this fellowship.

The fellow will be supervising residents doing rotation through the EEG lab from adult neurology or child neurology who spend a month at a time learning some basics of electroencephalography. The fellow will also be organizing epilepsy conference (EEG review and presentation, Thursday at 16h30) and will prepare a summary of EEG findings on patients in Epilepsy Monitoring Unit for the weekly epilepsy unit meeting (Monday at 11h00).

The fellow will work closely with head technician and EEG technicians particularly together with those in charge of the Epilepsy Monitoring Unit. The fellow will help in supervising care and management of in- and out-patients who attend the EEG department

for EEG tests. She/he will participate to the decision-making process for patients admitted at the Epilepsy Monitoring Unit, to the neuro-ICU or medical and surgery ICU; for instance, she/he will help determining when and for how long patients would need urgent EEG or continuous EEG monitoring. She/he will respond to urgent EEG interpretation and provide preliminary interpretation when necessary. Fellow will also respond to calls for per-operative electrocorticogram performed during elective epilepsy surgery

It is expected that the fellow will attend the weekly lab meeting of the research group every Friday 16h00. It is also expected that the fellow would be integrated to an on-going or new clinical research project.

Evaluation

The fellow will be evaluated on a daily basis and given feedback as she/he learns to read EEGs with various staff members. Fellow will be evaluated every 3-month using the neurology resident evaluation form and a final evaluation will be given at the end of the year of training.

fdubeau
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McGill

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

Postal address:
Montreal Neurological Institute
3801 University Street
Montreal, PQ, Canada H3A 2B4

Tel.: (514) 398-1904
Fax: (514) 398-4621

Department of Neurology and Neurosurgery Clinical EEG (1 year) Fellowship (General and 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 Requirements

Provide scientifically based, comprehensive and effective diagnosis and management for patients with normal and pathological EEG.

Clinical:

For a patient with a normal or pathological EEG, the fellow will be able to:

- Obtain a complete evaluation and interpretation of EEG findings from adults and children with a variety of neurological conditions.
- Determine whether the EEG findings are the result of a neurological disorder.
- Formulate an appropriate localization, differential and provisional diagnosis.
- Outline an appropriate plan of other laboratory (more specifically electrophysiological) investigation.
- Outline an appropriate therapeutic plan when indicated (e.g. in status epilepticus).

Technical Skills

- To learn/review detailed neurophysiology and neuroanatomy of the normal (during wakefulness and sleep conditions) and pathological electroencephalogram, from neonates to adults.

- Other technical skills related to fellowship: understanding of the standard EEG methodology, technical requirements and safety measures for patients and staff, and of the 10-20 and 10-10 international EEG recording systems.
- To learn/review basic principles, indications and usefulness of continuous EEG monitoring in Epilepsy Monitoring Unit, neuro-ICU, neonatal-ICU etc.
- To learn/review basic (introductory) principles in magnetoencephalography, Near-Infra Red Spectroscopy and EEG/fMRI.

Knowledge

- Acquire and understand the neuroanatomic principles and pathological substrates of the EEG in normal and pathological conditions.
- Become familiar with the neurophysiological principles, the neuroanatomy and the basic mechanisms related to a variety of neurological and neurosurgical conditions including: epilepsy, degenerative, infectious, toxi-metabolic, traumatic and vascular disorders.
- Become familiar with the neurophysiological mechanisms and EEG findings in patients in or suspected of brain death.
- Learn the major categories or classifications related to focal or generalized paroxysmal and non-paroxysmal EEG abnormalities.
- Learn effects of drugs and other substances on EEG activity.
- Acquire expertise in the decision making related to pathological EEG activity.

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 fellow will:

- Communicate effectively with patients and their families.
- Be considerate and compassionate in communicating with patients and families; willingly provide accurate information appropriate to the clinical situation.
- Learn to write concise reports of the clinical findings with conclusions and recommendations comprehensible to the non-specialist.
- Communicate effectively and appropriately with the 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.

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 residents, medical students and house officers), other health care personnel, and patients. The fellow 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.

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 neurophysiology and EEG.

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 a brief patient's history and indication for the EEG, the appropriate description and interpretation of the findings on EEG, a provisional diagnosis and differential diagnosis. Effectively coordinate the work of the health care team.
- 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. sleep EEG recordings, continuous EEG monitoring, outpatient EEG monitoring etc when indicated) 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 worsening of neurological status

Understand the role of national and international bodies (e.g. ILAE, CLAE, CCNS, CNPS) in the promotion of neurological health, and the prevention, detection, and treatment of nervous system 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 and neurophysiological literature.
- Critically assess the neurological and neurophysiological 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 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 professional performances and show that he/she recognizes his/her 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.