

McGill University  
Department of Diagnostic Radiology  
Combined Research and Clinical Fellowship in  
Pediatric Neuroradiology

---

**FELLOWSHIP DIRECTOR: DR. CHRISTINE SAINT-MARTIN**

**RESIDENCY PROGRAM DIRECTOR: DR. JANA TAYLOR**

**PROGRAM ADMINISTRATOR: CATHY TORCHIA**

**Applicants must provide proof of external funding**

**Applicants must have completed at least one year of clinical fellowship/staff position in either neuroradiology or pediatric radiology.**

*General Overview*

The Montreal Children's Hospital is a tertiary and quaternary referral center for brain and spinal cord tumors. It comprises approximately 120 beds and performs approximately 120,000 radiologic procedures per year including MRI and CT in the domain of pediatric neuroradiology.

The fellowship program offers dedicated exposure to pediatric neuroradiology with 1.5 T and 3T MR Imaging, Intraoperative MR Imaging, CT and conventional radiography from 0 to 18 years of age, covering all the fields of pediatric neurology ( including neonatal, emergency, epilepsy, neuromuscular, metabolic, infectious and inflammatory diseases as well as malformations), pediatric neurosurgery (reference center for pediatric brain and spine tumors, traumatism, dysraphisms, malformations and epilepsy for instance), pediatric spine orthopedic surgery, pediatric craniofacial plastic surgery, pediatric neurooncology and pediatric ENT surgery. The fellowship provides an integrated experience of research, clinical care and teaching. +

Duration: 1 Year

*Objectives/Guidelines*

**At the end of the fellowship, the fellow will be able to:**

- 1. Demonstrate knowledge of the contraindications to MR Imaging**
- 2. Demonstrate knowledge and discuss indications for MR versus CT imaging**
- 3. Demonstrate knowledge of the limitations of 1.5 versus 3Tesla magnets**
- 4. Demonstrate knowledge of the advantages, basic principles of intraoperative MRI**
- 5. Be familiar with basic sequences and their clinical applications**
- 6. Be exposed to specific sequences such as MR Spectroscopy, Diffusion Tensor Imaging, Arterial Spin Labelling, as well as functional MRI**
- 7. Be familiar with basic imaging artifacts on both 1.5T and 3T magnets**

8. **Recognize the normal anatomy, developmental variants and age-related findings in the various imaging planes, and with various pulse sequences**
9. **Demonstrate knowledge of contrast medium (gadolinium and iodine), risks, indications and contra-indications or limitations in the pediatric population**
10. **Demonstrate knowledge of sedation indications, basic principles and alternative techniques**
11. **Recognize pathology and be able to discuss the signal characteristics and differential diagnosis**

### *Structure/Fellow's responsibilities & Schedule*

#### **Clinical duties**

- The working hours are daily from 8:00 am to 5:00 PM. He or she will cover lunchtime clinical activities and/or 8-9 neuro MRI activity when the staff on duty is unavailable. One week per month, the fellow shall stay until 6PM to supervise infused MRI evening cases..
- The fellow will share the CT and MRI cases with the Diagnostic Radiology resident or with the Pediatric radiology fellow rotating on the neuroradiology service, in order to ensure adequate case exposure to all trainees. A maximum number of 2 trainees (either resident or fellow) will work in the pediatric neuroradiology division simultaneously. Cases will be reviewed with staff as a group to ensure best training possible.
- The fellow will review the requisitions for cases scheduled for next day, including indications, previous imaging and protocol of the upcoming examination.
- Quantitative expectations: 8MRI per day, 5CTs per day

#### **On call**

- The fellow will be responsible for on-call dedicated to pediatric neuroradiology one week per month, depending on the staff on-call schedule

#### **Rounds**

The fellow will attend the following 3 regularly scheduled teaching rounds

- Neuroradiology rounds, every Tuesday from 8:00-900AM, presented by radiologists, takes place in the radiology department. Neurology, neurosurgery and emergency cases are reviewed
- Neuro Tumor Board: first Thursday of the month from 4 to 5:30 PM, the neuro-tumor board is a multidisciplinary clinical rounds with videoconference including Sherbrooke and Quebec City academic hospitals
- ENT rounds last Monday of the month from 4:30 to 6PM

The fellow will be encouraged to attend the neuro-endocrine rounds (once per trimester) and the comprehensive epilepsy conference ( every second Fridays) if there is no conflict with clinical duties.

He or she will present cases on a regular basis.

## **Teaching**

The fellow will give teaching sessions (either case show or formal teaching) to residents and students rotating at the MCH medical imaging department on a regular basis, at least monthly. The fellow as well shall lead journal club sessions as indicated by the Fellowship Director.

## **Research**

Protected research is provided for the candidate in order to facilitate involvement in research projects. Depending on the estimated duration of the research project, the fellow will be granted 1 week of protected time in addition to the protected time-study time described in the general fellowship program of the department of medical imaging.

Projects are carried out under the supervision of dedicated Pediatric Radiologists. Publication of research projects, presentation of results at national and international meetings and published in leading peer-reviewed journals is mandatory.

Fellows will be expected to prepare 1 article for publication, to be completed before the end of the academic year. Given the short duration of the fellowship, the fellow must write the research proposal within the first trimester of the fellowship. Support will be provided to the fellow for grant application process. A McGill Research day takes place once a year, usually during early spring. The fellow will be encouraged to present his/her research as a formal slide presentation at that time if the scientific program allows fellows presentation.

## *Evaluation*

- The fellow is evaluated on a daily basis by the attending staff
- A formal written evaluation is completed every 3 months, using the CanMEDS roles scheme. The fellow will meet the Fellowship director of his section for direct feedback.