

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

FELLOWSHIP DIRECTOR: DR. CAROLINE LACROIX

RESIDENCY PROGRAM DIRECTOR: DR. JANA TAYLOR

PROGRAM ADMINISTRATOR: CATHY TORCHIA

General Overview

The Department of Radiology at the McGill University Health Centre offers a 1-year Clinical & Research fellowship in Pediatric Radiology. The fellowship program offers clinical exposure as well as exposure to clinical research and academic activities in Pediatric Radiology. The clinical component of the fellowship will expose the fellow to all areas of Pediatric Radiology with a focus on CT and MRI and/or in pediatric subspecialties according to the needs of the candidate and availability. The fellowship provides an integrated experience of research, multidisciplinary clinical care through participation in tumor boards, and teaching. **To be eligible, applicants must have completed at least one year of a pediatric radiology clinical fellowship.**

Duration: 1 Year

Objectives/Guidelines

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

- 1. Effectively approach and work up different pediatric radiology pathology using CT, MRI, x-rays or US when appropriate.**
- 2. Effectively protocol CT scan and MRI studies.**
- 3. Be familiar with approaches for reducing artifact in CT (eg dental), including angled image acquisition and high energy DECT reconstructions.**
- 4. Recognize detailed normal anatomy in different planes and on different imaging modalities.**
- 5. Recognize and effectively evaluate and characterize different benign and neoplastic pediatric pathologies.**
- 6. Act as an effective consultant, providing a clinically relevant evaluation of pediatric pathologies.**
- 7. Appropriately stage pediatric tumors, using the appropriate and up-to-date cancer staging system.**
- 8. Be familiar with general treatment algorithms for pediatric tumor types and sites (eg, surgery, radiation/chemotherapy, etc.).**

9. **Depending on availability and specific arrangements, the fellow may also gain exposure to ultrasound or fluoroscopic guided procedures/biopsies in pediatric abdominal imaging and/or pediatric MSK.**
10. **Design a research project with a clear hypothesis and sound methodology to address the question.**
11. **Perform a thorough literature search to identify the relevant investigations pertaining to the research question.**
12. **Be familiar with basic research analysis and statistics.**
13. **Become familiar with essentials of machine learning study design as well as strengths, and pitfalls of machine learning algorithms and their medical applications.**
14. **Become familiar with different ways of leveraging artificial intelligence for enhancing clinical practice, diagnostics, or healthcare processes.**
15. **Draft a scientific manuscript describing the original research, research article, review article or book chapter.**
16. **Participate in writing of a research grant (if requested/depending on the project and available grants).**

Fellow's Responsibilities & Schedule

- This is an advanced fellowship providing the fellow with the opportunity to gain the competence of a junior attending in an academic setting. As such, the fellow is expected to function as a diagnostic imaging expert, patient and quality advocate, manager and organizer, researcher, and teacher.
- Learn to function autonomously as an expert consultant in pediatric imaging, while having faculty backup or available faculty supervision at all times.
- Learn how to manage the workload, prioritize cases on a daily basis, and effectively pursue scholarly and research activities.
- Perform image guided invasive procedures (depending on availability and specific arrangements).
- Learn how to manage on-call workload and identify / manage urgent cases.
- Collaborate and teach residents and medical students, organize teaching rounds, collaborate and/or help in the supervision of trainee research projects.
- Actively participate in all aspects of academic and research projects including their design and execution. This will be done under the direct supervision of the fellowship director and working closely with the multi-disciplinary team of the Augmented Intelligence & Precision Health Laboratory (AIPHL) lab (<http://aiphl.lab.mcgill.ca/>) that will provide direct support for the informatics and machine learning component(s) of a research project where applicable.
- Draft and submit original manuscripts, review articles, and/or book chapters for publication.
- Prepare and participate in multi-disciplinary pediatric radiology rounds and tumor board.
- Present research results or exhibit at a national or international conference based on discussions and approval of the fellowship director.

Structure

The expected case load will vary depending on the modality and up to half of the assigned fellow time will be for research and academic activities, depending on the fellow needs and research project. Typically, the minimum expected case load are 5-10 cross-sectional imaging cases or 10-15 ultrasound studies per half day of clinical time.

There will be up to an average of 50% time (2.5 days for a 5 day week) protected research or academic time.

The fellow will cover one (1) week of call per period of 4 weeks. On call, the fellow is expected to function as a junior staff but with the support and under the supervision of the attending staff. Typical on call volumes are approximately 15 ultrasound and cross-sectional studies per week-end day, with a range of pathologies and complexities. The fellow is expected to act as a back up for the resident on call and interpret primarily some of the studies, although this will be done in coordination with the attending staff who will also help with the workload in addition to supervision of the fellow activities. During the week, the fellow will review and report the ultrasound and cross-sectional cases done during the evening and overnight. For the weekend call, the fellow will typically be expected to read the x-rays, and review and report the ultrasound and cross-sectional cases.

Evaluation

- The fellow is evaluated on a daily basis by the attending staff.
 - For clinical work, the focus is gradual development of expertise as a pediatric imaging consultant, focusing on the objectives outlined earlier which broadly include understanding different imaging techniques and effectively protocolling and supervising studies when needed, mastering pediatric imaging anatomy, become familiar with various pediatric pathologies and the pediatric tumor staging systems, and developing the skills to work in a multi-disciplinary rounds and tumor boards as an effective consultant and team member.
 - On the academic and research side, the fellow will work closely with the supervisor and will receive regular feedback during different phases of the development and execution of the academic and research projects.
- 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.

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