McGill University
Department of Diagnostic Radiology
Combined Research and Clinical Fellowship in Head and Neck Imaging

**FELLOWSHIP DIRECTOR: DR. REZA FORGHANI**  
**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 Head and Neck Imaging. The fellowship program offers high-level clinical exposure tailored for developing expert-level clinical skills in ENT imaging as well as exposure to cutting-edge research, with a focus on advanced imaging in head and neck oncology, radiomics, and artificial intelligence applications. 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 clinical fellowship or staff position in Neuroradiology.**

The McGill University Health Center (MUHC) is the tertiary care teaching institution of McGill University in Montreal that comprises approximately 1,000 beds and performs approximately 400,000 radiologic procedures per year. Clinical activities at MUHC take place at 3 sites, the state-of-the-art facilities at the Glen site, the Montreal Neurological Hospital, and the Montreal General Hospital. Fellows are exposed to a high volume of diverse cases covering all areas of head and neck cross-sectional imaging with a special focus on CT and MRI, and are supervised by a dynamic and dedicated group of head and neck imaging experts with subspecialty training. The department’s research program, conducted under the broader umbrella of the Research Institute of the MUHC, includes an active multi-disciplinary program in head and neck oncology with a special focus on radiomics, radiogenomics, and artificial intelligence applications for clinical and molecular endpoint prediction and precision medicine. Fellow research projects are supervised by combined teams of clinician-scientists and dedicated primarily clinical radiologists.

Duration: 1 Year
Objectives/Guidelines

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

1. Effectively approach and work up different head and neck pathology using CT, MRI, or US when appropriate.
2. Effectively protocol CT scans and be familiar with site specific maneuvers that results in optimal lesion visualization.
3. Be familiar with approaches for reducing artifact (eg dental), including angled image acquisitions.
4. Recognize detailed normal head and neck anatomy in different planes and be familiar with the imaging classification of lymph nodes in the neck.
5. Recognize and effectively evaluate and characterize different benign and neoplastic head and neck pathologies.
6. Appropriately stage head and neck tumors, including using the AJCC cancer staging system.
7. Be familiar with general treatment algorithms for different head and neck sites (eg, surgery, radiation/chemotherapy, etc.).
8. Act as an effective consultant, providing a clinically relevant evaluation of head and neck pathology.
9. Design a research project with a clear hypothesis and sound methodology to address the question.
10. Perform a thorough literature search to identify the relevant investigations pertaining to the research question.
11. Be familiar with basic research analysis and statistics.
12. Develop a basic understanding of radiomics and different branches of artificial intelligence, and how these can be applied for medical research or for the development of clinical applications and tools.
13. Develop a basic understanding of strengths and pitfalls of different machine learning applications for medical research.
14. Learn how to design a radiomic or artificial intelligence project.
15. Draft a scientific manuscript describing the original research, research 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 function as 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 head and neck imaging.
- Learn how to manage the workload, prioritize cases on a daily basis, and effectively pursue scholarly and research activities.
- Learn how to manage on-call workload and identify / manage urgent cases.
- 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 research projects including their design and execution.
- Draft and submit original manuscripts, review articles, and/or book chapters for publication.
- Prepare and participate in multi-disciplinary head and neck and neuroradiology rounds and tumor board.

Structure

The expected case load will vary depending on the modality and approximately half of the assigned fellow time will be for research. Typically, the minimum expected case load is 10-15 cross-sectional imaging cases per half day of clinical time.

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.

updated March 2019