

**McGill University**  
**DEPARTMENT OF DIAGNOSTIC RADIOLOGY**  
**FELLOWSHIP IN MUSCULOSKELETAL IMAGING**

Duration of training: 1 Year Fellowship Program

Name of Fellowship Director: Dr Adel Assaf

Name of Program Director: Dr. Jeffrey Chankowsky

Attending Staff: Drs. Assaf, Doyon, Khoury, Pham, Powell

## **INTRODUCTION**

The Radiologic assessment of bone, joint and soft tissues pathology is a significant part of the Diagnostic Radiology Department. It is particularly important at the Montreal General Hospital where the Department of Orthopaedics, Oncology, Rheumatology, Sports Medicine and Emergency Medicine are very active and dynamic and where there is a large daily patient load. There is potential for research activity, some of which interfaces with Orthopaedics and Rheumatology practice. The MGH is also a designated regional center in the diagnosis and treatment of sarcomas.

There is usually at least one resident doing a monthly rotation in Musculoskeletal Radiology alongside 1-2 fellow(s).

The Bone fellow will be involved in many facets of Musculoskeletal Imaging including, MRI, CT, US, Interventions and Consultations. A commitment to participate in at least one research project is encouraged.

The fellow will be given 2 weeks whereby one can review Nuclear Medicine and Pediatric teaching files.

The fellowship experience is obtained at the two major MUHC adult hospitals; the Montreal General Hospital and the Royal Victoria Hospital.

*The fellow's responsibilities are separate from those of the residents, and the fellows positively impact residency training. There is no negative impact of the fellowship on residency training.*

## **CLINICAL FELLOWSHIP - GENERAL GUIDELINES**

The following guidelines are designed to clarify the fellow's job description. The duties described are geared towards enriching the fellow's own experience and achievement as well as optimizing the functioning of the MSK section.

The fellowship is dedicated to *imaging of the joints and soft tissues*. The objective is to acquire as much experience and skills in ultrasound scanning and CT/MR interpretation as well as performing actual

interventional procedures. It is often the imaging aspect of an interventional case that provides the real challenge not the technical placement of a biopsy needle. The emphasis on patient management remains important and is an integral part of the fellow's training. At the conclusion of the training, the fellow should be able to function autonomously as a radiology consultant in US scanning, CT and MR interpretation, as well as performing and managing interventional procedures.

The fellow functions as a junior attending and as such must be integrated into the *teaching team*:: Teaching the residents basic interventional procedures, teaching at the viewer in CT /MR as well as in ultrasound, giving teaching rounds, presenting progress of research projects should occur regularly. As well, the fellow will be involved with teaching of the ICM II Medical student series.

Relationships with staff in the section: There are 5 staff radiologists in the division of musculoskeletal imaging across the McGill University Health Center. The fellow should interact with all staff-members during the course of the fellowship.

Relation with resident staff: As stated above, the fellow functions as a junior attending, and as such is incorporated within the teaching team. With respect to procedures, the fellow is primarily responsible for all interventional procedures, and as such has a supervisory over the residents to perform the cases. The residents, however are required to learn basic interventional techniques such as arthrograms and myelograms during their residency training, and the fellow is expected to assist the residents in acquiring the necessary experience in these techniques.

## **ORGANIZATION**

The daily activity in the Section is as follows:

### **1. Plain films**

Radiographs are read daily on PACS stations in the main viewing room. The fellow will go over the films with the appropriate staff radiologist and following the review, the fellow will then dictate the report.

### **2. Arthrography**

These include arthrography of the hip, shoulder, elbow, wrist and the ankle. Sinograms and knee arthrography are performed occasionally. These procedures performed by the fellows and residents.

The films will be read with the Bone staff. The fellow will then dictate the final report.

Bone biopsies can be done by the clinical fellow under the direct supervision of the Bone staff.

### **3. CT.**

The fellow is responsible for:

- 1) Screening the patient for possible allergy to iodine contrast, bleeding disorders (Before bone biopsy).
- 2) Monitoring the case which includes the selection of appropriate slice locations, need for contrast, and protocoling.
- 3) Obtaining pertinent information for film interpretation and maintaining order of reading room.

4) Performing procedures under CT guidance.

#### 4. MRI

The fellow is responsible for:

- 1) Screening the patient for possible hazards.
- 2) Monitoring the case including adaptation of the standard protocols to the need of a particular pathology.
- 3) Reporting and maintaining order.

#### 5. US

The fellow is responsible for:

- 1) Receiving and interviewing the patient, performing the US exam and then reviewing case with the Bone staff.
- 2) Reporting and maintaining order. The cases are reported immediately after the exam is performed.
- 3) Performing procedures under US guidance

### ROUNDS

**Orthopedic Oncology (sarcoma) Rounds** are held every Friday morning from 0730-0900 at the MGH.

**Rheumatology rounds** are held jointly with the Division of Rheumatology once a month on Friday mornings in the MRI Conference Room.

**Orthopaedics rounds** are held every Thursday at 7:00 a.m. in the 12th floor conference room. Orthopaedically challenging cases are presented. These rounds are run by Ortho residents.

**Bone conference** is held every Thursday at 12:00 in the Radiology Library. The fellow is expected to prepare some cases to be discussed by the residents.

**Journal Club** is held 4 times/year .

**Bone Club** is held 5 times a year at the Radiology Department of St. Justine Hospital from 17:30 o 19:30. The fellow is expected to select 2 cases for presentation.

### ON CALL

The fellows rotate on the on-call list as junior staff. They are on-call, at home with a pager, and are a resource person for the residents on-call. Their expertise may be requested for ultrasound, CT/MR cases or interventional procedures. Whenever they are requested to perform a procedure, they must contact one of the staff radiologists who routinely rotate in intervention prior to performing the procedure. Expected call frequency is 1 week/4.

### VACATION/CONFERENCES

The fellow is granted 4 weeks of vacation plus an additional week during either the Christmas or New Year's holidays. The fellow is also granted one week to attend a conference if he/she wished to do so. If

he/she presents a paper at a major conference, the time of the conference is not counted against his/her conference or vacation time. In addition, he/she may request funding for expenses incurred to attend the meeting where he/she presents, provided that the research was done in the department of Radiology at McGill University.

#### EXPECTED CASE LOAD (daily)

CT: 10  
MR : 10  
US: 4

Procedures: fellow is expected to take charge of all MSK procedures in the department (MGH/RVH)

#### Academic Facilities

- Internet access from all workstations and from fellow's office
- Access to libraries at MGH, RVH and McGill
- Multimedia learning materials available
- Free online journal access via McGill portal

#### **READING LIST**

Bone and Joint Imaging-Resnick  
Radiology of Bone disease-Greenfield  
Musculoskeletal US-Van Holsbeeck  
Orthopedic Radiology -Greenspan  
MRI of the MSK System: Resnick, Dussault/ Kaplan