1. DEFINITIONS AND OBJECTIVES

The purpose of this Fellowship is to advance the knowledge, skills, diagnostic, and consultative abilities of the Fellow in musculoskeletal radiology.

A Clinical Fellow is a post-M.D. trainee who is pursuing further clinical or research training in their own specialty and has successfully completed all of the time and examination requirements which would allow them to be listed (registered) as a specialist in their home country.

1. The candidate MUST supply a letter from the postgraduate specialty college in their home country (with notarized translation if applicable) indicating that they have met the training requirements for a specialist in that country. The letter should indicate the number of years of training necessary to achieve specialist status in the program, and examinations necessary to achieve specialist status.

2. The candidate MUST provide proof (original with notarized translation if applicable) of successful completion of all examinations listed in the above letter.

The Fellowship program in musculoskeletal imaging consists of supervised experience in imaging techniques (including plain radiographs, CT, MRI, arthrograms, and biopsy procedures) within the specialty of musculoskeletal radiology. The program is designed to develop the Fellow’s expertise in developing appropriate strategies for imaging of musculoskeletal problems, developing hands-on experience in interventional and arthrographic procedures in the musculoskeletal system, and diagnostic abilities. The ultimate goal is to provide the Fellow with training and skills sufficient to allow him/her to function as an independent fellowship-trained musculoskeletal radiologist and skilled consultant.

2. ORGANIZATIONAL CONSIDERATIONS

The Fellowship program is based within the Section of Musculoskeletal Radiology within the Division of General Radiology at the Vancouver Hospital and Health Sciences Centre. Portions of the training may at times be completed at affiliated institutions when deemed appropriate by the program director.

3. DURATION OF TRAINING

The Fellowship program offers one year of graduate medical education in musculoskeletal imaging, although under special circumstances a shorter period may be considered. Prior completion of an accredited residency program in diagnostic radiology is required.

4. TEACHING STAFF

The division is staffed by several radiologists with extensive clinical and academic experience. The faculty provides teaching and supervision for the Fellow's performance and interpretation of musculoskeletal imaging and interventional procedures. The faculty also strongly encourages scholarly activity and directs Fellows in research and teaching activities.

The Vancouver Hospital and Health Sciences Centre is the major referral centre in British Columbia for musculoskeletal trauma, reconstructive surgery, and musculoskeletal tumor treatment. Royal College accredited residency and/or Fellowship programs are present in the hospital in all major related areas including orthopedics, rheumatology, pathology, trauma, oncology, etc. Royal College certified specialists in these areas are available to provide appropriate educational resources and appropriate patient populations.
5. FACULTY/FELLOW RATIO

The standard scheduling within the musculoskeletal section consists of a musculoskeletal staff radiologist, a fellow, and a resident at any time. On occasion medical students or residents from other disciplines may also be present. This assures adequate didactic teaching, supervision and evaluation of the fellow, and minimizes dilution of the clinical experience.

6. CLINICAL RESOURCES

The musculoskeletal fellowship provides a large volume of clinical work, covering a wide variety of musculoskeletal disorders. The main modalities of imaging are plain radiographs, CT, fluoroscopy-arthrograms, and MRI. Soft tissue tumor biopsies are usually performed with sonographic guidance.

The Musculoskeletal Section utilizes a GE Signa 1.5 T MRI system with a second system. There are three GE multitrack CT scanners, digital fluoroscopy and plain fluoroscopy suites, and multiple radiographic rooms. A radiofrequency generator for RF ablation of tumours (mainly osteoid osteomas) is also available.

7. EDUCATIONAL PROGRAM

a) CURRICULUM

The majority of the training is spent in clinical imaging, side-by-side with the staff radiologist and musculoskeletal resident. Scheduling is flexible such that the fellow may select particular areas of emphasis, (i.e., MRI, CT, research, etc.) for a defined portion of the fellowship year. The fellow is given the opportunity to perform, consult and interpret many procedures in musculoskeletal imaging, including:

- plain radiographs of all areas of the musculoskeletal system,
- CT images of all areas of the musculoskeletal system,
- musculoskeletal MRI examinations,
- arthrograms, particularly wrist, ankle, hip, and shoulder
- bone and soft tissue tumor biopsies under CT, fluoroscopic or ultrasound guidance • radiofrequency ablation of osteoid osteomas and other tumors

A portion of the fellowship year can be devoted to special areas of emphasis including research or teaching activities.

b) DIDACTIC TRAINING/CONFERENCES

There are intradepartmental conferences, as well as conferences in related clinical specialties, in which the fellows participate on a regular basis. These include one or more weekly departmental conferences in musculoskeletal radiology, MRI, or CT, as well as conferences in related clinical specialties (orthopedics, rheumatology, emergency medicine) which are held at least monthly. Fellows are encouraged to attend and participate in local extramural conferences. The UBC Department of Radiology does sponsor a week-long conference each year, held at Whistler in February. Some time is usually available for one week of conference leave (preferably a national or international conferences such as the RSNA, International Skeletal Society or Roentgen Ray Society Meeting) during the fellowship year.

The musculoskeletal radiology division is extensively involved in the imaging of patients with bone and soft-tissue tumors, in conjunction with the BC Cancer Agency Sarcoma Group. Our involvement includes clinical imaging of these patients, and participation in a weekly multidisciplinary (orthopedics, pathology, oncology, radiotherapy, radiology) conference regarding patient management. The imaging studies are presented at the conference by the fellow, after prior discussion of the cases with a staff radiologist. Most bone and soft-tissue tumor biopsy procedures are performed under imaging guidance. Considerable opportunity is present for clinical and research involvement in the area of tumor imaging.

8. DUTY HOURS AND PAY
The clinical work in the musculoskeletal program occurs from 8:00 a.m. until 5:00 to 6:00 p.m. The musculoskeletal imaging fellow may be required to assist in plain film reporting on weekend mornings, with a maximum frequency of one-in-four. The bone fellow provides on-call coverage of bone CT and chest CT on a one-in-four weekly basis. Current annual salary is ~ $71,150 Canadian (including benefits).

9. TRAINEE EVALUATION

Informal evaluations of the fellow are carried out on a quarterly basis. Evaluations are intended to give the fellow feedback on his clinical and academic performance and to enable the fellow to voice any suggestions, improvements, or concerns regarding his fellowship experience.

10. FELLOW PARTICIPATION IN RESEARCH

The musculoskeletal program is actively involved in a wide number of research projects, including basic sciences and clinical topics. Fellows are also encouraged and supported to pursue any research activity that is of interest to them. The musculoskeletal staff radiologists provide guidance and assistance in all phases of the research projects. The fellows are provided with office space, office supplies, secretarial help for the conduct of research projects, as well as facilities for literature searches, editing, statistical tabulation, and biomedical photography. The musculoskeletal section has a computer with software and printer primarily for the use of the fellow in research/teaching activities. Fellows are expected to produce a publication during the Fellowship year.

11. LIBRARY

The library resources include access to the Radiology Department library, which contains the major textbooks and journals in all radiologic topics. A general teaching file is also available in this library. The musculoskeletal division has a library of musculoskeletal standard textbooks. The faculty have a very extensive MSK teaching file of over four thousand cases which is made available to fellows. The hospital library, also located on-site, contains a wide range of journals and textbooks within all main specialty areas. Literature searches and Ovid Database (e.g. MEDLINE) searches are available online through the department.