

## MRI Rotation Goals & Objectives

St. Paul's Hospital

**Rotation Supervisor:** Cameron Hague

### Overview:

St. Paul's Hospital is a 600 bed tertiary care hospital and the only hospital in downtown Vancouver. Major programs in the hospital include neurology, cardiovascular, gastrointestinal, chest services, renal and infectious disease. St. Paul's Hospital is the major center in Western Canada for the treatment of HIV patients. A busy obstetric unit is also part of the care delivered by SPH, with over 2,000 deliveries annually.

The SPH radiology department current has 2 1.5 T GE MR scanners. Cases are a mixture of neuro, MSK, body and cardiac. Cardiac and MSK are separate rotations at SPH, thus the majority of the cases reviewed by residents on the MRI rotation are neuro or body.

Body MRI at SPH consists of 7-8 cases per day with varied exams to review. Liver, pelvic, renal as well as MR enterography, rectal cancer staging and perianal fistula cases are all commonly performed at SPH.

Neuro MRI at SPH has a heavier case load of 20-40 cases per day, with varied indications including both spinal and head imaging.

Residents would be expected to review cases independently, consolidate findings, formulate a differential diagnosis and management plan prior to discussing the case with the staff radiologist.

### Objectives:

#### Medical Expert

Develop a knowledge of cross-sectional and multiplanar anatomy

Gain an understanding of MRI physics, technical parameters of image acquisition and MR related artifacts and how these factors contribute to diagnostic imaging with MR. Residents are encouraged to spend time with the excellent group of MR technologists at SPH to gain practical knowledge of MR.

Understand neuro and body MR protocols with regards to use of varied gadolinium agents, as well as varied scan parameters. Be able to help MR technologists with protocol related questions, appropriate to level of training.

Develop knowledge of neurologic and abdominal pathologies seen in clinical practice with MR.

Develop the ability to accurately and rapidly detect pertinent findings on MR studies of the CNS and abdomen.

Develop the ability to integrate findings to form a clinically useful differential diagnosis and offer an appropriate plan for the patient in question

Understand the implications that imaging findings have on treatment and management decisions.

#### Communicator

Residents are responsible for dictation of accurate, concise and useful reports following discussion of the case with the staff radiologist.

Informing the ordering physician either verbally or otherwise of any time sensitive important findings. (Depending on the level of training this may wait until after review with the staff physician.)

Obtains informed consent for patients in an appropriate fashion

Communicate effectively with patients, families and other health professionals.

Collaborator

Discussion of cases with clinical teams, applying the radiologic findings to help guide patient management

Coordinate read-out of MR body cases with the body fellow in room 11. Body MR is a growing field, but the number of cases remains comparatively small. We would like to ensure the residents and fellows gain as much exposure as possible.

Fulfills a consultant role (for level of training)

Gain respect, and recognition of the roles of, and effectively interacts with the healthcare team, including nurses and technologists

Leader

Implement processes to ensure personal practice improvement

Set priorities and manage time to integrate practice and personal life

Apply the science of quality improvement (ie discussion of potential audit) to contribute to improving systems of patient care

Contribute to a culture that promotes patient safety, including recognition of patient safety issues, and utilization of health informatics to improve patient safety

Demonstrate leadership skills to enhance health care

Health Advocate

Develop an understanding of the risks and benefits of various imaging studies. Application of this knowledge to alter imaging protocols to limit risk when deemed necessary.

Scholar

Develop the ability to utilize the radiological literature to help guide diagnostic decisions and management recommendations in an evidence based fashion appropriate to the level of training

Continued self-directed learning: reading around cases and topics, including teaching fellow residents and other students.

Professional

Interaction with support staff, nurses, clinical teams and staff in a professional fashion

Development of insight into one's personal strengths and weakness in a given area of radiology and acceptance of constructive criticism/guidance to help improve areas of weakness.

Demonstration of ethical behaviour, satisfactory attendance, punctuality, level of responsibility and reliability expected of a radiology resident.

**Reading List:**

1. MRI: The Basics. Hashemi (MRI physics text)
2. Fundamentals of Diagnostic Radiology. Brant and Helms
3. Primer of Diagnostic Imaging. Weissleder
4. Neuroradiology: The Requisites. Grossman and Yousem
5. Diagnostic Imaging Series:Neuro. Osborn
6. DI Series: Head and Neck. Harnsberger
7. Fundamentals of Body MRI. Roth (2016)
8. Abdominal-Pelvic MRI 4<sup>th</sup> edition. Semelka (2016)