

SPH NUCLEAR MEDICINE

Goals & Objectives CanMeds

St. Paul's Hospital

1081 Burrard Street, Vancouver BC, V6Z 1Y6

Level: PGY 2-5

Rotation Supervisor: Dr. George Sexsmith

The resident will gain experience in the daily practice of clinical nuclear medicine especially correlative imaging. In addition, he /she will be gain exposure to basic science of nuclear medicine and will have an opportunity to contribute to research in the division.

The practice of radiology requires a thorough knowledge of the various modalities available for the investigation of disease, especially in related areas such as Nuclear Medicine. While there are constraints which apply to this rotation which are unusual, it is expected that radiology residents will gain at least a passing familiarity with the basic Nuclear Medicine procedures and in particular the correlative imaging aspects of Nuclear Medicine studies.

To a large extent, the resident will get out of this rotation experience proportional to their desires and to the effort expended. A Radiology resident may find in the division a Nuclear Medicine resident who should be seen as a resource and guide to the specialty. The various Nuclear Medicine physicians will conduct daily film reading sessions which will comprise the majority of the teaching. In addition, there will usually be formal rounds and teaching sessions which can be taken advantage of.

Medical Expert:

- *Demonstrate diagnostic and therapeutic skills for ethical and effective patient care*
- *Access and apply relevant information to clinical practice*
- *Demonstrate effective consultation services with respect to patient care, education and legal opinions*

Basic Sciences of Nuclear Medicine

The basic sciences of nuclear medicine, chiefly nuclear pharmacy (radiopharmacy) and instrumentation (physics), are in some ways different from, if allied to, those in radiology. For those residents with an interest, a proportion of time may be spent in the radiopharmacy laboratory –1-2 days per month of the rotation would be about right. Spending time 'on the floor' with the technologists will help residents to understand nuclear medicine technology and computing and the actual mechanics of performing studies.

Clinical Practice

SPH provides a broad experience in most aspects of Nuclear Medicine. Fusion SPECT/CT imaging with high resolution CT is routine. Any resident wishing exposure to pediatric nuclear medicine can request that such an experience be included in their schedule at Children's Hospital.

Radiology residents sometimes feel at a loss when in nuclear medicine. The best remedy is to learn to display and manipulate the acquired Nuclear Medicine studies and to perform simple analyses of the recorded images. At the end of 1 month, the radiology resident should feel comfortable managing the Nuclear Medicine computer system and providing preliminary reports on the common procedures.

Duties

Daily involvement with graded responsibility. Residents should, by the end of the rotation, to be able to review all of the studies performed before the reading sessions with staff. They should have formulated a preliminary opinion of the scans and where necessary review any correlative imaging studies done elsewhere in radiology. Depending on the level of knowledge and interest, they may be expected to dictate the reports after the reading sessions (if there is no Nuclear Medicine resident present) or to share those duties.

The resident should be involved in clinical image quality assurance. Do the images obtained answer the clinical problem? Are they of sufficient quality or are additional maneuvers or views necessary? Should the patient be sent directly for additional radiologic plain films? By the end of their rotation the resident should be able to help guide the technologists to acquire the most clinically relevant images.

The resident should be involved in direct patient procedures and examinations such as specialized injections, thyroid palpation, correlative physical examinations of other areas of the body, and the review of results with patients/physicians when appropriate.

The resident should be involved in computer analysis and processing and by the end of their rotation they should be able to display any common study on the computer for interpretation.

When an occasion arises, particularly with interesting cases, the resident is encouraged to prepare and assemble material for the teaching collection or to write up case reports.

Rounds

Attendance is expected at Nuclear Medicine Grand Rounds which involve physicians city-wide, at 8:00AM every Tuesday, and rotate between Children's Hospital, St Paul's and VGH.. Nuclear Medicine academic half-day occurs immediately after Grand Rounds, and residents are encouraged to attend. 'Hot seat' rounds are often a part of these sessions, and the radiology resident is encouraged to bring cases.

The resident is also welcome to participate in other teaching activities such as special lectures and journal club, although such attendance is not compulsory for the radiology resident. The resident is encouraged to attend multidisciplinary conferences and any radiology rounds, as available.

Communicator:

- *establish therapeutic relationship with patients/families*

- *obtain and synthesize relevant history from patients/families/communities*
- *listen effectively*
- *discuss appropriate information with patients/families and the health care team*

Collaborator

- *consult effectively with other physicians and health care professionals*
- *contribute effectively to other interdisciplinary team activities*

LEADER ROLE:

- *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

- *identify the important determinants of health affecting patients*
- *contribute effectively to improved health of patients and communities*
- *recognize and respond to those issues where advocacy is appropriate*

Scholar

- *develop, implement and monitor a personal continuing education strategy*
- *critically appraise sources of medical information*
- *facilitate learning of patients, housestaff/students and other health professionals*
- *contribute to development of new knowledge*

Professional

- *deliver highest quality care with integrity, honesty and compassion*
- *exhibit appropriate personal and interpersonal professional behaviours*
- *practise medicine ethically consistent with obligations of a physician*

Reading List:

The reading list is designed to provide an overview supplemented by selections from reference books. Guided selectivity should be the strategy of choice. The residents should read around interesting cases that they encounter,

Nuclear Medicine (general Nuclear Medicine Texts for Radiologists)

THRALL J, et al. Nuclear Medicine: The Requisites. 3rd Edition, Mosby (Elsevier), 2006.

TAYLOR A et al. A Clinician's Guide to Nuclear Medicine. Society of Nuclear Medicine, 2000.

METTLER F & GUIBERTEAU. Essentials of Nuclear Medicine Imaging. 4th Edition, W B Saunders (Elsevier), 1998.

Morton et al Diagnostic Imaging Nuclear medicine Amirsys Inc 2007

Fanti et al. Atlas of PET/CT A Quick Guide to Image Interpretation. 2009

Delbeke and Isreal Hybrid PET/CT and SPECT CT/CT Imaging 2010

Basic Science - Nuclear Medicine

SAHA GB. Fundamentals of Nuclear Pharmacy. 5th Edition, Springer 2004.

CHERRY, SORENSEN & PHELPS. Physics in Nuclear Medicine. 3rd Edition Saunders (Elsevier), 2003.

Reference Texts – Nuclear Medicine

SANDLER M et al. Diagnostic Nuclear Medicine. 4th Edition, Lippincott, Williams and Wilkins, 2003.

ELL PJ and Gambhir SS. Nuclear Medicine in Clinical Diagnosis and Treatment. 3rd Edition, Churchill Livingstone, 2004.