

## **Pediatric Radiology Rotation Orientation**

### **BC Children's Hospital**

**Level:** PGY 3/4/5

**Rotation Supervisor:** Dr. Lydia Bajno

#### **Overview:**

During the course of the radiology residency, radiology residents receive 16 weeks of Pediatric Radiology training; 8 weeks during PGY3 year and 8 weeks during PGY4 or PGY5 years. Pediatric Radiology training at BC Children's Hospital is designed as "rotations within a rotation". Residents are assigned to General Pediatric Radiology, Ultrasound, Neuroimaging, and Cardiac / Body Imaging rotations during their Pediatric Radiology training. There is some flexibility in the training rotations with residents able to undertake some Interventional Radiology or otherwise tailor their training to their needs during the final 4 week Pediatric Radiology rotation.

The general rotation responsibilities include review of ER, inpatient and outpatient plain films and fluoroscopy studies. Residents should arrive at the Hot Seat and begin reviewing plain films from the Emergency Room by 0800 hours. Residents will be assigned to the NICU conference some mornings while on the General rotation. On these days the resident should attend NICU conference at 0800 hours in the NICU conference room. Residents should have reviewed relevant imaging prior to the NICU conference. Following NICU Rounds the resident should return to the Hot Seat area.

Residents on the Cardiac / Body Imaging Rotation should review relevant PICU imaging prior to PICU conference which begins at 0745 in the PICU conference room. Following PICU Rounds, the resident assigned to this rotation should check with radiologists supervising both the Body and Cardiac rotations and organize their day to get exposure to as many Body and Cardiac cases as possible. Residents are encouraged to review Pediatric PET- CT cases when Dr. Nadel is available (usually Thursday mornings).

The Neuroimaging rotation begins at 0800 in the MRI reading room.

The ultrasound rotation begins at 8 am. Residents are encouraged to accompany a sonographer to the NICU to gain experience with ultrasound studies on neonates and to scan patients of all ages in the main department. Residents should be comfortable performing ultrasound studies unique to the pediatric patient (hip, head and spine ultrasound) by the end of their initial Pediatric Radiology rotation.

Vacation, conference and call requests must be booked with Dr. Bray prior to the beginning of the rotation. There are frequently three residents rotating on the same call schedule at one time, and care is given to create monthly call schedules and weekly work rosters well in advance. Residents are required to do one weekend of call in each month, as well as approximately one weekday night of call each week. Residents are not required to stay on site at the hospital while on call; a pager is provided. Residents should contact Dr. Bray if they will be absent from the rotation due to illness or other urgent matters.

Teaching occurs throughout the day at the workstation and at mandatory case review teaching conferences, which are held at 1215 hrs on Monday, Tuesday and Friday of every week. Residents are expected to attend “Academic Rounds” held from 1630 to 1730 hrs most Tuesdays during the academic year and Departmental Quality Assurance rounds held on Tuesdays following noon conference. A number of multidisciplinary case review conferences are held throughout the week. Residents are encouraged to attend these conferences and UBC Pediatric Grand Rounds, which are held on Fridays at 0830 hrs during the academic year. A schedule of Departmental conferences will be distributed to the residents on the first day of the Pediatric Radiology rotation.

The Pediatric Radiologists are listed below. Each has training in general paediatric radiology, with subspecialty interests as follows:

- |                      |   |   |
|----------------------|---|---|
| 1. Bajno, Lydia      | - | Body Imaging                              |
| 2. Bray, Heather     | - | Body Imaging                              |
| 3. Cairns, Robyn     | - | Musculoskeletal Imaging                   |
| 4. Culham, Gordon    | - | Cardiothoracic Imaging                    |
| 5. Hegde, Ashwin     | - | Body Imaging                              |
| 6. Heran, Manraj     | - | Interventional Radiology                  |
| 7. Jamieson, Douglas | - | Body Imaging                              |
| 8. Mawson, John      | - | Cardiothoracic imaging                    |
| 9. Maroo, Sanjay     | - | Interventional Radiology, Cardiac Imaging |
| 10. Nadel, Helen     | - | Nuclear Medicine/Oncology Imaging         |
| 11. Sangha, Bippan   | - | Interventional Radiology                  |
| 12. Sargent, Michael | - | Neuroimaging                              |
| 13. Yewchuk, Lila    | - | Body Imaging                              |

## **GOALS and OBJECTIVES of Pediatric Radiology Training**

The overall goals and objectives of the Pediatric Radiology training are to develop a sound knowledge of general pediatric radiology (plain films, fluoroscopy, ultrasound and CT and MRI) and the principles of radiation protection as applied to the pediatric population. By the completion of the Pediatric Radiology training, the resident should be capable of acting in a consultant role to discuss indications for imaging studies in children and the management implications of findings. The resident should understand appropriate techniques for imaging children and how techniques are modified depending on age and size of the patient. The resident should be capable of performing a satisfactory fluoroscopic or ultrasound study on a pediatric patient; particularly those studies which are unique to the pediatric population.

### **Medical Expert:**

- Knowledge of multi-planar anatomy, clinical pediatrics, and pathology as pertains to pediatric imaging
- Knowledge of modality specific physics and pediatric specific imaging protocols
- Able to detect and interpret findings to develop an appropriate differential diagnosis considering the age of the patient
- Able to summarize case, offer recommendations, understand treatment and clinical implications
- Able to perform satisfactory pediatric fluoroscopy and ultrasound procedures

Specifically, by the end of the Pediatric Radiology Training Period the resident should have knowledge of the Pediatric Radiology curriculum as listed below:

- 1. Radiation effects and safety during imaging procedures**
- 2. Head and Neck Imaging**
  - a. Congenital conditions ( ie. Inner ear and branchial cleft malformations)
  - b. Infection and Inflammation
  - c. Neoplastic conditions
- 3. Neuroimaging**

- a. Congenital anomalies
  - b. Neonatal Brain Injury
  - c. Metabolic and Neurodegenerative Disorders
  - d. Infection and inflammation
  - e. Neoplastic Conditions
  - f. Vascular Disorders
  - g. Trauma including Non-Accidental Injury
- 4. Respiratory / Thoracic Imaging**
- a. Congenital anomalies
  - b. Infection and Inflammation
  - c. Systemic Conditions with Lung Involvement
  - d. Neoplastic Conditions
  - e. Trauma
- 5. Cardiovascular Imaging**
- a. Congenital Heart Disease
  - b. Infection / Inflammation
  - c. Cardiovascular involvement with systemic disease
- 6. Gastrointestinal / Abdominal Imaging**
- a. Congenital Anomalies i.e Malrotation, in utero bowel obstruction
  - b. Infection / Inflammation
  - c. Acquired Bowel Obstruction
  - d. Neoplastic Conditions
  - e. Trauma
  - f. Transplant
- 7. Genitourinary Imaging**
- a. Congenital Anomalies
  - b. Infection / Inflammation
  - c. Metabolic and inherited Conditions
  - d. Neoplastic conditions
  - e. Torsion
  - f. Trauma
  - g. Transplant
- 8. Musculoskeletal Imaging**
- a. Congenital Anomalies
  - b. Skeletal Dysplasias and Metabolic Conditions
  - c. Trauma including Non-Accidental injury
  - d. Scoliosis
  - e. Infection / Inflammation
  - f. Neoplastic Conditions

**Communicator:**

- Establish therapeutic relationship with patients/families

- Obtain and synthesize relevant history from patients/families/communities
- Listen effectively
- Communicate effectively with patients, families and other health professionals
- Demonstrate appropriate and timely communication of findings to referring physicians
- Give accurate, concise, complete reports

**Collaborator:**

- Respect, recognize the roles of, and consult effectively with the healthcare team, including clinicians, surgeons, nurses and technologists
- 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:**

- Understand benefits and risks/limitations related to imaging studies in the pediatric population
- Understand the appropriate use of imaging studies and rationalization of use of imaging resources in children

**Scholar:**

- Effectively teach others, including residents, medical students, patients and other health professionals
- Demonstrate continuous self-directed learning (reads around cases and topics)
- Demonstrate evidence based medical approach and critical appraisal with regards to radiology literature
- Develop, implement and monitor a personal continuing education strategy
- Contribute to development of new knowledge

**Professional:**

- Deliver highest quality care with integrity, honesty and compassion
- Exhibit appropriate personal and interpersonal professional behaviours

- Practice medicine ethically consistent with obligations of a physician
- Demonstrate insight with regards to own limitations, strength and weaknesses, asks for help when appropriate
- Accept constructive criticism

Reading List:

- **Fundamentals of Pediatric Radiology** by Lane F. Donnelly
- **Caffey's Pediatric Diagnostic Imaging** (ed. Brian Coley),
- **Pediatric Sonography** ( ed.Marilyn Siegel)
- **Pediatric Neuroimaging** (ed. A James Barkovich)
- These and other relevant textbooks are available in our department. Good review articles on topics in Pediatric Radiology are available in AJR, Pediatric Radiology, and Radiographics.