**Diagnostic Imaging – ROTATION SPECIFIC OBJECTIVES**

**Pediatric Emergency Medicine Subspecialty Residency - University of Calgary**

**Rotation Structure:**

In order to ensure that rotation objectives are met, the Diagnostic Imaging rotation is structured to expose the resident to the main imaging modalities encountered in pediatric emergency practice, with a focus on plain film interpretation. Daily schedules, as well as additional educational opportunities and expectations, are detailed below.

The main contacts for this rotation are:

Physician Supervisor: Dr. Samarjeet Bhandal

Administrator: Cathy Wall Room B1-321 (DI Admin Office)

The resident should check in with Cathy at 0800 on the first day of their rotation, including reviewing the rounds schedule for the 2 weeks of their rotation.

* Resident tip: The rounds schedule is posted in the reading rooms, but I would check in with the staff each day to confirm because sometimes they are cancelled but they don’t update the schedule.

*Daily Schedule:*

*Aside from beginning of morning xray review, there is significant variability/flexibility in the schedule – make sure to take initiative to learn!*

0800-1000: X-rays: Resident reviews X-rays ordered by the Emergency Department from the previous night on their own (IMPAX Worklist “CR ER New”, approximately 35-40 films/day) (resident then approaches any radiologist reviewing CR ER New films or corroborates their interpretations with final written reports)

* + *\*Resident tips: Arrive at 8am even though most radiologists/fellows are not there yet – just start looking at reports. In general, read the ED 24h list, and then compare as the official reports are in. Did not necessarily review each film with the radiologist as they are busy doing their own reading, and just asked if I had a question. This was implied from the other staff too when asking about the rotation. I found the highest yield came when residents reviewed images with staff as this provided a forum to discuss approaches, ask and answer questions from staff. Each day I would introduce myself to the fellows and staff and ask that I be included in these reviews and also be*

*informed of “interesting cases”.*

1000-1200: CT (resident assigned to radiologist reviewing CT)

1200-1300: Radiology Rounds (various audiences)

1300-1500: Variable – approach fellows/residents/staff to review interesting cases. \*\* If there is

nothing going on in the radiology department, residents should take advantage of this time to head to the ED to practice PoCUS scans on patients if there are opportunities as well as staff on shift who are IP certified and can supervise scans.

**Rounds:**

*Attendance*

There are multiple rounds each week that the resident may attend (NAT, Surgery, GI, ICU, Resident, Pulmonary, General Peds, etc.). There is a complete schedule posted in the DI Admin Office. The resident should decide, together with their preceptors that day, which rounds would be appropriate for the resident to attend.

*Presentations*

1. During the rotation, for DI department: The resident is expected to prepare a 15-minute presentation for the DI staff physicians and residents, to be given in the 2nd week of their rotation, on a day and time to be scheduled by Dr. Bhandal or designate within the first few days of the rotation. The resident should choose a specific topic (e.g. wrist fractures, elbow fractures, proximal humerus fractures, etc.) by the end of the first week. The resident should make note of films seen in the first week that will be used for the presentation.
   * *We were given the freedom to choose a topic of our choice and some of the fellows kindly helped us select and locate appropriate images and cases.*
2. For PEM monthly “super-early Thursday rounds”: The resident will be assigned to present once yearly at a clinical-radiographic correlation rounds. This will involve a review of ~5-10 interesting cases, for which the PEM resident will present the clinical synopsis of the patient and the DI staff or resident will review the findings on imaging. During their DI rotation, the resident is expected to make note of interesting cases (may use log attached at end). The resident will review the cases with their assigned DI staff preceptor for the rounds and pick 5-10 appropriate cases. The resident will then review the ED chart of the patient, prepare a clinical synopsis of the case, and gather the relevant images.

Useful Resources:

* ImageSim MSK and chest xray series: [https://imagesim.com](https://imagesim.com/)
* KidSono website: [https://kidsono.com](https://kidsono.com/)
* “Emergency Radiology: Case Studies” by David T. Schwartz
* “Radiology Cases in Pediatric Emergency Medicine” <http://www.hawaii.edu/medicine/pediatrics/pemxray/pemxray.html>
* Radiopaedia: https://radiopaedia.org
* Radiology UK: [http://radiologymasterclass.co.uk/](https://ahsmail.capitalhealth.ca/owa/redir.aspx?C=-zf399xqnUOAyHWH3GXQ0tveO0d5b9JIy97s4lMms-IUkXdn9R6MFUXc9-34f6EyRTYIoxi4PsU.&URL=http%3a%2f%2fradiologymasterclass.co.uk%2f)

*Evaluation*

The resident will be evaluated by Dr. Bhandal or designate through One45. The resident will evaluate the DI rotation using the evaluation form provided by Cathy Wall.

**Rotation Objectives**

At the completion of training, the resident will have acquired the following competencies and will function effectively as:

# Medical Expert

The resident should demonstrate knowledge, including indications, limitations, and/or interpretation, of:

* Chest radiographs
* Abdominal radiographs
* Abdominal CT and ultrasound (indications and limitations only; interpretation not required)
* Cranial CT
* Skull radiographs
* Facial radiographs
* Spine and extremity radiographs
* Pelvis radiographs

The resident should demonstrate:

* Knowledge of basic sciences relevant to diagnostic imaging modalities.
* Knowledge of side effects and complications of diagnostic imaging modalities, including but not limited to: contrast allergy, contrast induced nephropathy, approximate radiation doses.
* Recognition of variation in radiographic presentations for children of differing ages.
* Recognition of critical findings on plain films and CT.

# Communicator

The resident should:

* Understand what information is required from referring physicians in order for the radiologist to make recommendations regarding the most appropriate testing and/or management of patients.
* Understand what is required for obtaining informed consent for tests and procedures.

# Collaborator

The resident should:

* Consult effectively with other physicians and health care professionals.
* Work well as an effective team member.

# Leader

The resident should:

* Utilize resources and technology appropriately and efficiently.
* Have an understanding of the urgency of various diagnostic imaging requests.

# Health Advocate

* The resident should understand the importance and process of notifying referring physicians of urgent or discrepant results.

# Scholar

* The resident should demonstrate critical thinking and integrate critical appraisal of the literature into clinical care.

# Professional

The resident should:

* Be responsible, dependable, and reliable.
* Demonstrate good self-assessment ability by being aware of own strengths and limitations /weaknesses, and seeking feedback.
* Understand what information is required from referring physicians in order for the radiologist to make recommendations regarding the most appropriate testing and/or management of patients.
* Understand what is required for obtaining informed consent for tests and procedures.

**ADDENDUM: POCUS ROTATION ADD-ON (starting 2020/21 year for Pediatrics stream residents)**

*\*Note: RC subspecialty committee has working group attempting to define training requirements, but nothing is formalized.*

*Local requirements? Scans required over two years (as suggested by M. Willimann)*

\*Can be achieved in peds or adult patients

* 50 FAST
* 10 Pneumothorax
* 10 Effusions
* 20 pneumonia/pulmonary edema
* 50 global function/ pericardial effusion/ volume status – not yet done
* 10-20 procedural (any nerve blocks, fracture reductions) – fem nerve block done
* 10 skin/soft tissue – to be done

How to achieve training:

* Scanoramas 2x/year
* Longitudinal 1-2 shifts/PEM block US shifts
* 1st year Radiology rotation 2 wks/ PoCUS 2 wks
* Rotation structure
  + Week 1: Traditional DI experience + KidSono material
  + Week 2: Traditional DI experience in AMs + afternoon scanning sessions (Mark, Fiona, Mel)
  + Week 3 and 4: ED scanning shifts e.g. 4hrs/day and image review of saved scans
    - Present DI rounds i.e. PoCUS rounds – interesting cases and PoCUS article
    - Mel to arrange 2 days in Cardiology (with echo tech)
    - AHD time to do Image Review of all residents to date (QA opportunity)

Notes:

* Provide a department PoCUS “Expert” (preceptor) list
* PoCUS orientation during AHD bootcamp in July
* Quick image review AHDs 3x/year
* POCUS ITER would go to Mel Willimann + same DI ITER
* EPA revision to reflect scans needed
* Ideally complete all this by end of first year so available in 2nd year to join “Expert” list and teach
* Log exclusively on KidSono moving forward but still do EPAs for bare minimum competency proof
* For the EM stream residents: DI rotation x2 weeks with OPTION of addition 2 week PoCUS rotation as per Mel but rest of requirements (scan numbers) the same and would have to do supervised scanning sessions with Mel in mandatory 2 week DI rotation to evaluate and demonstrate proficiency