

Name of Rotation:	Advanced Diagnostic Radiology
PGY Level:	PGY-4, PGY-5
Supervising Attending(s):	Drs. Christopher Oustwani, Caryl Salomon, Antonella Lostumbo, Priti Patel, Myriam Bermudez

Goals and objectives of rotation: please specify how this rotation experience can enhance the education of the trainee (refer to [Curriculum Template](#)).

Residents on this rotation will primarily be performing the following activities:

- Interpretation of CT examinations (including, but not limited, to head, neck, spine, chest, abdomen, pelvis, and extremities)
- Interpretation of MRI examinations (including, but not limited, to head, neck, spine, chest, abdomen, pelvis, and extremities)
- Providing protocols and answering technologist questions pertaining to MRI examinations
- Answering inquiries from clinicians regarding MRI examinations
- Assisting the resident on the introductory radiology rotation

GOALS AND OBJECTIVES:

MEDICAL KNOWLEDGE

- Understand appropriate use of CT and MRI for diagnostic purposes, based on indication, risks and benefits, and cost effectiveness
- Develop a systematic approach to the interpretation of CT and MRI examinations
- Correctly identify important anatomic structures on CT and MRI, including, but not limited, to:
 - Brain, Head/Neck
 - Lobes, gyri, sulci
 - Ventricles and basal cisterns
 - Intracranial arteries and dural venous sinuses
 - Orbits – globe, extraocular muscles, optic nerve, lacrimal gland
 - Cranial nerves
 - Calvarium and bony skull foramina
 - Temporal bone – external, middle, and inner ear
 - Paranasal sinuses
 - Oropharynx, Nasopharynx, Hypopharynx, and Larynx
 - Oral cavity
 - Parotid, submandibular, and thyroid glands
 - Cervical lymph node stations

- Cervical vasculature
 - Spine
 - Vertebrae
 - Spinal cord and cauda equina
 - Ligamentous structures
 - Paraspinal musculature
 - Chest
 - Lobes and fissures
 - Pleural and pericardial spaces
 - Heart chambers and valves
 - Arteries and Veins
 - Esophagus
 - Hilar structures
 - Bones
 - Diaphragm
 - Abdomen and Pelvis
 - Liver
 - Gallbladder and Biliary Tract
 - Spleen
 - Pancreas
 - Adrenal Glands
 - Kidneys, Ureters, and Urinary Bladder
 - Abdominal and pelvic vasculature
 - Lymph Nodes
 - Peritoneum and Omentum
 - Bowel
 - Prostate, Uterus, Ovaries
 - Bones and musculoskeletal structures
 - Soft tissue structures
 - Upper and Lower Extremities
 - Bones
 - Ligaments
 - Tendons
 - Muscles
 - Cartilage
 - Neurovascular structures
- Correctly identify abnormal neuroradiology CT and MRI findings, including, but not limited to
 - Intracranial hemorrhage
 - Hydrocephalus
 - Brain herniation
 - Acute infarction
 - Intracranial masses
 - Intracranial aneurysms

- Intracranial vessel stenosis or occlusion
- Encephalomalacia
- Cerebral volume loss patterns
- White Matter Disease
- Intracranial infection
- Calvarial or spine fractures
- Spinal canal hemorrhage
- Acute disc herniation
- Spinal canal masses
- Spinal canal degenerative changes
- Myelomalacia
- Spinal cord and cauda equina signal or morphological abnormality
- External, middle, or inner ear disease
- Aerodigestive tract mucosal abnormalities and masses
- Dental caries, periodontal/endodontal disease, and odontogenic infection
- Facial bone trauma and fractures
- Paranasal sinus disease
- Abnormal cervical lymph nodes
- Masses of the thyroid, submandibular, or parotid glands
- Sialolithiasis, infection of the parotid or submandibular glands
- Cervical vasculature occlusion or stenosis
- Cranial nerve abnormalities and abnormal enhancement
- Correctly identify abnormal chest CT findings, including, but not limited, to
 - Aortic aneurysm and dissection
 - Coronary artery disease
 - Cardiomegaly, heart chamber or valve abnormalities
 - Pericardial effusion
 - Pulmonary embolism and pulmonary artery dilation
 - Pneumothorax
 - Pleural effusion and pleural masses
 - Mediastinal or hilar lymphadenopathy
 - Pneumomediastinum
 - Esophageal masses, esophageal mucosal abnormality, and esophagitis
 - Supraclavicular and thyroid masses
 - Axillary lymphadenopathy
 - Osseous/musculoskeletal abnormalities
 - Upper abdominal abnormalities
 - Pulmonary nodules and masses
 - Pulmonary infection
 - Interstitial lung disease
 - Airway abnormalities and obstruction
- Correctly identify abnormal abdominal and pelvic CT and MRI findings, including, but not limited, to
 - Parenchymal liver disease, including cirrhosis and steatosis

- Liver masses
- Portal vein thrombosis, portal venous gas
- Cholelithiasis, gallbladder sludge, and cholecystitis
- Gallbladder adenomyomatosis
- Gallbladder polyps and masses
- Biliary ductal dilation and choledocholithiasis, pneumobilia
- Splenomegaly and splenic masses
- Pancreatitis and pancreatic masses
- Pancreatic ductal dilation
- Abdominal aortic ectasia or aneurysm, abdominal aortic atherosclerosis
- Abdominal/pelvic vessel occlusion
- Abnormal appearance of abdominal and pelvic lymph nodes
- Pneumoperitoneum, ascites, peritoneal / retroperitoneal masses
- Hydronephrosis
- Renal or bladder masses
- Renal or bladder stones
- Pyelonephritis
- Bowel masses
- Bowel mucosal abnormality
- Acute abdomen
 - Appendicitis
 - Diverticulitis
 - Gastritis, enteritis, colitis
 - Perforated viscus
 - Bowel obstruction
 - Bowel ischemia
 - Pneumatosis
- Prostatomegaly and prostate masses
- Urinary retention
- Uterine and cervical masses
- Endometrial thickening
- Adnexal masses
- Correctly identify abnormal musculoskeletal CT and MRI findings, including, but not limited to
 - Fracture or bone contusion
 - Background marrow signal abnormality
 - Osseous malalignment
 - Osteomyelitis
 - Bone tumors
 - Tendinopathy, Tendinitis, and Tendon Tears
 - Ligament Sprains
 - Muscle strains, muscle atrophy
 - Joint effusions, synovial abnormalities, and joint bodies
 - Cartilage abnormalities, osteoarthritis

- Inflammatory and infectious arthropathy
- Neurovascular abnormalities
- Soft tissue tumors
- Soft tissue infection
- Correctly synthesize identified abnormal imaging findings to produce appropriate differential diagnosis and recommendations

PATIENT CARE

- Communicate significant imaging findings to clinical service, with appropriate documentation
- Obtain appropriate medical history of patients from electronic medical record, radiology order, and communication with ordering provider
- Recognize when to consult attending physician regarding patient care issues
- Answer common clinician questions regarding radiography, ultrasound, fluoroscopy, CT, and MRI examinations, including, but not limited to,
 - Appropriate examination choice
 - Appropriate use of intravenous contrast
 - Review and explanation of previously performed examinations
- Assess patients experiencing a complication while undergoing a CT or MRI scan in the radiology department, including, but not limited to,
 - Contrast extravasation
 - Contrast reaction
- Understand CT and MRI imaging protocols and correctly protocol CT and MRI examinations
- Answer technologist questions regarding common CT and MRI issues, including, but not limited to
 - Appropriate use of intravenous contrast in patients with renal impairment
 - Appropriate use of intravenous contrast in patients with contrast allergy, including appropriate contrast premedication
 - Appropriate use of CT and MRI in pregnant patients

INTERPERSONAL AND COMMUNICATION SKILLS

- Effectively communicate with all members of radiology team, including attending physicians, fellow trainees, technologists, and support staff
- Effectively communicate with all members of clinical services
- Produce concise and comprehensive radiology reports of radiography examinations, utilizing proper terminology
- Correctly utilize American College of Radiology standardized reporting systems (TIRADS, LUNG-RADS, PIRADS, and LIRADS) for appropriate examinations

PROFESSIONALISM

- Demonstrate responsible, ethical behavior; positive work habits; and professional appearance; and adhere to principles of patient confidentiality
- Positively incorporate constructive feedback
- Assist resident on introductory radiology rotation when necessary

PRACTICE-BASED LEARNING AND IMPROVEMENT

- Recognize and correct personal errors
- Understand ultrasound examination imaging protocols, accurately check exams performed by ultrasound technologists and request repeat/additional imaging as warranted
- Understand protocols for radiographic examinations, including patient positioning and obtained views. Request repeat/additional imaging as warranted
- Provide feedback to technicians about performed examinations and suggestions for improvement

SYSTEMS-BASED LEARNING AND IMPROVEMENT

- Participate in discussions with faculty and staff regarding operational challenges and potential system solutions regarding all aspects of radiologic services and patient care

Regularly scheduled didactic educational experiences:

Residents will attend all UIC radiology conferences remotely via Webex.

Additionally, residents will participate in monthly departmental interesting case conference.

Delineation of trainee responsibilities for patient care, progressive responsibility for patient management, and supervision of trainees over the continuum of the program:

Trainees will be independently reviewing radiology studies and generating preliminary reports. Studies will subsequently be reviewed by a department attending and revised as necessary. As the resident progresses, it is expected that less revisions to reports will be necessary.

Additionally, trainees will be answering questions from clinicians and technologists independently, as their knowledge and competency allows. The attending physician is always available to help the resident answer a question. As the resident progresses, it is expected that most questions will be answered independently.

Unique educational value of this rotation offers: please explain unique educational values that the rotation offers.

The advanced diagnostic radiology rotation at the Jesse Brown VA Medical Center (JBVAMC) will offer radiology residents a unique opportunity to experience an integrated rotation which

includes multiple organ systems and modalities, which mirrors the workflow of many diagnostic radiologists. Additionally, the majority of radiology patients at JBVAMC are medically complex, which provide radiology trainees with excellent learning opportunities. Furthermore, radiologists at the JBVAMC will voluntarily choose a teaching or clinical track, ensuring that all teaching attendings are enthusiastically interested in working with radiology trainees. The presence of clinical track radiologists will ensure ideal management of the radiology workflow, allowing teaching attendings more time to provide education to trainees.