

Effective Date 07/15/2025

Name of Rotation:	Neuroradiology
PGY Level:	2, 3, 4, 5
Supervising Attending(s):	Anderson, Ozgen, Futterer, Yang

Goals: early level rotations

After completion of the early neuroradiology CT, MRI and Head & Neck rotations (approximately 8-12 weeks), the resident should be able to:

1. Demonstrate learning of the organ-based medical knowledge objectives cited below.
2. After determining the appropriateness of the examination and collecting the background clinical information, protocol a simple head, spine or neck CT.
3. Understand the indications for CT versus MRI of the head, spine or neck.
4. Describe the indications and contraindications for intravascular (iodine-based and gadolinium) contrast.
5. Understand basic safety principles for CT and MRI.
6. After determining the appropriateness of the examination and collecting the background clinical information, protocol a simple CT (such as to rule out bleed, stroke, or infection).
7. Understand the protocols for simple (routine) CT & MR of the head, neck, and spine.
8. Show sensitivity to fluoroscopic and CT dose.
9. Dictate accurate, concise, and timely radiology reports on simple CT scans, fluoroscopic procedures, and MR scans after these have been reviewed by the faculty with only minimal assistance or editing by the faculty.
10. Effectively communicate simple instructions to technologists and findings to the referring physician staff and house staff.
11. Demonstrate professionalism and a responsible work ethic.
12. Participate in Quality Assessment/Quality Improvement (QA/QI) conferences.
13. Present simple cases concerning the head, neck, and spine at the End of Rotation Conference.
14. Perform at an appropriate level on national or departmental in-service exams.

Specific objectives/benchmarks: early rotations

A. Patient Care

At the end of the early rotations in neuroradiology the radiology, the resident will demonstrate that he or she can:

1. Determine at a basic level if neuroradiology CT or MRI scan is appropriate to answer the clinical question and if that scan has been ordered appropriately.
2. Protocol straightforward CT cases and direct the technologists to perform appropriate/additional/reformatted views as needed. If suboptimal images are obtained, communicate with the technologist to find out if the patient cooperated with the study and if the technologist had tried to repeat the images.
3. Learn how to safely supervise conscious sedations with the assistance of the radiology nurse and more senior resident on service. This includes review of the patient's medical history, examination of the patient and obtaining informed consent from the patient and/or guardian.
4. Recognize adequate versus inadequate studies resulting from artifacts such as motion or intravenous contrast on CT.
5. Recognize the majority of the entities in Labeled E in the Appendices with moderate accuracy.
6. Assist in performance of neuroradiology procedures e.g. spinal biopsies, lumbar puncture, myelography, and cisternography.
7. Review history of the patient for whom a fluoroscopic procedure e.g. lumbar puncture or myelography has been ordered and determine the appropriateness of the study requested with assistance of the faculty in some cases.
8. Select the appropriate contrast agents to use for fluoroscopic procedures e.g. lumbar puncture or myelography with assistance of the faculty in some cases.
9. Demonstrate sensitivity to fluoroscopic dose by recording fluoroscopy times in the written report.
10. Screen patients and identify those at risk from iodinated contrast or gadolinium-based contrast and make further recommendations after significant input from the faculty.

B. Medical Knowledge

At the end of the early rotations in neuroradiology, the resident will demonstrate that he or she has learned:

1. Most the anatomic structures in the appendix.
2. Common emergent abnormalities of the head, neck, and spine with CT and MR.
3. Basic physics of helical (multirow) CT image acquisition and MRI acquisition.
4. Intravenous contrast material use in neuroradiology CT including.
 - Principles for contrast administration
 - Use of computer assisted techniques for optimizing contrast timing.
6. Basic neuroradiology CT protocol design.
 - Tailoring contrast enhancement to the specific type of exam.

- Selection of scan parameters such as mAs and kVp.
 - The general principles of As Low As Reasonably Achievable dose (ALARA).
7. Elements of a CT report: including proper descriptive terms for simple abnormalities.
 8. Typical CT appearance of common abnormalities:
 - Brain masses
 - Brain hemorrhage
 - Stroke
 - Infection
 - Fractures of the calvarium, spine, and facial bones
 9. The different contrast agents used in the department and how to choose the appropriate agent to minimize the probability for renal failure, allergic reaction, or nephrogenic systemic fibrosis (NSF).
 10. How to operate the department's fluoroscopy equipment.
 11. Risk factors for developing a contrast reaction, potential treatments for minor contrast reactions and other deleterious effects of iodinated and gadolinium-based contrast.
 12. The rationale for the standard views and sequences for CT & MR examinations of the head, neck, and spine.
 13. The appearance of a normal CT of the head and spine.
 14. The expected changes associated with aging in CT examinations of the head and spine.
 15. MRI signal characteristics of brain and spine on pre- and post-contrast T1-weighted images and T2-weighted images, DWI, Flair, and GRE (T2*) for normal studies, hemorrhage, tumor, and cord compression.
 16. Perform at an appropriate level on national or departmental in-service exams.

C. Practice-based Learning and Improvement

At the end of the early rotations in neuroradiology, the resident will demonstrate that he or she can:

1. Appropriately use the Picture Archiving and Communication System (PACS) to mark studies as dictated documenting the resident's participation in the case.
2. Appropriately use the Picture Archiving and Communication System (PACS) to set imaging protocols for routine studies.
3. Appropriately use the Picture Archiving and Communication System (PACS) to set the window levels for routine studies.
4. Engage the faculty in discussion about the resident's own preliminary interpretation of the case and analyze discordant readings and why they occurred.

5. Document any potential procedural or other complications in the medical record and through the appropriate hospital risk-management system after consulting with the faculty (also applies to Professionalism).
6. Show other residents on the rotation interesting cases and be prepared to discuss the findings with a specific focus on "why the case was personally challenging".
7. Participate in the department's QA/QI conference.
8. Present a simple case at the end of rotation conference.
9. Maintain a procedure log detailing all simple invasive procedures performed by the resident including his or her role, complications, preceptor name, and date.

D. Interpersonal and Communications Skills

At the end of the early rotations in neuroradiology, the resident will demonstrate that he or she can:

1. Communicate with the technologist about any special or additional views that should be obtained to demonstrate the pathology identified.
2. Generate a coherent, logical report reflecting the review session and discussion with the radiology faculty for most cases with minimal assistance. In cases in which there are complex findings, it is expected that the early rotation resident will need some assistance with choosing proper wording of the report.
3. Communicate to the referring physician on the day of the exam any significant or unexpected abnormalities identified on the examination AND document in the report who was called at what date and time.
4. Comply with hospital and departmental policy for reporting critical test results.
5. Discuss the findings and literature for relatively simple cases at the departmental case conference(s).
6. Explain simple procedures to patients and their families and obtain informed consent with the faculty.

E. Professionalism

At the end of the early rotations in neuroradiology, the resident will demonstrate that he or she can:

1. Arrive on time and fulfill the clinical and educational tasks necessary as part of the daily routine. This includes looking up relevant articles, completing background reading, and attending all intradepartmental conferences and those interdepartmental conferences relevant to the neuroradiology services.
2. When consulting with referring physicians or house staff, recognize his or her own limitations and seek input from radiology faculty.
3. Obtain informed consent for an invasive procedure or conscious sedation (if this is consistent with specific departmental policy for that procedure), including doing so compassionately and

without ethnic, religious, or sexual bias, explaining the procedure's risks, benefits, alternatives, and addressing all of the patient's concerns.

4. Comply with the provisions of the Health Insurance Portability and Accountability Act (HIPAA) and all state confidentiality rules.
5. Comply with all Institutional Review Board (IRB) rules (if the resident has become involved in research during their early rotation).
6. With guidance from the faculty, record cases for both their own and the section's teaching file.

F. Systems-based Practice

At the end of the early rotations in neuroradiology, the resident will demonstrate that he or she can:

1. Join at least one of our professional organizations American College of Radiology (ACR), American Roentgen Ray Society (ARRS), Association of University Radiologists (AUR), or Radiological Society of North America (RSNA).
2. Attend the teaching sessions and quiz of the local radiology society (CRS).
3. Identify systems-based operational challenges within the department and engage the faculty in discussions how to affect changes that would be beneficial in neuroradiology or the department as a whole.
4. Observe and learn how to participate in the Departmental Quality Improvement Process.

Goals: mid-level rotations

After completion of the mid neuroradiology rotations (approximately 11-20 weeks), and in addition to those goals listed for the early level rotations, the resident should show increasing sophistication and be able to:

1. Demonstrate learning of the organ-based medical knowledge objectives cited below.
2. After determining the appropriateness of the examination and collecting the background clinical information, protocol the vast majority of all neuroradiology CT and MR studies.
3. Understand more advanced safety principles for CT and MRI including administration of iodine-based contrast and gadolinium-based contrast to patients with varying degrees of renal failure.
4. Successfully access the CSF for lumbar puncture or Myelography.
5. Take proactive steps to reduce fluoroscopic dose CT radiation dose.
6. Dictate accurate, concise, and timely radiology reports on all cases including complex fluoroscopic procedures, MR studies, and CT scans after reviewing the findings with the faculty.
7. Participate in QA/QI conferences and regularly bring increasingly advanced neuroradiology cases to the end of rotation conference.

8. Perform and track an appropriate number of invasive procedures done under the supervision of the neuroradiology faculty.
9. Show improvement in performance on national or departmental in-service exams.

Specific objectives/benchmarks: mid-level rotations

A. Patient Care

At the end of the mid-level rotations in neuroradiology, the resident will demonstrate that he or she can:

1. For most cases, determine if a CT or MRI scan of the head, neck, or spine is appropriate to answer the clinical question and if that scan has been ordered appropriately. Discuss with clinical teams alternative imaging techniques that may be needed.
2. Protocol all but the most complex CT cases of the head, neck, or spine and direct the technologists to perform appropriate/additional/reconstructed views as needed.
3. Safely supervise conscious sedations with the assistance of the radiology nurse and the more junior resident on service. This includes review of the patient's medical history, examination of the patient and obtaining informed consent from the patient and/or guardian.
4. Recognize all of the entities labeled E and the majority of the entities labeled I in the Appendices.
5. Successfully access the CSF for LP or Myelography.
7. Review history of the patient for whom a neuroradiology procedure has been ordered and determine the appropriateness of the study requested with rare assistance from the faculty.
8. Select the appropriate contrast agents to use for neuroradiology procedures with rare assistance of the faculty.
9. Demonstrate sensitivity to fluoroscopic dose by recording fluoroscopy times in the written report and taking proactive steps to reduce patient dose through proper technique.
10. Screen patients and identify those at risk from iodinated contrast or gadolinium-based contrast. Make further recommendations as to alternatives or steps for preventing contrast-induced nephropathy with minimal assistance from the faculty.
11. Recognize and treat subcutaneous contrast extravasation and contrast induced reactions.
15. Interpret multiplanar reformats of neuroradiology structures using the PACS or independent workstations.

B. Medical Knowledge

At the end of the mid-level rotations in neuroradiology, the resident will demonstrate that he or she has mastered all knowledge of an early-level resident in addition to:

1. At least two thirds of the medical knowledge topics identified as I in the appendices.
2. Show further understanding of anatomy such as a deeper understanding of anatomic concepts

of developmental abnormalities including the Chiari malformations, Dandy Walker Malformation, and migrational abnormalities.

3. More advanced physics of helical (multirow) CT image acquisition including the concept of pitch, perfusion, and MRI acquisition including pulse sequences such as fast spin echo, DWI, Perfusion and steady-state acquisition.
4. Expanded knowledge of principles for contrast administration and protocol design for scanning the head, neck, and spine for tumor, hemorrhage, vascular malformations, stroke, infection, fracture, inflammatory diseases, Phakomatoses, and development abnormalities.
5. Expanded ALARA knowledge to understand difference between CT dose index (CTDI_w and CTDI_{vol}), dose length product, effective dose, reference values, and automatic tube modulation as they pertain to protocol design and individual patient's radiation dose estimate.
6. Elements of an advanced CT & MR reports, including proper descriptive terms for more complex abnormalities than would be used by an early rotation resident.
7. Expanded recognition of variations in the CT & MR appearance of common abnormalities such as:
 - Brain metastases
 - Primary brain malignancies
 - MS and other white matter diseases
 - Infections of the head, neck, and spine
 - Trauma of the head, neck, and spine
 - Congenital abnormalities of the head, neck, and spine
 - Adenopathy of the neck
8. Recognition of other lesions such as: deep vein thrombosis, encephalitis, osteomyelitis, Sickle cell disease, and Paget's disease.
9. How to troubleshoot the department's fluoroscopy equipment and optimize images using parameters under control of the fluoroscopist such as collimation, frame rate, and use of automatic brightness control.
11. How to use pretreatment protocols to prevent contrast reactions, potential treatments for major contrast reactions, pretreatment for other nonallergic deleterious effects of iodinated and gadolinium-based contrast and how to recognize the clinical settings that put patients at risk for development of nephrogenic fibrosis.
12. How to customize the standard MR sequences for particular indications such as acute infarction in a poorly compliant patient or decrease metallic susceptibility artifact.
13. Improved performance on national or departmental in-service exams.

C. Practice-based Learning and Improvement

At the end of the mid-level rotations in neuroradiology, the resident will demonstrate that he or she can:

1. Engage the faculty in more advanced discussion about the resident's own preliminary interpretation of the case and, conjointly with the faculty attending, involve other attending physicians for second opinions.
2. Document with increasing sophistication any potential procedural or other complications in the medical record and through the appropriate hospital risk management system with minimal/occasional need for assistance from the faculty (applies to Professionalism also).
3. Bring cases to show other residents as unknowns for the departmental case conference(s). Be prepared to discuss the findings with a specific focus on "why the case is challenging to most of us" and play an active role in instructing the more junior residents.
4. Participate in the department's QA/QI conference by actively suggesting and discussing cases with a moderate degree of sophistication.
5. Maintain a procedure log detailing all invasive procedures performed by the resident including his or her role, complications, preceptor name, and date.

D. Interpersonal and Communications Skills

At the end of the mid-level rotations in neuroradiology, the resident will demonstrate that he or she can:

1. Communicate with the technologist about any special or additional views that should be obtained to demonstrate the pathology identified with little assistance from the faculty.
2. Generate a coherent, logical report reflecting the review session and discussion with the radiology faculty for most cases without assistance.
3. Maintain his or her commitment to communicate to the referring physician on the day of the exam any significant abnormalities identified on the examination AND document in the report who was called on what date and time.
4. Discuss the findings and literature for complex cases at the departmental case conference(s), and teach the more junior residents.
5. Explain all procedures to patients and their families and obtain informed consent with minimal assistance from the faculty for all but the most complex invasive procedures (if this is consistent with specific departmental policy for that procedure).
6. Confidently determine if the clinical situation/scenario for specific patients warrants the study requested, and offer alternatives after discussion with the faculty.
7. Accurately, logically, and concisely present findings at Tumor Board or other multidisciplinary interdepartmental conferences, and answer questions with some assistance from the radiology faculty in attendance.

E. Professionalism

At the end of the mid-level rotations in neuroradiology, the resident will demonstrate that he or she can:

1. Arrive on time and fulfill the clinical and educational tasks necessary as part of the daily routine. This includes looking up relevant articles, completing background reading, attending all intradepartmental conferences and representing the department at those interdepartmental conferences relevant to the neuroradiology services.
2. When consulting with referring physicians or house staff, recognize his or her own limitations and seek input from radiology faculty.
3. Obtain informed consent for an invasive procedure with greater independence than an early rotation resident (if this is consistent with specific departmental policy for that procedure) including doing so compassionately and without ethnic, religious, or sexual bias, explaining the procedure's risks, benefits, alternatives, and addressing all of the patient's concerns.
4. Comply with HIPAA and all state confidentiality rules.
5. Comply with all IRB rules (if the resident has become involved in research by their mid-level rotation).
6. Proactively collect information for all multidisciplinary conferences such as the institutional Tumor Board and the Armed Forces Institute of Pathology.
7. Proactively contribute cases to the teaching file.

F. Systems-based Practice

At the end of the mid-level rotations in neuroradiology, the resident will demonstrate that he or she can:

1. Begin using the resources of our professional organizations ACR, ARRS, or RSNA.
2. Attend the teaching sessions (and win the junior resident quiz if applicable) of the local radiology society (CRS).
3. Identify systems-based operational challenges within the department and engage the faculty in discussions how to affect changes that would be beneficial in neuroradiology or the department as a whole and work on a specific project that will benefit operations in the department or operations within the hospital.

Goals: advanced level rotations

After completion of the advanced neuroradiology rotations (approximately 20-30 weeks), and in addition to those goals listed for the early and mid-level rotations, the resident should show further progression with the need for little supervision, and be able to:

1. Demonstrate learning of the medical knowledge objectives cited below.
2. After determining the appropriateness of the examination and collecting the background clinical information, protocol all but the most complicated neuroradiology CT and MRI scans without faculty assistance.

3. Understand more advanced safety principles for CT and MRI including administration of iodine-based contrast and gadolinium-based contrast to patients with varying degrees of renal failure.
4. Produce acceptably low dose fluoroscopic exams and play an active role in producing low dose CT exams in young patients or those that may be pregnant.
5. Pre-dictate accurate, concise, and timely radiology reports on all but the most complex including neuroradiology radiographs, fluoroscopic procedures, CT scans, and MRI scans before faculty review.
6. Participate in QA/QI conferences and regularly bring increasingly advanced neuroradiology cases to the departmental case conference(s) and play an active role in instructing the more junior residents.
7. Perform and track progressively more advanced invasive procedures e.g. spine biopsies and vertebroplasties performed with the neuroradiology imaging faculty reflecting increasing numbers and/or complexity compared to a mid-level resident.
8. Perform at the average or better on national in-service exams or the clinical/written exam administered by the American Board of Radiology.

Specific objectives/benchmarks advanced-level rotations

A. Patient Care

At the end of the advanced-level rotations in neuroradiology, the resident will demonstrate that he or she can:

1. Even for the most complex cases, determine if a neuroradiology CT or MRI scan is appropriate to answer the clinical question and if that scan has been ordered appropriately. Discuss with clinical teams alternative imaging techniques that may be needed and work with colleagues within radiology to optimize those studies.
2. Protocol all but the most complex CT & MR cases and direct the technologists to perform appropriate/additional/delayed views as needed. Examples of advanced protocols would be use of perfusion imaging, diffusion tensor imaging, functional MR, spectroscopy, and chemical shift imaging.
3. Teach more junior residents how to safely supervise conscious sedations with the assistance of the radiology nurse and more senior resident on service. This includes review of the patient's medical history, examination of the patient and obtaining informed consent from the patient and/or guardian.
4. Answer the technologist's questions regarding contraindications to MR (pacemakers, bullets, spinal stimulators, cochlear implants, and aneurysm clips) and utilize online sources such as mrisafety.com to make almost of the decisions without from the attending radiologist.
5. Recognize subtle artifacts or physiological variations and the implications of those artifacts on diagnostic scan quality (e.g., inability to see recurrent disc herniations in post operative spines with hardware artifact), and take steps to correct these deficiencies.

6. Recognize all of the entities in Section B of Medical Knowledge with a high degree of accuracy including their variations.
7. Perform neuroradiology procedures with supervision, but with minimal direction by the faculty.
7. Review history of the patient for whom a fluoroscopic procedure has been ordered and determine the appropriateness of the study requested with no assistance from the faculty.
8. Select the appropriate contrast agents to use for CT or MR with no assistance of the faculty.
9. Demonstrate sensitivity to fluoroscopic dose by recording fluoroscopy times in the radiologic report and producing appropriately low-dose exams.
10. Screen patients and identify those at risk from iodinated contrast or gadolinium-based contrast. Make further recommendations for alternative exams or modifications of the exam protocol with no assistance from the radiology faculty.
11. Comfortably correlate neuroradiology CT & MR images with Ultrasound, PET & SPECT in almost all instances.

B. Medical Knowledge

At the end of the advanced-level rotations in neuroradiology, the resident will demonstrate that he or she has mastered all knowledge of a mid-level resident in addition to:

1. All of the medical knowledge topics identified as E & I in the appendices and the majority of those marked A.
2. Further understanding of anatomy and the anatomic spaces compared to a mid-level resident.
3. More advanced physics of helical (multirow) CT image acquisition than a mid-level resident and advanced MRI acquisition techniques such as parallel imaging and diffusion weighted imaging.
4. Expanded knowledge of principles for contrast administration and protocol design allowing customization of exams in all circumstances the resident may encounter.
5. Expanded ALARA knowledge for CT so the resident may calculate and interpret the significance of effective dose from the displayed exam parameters such as dose-length product or CTDIvol.
6. Elements of an advanced CT report, including proper descriptive terms for simple and complex abnormalities.
7. Expanded recognition of variations in the multimodality appearance of all neuroradiology abnormalities described for the early- and mid-level rotations in addition to:
 - Multisystem diseases that affect the head, neck, and spine such as the phakomatoses, collagen vascular, Sarcoid, infectious, and other systemic diseases.
 - Sellar and suprasellar tumors, CPA tumors, Pineal region tumors, ventricular tumors and posterior fossa tumors.
 - Tumors and infections of the temporal bone

- Staging of head and neck carcinoma
- Advanced imaging of stroke and primary cerebral tumors
- Differential diagnosis of spinal masses
- Tumors and infections of the Paranasal sinuses
- CT and MRI differentiation of adrenal masses
- Congenital anomalies of the head, neck, and spine

8. Perform at the average or better on national in-service exams or the clinical/written exam administered by the American Board of Radiology.

C. Practice-based Learning and Improvement

At the end of the advanced-level rotations in neuroradiology, the resident will demonstrate that he or she can:

1. Engage the faculty in more advanced discussion about the resident's own preliminary interpretation of the case and conjointly with the faculty, involve other neuroradiology faculty members for second opinions.
2. Document with increasing sophistication any potential procedural or other complications in the medical record and through the appropriate hospital risk-management system.
3. Bring cases to show other residents as unknowns for the Case of the month, and be prepared to discuss the findings with a specific focus on "why the case is challenging to most of us" so as to stimulate discussion at the level of the advanced residents and faculty.
4. Participate in the department's QA/QI conference by actively suggesting and discussing cases with a high level of sophistication.
5. Continue to maintain a procedure log detailing all invasive procedures performed by the resident including his or her role, complications, preceptor name, and date, showing an increasing number or complexity as compared to a mid-level resident.

D. Interpersonal and Communications Skills

At the end of the advanced-level rotations in neuroradiology, the resident will demonstrate that he or she can:

1. Communicate with the technologist about any special or additional views that should be obtained to demonstrate the pathology identified.
2. Pre-dictate a coherent, logical report which agrees with the faculty's findings discussed in the review session for almost all cases without assistance of the supervising faculty.
3. Maintain his or her commitment to communicate to the referring physician on the day of the exam any significant abnormalities identified on the examination AND document in the report who was called and at what date and time.

4. Discuss the findings and literature for complex cases at the departmental case conference(s), and teach all levels of residents and faculty.
5. Explain all procedures to patients and their families and obtain informed consent independently from the faculty for all invasive procedures (if this is consistent with specific departmental policy for that procedure).
6. Confidently determine if the clinical situation/scenario for specific patients warrants the study requested, and if not, logically be able to communicate other alternatives including advanced imaging studies such as CT, MRI, contrast angiography, positron emission tomography/CT, single photon emission CT/CT or other advanced imaging studies.
7. Accurately, logically, and concisely present findings at the Head and Neck Tumor Board or other multidisciplinary interdepartmental conferences, and answer questions with no assistance from the radiology faculty in attendance.
8. Continue reporting critical test results.

E. Professionalism

At the end of the advanced rotations in neuroradiology, the resident will demonstrate that he or she can:

1. Arrive on time and fulfill the clinical and educational tasks necessary as part of the daily routine. This includes looking up relevant articles, completing background reading, attending all intradepartmental conferences and representing the department at those interdepartmental conferences relevant to the neuroradiology service.
2. When consulting with referring physicians or house staff, recognize his or her own limitations and seek input from radiology faculty.
3. Obtain informed consent for an invasive procedure with greater independence than a mid-level resident (if this is consistent with specific departmental policy for that procedure) including doing so compassionately and without ethnic, religious, or sexual bias, explaining the procedure's risks, benefits, alternatives, and addressing all of the patient's concerns.
4. Comply with HIPAA and all state confidentiality rules.
5. Comply with all IRB rules.
6. Play an expanded role in interdepartmental multidisciplinary conferences and conferences such as for medical and surgical house staff educational sessions.
7. Continue to contribute teaching file cases and teach more junior residents and medical students with the saved cases.
8. Complete all Chief Resident assignments relevant to neuroradiology imaging or the department as a whole.

F. Systems-based Practice

At the end of the advanced-level rotations in neuroradiology, the resident will demonstrate that he or she can:

1. Comfortably use the resources of our professional organizations ACR, AUR, ARRS, or RSNA.
2. Continue to attend the teaching sessions (and win the senior resident quiz if applicable) of the local radiology society (CRS).
3. Complete a systems-based practice project.
4. Attend a national meeting such as the Association of University Radiologists or ACR where educational, administrative, or economics issues are reviewed.

I. Regularly scheduled didactic educational experiences:

a. See Appendix A

II. Radiology resident training encompasses 5 total years of training. Trainees start in the PGY2 year, having successfully completed a prelim clinical year in a medicine or surgical specialty typically. The new residents are paired with senior residents and/or attending faculty at all times. This is true for daily PACS side read out sessions and procedural skills in the interventional radiology Cath lab. As the residents progress in knowledge and skills, they are evaluated with both written and practical skills by the faculty. If deemed proficient, they are advanced to more senior levels of residency, with indirect supervision from faculty. A CCC committee meeting twice a year meets and formally evaluates and decides on advancement of every resident candidate based on faculty monthly rotational evaluations and feedback. Residents do not take independent call in the first radiology year. Instead they are under the direct supervision of a senior resident and/or attending for “buddy” mini-calls in the latter part of the academic year. There are two tests given for independent ER proficiency, and once passed, the resident is allowed to take call in the PGY3 year. However, there is always an attending/fellow/senior backup for cases that need extra attention. Residents at all levels of training are responsible with a team approach to maintain the highest degree of patient care, ranging from direct interaction during procedures to indirect interaction after diagnostic testing (ie. CT/MR/Xray/US read out sessions). As residents become more proficient and senior, the supervision gradually shifts from more direct to indirect. Once the resident reaches the PGY5 year, there is a formal CCC evaluation as to competency for independent practice based on all faculty feedback.