

## Effective Date 07/15/2025

<b>Name of Rotation:</b>	Nuclear Medicine
<b>PGY Level:</b>	2, 3, 4, 5
<b>Supervising Attending(s):</b>	Anderson, Sepahdari, Zhu

### **Introduction**

“Nuclear medicine is the medical specialty that uses the tracer principle, most often with radiopharmaceuticals, to evaluate molecular, metabolic, physiologic and pathologic conditions of the body for the purposes of diagnosis, therapy and research” (ACGME, 2011). Radiology residents who rotate through the section of nuclear medicine at UIC have varied backgrounds and so an attempt is made to individualize the teaching to the needs of all. It is essential that while the resident is on rotation, he/she actively participate in the initial evaluation of the patient, the performance of the procedure including quality control activity and the final interpretation of the nuclear medicine study. Resident interpretation sheets are provided in the nuclear medicine conference room for this purpose. All residents who rotate through nuclear medicine should maintain an electronic record or file of their activities and interpretation sheets for future credentialing purposes.

While on rotation, the service begins at 8:00 am and ends at 5pm or when the last case is completed and reported for the day. Any ongoing case after 5pm should be signed off to oncall resident and notify nuclear medicine attending. It is the resident’s responsibility to notify the nuclear medicine attending physician on service by phone (312) 996-3970 and send an e-mail to yanglu@uic.edu if he or she needs to be absent or late for the rotation.

### **B. Attending Coverage**

Residents on this rotation work directly with the attending nuclear medicine physician assigned to the service. Currently Dr. Khayyat is the only full time attending covering the Section. Dr. Thomas Anderson (pager 312-249-1830), Dr. David Yeh (on campus pager 4037) or Dr. Shahrooz Sepahdari (on campus pager 9368) occasionally covers when Dr. Khayyat is on vacation or conference/sick leave. The attending schedule for daily and weekend coverage is published monthly. The full time nuclear medicine physician (Dr. Khayyat) may be contacted

by pager (on campus pager 6842) (cell 313-529-7126) during the day. The on-call attending and/or resident may be contacted by phone or pager.

C. **General Goals of the Rotation**

After completing the four one-month rotations in nuclear medicine, the resident will achieve competencies in the following general areas:

1. Medical knowledge as it relates to nuclear medicine & PET/CT
2. Practice-Based Learning and Improvement for the medical imager
3. Professionalism for the medical imager
4. Systems-Based Practice in nuclear medicine & PET/CT
5. Patient Care in nuclear medicine & PET/CT
6. Interpersonal and Communication Skills in a medical imaging department.

**Specific application of these competencies is listed as follows:**

- > Demonstrate progressive mastery of technical skills for each of the four one month rotations (general competency #5)
- > Apply the general principles and guidelines of radiation safety to all patients and radiation workers (general competencies # 1, 4, and 5)
- > Communicate effectively with patients, referring clinicians, technologists and supervisory staff in a nuclear medicine practice (general competency # 6)
  - > Described and understand standard imaging procedures and positions used in nuclear medicine (general competencies # 1)
  - > Know the clinical indications for all nuclear medicine & PET/CT procedures (general competencies # 1.)
  - > Demonstrate a responsible work ethic (general competency # 3)
  - > Contribute to quality improvement/quality assurance activities of the Section as they relate to the radioisotope laboratory and gamma camera & PET/CT scanner (general competency # 4)
  - > As a member of the nuclear medicine team, appropriately guide and direct educational activities of students and interns (general competency # 1, 3, 5).

D. **Objectives of the Rotations:**

**Goals: early level rotation:**

After completion of the early nuclear medicine rotation (approximately 4 weeks), the resident should:

1. Demonstrate knowledge of the basics of safe handling of radioisotopes. (Residents will be instructed in proper and safe handling of radioisotopes and injection techniques.)
2. Demonstrate a basic knowledge of the principles of radiation safety and radiation biology.
3. Demonstrate a basic physiologic knowledge of various organ-based systems as they relate to understanding nuclear medicine procedures.
4. After determining the appropriateness of a particular nuclear medicine examination and collecting background clinical information, protocol a simple bone scan procedure.
5. Interview patients for nuclear medicine examinations and identify the clinical question(s) being asked by referring physicians. The resident will also learn to apply the appropriate techniques to be used in the examination.
6. Learn the basics of interpreting a nuclear medicine & PET/CT examination
7. Learn to effectively communicate results to the referring physician and other individuals in a timely manner.
8. Develop a professional work ethic
9. Learn to function effectively as a member of a nuclear medicine team.

## **Specific objectives/benchmarks: early rotations**

### **A. Patient Care**

Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. At the end of the early rotation in nuclear medicine the resident will demonstrate that he or she can:

1. Determine at a basic level if a nuclear medicine scan is appropriate to answer the clinical question and if that scan has been ordered appropriately.
2. Protocol straightforward nuclear medicine cases and direct the technologists to perform appropriate/additional views as needed. The specific procedures for the early rotation are:

Bone scanning

Thyroid scanning

Hepatobiliary imaging

Cardiac imaging

FDG PET/CT

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 and incorrect collimators.
5. Assist in performance of nuclear medicine procedures e.g. bone scans and myocardial perfusion studies.
6. Select the appropriate radiopharmaceutical to use for basic planar nuclear medicine studies with the assistance of the faculty/attending physician.
7. Demonstrate sensitivity to radiation dose for certain nuclear medicine therapies and their possible side effects.

## **B. Medical Knowledge**

At the end of the early rotation in nuclear medicine, the resident will demonstrate that he or she has learned:

1. Most of the anatomic structures in the appendix.
2. Basic physics of gamma cameras, PET/CT scanners and dose calibrators.
3. Radio-labeled isotopes use in nuclear medicine.
4. The general principles of As Low As Reasonably Achievable dose (ALARA).
5. The basic elements of a nuclear medicine & PET/CT protocol.
6. The typical appearance of common nuclear medicine abnormalities
7. Risk factors for developing a radiotracer reaction, potential treatments for such reactions.
8. The rationale for the standard views and sequences used in nuclear medicine procedures (listed under patient care).
9. The appearance of normal nuclear medicine examination findings of various basic organ systems.
10. Perform at an appropriate level on national or departmental in-service exams.

## **C. Practice-based Learning and Improvement**

At the end of the early rotation in nuclear medicine, 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 nuclear medicine, 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 certain pathologies.
2. Generate a coherent, logical report reflecting the review session and discussion with the nuclear medicine 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 when required.

### **E. Professionalism**

At the end of the early rotations in nuclear medicine, 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 nuclear medicine 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 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 files.

### **F. Systems-based Practice**

At the end of the early rotations in nuclear medicine, 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), or Society of Nuclear Medicine.
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 nuclear medicine or the department as a whole.

4. Observe and learn how to participate in the Departmental Quality Improvement Process.

### **Specific objectives/benchmarks: mid-level rotations**

#### **A. Patient Care**

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

1. For most cases, determine if a nuclear medicine scan of a particular organ system 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 nuclear medicine cases 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. Review history of the patient for whom a nuclear medicine procedure has been ordered and determine the appropriateness of the study requested with rare assistance from the faculty.
5. Select the appropriate radiopharmaceutical agent to use for nuclear medicine procedure requested with rare assistance of the faculty.
6. Screen patients and identify those at risk for iodinated contrast reactions. Make further recommendations as to alternatives or steps for preventing contrast-induced nephropathy with minimal assistance from the faculty.
7. Interpret planar and SPECT, & PET/CT images using the PACS or independent workstations.

#### **B. Medical Knowledge**

At the end of the mid-level rotations in nuclear medicine, 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 required to pass internal and external examinations in nuclear medicine.
2. Show further understanding of the anatomy and physiology involved in the various nuclear medicine procedures.

3. Demonstrate a more advanced understanding of the physics of SPECT, SPECT/CT and PET/CT.
4. Begin to learn and develop interpretation skills of PET and PET/CT studies performed for oncologic indications.
5. Expanded ALARA knowledge to understand difference between CT dose index (CTDI<sub>w</sub> and CTDI<sub>vol</sub>), 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 nuclear medicine therapy and imaging reports, including proper descriptive terms for more complex abnormalities than would be used by an early rotation resident.
7. Recognition of other lesions such as: deep vein thrombosis, encephalitis, osteomyelitis, Sickle cell disease, and Paget's disease demonstrated on a variety of nuclear medicine imaging procedures.
9. How to customize the standard nuclear medicine procedure for particular indications such as acute infarction in a poorly compliant patient.
10. Improved performance on national or departmental in-service exams.
11. Learn about the therapeutic administration of radiopharmaceuticals for both benign and malignant diseases.

### **C. Practice-based Learning and Improvement**

At the end of the mid-level rotations in nuclear medicine, 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 nuclear medicine 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 rotation in nuclear medicine, 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 rotation in nuclear medicine, 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 nuclear medicine 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 a therapeutic 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 nuclear medicine, the resident will demonstrate that he or she can:

1. Begin using the resources of our professional organizations ACR, ARRS, RSNA and SNM.
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 nuclear medicine 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 nuclear medicine rotation, 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 nuclear medicine scans without faculty assistance.
3. Understand more advanced safety principles for nuclear medicine imaging and therapeutic procedures including administration of iodine-based contrast agents.
4. Pre-dictate accurate, concise, and timely radiology reports on all but the most complex including nuclear medicine studies.
5. Participate in QA/QI conferences and regularly bring increasingly advanced nuclear medicine cases to the departmental case conference(s) and play an active role in instructing the more junior residents.

6. 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 rotation in nuclear medicine, the resident will demonstrate that he or she can:

1. Even for the most complex cases, determine if a nuclear medicine 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 nuclear medicine cases and direct the technologists to perform appropriate/additional/delayed views as needed.
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 nuclear medicine studies and utilize online sources such as [snm.org](http://snm.org) to make almost all 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.
6. Perform nuclear medicine procedures with supervision, but with minimal direction by the faculty.
7. Review history of the patient for whom a therapeutic procedure has been ordered and determine the appropriateness of the study requested with no assistance from the faculty.
8. Select the appropriate radiopharmaceutical agent to use for all nuclear medicine studies with no assistance of the faculty.
9. Screen patients and identify those at risk from iodinated contrast reactions. Make further recommendations for alternative exams or modifications of the exam protocol with no assistance from the radiology faculty.
10. Comfortably correlate nuclear medicine findings with CT & MR and ultrasound images in almost all instances.

### **B. Medical Knowledge**

At the end of the advanced-level rotations in nuclear medicine, 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 in the initial and mid levels.

2. Develop a further understanding of anatomy and physiologic process measured with nuclear medicine procedures.
3. More advanced physics of PET/CT and SPECT/CT image acquisition than a mid-level resident.
4. Expanded ALARA knowledge for nuclear medicine imaging and therapeutic procedures so the resident may calculate and interpret the significance of effective dose.
5. Elements of an advanced nuclear medicine report, including proper descriptive terms for simple and complex abnormalities.
6. Expanded recognition of variations in the multimodality appearance of all nuclear medicine abnormalities described for the early- and mid-level rotations.
7. 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 nuclear medicine, 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 nuclear medicine 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 nuclear medicine, 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.
7. Accurately, logically, and concisely present findings at the 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 nuclear medicine, 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 nuclear medicine 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 nuclear medicine imaging or the department as a whole.

#### **F. Systems-based Practice**

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

1. Comfortably use the resources of our professional organizations ACR, AUR, ARRS, RSNA, or SNM.
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.

### **APPENDIX**

#### **The following is additional information and specific handouts and required reading for residents on the nuclear medicine service**

#### **Specific UIC Requirements for all levels training while in Nuclear medicine:**

1. Attend daily reporting sessions (usually 2:30 pm every afternoon).
2. Attend the daily radiology teaching sessions at 12:00 noon & 4:00 pm
3. Be present in the Section of Nuclear Medicine from 8:00 am until all patients have completed their studies (usually 5:30 p.m.)
4. Read Nuclear Medicine, The Requisites by J. Thrall. (5<sup>th</sup> Edition)
5. Participate in the treatment of hyperthyroid and thyroid cancer patients with I-131 therapy.
6. Read and know the basic facts presented in the section's Procedure Manual.

7. Before the patient leaves the department the residents are expected to:
  - a) Check to see if all views were obtained.
  - b) Check positioning.
  - c) Determine if additional views are needed.
  - d) Determine if scan is adequate for interpretation.
  - e) Give wet reading.
8. Be present and available for consultation with house staff/attending physicians.  
**Specific Procedures to be learned.**

1. Brain scan

- a. If surgery or trauma, get skull x-ray.
- b. Determine if skull or scalp lesion is present
- c. Learn activity patterns for various conditions.
- d. Learn the brain death protocol

2. Liver/Spleen study

- a. Palpate abdomen.
- b. Outline masses with cobalt marker while under camera.
- c. Determine if surgery (such as splenectomy) has been done.
- d. Obtain results of liver function tests.
- e. Determine if hepato-biliary study is indicated.
- f. Determine if flow study is indicated.
- g. Learn activity patterns for various clinical conditions

3. Lung scan

- a. Obtain and review chest x-ray findings on all patients.
- b. Listen to lungs for wheezes, rales, rhonchi.
- c. Obtain history and ABG results.
- d. Learn activity patterns for various conditions

4. Bone scan

- a. Get corresponding x-rays on all patients.
- b. Examine the patient for point tenderness.
- c. Determine if there are sites of infection, trauma, or arthritis.
- d. Determine if a triple phase scan is needed.
- e. Learn activity patterns for various conditions

5. Renal Scan

- a. See if IVP was obtained and note renal function tests.

- b. Obtain complete renal history.
  - c. Refer to previous studies
  - d. Learn activity patterns for various conditions
6. Thyroid scan
- a. Review uptake and T<sub>3</sub>, T<sub>4</sub> results.
  - b. Palpate thyroid gland.
  - c. Mark location of nodules.
  - d. Determine clinical status (i.e., hyper)
  - e. Learn activity patterns for various conditions
7. Myocardial studies
- a. Review clinical history
  - b. Interview patient and obtain list of current medications
  - c. Learn activity patterns for various conditions
8. PET/CT
- a. Learn the basic aspect of oncologic staging
  - b. Learn the basic principles of PET/CT physics and chemistry
  - c. Learn activity patterns for various conditions
  - d. Learn the common artifacts involved with PET/CT

**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/X-ray/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.**