Template

EDUCATIONAL GOALS AND OBJECTIVES

for

RADIOLOGY RESIDENCY PROGRAMS

According to the ACGME program requirements for residency education in diagnostic radiology, the program director is responsible for a written statement outlining the curriculum and the educational goals and objectives of the program with respect to knowledge, skills, and other attributes of residents at each level of training and for each major rotation or other program assignment. In order to ease the burden on program directors and also facilitate a somewhat unified approach, the Ad-Hoc committee of the APDR recommends the following document as an example of a comprehensive set of Educational Goals and Objectives. This was developed at the Medical College of Georgia, Under the direction of Eugene F. Binet, M.D. Professor and Chairman, Department of Radiology and edited by Wanda M. Mundy, Ed.D.

The contributors for the contents for each section are listed below.

Eugene F. Binet, M.D., Dept. Chair	Nuclear Radiology
George Burke, M.D	Neuroradiology
Edward Burton, M.D.	Pediatric Radiology
Sandra Freedman, M.D.	Fluoroscopy & IVU
Clarence Joe, M.D.	Musculoskeletal
John Locksmith, M.D.	Chest
Janet Markle, M.D.	Mammography
James Massman, M.D.	Mammography
Sathyanarayana, M.D.	Ultrasound
James Rawson, M.D.	Body Imaging
Elin Backman, M.D.	Body Imaging

The curriculum committee thanks Dr. Mundy for giving us permission to post this on the website as an example of a "model curriculum"

INTRODUCTION

The Department of Radiology has developed objectives to guide the resident through clinical rotations. Clinical rotations enable the resident to accumulate knowledge, develop technical skills, and establish decision-making processes. These objectives are to be used as general guidelines in regard to the residents' progression through the residency. Knowing that residents attain knowledge and

skills at different competency levels and that fluctuation of patient loads impact upon the residents' experiences, it would not be reasonable to expect each resident to fully accomplish each objective during any rotation. The objectives, therefore, are to be used as a relative measure of progress, either as a formal measurement administered by the clinical faculty at the end of the rotation or as a personal evaluation by the resident. Objectives not completed on a first rotation to a clinical area may be carried over until the next rotation at that site.

CHEST

Rotation 1

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Identify normal anatomy of the chest as it is seen on the radiograph and CT.

2. Identify and/or describe common variants of normal.

3. Demonstrate a basic knowledge of radiologic interpretation.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Given a chest radiograph or CT examination, distinguish normal from abnormal structures.

2. Dictate a report that is brief and understandable.

3. Communicate verbally with referring physicians and house staff about radiographic findings.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Make decisions about when to alert house staff to the immediacy of a condition that is apparent on the radiograph.

2. Determine when to request that a repeat examination is needed because of technical inadequacy.

CHEST

Rotation 2

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Discuss various common diseases that give altered patterns of lung disorders.

2. Describe the characteristics of common abnormal cardiac shadows.

3. Discuss the various reasons for reading a chest CT.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Recognize the following pathologic anatomy in the lungs:
a) air space processes
b) lobular processes
c) interstitial processes

2. Given an appropriate radiograph, recognize cardiac enlargement.

3. Identify anatomy and significant pathology as seen on CT.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Determine which cases can be interpreted and dictated independently and which cases require the assistance of a faculty radiologist.

CHEST

Rotation 3

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Name and describe characteristics of chest pathologies that are seen infrequently in routine work but have distinctive radiographic and/or clinicopathological signs.

2. Correlate pathological and clinical data with radiographic findings on the chest film.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Read routine chest films with a high level of accuracy and efficiency.

2. Prepare and present the radiographic components of the radiology/pathology and chest conferences.

3. Fully supervise the performance of a chest CT examination.

4. Show competence in FNA biopsy of chest lesions.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Demonstrate a high degree of accuracy in interpreting and dictating cases, identifying consistently those cases with which assistance is needed.

2. Consult, with confidence, with primary care physicians and surgeons in regard to most chest imaging procedures.

MUSCULOSKELETAL

Rotation 1

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Discuss basic bone physiology.

2. Describe the stages different types of fractures go through in the process of healing.

3. List and describe the basic principles of examination of musculoskeletal studies.

4. State the indications for computed tomography, plain tomography, MRI and bone scans.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Identify, with a high level of accuracy, most types of bone fractures.

2. Recognize the commonly used radiographic projections in musculoskeletal radiology.

3. Arrange musculoskeletal radiographs in an orderly fashion for review and interpretation.

4. Identify normal musculoskeletal structures and some of the normal variants.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Given musculoskeletal radiographs that are not diagnostic without further study, state whether the patient should have additional exams in CT, MR, plain tomography or nuclear imaging.

2. Given a radiograph of a healing bone fracture, determine the stage of bone healing.

MUSCULOSKELETAL

Rotation 2

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Name and describe the various common types of bone and joint trauma, other than fractures.

2. Name and differentiate between various forms of arthritis, including laboratory and clinical findings of each type.

3. State the radiographic features that differentiate benign and malignant bone tumors.

4. Name and describe clinical/pathological/radiological features of congenital and acquired bone pathologies.

5. Name and describe clinical/pathological/radiological features of metabolic bone diseases.

6. Describe the radiographic features of inflammatory bone/joint diseases.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Given an appropriate radiograph, identify the following categories of bone pathology:
a) inflammatory processes
b) bone tumors
c) congenital and acquired diseases
d) metabolic diseases

2. Given a radiograph demonstrating bone pathology listed in #1 above and pertinent clinical/pathological information, identify common pathologies in each category.

3. Demonstrate increasing skill in quality and quantity of dictation of musculoskeletal images.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Given a patient with a musculoskeletal pathology, review radiographs and clinical history, then make decision about the appropriateness of nuclear, CT, and/or MR imaging.

Body Imaging: Fluoroscopy and IVU Section

Rotation 1

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Discuss the proper clinical and radiologic indications for the following studies:
a) Barium swallow
b) Upper GI series
c) BE
d) ACBE
e) SBFT
f) Enteroclysis
g) ERCP
h) Fistulograms
i) IVU
j) Cystogram
k) Voiding cystourethrogram
l) HSG

2. State the physiologic properties, proper concentrations and proper indications for the use of the following contrast material:
a) Barium
b) Water soluble contrast media (oral Hypaque or Gastrografin)
c) Ionic intravenous contrast media
d) Non-ionic intravenous contrast media

3. Discuss the following information about Glucagon:
a) Proper indications and dosages used in GI radiology
b) Physiologic effects
c) Side effects
d) Contraindications

4. List the high risk factors for allergic reaction to intravenous contrast media.

5. State the proper assessment and treatment for allergic reactions to contrast media.

6. Recognize the normal radiographic appearance of structures of the GI/GU tract.

7. Given an appropriate radiograph, demonstrate a basic knowledge of radiographic abnormalities of the GI/GU tract.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Demonstrate basic knowledge of the equipment to be used during fluoroscopy, including proper KV techniques for the various procedures, radiation safety features of the machines, and proper radiation safety techniques.

2. Demonstrate fluoroscopy techniques for performing the following procedures:
a) Barium swallow
b) UGI
c) BE
d) ACBE
e) SBFT
f) Enteroclysis
g) ERCP
h) Fistulogram
i) IVU
j) Cystogram
k) Voiding cystourethrogram
l) HSG

3. Demonstrate knowledge of proper KV techniques, patient positioning, and type of after-films that should be taken for the procedures listed in #2 above.

4. Demonstrate initial development of fluoroscopic skills by identifying the more common abnormalities during the performance of the studies.

Decision Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Review history of the patient for whom a procedure has been ordered and determine the appropriateness of the study requested.

2. Communicate with the referring physician about any recommendations for change in the type of procedure to be performed.

3. Communicate with the technologist about any special or additional views that should be obtained to demonstrate the pathology identified.

4. Read and dictate the studies performed, with the assistance of the faculty radiologist.

5. Communicate to the referring physician on the day of the exam any significant abnormalities identified on the examination.

BODY IMAGING: Fluoroscopy and IVU Section

Rotation 2

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Demonstrate review and/or retention of knowledge requirements set forth for the first rotation.

2. Describe and/or discuss GI/GU tract pathology in specific detail.

3. Assist with preparation and presentation of GI/GU noon resident conferences.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Demonstrate further development of the technical skills of performing the GI/GU studies listed in the first rotation.

2. Demonstrate improved skill for tube placement, technical performance and interpretation of enteroclysis procedures.

3. Given a fluoroscopic examination, demonstrate the ability to identify the abnormality at fluoroscopy and modify the technique or change the patient's position to take more diagnostic fluoroscopic spot films.

4. Demonstrate the ability to perform efficiently through decreasing fluoroscopic time needed to perform a study without compromising diagnostic acumen.

Decision-Making and Value Judgment Skills: At the end of the rotation the resident should be able to:

1. Demonstrate an enhanced ability to perform decision-making and valuing requirements listed under the first rotation.

2. Evaluate and integrate data from other studies (CT, MRI, sonography and nuclear medicine) of the GI/GU tract to make recommendations to the referring physician about more appropriate or additional diagnostic studies needed for evaluation of the patient's abnormality.

3. Read and dictate studies with less assistance from the faculty radiologist.

BODY IMAGING: Fluoroscopy and IVU Section

Rotation 3

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Demonstrate continued knowledge of requirements for previous rotations.

2. Discuss, with increased understanding, GI/GU tract pathology.

3. Integrate knowledge of all radiologic imaging modalities for evaluation of GI/GU pathology so that the most appropriate study will be done and studies will be done in the proper sequence.

4. State the indications for a defacography study.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Show improvement in performance of the skills listed in the previous rotations.

2. Demonstrate the technical skills and interpret the results of a defacography study.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Demonstrate improvement of decision-making skills listed in the previous rotations.

2. Read and dictate studies with minimal assistance from the faculty radiologist.

BODY IMAGING: Fluoroscopy and IVU Section

Rotation 4

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Demonstrate continued increase in knowledge in the areas listed in the previous rotations.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Demonstrate ability to perform all skills listed in previous rotations at the competence level associated with a beginning practitioner in radiology.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Demonstrate ability to perform all skills listed in previous rotations at the competence level associated with a beginning practitioner in radiology.

BODY IMAGING: Ultrasound Section

Rotation 1

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Discuss thoroughly the ultrasound procedures and findings in:
a) gallbladder/biliary tree ultrasound (cholelithiasis/cholecystitis)
b) renal ultrasound (obstruction/renal failure)
c) pelvic ultrasound (ectopic pregnancy)
d) cranial ultrasound (intracranial hemorrhage)
e) duplex Doppler (venous thrombosis of extremities)

2. Discuss the basic ultrasound physics and instrumentation, especially related to equipment operation and the specifications for various probes.

3. Describe, from observation, the technique used to perform each of the routinely performed procedures.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Review histories of patients to be examined each day to determine the relevance of the study to clinical symptoms.

2. Record a pertinent history of the patient on the ultrasound worksheet.

3. Advise the technologist about special views or specific parameters of the study that require special attention.

4. Assist with the preparation and presentation of the noon ultrasound conference.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Given an ultrasound case, make a preliminary review of the images and advise the technologists when additional views or repeat views are needed.

BODY IMAGING: Ultrasound Section

Rotation 2

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Demonstrate thorough knowledge of the ultrasound procedure through performing or assisting the sonographer with performance of the following studies:
a) liver/biliary tree (biliary obstruction/tumors)
b) pancreas (acute and chronic inflammatory process/tumors)
c) renal (transplant rejection/Doppler, tumors and inflammatory processes)
d) pelvis (uterine leiomyoma/ovarian neoplastic and non-neoplastic diseases)
e) cranial ultrasound (hydrocephalus/cerebral ischemia and infarction)
f) duplex Doppler (duplex sonography of carotids and abdominal duplex)

2. Given the appropriate sonograms, identify and discuss significant characteristics of the pathologies listed in #1 above.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Review all scans as they are performed for significant findings that require prompt attention.

2. Assist with preparation/presentation of cases for the ultrasound/imaging conference.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Make decisions in regard to notification of the referring physician if the faculty radiologist is not available for consultation.

2. Read and/or dictate films with the assistance and review of the faculty radiologist.

BODY IMAGING: Ultrasound Section

Rotation 3

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Discuss all aspects of ultrasound imaging, including indications, pathology, and correlative studies used for each examination.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Review and dictate with the faculty radiologist all scans performed.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Make preliminary decisions on all matters of film interpretation and consultation and recognize the need to obtain assistance in situations that require the expertise of the faculty radiologist.

PEDIATRIC RADIOLOGY

Rotation 1

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Identify normal/abnormal airways on chest x-ray of the infant or older child.

2. Identify abnormalities associated with congenital heart disease on the chest radiograph of the infant/older child.

3. Identify normal vs. abnormal skeletal structures (esp. extremities on a bone survey).

4. Describe the proper procedure for fluoroscopy of an infant/older child.

5. Establish bone age on the basis of radiographic findings.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Recognize limitations in personal knowledge and skills, being careful to not make decisions beyond the level of personal competence.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Make preliminary review of outpatient and pediatric ICU films and discuss findings with the radiologist, then dictate as directed.

2. Assist the technologist in preparation of the patient for fluoroscopic examination (e.g., enemas, etc.)

3. Assist with preparation and presentation of cases for weekly pediatric surgery and cardiology conferences and for bi-weekly resident noon film review.

4. Sit in on all reading sessions with the attending radiologist, including pediatric ICU and occasionally neonatal ICU.

PEDIATRIC RADIOLOGY

Rotation 2

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Describe positioning techniques and technical factors leading to optimum chest, abdomen, GI and GU radiographs of the infant and older child.

2. Establish bone age on the basis of radiographic findings.

3. Add to knowledge base in chest radiology and congenital diseases of the heart through continued reading of films and case reviews.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Determine bone ages and dictate findings.

2. Perform fluoroscopic procedures with the assistance of the radiologist.

3. Dictate films (esp. chest, abdomen, GI, GU) with assistance of the radiologist.

4. Assist with preparation and present cases at weekly pediatric surgery and cardiology conferences and biweekly resident noon film reviews.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Review PICU and NICU films as they are done for completeness of study and for significant findings that require prompt attention and make decision in regard to notification of the referring physician if the radiologist is not immediately available for consultation.

2. Recognize limitations in persona skill and knowledge, always making sure dictations and consultations are check by the radiologist in charge.

PEDIATRIC RADIOLOGY

Rotation 3

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Identify normal vs. abnormal findings on skeletal, skull (and contents), and spine radiographs.

2. Add to knowledge base in all areas of pediatric radiology and mammography through continued study, review of ACR cases and film reading.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Perform fluoroscopic exams except when complications are anticipated.

2. Review and dictate, either alone or with the radiologist, pediatric outpatient and inpatient films and PICU and NICU films, making sure all work is checked by the radiologist prior to final reporting.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Make preliminary decisions on all matters of film interpretation and consultation, recognizing and obtaining assistance with situations that require the expertise of the radiologist.

MAMMOGRAPHY

Rotation 1 and 2

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Given a mammogram, identify normal vs. abnormal anatomic structures.

2. Discuss technical and physical factors unique to the production of a mammogram.

3. Make a preliminary review of mammogram films and advise the technologist on the need for additional films.

4. Able to establish a plan for follow-up protocol for probably benign lesions.

5. Select cases for appropriate ultrasound examination.

6. Interpret ultrasound examinations.

7. Be aware of federal laws regarding MQSA, certification, etc.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Read and dictate mammograms after review by the attending radiologist.

2. Assist with and perform needle localizations of breast masses and calcifications.

3. Select lesions appropriate for stereotactic core biopsy. Perform same with supervision.

4. Perform directed breast ultrasound with technologist's assistance.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

Recognize limitations in personal skill and knowledge, always making sure decisions, dictations, and consultations are checked by the radiologist in charge.

NEURORADIOLOGY

Radiology residents rotate through the neuroradiology section for a total of 24 weeks (6 rotations) during the four year residency. There is an average of one rotation per year during the first and second years, and two rotations per year during the third and fourth years, with some degree of variation according to scheduling constraints. Rotations are alternated between the imaging and procedures sections.

Behavioral Objectives: At the end of each 4 week rotation, the resident should be able to demonstrate competence in the areas of knowledge base, technical skills and decision making/value judgment skills according to the criteria outlined for each rotation. The extent to which the resident has met the objectives will be evaluated at the end of the month.

Rotation 1

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Given normal neuro images, demonstrate a proficient knowledge of the anatomy of the head and neck, spine, and central nervous system.

2. Discuss the basic principles of CT and MRI physics.

3. Describe, in considerable detail, CT and MR imaging protocols.

4. Given an appropriate abnormal image, recognize basic neuropathology and give a differential diagnosis.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Screen, prescribe, and supervise routine neuroimaging procedures.

2. Supervise and screen imaging patient sedations.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Interact with primary care physicians and neurologists in consultation when more common pathologies are at question.

NEURORADIOLOGY - PROCEDURES

Rotation 2

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Given appropriate films, demonstrate a thorough knowledge of the vascular anatomy of the central nervous system.

2. Given an appropriate neuroradiology plain film, make an accurate interpretation of the information on the film.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Demonstrate proficiency in performance and interpretation of lumbar, dorsal and cervical myelograms.

2. Demonstrate proficiency as an assistant angiographer for routine neuroangiography.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Perform, in a responsible manner, pre-angiography patient consultations and postprocedure patient follow-ups, identifying patient conditions that require specific action on the part of the angiography team.

NEURORADIOLOGY

Rotation 3

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Demonstrate increased ability to recognize pathology and discuss a differential diagnosis

Technical Skills: At the end of the rotation, the resident should be able to:

1. Dictate neuroimaging studies after review with the attending neuroradiologist.

2. Screen, prescribe, and supervise, with an increasing level of responsibility, most neuroimaging procedures.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Consult, with increasing confidence, with primary care physicians and neurologists in regard to most neuroimaging procedures.

NEURORADIOLOGY

Rotation 4

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Discuss criteria for modifying studies, depending on the expected pathology or angiographic abnormalities.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Conduct, with guidance from the attending radiologist, pre-angiographic patient consultation and postprocedure patient follow-up.

2. Perform with increasing levels of skill in myelography and angiography.

3. Demonstrate increasing ability to accept responsibility for performance and supervision of neuroradiologic procedures.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Make decisions to modify a neuroangiographic procedure when unexpected pathology or angiographic abnormalities occur, then follow through with the performance and supervision of the procedure.

2. Make decisions based on patient conditions when consulting with the patient pre- or post procedure.

NUCLEAR MEDICINE

Rotation 1

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Demonstrate a thorough knowledge of the clinical indications, general procedures (including radiopharmaceutical and dose), and scintigraphic findings in:
a) pulmonary (emboli) ventilation and perfusion imaging
b) hepatobiliary imaging and functional studies
c) gi blood loss imaging
d) bone imaging

2. Discuss the basic physical principles of nuclear medicine imaging and instrumentation.

3. Identify the isotopes (including physical and chemical properties) that are used routinely in the compounding of radiopharmaceuticals for nuclear radiology procedures.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Recognize limitations in personal knowledge and skills, being careful to not make decisions beyond the level of personal competence.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Review histories of patients to be imaged each day to determine the relevance of the study to clinical symptoms, to evaluate for contraindications to the study, and to advise technologists about special views or specific parameters of the study that require special attention.

2. Assist technologists in the determination of the radiopharmaceutical dosage when patient conditions do not fit the criteria of the standard dose.

3. Observe at least one of each of the different scans routinely performed, as well as all the infrequently ordered studies.

4. Make a preliminary review of the images and advise technologists when additional views or repeat views are needed.

NUCLEAR MEDICINE

Rotation 2

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Demonstrate a thorough knowledge of the clinical indications, general procedures (including radiopharmaceutical and dose) and scintigraphic findings in:
a) renal and urinary tract studies
b) liver/spleen imaging
c) GI tract imaging and functional studies
d) thyroid imaging and functional studies
e) brain imaging and functional studies
f) tumor and abscess imaging

2. Identify and discuss indications for isotopes used for therapeutic purposes.

3. Describe the protocol for using I-131 for treatment of hyperthyroidism and thyroid malignancies, including protocol for hospitalization and monitoring of patients who receive over 30 mCi of activity.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Read and/or dictate films with the assistance/review of the faculty radiologist.

2. Assist with radioactive therapy treatments, making sure the consent form is completed properly and that the appropriate dose is administered, giving particular attention to radiation safety practices during the procedure.

3. Assist with preparation/presentation of cases for biweekly resident noon film review.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Recognize limitations in personal skill and knowledge, always making sure dictations and consultations are checked by the faculty radiologist.

2. Review all scans as they are performed for significant findings that require prompt attention, and make decisions in regard to notification of the referring physician if the faculty radiologist is not available for consultation.

NUCLEAR MEDICINE

Rotation 3 and 4

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Identify normal and abnormal findings on all imaging and functional studies, other than nuclear cardiology studies.

2. Discuss all aspects of nuclear studies, including indications, pathologies, protocols, correlative studies, radiopharmaceuticals used for each study, and various parameters that might interfere with the results of the procedure.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Review and dictate with the faculty radiologist all scans performed.

2. Review cases.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Make preliminary decisions on all matters of film interpretation and consultation, recognizing need for and obtaining assistance in situations that require the expertise of the faculty radiologist.

2. Comment on anatomical findings, scanning technique, and reasons for doing the study to RAD 401 students in such a way that the students will be able to develop an appreciation for the value of nuclear radiology procedures in patient management.

NUCLEAR MEDICINE

Rotation 5

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Demonstrate a thorough knowledge of the clinical indications, general procedures, and findings in:

a) Myocardial perfusion studies (rest and stress)
b) Myocardial infarct imaging
c) Multigated acquisition imaging and function studies

2. Describe the radiopharmaceuticals used in cardiac nuclear studies, including the methods of red cell labeling, patient dosages, and physical properties of the isotopes.

3. Discuss patient conditions and patient monitoring requirements, particularly in relation to exercise and drug stress studies.

4. Process computer data obtained in each of the different cardiac studies.

5. Discuss the range of invasive and noninvasive tests, test characteristics, and the prognostic value of tests used to evaluate cardiac disease.

Technical Skills: At the end of the rotation, the resident should be able to:

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Select tests for evaluation for evaluation of cardiac disease on the basis of patient condition and clinical symptoms.

2. Correlate the results from various tests with interpretation of nuclear cardiology exams.

NUCLEAR MEDICINE

Rotation 6

Knowledge Based Objectives: At the end of the rotation, the resident should be able to:

1. Discuss the following information regarding all radiopharmaceuticals used in nuclear radiology studies:
a) production of isotopes
b) physical properties if isotopes
c) generation elution and quality control
d) compounding of radiopharmaceuticals
e) radiochemical quality control
f) biodistribution and mechanisms of localization

2. Calculate patient doses, using information related to decay factors, volume concentration, and patient parameters.

3. Describe the procedures and rationale for instrument quality control in nuclear medicine.

4. Discuss rules and regulations that apply to the practice of nuclear radiology as outlined in 10CFR20 and other appropriate sources.

5. Describe the types of records that must be maintained in order to comply with federal/state guidelines for radiation safety and radioisotope receipt/use/disposal.

6. Demonstrate an in-depth understanding of the physics of nuclear radiology.

Technical Skills: At the end of the rotation, the resident should be able to:

1. Compound radiopharmaceuticals from kits and do appropriate quality control procedures.

2. Elute a generator and do appropriate quality control procedures.

3. Calculate and draw up patient doses.

4. Demonstrate appropriate use of a survey meter to monitor radioactivity spills or other sources.

5. Perform a wipe test.

6. Perform quality control procedures on cameras, well/uptake probes, and dose calibrators.

7. Handle radioactive sources according to the established guidelines.

Decision-Making and Value Judgment Skills: At the end of the rotation, the resident should be able to:

1. Carry out the practice of nuclear radiology with due regard to quality control, quality assurance, and radiation safety for the patient and personnel.

For any comments or suggestions, please contact the Curriculum Committee

Vijay Rao, M.D., Chair
Melissa Rosado-deChristenson, M.D.
David Einstein, M.D.
Jay Harolds, M.D.
Sandra Oldham, M.D.
Charles Resnik, M.D.