

Goals and Objectives
Division of Neuroradiology (UAMS)
According to the
Guidelines of American Society of Neuroradiology
Residency Training Core Curriculum

General Goals

Radiology residents rotate through the Division of Neuroradiology at the University Hospital, John H. McClellan VA Hospital and Arkansas Children's Hospital. The timing and structure of rotations in neuroradiology during the four years of radiology residency will vary depending upon the rotational schedule set up by the department of radiology. It is not possible to set specific program goals for each level of training but it is expected that residents will progressively develop their abilities to perform and interpret imaging studies of the central nervous system. The objectives for the rotations during the years of training will be based upon the principles in regards to patient care, medical knowledge, practiced based learning and improvement, interpersonal and communication skills and professionalism.

Residents will be taught practical clinical skills necessary to interpret neuroradiologic studies..... (just follow the ASNR guidelines till page 7) www.asnr.org

Neuroradiology lectures

Lectures in neuroradiology will consist of didactic and case based presentations. Didactic lectures will be given as hour long lectures and will be repeated twice during a four year cycle. Material for the didactic lectures will be available for the residents prior to the lecture to be given by the neuroradiology staff. It is expected that case based presentations (unknown or interesting cases) will be based upon the didactic lecture and mainly demonstrate the principles presented during the didactic lectures. All the defined didactic and case based presentations will be presented once a week during the noontime lectures.

Additional case based conferences (hot seat conference) will be assigned to individual staff members and the rotating residents and fellows for presentation to the residency staff once weekly at morning rounds (7:15 to 8 am). This will be based on the teaching file records of the staff member and the interesting cases of the week in the division of neuroradiology.

All the residents and fellows are expected to attend these two conferences. In addition, the rotating residents are encouraged to attend the weekly neuroradiology conferences with various departments (Monday otolaryngology (5-6 pm), Wednesday neurology (5-6 pm) and Thursday neurosurgery (4-6 pm).

LECTURE TOPICS

1. Emergencies in Neuroradiology (2)
2. Cerebral Neoplasms (2)

3. Vascular diseases of the Brain (2)
4. Stroke
5. Infections of the brain
6. Sella and Parasellar Disease
7. Skull Base and Dural coverings
8. White Matter disease
9. Seizures
10. Degenerative brain disease
11. Spinal tumors
12. Degenerative disease of the spine
13. Spine trauma and infections
14. Metabolic disease of the brain and miscellaneous
15. Orbit
16. Nasal and paranasal sinuses
17. ENT tumors
18. Mandible and TMJ
19. Temporal bones (2)
20. Interventional neuroradiology (2) – vascular and nonvascular
21. Developments in neuroradiology
22. Coding
23. Physics of MRI & CT
24. Neuroanesthesia

Goals and Objectives
Neuroradiology
First Year Residents

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.

Knowledge Based Objectives

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Use of effective communication and caring and respectful behavior when interacting with patients of all ages and their families

Ability to gather essential and accurate information about patients when appropriate (from chart, old films, lab, referring MD)

Ability to work with other health care professionals to provide patient focused care in the radiology department including technologists and nurses in the fluoro room, obtaining consent for sedation, providing help locating films in the reading room, and consultation in the reading room, answering the phone, calling referring MD's.

Recognition of principles of physics and radiation biology in daily radiology practice especially as it relates to the unique problems of imaging of the pediatric patient population.

Skill based objectives

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Ability to use the HIS and RIS system to obtain needed patient information

Ability to perform lumbar punctures, assist in myelography and cerebral arteriography with direct supervision from staff

Medical Knowledge

Residents must demonstrate knowledge about established and evolving biomedical, clinical, and cognate (e.g. epidemiological and social-behavior) sciences and the application of this knowledge to patient care.

Knowledge based objectives

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Recognition of normal and abnormal anatomy necessary to interpret ER plain film, CT and myelographic images

Recognition of importance of obtaining all relevant information before image interpretation or performance of exam

Recognition of limitations in personal knowledge and not make decisions beyond level of personal competence

Skill based objectives

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Recognition of normal and abnormal findings on routine skull and maxillofacial radiographs, ER CT scans of head, face, paranasal sinuses, and basic brain and spine MR studies

Practiced Based Learning and Improvement

Residents must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices.

Knowledge based objectives

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Evidence of independent study using textbooks from suggested reading list

Appropriate follow-up of interesting cases (looks up biopsy results, gets follow-up from surgeons, etc.)

Skill based objectives

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Operation of use PAC's systems

Interpersonal and Communication Skills

Residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange with patients, patient's families, and all levels of professional associates.

Knowledge Based Objectives:

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Ability to work as an effective member of the imaging team and contribute to the clinical care of patients when appropriate

Skills Based Objectives:

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Ability to dictate written reports for routine myelographic, cerebral arteriographic , plain films, routine CT, and MR exams

Professionalism

Resident must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

Knowledge Based Objectives:

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Discussion of routine fluoro procedures with patients and families with sensitivity to cultural differences

Commitment to ethical principles especially to unique problems inherent in the pediatric population (informed consent, confidentiality, radiation exposure)

Professional dress, demeanor and attitude in the reading room and patient care areas

System Based Practice

Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value.

Knowledge Based Objectives:

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Knowledge of how their image interpretation and communication affects patient care

Practice of techniques for cost effective utilization of supplies, time, and personnel in the Radiology Department

Use of timely performance and interpretation of studies to decrease length of hospital stay for in-patients.

Concern for assisting patients with complexities of the health care system whenever possible

Skills Based Objectives:

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Ability to use normal code dictations appropriately for routine radiographs, CT, MR

Myelographic, and arteriographic procedures

Goals and Objectives
Neuroradiology
Second Year Residents

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.

Knowledge Based Objectives

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Use of effective communication and caring and respectful behavior when interacting with patients of all ages and their families

Ability to gather essential and accurate information about patients when appropriate (from chart, old films, lab, referring MD)

Ability to work with other health care professionals to provide patient focused care in the radiology department including technologists and nurses in the fluoro room, obtaining consent for sedation, providing help locating films in the reading room, and consultation in the reading room, answering the phone, calling referring MD's.

Recognition of principles of physics and radiation biology in daily radiology practice especially as it relates to the unique problems of imaging of the pediatric patient population.

Skill based objectives

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Ability to use the HIS and RIS system to obtain needed patient information

Ability to perform lumbar punctures, assist in myelography and cerebral arteriography with direct supervision from staff

Medical Knowledge

Residents must demonstrate knowledge about established and evolving biomedical, clinical, and cognate (e.g. epidemiological and social-behavior) sciences and the application of this knowledge to patient care.

Knowledge based objectives

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Recognition of normal and abnormal anatomy necessary to interpret ER plain film, CT and myelographic images

Recognition of importance of obtaining all relevant information before image interpretation or performance of exam

Recognition of limitations in personal knowledge and not make decisions beyond level of personal competence

Skill based objectives

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Recognition of normal and abnormal findings on routine skull and maxillofacial radiographs, ER CT scans of head, face, paranasal sinuses, and basic brain and spine MR studies

Practiced Based Learning and Improvement

Residents must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices.

Knowledge based objectives

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Evidence of independent study using textbooks from suggested reading list

Appropriate follow-up of interesting cases (looks up biopsy results, gets follow-up from surgeons, etc.)

Skill based objectives

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Operation of use PAC's systems

Interpersonal and Communication Skills

Residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange with patients, patient's families, and all levels of professional associates.

Knowledge Based Objectives:

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Ability to work as an effective member of the imaging team and contribute to the clinical care of patients when appropriate

Skills Based Objectives:

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Ability to dictate written reports for routine myelographic, cerebral arteriographic , plain films, routine CT, and MR exams

Professionalism

Resident must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

Knowledge Based Objectives:

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Discussion of routine fluoro procedures with patients and families with sensitivity to cultural differences

Commitment to ethical principles especially to unique problems inherent in the pediatric population (informed consent, confidentiality, radiation exposure)

Professional dress, demeanor and attitude in the reading room and patient care areas

System Based Practice

Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value.

Knowledge Based Objectives:

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Knowledge of how their image interpretation and communication affects patient care

Practice of techniques for cost effective utilization of supplies, time, and personnel in the Radiology Department

Use of timely performance and interpretation of studies to decrease length of hospital stay for in-patients.

Concern for assisting patients with complexities of the health care system whenever possible

Skills Based Objectives:

By the final rotation in Neuroradiology as a first year Radiology Resident, the resident will demonstrate:

Ability to use normal code dictations appropriately for routine radiographs, CT, MR Myelographic, and arteriographic procedures

Goals and Objectives
Neuroradiology
Third and Fourth Year Residents

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.

Knowledge Based Objectives

By the final rotation in Neuroradiology as a 3rd and 4th year Radiology Resident, the resident will demonstrate:

Effective communication and caring and respectful behavior when interacting with patients of all ages and their families

Ability to gather and interpret essential and accurate information about patients when appropriate (from chart, old films, lab, referring MD)

Ability to work with other health care professionals to provide patient focused care in the radiology department including technologists and nurses in the fluoro room, obtaining consent for sedation, providing help locating films and consultation for most common neurological problems in the reading room, answering the phone, calling referring MD's.

Application of principles of physics and radiation biology in daily radiology practice especially as it relates to the unique problems of imaging of the pediatric patient population.

Skill based objectives

By the final rotation in Neuroradiology as a 3rd-4th year Radiology Resident, the resident will demonstrate:

Ability to use the HIS, RIS, LINK system to obtain needed patient information

Ability to perform routine lumbar puncture, biopsies and myelographic procedures with supervision from staff

Ability to assist and perform selective invasive studies such as cerebral and spinal arteriographic procedures, selected spinal interventional procedures and selected neurointerventional procedures with staff supervision

Ability to interpret neuro CT and MRI and myelographic and cerebral arteriographic procedures with staff guidance

Medical Knowledge

Residents must demonstrate knowledge about established and evolving biomedical, clinical, and cognate (e.g. epidemiological and social-behavior) sciences and the application of this knowledge to patient care.

Knowledge based objectives

By the final rotation in Neuroradiology as a 3rd-4th year Radiology Resident, the resident will demonstrate:

Identification of normal and abnormal anatomy necessary to interpret all plain films, CT and MR images

Analysis of all relevant information before image interpretation in order to tailor exams to specific patient problems and needs.

Understanding of the advantages and disadvantages of available modalities especially as they relate to the neurologic population

Recognition of limitations in personal knowledge and not make decisions beyond level of personal competence

Skill based objectives

By the final rotation in Neuroradiology as a 3rd-4th year Radiology Resident, the resident will demonstrate:

Recognition of normal and abnormal findings on routine pediatric imaging studies and ability to discuss their implications for diagnosis and treatment

Practiced Based Learning and Improvement

Residents must be able to investigate and evaluate their patient care practices, appraise and assimilate scientific evidence, and improve their patient care practices.

Knowledge based objectives

By the final rotation in Neuroradiology as a 3rd-4th year Radiology Resident, the resident will demonstrate:

Evidence of independent study including textbooks from suggested reading list, journal articles, and web-based learning

Appropriate follow-up of interesting cases (looks up biopsy results, gets follow-up from surgeons, etc.)

Interest in teaching medical students, other service resident teams, radiologic technologists and RN's about interesting cases in reading room and be able to consult with referring physicians concerning interpretation of neuroradiologic cases

Skill based objectives

By the final rotation in Neuroradiology as a 3rd-4th year Radiology Resident, the resident will demonstrate:

Ability to do a web-based literature search pertinent to Pediatric Radiology

Operation of PACS systems

Interpersonal and Communication Skills

Residents must be able to demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their patient's families, and professional associates.

Knowledge Based Objectives:

By the final rotation in Neuroradiology as a 3rd-4th year Radiology Resident, the resident will demonstrate:

Ability to work as an effective member of the imaging team and contribute to the clinical care of patients when appropriate

Discuss imaging results with residents and medical students on telephone and in reading room

Skills Based Objectives:

By the final rotation in Neuroradiology as a 3rd-4th year Radiology Resident, the resident will demonstrate:

Ability to dictate correct and concise written reports for all studies, after review with staff

Professionalism

Resident must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

Knowledge Based Objectives:

By the final rotation in Neuroradiology as a 3rd-4th year Radiology Resident, the resident will demonstrate:

Ability to explain all imaging modalities, techniques, etc. to patients and families
with concern for cultural differences

Commitment to ethical principles especially to unique problems inherent in the pediatric population (informed consent, confidentiality, radiation exposure)

Professional dress, demeanor and attitude in the reading room and patient care areas

System Based Practice

Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value.

Knowledge Based Objectives:

By the final rotation in Neuroradiology as a 3rd-4th year Radiology Resident, the resident will demonstrate:

Knowledge of how the timeliness and content of their image interpretation and communication affects patient care

Practice of techniques for cost effective utilization of supplies and personnel in the Radiology Department

Use of timely performance and interpretation of studies to decrease length of hospital stay for in-patients.

Assistance of patients with complexities of the health care system

Skills Based Objectives:

By the final rotation in Neuroradiology as a 3rd-4th year Radiology Resident, the resident will demonstrate:

Ability to use normal code dictations appropriately

Ability to use ICD-9 coding appropriately on all studies

Neuroradiology Evaluation

Patient Care

- 1) Communicate effectively and demonstrate caring and respectful behavior when interacting with patients and families
- 2) Gather essential and accurate information about patients when appropriate (reviews old films, chart, lab work, calls referring MD)
- 3) Use information technology to support patient care decisions and patient education (looks up needed information in books, on-line)
- 4) Work effectively with other health care professionals including other disciplines to provide patient focused care (interpersonal skills, calls reports when needed, affable on call)

Knowledge

- 5) Demonstrate an investigatory and analytic thinking approach to clinical situations (after gathering necessary history and clinical information, tailors studies to answer clinical questions)
- 6) Know and apply basic and clinical sciences - Physics (uses physics and radiation biology in daily practice, ie: proper protocol for studies, proper size thickness, appropriate repeat of studies)
- 7) Know and apply basic and clinical sciences - Is familiar with proper use of various contrast agents
- 8) Know and apply basic and clinical sciences - Appropriate knowledge of common disease processes
- 9) Visual perception
- 10) Ability to formulate a differential diagnosis
- 11) Knows necessary anatomy
- 12) Performs completely all invasive procedures appropriate for level of training (manual skills)

Practice-Based Learning and Improvement

- 13) Locate and assimilate evidence from scientific studies related to patient problems (shows evidence of independent study and choice of journal club articles)
- 14) Appropriate followup of cases
- 15) Facilitates learning of students and other health care professionals (teaches

others in the reading room - students, other service residents, techs, nurses, etc.)

Interpersonal and Communication Skills

16) Work effectively with others as a member of the imaging team (pitches in where and when needed - not a clock watcher, comes on time, stays late, timely return from conf.)

17) Dictate written reports that are correct, concise, meaningful, quality of dictation - timeliness of signing reports

Professionalism

18) Considers well being of patients and department ahead of personal needs (availability)

19) Commitment to ethical principles (pt. Confidentiality, obtaining informed consent, business practices)

20) Maintains appropriate professional demeanor in patient care areas and reading room

Systems-Based Practice

21) Understands how their patient care and image interpretation affects patient care and other professionals (and vice versa) (demonstrates timely reporting, faxing, calls to referring MD's, careful coding)

22) Concern for cost-effective operation of department, patient imaging work-up, effect on hospitalization, etc. (adds on studies late when needed, timely reporting, use of most efficient modality to obtain needed information)

23) Assist patients with complexities of medical system when possible