

Resident Core Curriculum

Thoraco-abdominal: Chest

General Goals: The specific goals include objectives required for every level of training with graduated levels of supervision and responsibility. All aspects of chest imaging are incorporated into the residency, including plain radiography, CT, PET-CT, percutaneous needle biopsy, thoracentesis with or without chest tube placement and MRI. During every training rotation, the resident will read the required literature, study the teaching file cases and look at interactive websites in Thoracic Radiology to expand their knowledge base. Over time, the resident will become progressively knowledgeable about normal radiographic anatomy, physiology of cardiothoracic organs, and the radiological appearances of chest diseases. In addition, the resident will demonstrate a gradually increasing understanding of specific disease entities, their typical and uncommon clinical presentations, and current modes of treatment.

Resident Daily Work Responsibilities (OVERALL BENCHMARKS/OBJECTIVES for Self-Evaluation)

1. Residents assigned to chest imaging will be available for consultations by technologists, clinicians, and other health care providers, except during conference times, when the attending faculty will cover.
2. Resident questions will be referred to the supervising faculty, upper level or fellow instructor in the service, covering chest radiology.
3. Resident review of cases with the supervising faculty will be conducted as many times in the day as necessary to keep an efficient workflow. Emergency department cases will be checked out in a timely manner to comply with the designated turn around time.
4. All resident examinations will be dictated and staffed by the end of every working day.
5. Residents will check and sign his/her reports prior to final verification by supervising faculty.
6. Residents must be familiar with the operation of all Thoracic imaging equipment.
7. Residents must acquire knowledge of radiation protection and ways to reduce radiation exposure to both patients and hospital personnel. The resident will be supervised to assure that safe practices are followed.
8. Residents will learn the techniques for performing high quality, state-of-the art diagnostic examinations during imaging of the chest. Examinations will be checked before the patient leaves the department if requested to do so by the supervising faculty.
9. Residents must become proficient at detecting abnormalities demonstrated by chest plain films and other imaging modalities and be able to generate meaningful differential diagnosis. They must also be able to recognize and diagnose emergency situations, (i.e., tension pneumothorax, pulmonary embolus, traumatic aortic injury) and act accordingly by immediately contacting the referring physician and or their covering faculty
10. Residents will become knowledgeable about the use of different radiographic contrast agents (including their indications, contraindications, dosages, and side effects).
11. Residents will acquire an understanding of the proper preparation of patients for examinations and appropriate follow-up afterward. At the start of every working day, the resident will be familiar with the patient schedule and anticipate need for any procedures. The resident will check requisitions for the next working day to evaluate for appropriateness of the requested procedure or if additional exams/protocols need to be performed. Absent clinical indication or

seemingly inappropriate requests will be clarified and discussed with the referring physician or patient information systems like Carecast.

12. Residents will do in-depth reading and study, along with a review of teaching file cases, to become knowledgeable about the normal anatomy and physiology of cardiothoracic organs and the radiologic appearances of chest diseases, while gaining a general understanding of the disease entities, their clinical presentations, and certain modes of treatment.
13. Residents will serve as a secondary consultant to referring physicians regarding thoracic imaging. This will strengthen the confidence of the resident in the very important role every radiologist must perform throughout his/her career as a consultant to clinicians.
14. Residents will become prepared to pass the certifying examination of the American Board of Radiology.
15. Residents will teach and share knowledge to medical students, radiologic technologist students, and junior residents.
16. Residents will participate in the preparation and presentation of imaging studies at the monthly Interesting Case Conference.

Supervising Faculty Responsibilities:

1. Supervising faculty will be available at all times for any consultations needed by the resident as well as for EARLY reads from inpatients, outside contracts and ER films.
2. Supervising faculty will review all cases with the residents before the end of the day.
3. Supervising faculty will provide the resident with constructive feedback in any problem areas encountered during the rotation.
4. Supervising faculty will verify resident-generated reports in a timely manner and inform the resident of any significant changes made.
5. Supervising faculty will teach at checkouts and instruct in the areas of patient care, communication of important results, development of a differential diagnosis, and the ethical responsibilities of the profession.

Educational Goals and Objectives (First Year Residents):

Patient Care:

- When required, adequately explain each examination to the patient in order to ensure that the patient feels comfortable and to provide patient care that is compassionate, appropriate, and effective
- Familiarity with the operation of chest imaging equipment
- Aware of the basic principles of radiation protection in order to reduce as much as possible the radiation dose to the patient and reduce exposure to healthcare providers
- Understand the indications for and contraindications to use of intravenous radiographic contrast, and be able to monitor its administration
- Recognize and treat reactions to intravenous contrast
- Understand the indications and contraindications to the different types of contrast, dosages, side effects, and the differences and relative merits of single and double contrast studies.
- Develop a knowledge of the preparation and aftercare required for the common diagnostic and interventional examinations

- Use the PACS, voice recognition systems, and hospital information systems to become proficient in dictating reports of significant radiographic findings in a concise and clear manner
- Demonstrate the ability to recommend additional imaging studies as appropriate to better assess findings on chest imaging studies

Medical Knowledge:

- Learn the basic physics of thoracic radiography, computed tomography, ultrasound and magnetic resonance imaging and their relevance in the diagnosis and treatment of Thoracic diseases
- Observe and learn the techniques to achieve high-quality diagnostic examinations of the chest
- Develop a knowledge of normal and abnormal chest anatomy as demonstrated on the chest radiograph
- Become knowledgeable about the different contrast agents available and begin to recognize abnormalities that are demonstrated on chest plain radiographs
- List the risk factors for allergic reaction to intravenous contrast media
- State the proper assessment and treatment for allergic reactions to contrast media
- Recognize the normal and abnormal position of supporting devices, lines and tubes on inpatient radiographs
- Develop a knowledge of the differential diagnoses of the more commonly encountered medical conditions such as pneumonia, congestive heart failure, pneumothorax, interstitial lung disease and thoracic trauma
- Demonstrate the ability to recognize and describe common medical conditions depicted on chest imaging studies
- Demonstrate an understanding of pathologic terminology related to the chest
- Recognize cephalization of blood flow and pneumothorax both in upright and supine patients
- Recognize pleural effusion on supine and upright radiographs and their different appearances
- Recognize abnormal cardiac silhouette size
- Recognize abnormal lung parenchymal opacities and formulate basic differential diagnosis
- Determine when a patient would benefit from a pulmonary, thoracic surgery or other specialty consult
- Determine when a patient would benefit from a different imaging modality and act upon this information to improve patient care and benefit utilization of health care dollars

Practice-Based Learning and Improvement:

- Show evidence of independent study using textbooks from reading list
- Demonstrate appropriate follow up of interesting cases
- Research interesting cases as directed by faculty
- Identify, rectify, and learn from personal errors
- Incorporate feedback into improved performance
- Efficiently use electronic and print sources to access information
- Distinguish normal from abnormal structures on a chest x-ray
- Determine when to request a repeat examination because of technical inadequacy. Notify technical staff and inform them why the radiograph is not of diagnostic quality

Interpersonal and Communication Skills:

- When clinically necessary, the resident will communicate with the patient during or after the examination to ensure that patient understands the procedure, important findings, and remains comfortable
- Communicate effectively with all members of the health care team (technologists, medical students, fellows, residents, allied health providers, support staff, and attending physicians/radiologists)
- Call results to the referring physicians and show ability to positively interact with referring physicians
- Demonstrate availability and willingness to add to the care of patients in the entire hospital setting
- Work together with clinicians when reviewing chest imaging studies and demonstrate ability to provide preliminary readings, follow up with attending radiologists, formulate a plan for complex cases, and communicate any changes to referring clinicians
- Produce concise reports that include all relevant information and most importantly answer the clinical question

Professionalism:

- Demonstrate respect for patients, families, and all members of the healthcare team
- Thoughtfully discuss significant radiology findings and explain the impact of the radiology findings on patient care
- Discuss which imaging studies may/may not be appropriate to further clarify a clinical condition
- Respect patient confidentiality at all times
- Present oneself as a professional in appearance and communication
- Demonstrate a responsible work ethic with regard to work assignments

System-Based Practice:

- Able and willing to participate in clinical conferences in which imaging studies are used to guide patient care/evaluations and be able to demonstrate understanding of how imaging relates to the clinical care of the patient
- Demonstrate knowledge of the ACR practice guidelines and technical standards for fluoroscopy
- Demonstrate knowledge of ACR appropriateness criteria and cost effective imaging evaluation of common disorders
- Show ability to interact with clinicians regarding cost effective and streamlined evaluation for differing clinical entities

Monitoring and Assessment of Resident Performance

The resident's progress will be monitored by the faculty on the service. Toward the end of each rotation, the resident will receive an evaluation of performance from each attending. Deficiencies or substandard performance will be discussed personally and privately with the resident and will be brought to the attention of the Residency Program Director by the attending radiologist. Residents are evaluated monthly by faculty. Resident performance is also evaluated through direct observation, case logs, multi-source professional evaluations, structured case discussion, review of patient

outcomes, and other performance evaluation methods as determined. Tests in the form of a case presentation will be given at the end of rotation.

Educational Goals and Objectives (Second Year Residents):

The objectives above as well as the following:

Patient Care:

- Understand the physics of radiation protection and how to apply it to routine studies
- Obtain consent for more complex procedures and answer all questions the patient may have
- Develop a knowledge of the preparation and aftercare required for more complex procedures
- Continue to improve skills for performing radiographic examinations, and tailor examinations to answer all questions being asked by the clinician; anticipate those questions that should have been asked but were not and consult with the clinician regarding those
- Demonstrate knowledge of indications for the examinations requested (when the reason for the examination is not clear, the resident will effectively communicate with the patient and referring physician until clarified)
- Familiarity with available medical records and how to access them for the purposes of patient care
- Protocol cases, in consultation with the attending, to assure that the examination is appropriate and of sufficient quality to address the clinical concerns of the patient and referring physician
- Review all studies with the supervisor faculty attending
- Provide preliminary reports to all referring clinicians if needed before the final review of cases (when there is a significant discrepancy between the preliminary reading and final reading, the resident will notify the referring clinician immediately)

Medical Knowledge:

- Recommend the appropriate study based on the clinical scenario and understand the relative strengths of each modality
- Familiarity with the anatomy of the organs examined in every case
- Familiarity with imaging findings of common acute and chronic chest diseases
- Identify pathology in order to interpret routine chest studies with accuracy appropriateness to the level of training when presenting to the attending
- Distinguish between normal and abnormal chest anatomy to level of training when presenting to the attending
- Detect abnormalities while the procedures are in progress, such as 1) disease recognition skills will continue to increase on chest plain radiographs and contrast studies, and 2) begin to develop meaningful differential diagnoses for the pathology that is found
- Discuss various common diseases and the altered lung patterns they produce
- Describe the characteristics of common abnormal cardiac shadows and specific chamber enlargement, i.e. LAE, LVE (on lateral radiograph)
- Discuss the various indications for ordering a chest CT or a HRCT
- Discuss the progression of ARDS seen on ICU radiographs
- Recognize normal and abnormal position of lines and tubes on ICU radiographs
- Expand differential diagnosis of the primary lung parenchymal processes

- Recognize and differentiate the following pathologic anatomy in the lungs: air space processes, lobular vs segmental vs diffuse process, and interstitial processes
- Given an appropriate radiograph, recognize cardiac enlargement, pneumothorax, differentiate between fluid overload caused by pump failure vs. a noncardiogenic etiology. Differentiate ARDS from cardiac failure
- Identify anatomy and significant pathology as seen on ICU chest films.
- Describe pertinent negatives to allow precise formulation of differential diagnosis
- Determine concrete circumstances when additional lab work, imaging, or subspecialty consult is needed to appropriately manage specific patient's needs

Practice-Based Learning and Improvement:

- Identify, rectify and learn from personal errors
- Incorporate feedback into improved performance
- Demonstrate evidence of independent reading and learning through use of printed and electronic resources
- Follow up on abnormal or interesting cases through personal communication with the referring physician or patient medical records
- Competent in using PACS, voice recognition systems, and the patient information systems in the daily accomplishment of the workload and instruct others in their use
- Determine which cases can be interpreted and dictated independently and which cases require the assistance of a supervising faculty member

Interpersonal and Communication Skills:

- Appropriately obtain informed consent
- Produce concise reports that include all relevant information and answer the clinical question
- Communicate effectively with all members of the healthcare team
- Communicate effectively the results of studies to referring clinicians whenever needed (for emergent studies, this will be accomplished in a timely manner)
- Effectively convey the findings of examinations through accurate dictation of reports

Professionalism:

- Demonstrate respect for patients and all members of the healthcare team (technologists, nurses, and other healthcare workers)
- Respect patient confidentiality at all times
- Present oneself as a professional in appearance and communication
- Demonstrate a responsible work ethic in regard to work assignments
- Explain the nature of the examination or findings in an examination to patients and their families when needed
- Observe ethical principles when recommending further work-up
- Promptness and availability at work are required of every resident
- Dress appropriately for work

Systems-Based Practice:

- Demonstrate knowledge of ACR practice guidelines and technical standards for chest imaging
- Demonstrate knowledge of ACR appropriateness criteria and cost-effective imaging evaluation

- Familiarity with departmental procedures, contrast safety, and sedation required in the performance of examinations
- Use appropriate language in communicating to clinicians through reports or consultations so proper management decisions can be made
- Thorough dictations will be made with indications, techniques, findings, and conclusions
- Dictate and correct reports in a timely fashion to avoid delay in patient disposition
- Make suggestions to improve methods and systems utilized in radiology whenever appropriate

Monitoring and Assessment of Resident Performance

The resident's progress will be monitored by the faculty on the service. Toward the end of each rotation, the resident will receive an evaluation of performance from each attending. Deficiencies or substandard performance will be discussed personally and privately with the resident and will be brought to the attention of the Residency Program Director by the attending radiologist. Residents are evaluated monthly by faculty. Resident performance is also evaluated through direct observation, case logs, multi-source professional evaluations, structured case discussion, review of patient outcomes, and other performance evaluation methods as determined. Tests in the form of a case presentation will be given at the end of rotation.

Educational Goals and Objectives (Third Year Residents):

The above objectives as well as the following:

Patient Care:

- Perfect diagnostic examination skills and be very proficient and resourceful in performing and interpreting all diagnostic radiologic procedures
- Demonstrate knowledge of indications for the examinations requested (when the reason for the examination is not clear, the resident will effectively communicate with the patient or referring physician until clarified)
- Familiarity with available medical records and how to access them for the purposes of patient care
- Protocol cases, in consultation with the attending, to assure that the examination is appropriate and of sufficient quality to address the clinical concerns of the patient and referring physician
- Review all studies with the supervising faculty attending
- Provide preliminary reports to all referring clinicians if needed before the final review of cases (when there is a significant discrepancy between the preliminary reading and final reading, the resident will notify the referring clinician immediately)
- Accurately know when a CTPA, CTA, HRCT, lung needle biopsy, open lung biopsy or bronchoscopy are indicated in a patient's management algorithm

Medical Knowledge:

- Relate the chest imaging findings to the clinical condition and its pathology
- Understand the clinical management of the conditions encountered

- Familiarity with the anatomy of the organs examined in every case
- Identify and describe characteristics of all chest pathologies
- Identify pathology in order to interpret chest imaging studies with accuracy appropriateness to the level of training when presenting to the attending
- Distinguish between normal and abnormal chest anatomy with outstanding accuracy according to the level of training when presenting to the attending and demonstrate improvement compared to the prior rotation
- Proficient in detecting abnormalities on chest plain radiographs and other imaging modalities while in progress
- Have an appropriate differential diagnostic list in most cases presented. The list will be of three to five entities with a knowledge base to support it
- Know the proper preparation of patients for diagnostic procedures and the appropriate follow-up afterwards
- Act as a consultant in thoracoabdominal radiology to the clinical services
- Obtain a broad understanding of thoracoabdominal diseases, their clinical features, radiographic manifestations, and current modes of treatment
- Name and describe characteristics of chest pathologies that are seen infrequently in routine work but have distinctive radiographic and/or clinicopathological signs, i.e. CF, sarcoidosis, IPF, CWP, LAM, COP, asbestos related pleuro-parenchymal disease
- Understand lung cancer, its staging and the role of CT, PET-CT, MRI, needle biopsy, EUS and of the radiologist in patient management
- Read routine chest films with a high level of accuracy and efficiency
- Supervise the performance of a HRCT chest CT examination
- Consistently identify those cases in which assistance is needed and be available for consultation of these by the lower level resident - mentoring
- Prepare and present the radiographic components of the radiology/pathology in chest conferences
- Correlate pathological and clinical data with radiographic findings on the chest film

Practice-Based Learning and Improvement:

- Identify, rectify, and learn from personal errors
- Incorporate feedback into improve performance
- Demonstrate evidence of independent reading and learning through use of printed and electronic resources
- Follow up on abnormal or interesting cases through personal communication with the referring physician or patient medical records
- Competent in using PACS, voice recognition systems, and the patient information systems in the daily accomplishment of the workload and instruct others in their use

Interpersonal Skills:

- Appropriately communicate results to patients and clinicians whenever needed (for emergent studies, this will be done in a timely manner)
- Produce concise reports that include all relevant information and be able to effectively convey the findings of examinations through accurate dictation of reports
- Communicate effectively with all members of the healthcare team

- Assist with supervision and teaching of junior residents and medical and radiology technologist students

Professionalism:

- Demonstrate respect for patients and all members of the healthcare team (technologists, nurses, and other healthcare workers)
- Respect patient confidentiality at all times
- Present oneself as a professional in appearance and communication
- Demonstrate a responsible work ethic in regard to work assignments
- Explain the nature of the examination of findings in an examination to patients and their families when needed
- Observe ethical principles when recommending further work-up for cases
- Promptness and availability at work are required of every resident
- Dress appropriately when reporting to work

Systems-Based Practice:

- Prepare and present the radiographic components of the radiology/pathology in clinical chest conferences in which imaging studies are used to guide patient care/evaluations and be able to demonstrate understanding of how imaging relates to the clinical care of the patient
- Demonstrate knowledge of ACR practice guidelines and technical standards for chest imaging
- Demonstrate knowledge of ACR appropriateness criteria and cost effective imaging practices in the evaluation of chest disorders
- Complete final preparations to pass the certifying examination of the American Board of Radiology
- Familiarity with departmental procedures, contrast safety, and sedation required in the performance of examinations
- Use appropriate language in communicating to clinicians through reports or consultations so proper management decisions can be made
- Produce thorough dictations with indications, techniques, findings, and conclusions
- Dictate and correct reports in a timely fashion to avoid delay in patient disposition
- Make suggestions to improve methods and systems utilized in radiology whenever appropriate

Monitoring and Assessment of Resident Performance

The resident's progress will be monitored by the faculty on the service. Toward the end of each rotation, the resident will receive an evaluation of performance from each attending. Deficiencies or substandard performance will be discussed personally and privately with the resident and will be brought to the attention of the Residency Program Director by the attending radiologist. Residents are evaluated monthly by faculty. Resident performance is also evaluated through direct observation, case logs, multi-source professional evaluations, structured case discussion, review of patient outcomes, and other performance evaluation methods as determined. Tests in the form of a case presentation will be given at the end of rotation.

Educational Goals and Objectives (Fourth Year Residents):

The above objectives as well as the following:

Patient Care:

- Perfect diagnostic examination techniques and be very skilled and efficient in performing and interpreting all diagnostic procedures performed
- Demonstrate knowledge of indications for the examinations requested (when the reason for the examination is not clear, the resident will effectively communicate with the patient or referring physician until clarified)
- Familiarity with available medical records and how to access them for the purposes of patient care
- Protocol cases, in consultation with the attending, to assure that the examination is appropriate and of sufficient quality to address the clinical concerns of the patient and referring physician
- Review all studies with the supervising faculty attending
- Provide preliminary reports to all referring clinicians if needed before the final review of cases (when there is a significant discrepancy between the preliminary reading and final reading, the resident will notify the referring clinician immediately)

Medical Knowledge:

- Develop a thorough knowledge of the differential diagnosis of abnormalities encountered on chest imaging studies including but not limited to: interstitial lung disease, upper vs. lower lobe predominance; mediastinal masses (all components); lymphadenopathy, hilar, axillary, mediastinal, paravertebral; airspace diseases (acute vs. chronic); cystic lung diseases including congenital and acquired, true vs. mimickers of cystic lung disease; pleural effusion, diffuse or focal pleural masses or nodules; chest wall masses; cardiac masses; metastatic disease to the thorax; congenital lung disease; traumatic thoracic disease; esophageal pathology as diagnosed by CXR or CT
- Relate the chest imaging findings to the clinical condition and its pathology
- Understand the clinical management of the conditions encountered
- Familiarity with the anatomy of the organs examined in every case
- Identify and describe characteristics of all chest pathologies
- Identify pathology in order to interpret chest imaging studies with accuracy appropriateness to the level of training when presenting to the attending
- Distinguish between normal and abnormal chest anatomy with superb accuracy according to the level of training when presenting to the attending and demonstrate improvement compared to the prior rotation
- Proficient in detecting abnormalities on chest plain radiographs and other imaging modalities while in progress
- Have an appropriate differential diagnostic list in most cases presented. The list will be of three to five entities with a knowledge base to support it
- Know the proper preparation of patients for diagnostic procedures and the appropriate follow-up afterwards
- Act as a consultant in thoracoabdominal radiology to the clinical services
- Obtain a broad understanding of thoracoabdominal diseases, their clinical features, radiographic manifestations, and current modes of treatment
- Read routine chest films with a high level of accuracy and efficiency

- Identify consistently cases in which assistance is needed
- Prepare and present the radiographic components of the radiology/pathology in chest conferences
- Correlate pathological and clinical data with radiographic findings on the chest film

Practice-Based Learning and Improvement:

- Identify, rectify, and learn from personal errors
- Incorporate feedback into improve performance
- Demonstrate evidence of independent reading and learning through use of printed and electronic resources
- Follow up on abnormal or interesting cases through personal communication with the referring physician or patient medical records
- Competent in using PACS, voice recognition systems, and the patient information systems in the daily accomplishment of the workload and instruct others in their use

Interpersonal Skills:

- Appropriately communicate results to patients and clinicians whenever needed (for emergent studies, this will be done in a timely manner)
- Produce concise reports that include all relevant information and be able to effectively convey the findings of examinations through accurate dictation of reports
- Communicate effectively with all members of the healthcare team
- Assist with supervision and teaching of junior residents and medical and radiology technologist students

Professionalism:

- Demonstrate respect for patients and all members of the healthcare team (technologists, nurses, and other healthcare workers)
- Respect patient confidentiality at all times
- Present oneself as a professional in appearance and communication
- Demonstrate a responsible work ethic in regard to work assignments
- Explain the nature of the examination of findings in an examination to patients and their families when needed
- Observe ethical principles when recommending further work-up for cases
- Promptness and availability at work are required of every resident
- Dress appropriately when reporting to work

Systems-Based Practice:

- Prepare and present the radiographic components of the radiology/pathology in clinical chest conferences in which imaging studies are used to guide patient care/evaluations and be able to demonstrate understanding of how imaging relates to the clinical care of the patient
- Demonstrate knowledge of ACR practice guidelines and technical standards for chest imaging
- Demonstrate knowledge of ACR appropriateness criteria and cost effective imaging practices in the evaluation of chest disorders
- Complete final preparations to pass the certifying examination of the American Board of Radiology

- Familiarity with departmental procedures, contrast safety, and sedation required in the performance of examinations
- Use appropriate language in communicating to clinicians through reports or consultations so proper management decisions can be made
- Produce thorough dictations with indications, techniques, findings, and conclusions
- Dictate and correct reports in a timely fashion to avoid delay in patient disposition
- Make suggestions to improve methods and systems utilized in radiology whenever appropriate

Monitoring and Assessment of Resident Performance

The resident's progress will be monitored by the faculty on the service. Toward the end of each rotation, the resident will receive an evaluation of performance from each attending. Deficiencies or substandard performance will be discussed personally and privately with the resident and will be brought to the attention of the Residency Program Director by the attending radiologist. Residents are evaluated monthly by faculty. Resident performance is also evaluated through direct observation, case logs, multi-source professional evaluations, structured case discussion, review of patient outcomes, and other performance evaluation methods as determined. Tests in the form of a case presentation will be given at the end of rotation.

Reading List for Each Year

First Year

1. Ella A. Kazerooni and Barry H. Gross. *The Core Curriculum: Cardiopulmonary Imaging*. Lippincott Williams & Wilkins, 1st Edition, 2003 (Chapter 1)
2. W. Richard Webb and Charles B. Higgins. *Thoracic Imaging: Pulmonary and Cardiovascular Radiology*. Lippincott Williams & Wilkins, 1st Edition, 2004 (Chapter 2, 5-7, 12)

Second, Third and Fourth Year

1. W. Richard Webb and Charles B. Higgins. *Thoracic Imaging: Pulmonary and Cardiovascular Radiology*. Lippincott Williams & Wilkins, 1st Edition, 2004 (Chapter 1,3-5,8-11,13)
2. Peter Armstrong, Alan G. Wilson, Paul Dee, and David M. Hansell. *Imaging Diseases of the Chest*. C.V. Mosby, 3rd Edition, 2000.
3. Theresa C. McLoud. *Thoracic Radiology: The Requisites*. Mosby, 2nd Edition, 2010.
4. Nestor L. Muller, Richard S. Fraser, Neil C. Coleman, and P.D. Pare. *Radiologic Diagnosis of the Diseases of the Chest*. Saunders, 1st Edition, 2001. (Chapters 5, 6, 9, 14, 15, 19, 21, 22).

Reference for All Years

1. Eric J. Stern and Charles S. White. *Chest Radiology Companion: Methods, Guidelines, and Imaging Fundamentals*. Lippincott Williams & Wilkins. 1st Edition, 1999.

Other Requirements/Expectations

1. Website based and teaching file cases for discussion and interactive learning
2. Support teaching endeavor by providing teaching file cases and or maintain and revise internal websites
3. Teach junior residents and medical students on rotation

General Format:

Personnel on service: One (1) attending radiologist and two (2) residents

Hours of coverage: 8:00 a.m.-5:00 p.m., Monday-Friday, except holidays

Responsibilities:

Lower Level Resident (PACS worklists):

In patient, out patient, teleradiology, OP folder on PACS

Upper Level Resident (PACS worklists):

MICU, CCU, 3E, TCV-PO, 4W

Attending:

NNICU, SICU, INPT

Daily Schedule:

8:00-9:00 a.m.

- Lower level Residents: 1404 previous night studies and any others they might have personally pre-read. Check out films with attending radiologist and dictate reports.
- Upper level resident reviews and reads films on his/her own.

9:00-11:45 a.m.

- Upper level resident covers MICU, CCU, 3E, TCV-PO, 4W. Each resident reviews and reports films in their designated room after checkout with the attending radiologist.
- Residents present Demonstration Rounds in their assigned room with supervision of the attending radiologist.
- Attending radiologist circulates among the 2 Chest rooms performing resident checkouts, giving early readings, consultations as well as reading designated worklists.
- Residents provide early readings and consultations.

10 a.m.

- Attending presents Demonstration Rounds with NNICU team.
- Upper level resident does General Medicine and GI conferences

12:00-1:00 p.m.

- Residents go to Residents' Conference (Moss Amphitheater)
- Attending radiologist covers for early readings and consultations

1:15-2:00 p.m.

- (Tues-Thur) - Upper level resident teaches lower level resident – case-based, TF's (5 cases minimum)

2:00-5:00 p.m.

- Review and read films in all Chest rooms
- On Mondays, prepare for Thoracic Tumor Board.
- At end of day, both residents check films recently posted on worklists for obvious abnormalities that need a phone call to clinical physician (i.e. misplaced line, large pneumothorax, acute edema, pulmonary embolus, etc.)

Conferences**Thoracic Oncology Conference**

- Tuesdays at 1:00 – 2:00 p.m. in Cancer Center Conference Room.
- TA fellow, if available and attending radiologist get TB list from e-mail and pull films from PACS for presentation on the prior afternoon or evening (i.e., Monday).
- Attending Radiologist and TA fellow will attend the Thoracic Oncology Conference
- Upper level resident, TA fellow and attending MD present cases. PET/CT cases are presented by NM attending/fellow.
- Attending on procedures covers for early reads and ER cases

Updated 6/25/2009; Revised 02/11/2010; Revised 05/19/2011