

# **RADIOLOGY**

## **Mercy Medical Center- Des Moines**

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### **General Description**

#### **Elective/Selective Rotation**

This rotation is a two (2) week experience structured to develop the student's decision-making cognitive skills and apply didactic material in a clinical setting as well as introduce them to the radiological procedures available for patient evaluation and treatment. Upon completion of the rotation, the student should be able to scan an x-ray film for the key diagnostic x-ray findings and use these findings to arrive at the most likely diagnosis. The student should be able to demonstrate knowledge of the use of the resources of the radiology department in an appropriate and cost effective way to solve common clinical problems. Post-rotation examination is **not** required.

#### **Purpose**

Clinical experiences are intended to assist the students' transition from didactics to integrated clinical evaluation, decision-making and management of patients with medical problems. In addition to gaining specific skills, the student should also develop skills in systematic medical problem solving, patient management, establish or reinforce patterns of independent learning and self-evaluation and improve skills in communication as well as medical record keeping.

### **Objectives**

We recognize that two weeks is an insufficient time to cover this comprehensive list of objectives. Clearly, subjects addressed in any clinical rotation are dependent on the numbers of patients and kinds of disease entities presenting to a particular service. Nevertheless, certain minimum content **must** be addressed, either by clinical exposure or by didactic materials so that students are prepared for Board examinations and other testing. Therefore, the following sections contain relatively broad, basic objectives for which students are responsible.

#### **Affective**

At the completion of the radiology rotation, the student should be able to:

1. Understand the role of the radiologist on the health care team and the relationship of radiology to other clinical disciplines.
2. Develop an appreciation of the radiologist's needs for adequate clinical history and a clear statement of indications for examinations being requested.

#### ***Basic Psychomotor Objectives***

**The student should demonstrate development and expansion of competence in performing the following skills:**

1. Demonstrate and discuss the appropriate and judicious ordering of various radiologic examinations.
2. Demonstrate a basic understanding of the investigative approach for interpretations of examinations.
3. Demonstrate a thorough understanding of methods, indications, and contraindications for commonly ordered radiologic examinations.
4. Demonstrate knowledge of the use of the radiology department as an appropriate and cost effective way to solve common clinical problems.
5. Demonstrate ability to interpret (appropriate to the level of training) the more common examinations.
6. Demonstrate knowledge of the proper sequence of procedures to evaluation for specific clinical problems.
7. Demonstrate and discuss radiation safety including radiation biology, dosimetry, exposure limits, radiation protection and waste disposal.
8. Demonstrate familiarity with the tracer concept and its application to the evaluation of both pathophysiological processes.
9. Describe/discuss the many procedures of interventional radiology, and how they complement traditional surgical options.

**The student should be able to perform the following, with staff supervision:**

1. Interpret radiographic studies commonly seen by nonradiologists, specifically chest, spine, extremity, and abdomen radiographs.
2. Identify pulmonary edema, pneumonia, and malignancy on chest radiographic examinations.
3. Synthesize data and approach radiological problems in a logical manner.
4. Correlate clinical presentations with radiological findings.

**Basic Cognitive Objectives**

**For each of the following core examinations/procedures, the student should be able to apply osteopathic principles and practices to:**

1. Describe the basics of the procedure and technique.
2. Describe its capabilities and limitations.
3. Describe and explain what is required from the patient.
4. Be familiar with the indications for and complications of the examination/procedure.
5. Describe the basic approach to interpreting the results.

**Core Examinations/Procedures:**

1. **Plain Films:** Skull
2. **Plain Films:** Spine
3. **Plain Films:** Extremity
4. **Plain Films:** Chest
5. **Plain Films:** Abdomen/Pelvis
6. **Contrast Studies:** Upper Gastrointestinal/small bowel
7. **Contrast Studies:** Barium Enema
8. **Contrast Studies:** Intravenous Pyelogram
9. **Computed Tomography:**
  - a. head and neck
  - b. abdomen/pelvis
  - c. chest
  - d. spine
  - e. extremities
10. **Ultrasound:**
  - a. abdomen
  - b. pelvis
  - c. carotid arteries of the neck
  - d. other superficial organs (thyroid)
  - e. peripheral vascular
  - f. testicular
11. **Angiograms:**
  - a. neuro-angiography
  - b. peripheral visceral angiography
  - c. angioplasty
12. **Magnetic Resonance Imaging:**
  - a. head & neck
  - b. neck
  - c. abdomen/pelvis
  - d. spine
  - e. musculoskeletal
  - f. vascular – MRA/MRV
13. **Nuclear Medicine:**
  - a... gall bladder
  - b. bone scan
  - c. thyroid
  - d. parathyroid
  - e. cardiac (if applicable to department)
  - f. tumor specific scans
14. **Mammography:**

**15. Interventional Studies/Procedures:**

- a. percutaneous biliary drainage
- b. percutaneous abscess drainage
- c. percutaneous transluminal angioplasty
- d. percutaneous biopsy
- e. percutaneous nephrostomy with stone removal
- f. percutaneous cholecystostomy
- g. epidural
- h. discograms
- i. facial nerve blocks

**16. Pediatric Radiology:**

## Implementation

Course objectives are to be accomplished in a College affiliated hospital or clinical facility, under supervision. Basic objectives **must** be covered during the rotation to assure adequate student preparation for Board examinations and other evaluations such as post-rotation examinations. The use of diverse methods appropriate to the individual and the clinical site are encouraged, but patient-centered teaching is optimal.

Didactic methods to achieve required objectives include:

- reading assignments
- lectures
- computer-assisted programs (if available)
- student attendance at/participation in formal clinical presentations by medical faculty

Clinically oriented teaching methods may include:

- assignment of limited co-management responsibilities under supervision
- participation in clinic visits, daily patient rounds and conferences
- supervised and critiqued clinical work-ups of patients admitted to the service
- assigned, case-oriented readings

Three levels of achievement are identified:

- familiarity with a variety of radiological procedures through observation and assisting
- proficiency in common radiological procedures through actual supervised performance
- awareness of the availability of various radiological procedures and their use in diagnosis/therapy.

**At the beginning of the rotation, the physician/mentor should review expectations/guidelines of performance with the student. On the last day of service, the supervising physician should review the student's performance with the student and have the student sign the evaluation form before submission. A student's signature simply indicates that the student has received a grade directly from the attending; it does not indicate agreement with the grade. Evaluations of students must be completed within one week of completion of the rotation.**

## Texts and Resources

### Required Assignment Text

Mettler FA, Essentials of Radiology, Latest Edition, Philadelphia: W.B. Saunders.

### Additional Helpful Reading Resources

Weir J, and Abrahams PH (eds), Imaging Atlas of Human Anatomy. Latest Edition, Baltimore: Mosby-Wolfe.

## Assignments

Each Student is required to complete all of the CORE radiology cases from Med-U during this two week rotation. The department of Internal Medicine will be monitoring progress on these cases and will contact any student that is performing unsatisfactory in this area of study.

### Student work schedule:

Each student will meet with Dr. William Young at 0830 the first day of the rotation for 1/2hr to review the learning objectives and department policies. The student will also be required to meet with Dr. Young on the last day of the rotation from 9am-12pm to review radiology studies and the information that has been learned in the two week rotation

### The student will be expected to attend all radiology conferences.

Cancer Conference – **every Tuesday** of each month at 7a in East Tower Conference Room

Gynecology Cancer Conference – **every Friday** from at 7:30a in East Tower Conference Room

Katzmann Breast Conference – **1<sup>st</sup> & 3<sup>rd</sup> Wednesday** of each month at 7a at Katzmann Breast Center

Neuroscience Conference – **1<sup>st</sup> Tuesday** of each month at 7a in East Tower Conference Room

Neurosurgery Grand Rounds – **1<sup>st</sup> Tuesday** of month on a quarterly basis.

Trauma Conference – **1<sup>st</sup> Wednesday** of each month at 7a in East Tower Auditorium

The student will be placed on rotation with the technologist in several areas of the radiology department during the two week rotation.

### The schedule is as follows

	M	T	W	Th	F
Week 1	CT	CT	Gen	Gen	CORE cases study day
Week 2	NM/PET	MRI	Interventional	US	US

You should contact Christina at 643-2667 if you have any questions about your department schedules.