

# Musculoskeletal Service

## **Department of Radiology**

Radiology residents rotate through the musculoskeletal section for a total of 18 weeks (4 rotations) during the 4-year residency. This includes 12 weeks dedicated to conventional radiography, and six weeks dedicated to advanced MSK imaging modalities including MRI, CT and arthrography. At the conclusion of each 4 week rotation, the resident should be able to demonstrate competence in the areas of patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems based practice according to the criteria outlines for each rotation. The extent to which the resident has met the objectives will be evaluated at the end of each month.

### 1. Rotation Goals and Objectives by Core Competency

#### General Goals & Objectives PGY – 4 Year

##### ROTATION 1

**A. Patient Care** – at the end of the rotation, the resident should be able to:

1. Screen and supervise routine musculoskeletal and spine radiographic studies.
2. Request and Q/C appropriate additional radiographic views.
3. Communicate effectively and demonstrate caring and respectful behaviors when interacting with patients and their families.
4. Gather essential and accurate information about patients that is relevant to the interpretation of the radiologic examination.
5. Use information technology to support patient care decisions.

**B. Interpersonal and Communication Skills** – at the end of the rotation, the resident should be able to:

1. Interact with primary care attending physicians and residents in consultation when common musculoskeletal conditions are in question.
2. Use effective listening and writing skills.
3. Dictate accurate and concise radiology reports for basic musculoskeletal imaging studies.

**C. Professionalism** – at the end of the rotation, the resident should be able to:

1. Demonstrate respect, compassion, and integrity to patients and other physicians.
2. Demonstrate sensitivity and responsiveness to patient's culture, age, gender and disabilities.

**D. Medical Knowledge – at the end of the rotation, the resident should be able to:**

1. Identify radiographic injury patterns involving the spine and extremities.
2. Given abnormal radiographic images, recognize basic musculoskeletal pathologies and give a differential diagnosis
3. Know and apply basic and clinically supportive sciences appropriate to the discipline.

**E. Practice-Based Learning and Improvements – at the end of the rotation, the resident should be able to:**

1. Use information technology to manage information, access on-line medical information, and support their own education.

**F. Systems-Based Practice – at the end of the rotation, the resident should be able to:**

1. Understand how their patient care affects other healthcare professionals.

**ROTATION 2**

**A. Patient Care – at the end of the rotation, the resident should be able to:**

1. Screen and supervise more complex musculoskeletal and spine studies, including CT and MRI.
2. Screen and supervise patient for potential musculoskeletal biopsies.
3. Make informed decisions about diagnostic and therapeutic interventions based upon the results of musculoskeletal imaging studies.

**B. Interpersonal and Communication Skills – at the end of the rotation, the resident should be able to:**

1. Work effectively with clinicians as a member of the healthcare team.
2. Dictate accurate and concise radiologic reports for more complex musculoskeletal conditions.

**C. Professionalism – at the end of the rotation, the resident should be able to:**

1. Demonstrate a commitment to the ethical principles pertaining to confidentiality of patient information.
2. Demonstrate responsiveness to the needs of patients that supercede self-interest.

**D. Medical Knowledge** – at the end of the rotation, the resident should be able to:

1. Demonstrate a basic knowledge of the anatomy of the musculoskeletal system.
2. Given more complex cases of spinal trauma, make an accurate interpretation of the information presented on the images.
3. Discuss the basic principles of CT and MRI physics.
4. Describe basic CT and MR imaging protocols.
5. Demonstrate an analytic thinking approach to the performance of musculoskeletal studies for diverse clinical situations.

**E. Practice-Based Learning and Improvements** – at the end of the rotation, the resident should be able to:

1. Locate, appraise and assimilate evidence from scientific studies related to their patient's problems.

**F. Systems-Based Practice** – at the end of the rotation, the resident should be able to:

1. Know how types of musculoskeletal imaging practice and delivery systems differ from one another.
2. Effectively prioritize patients requiring musculoskeletal and spinal CT and MRI studies.

### **ROTATION 3**

**A. Patient Care** – at the end of the rotation, the resident should be able to:

1. Screen and supervise, with an increasing level of responsibility, most musculoskeletal imaging studies.
2. Understand the indications for image guided musculoskeletal intervention including vertebral biopsy, disc space biopsy, joint aspiration and vertebral augmentation.
3. Understand the indications for emergent or semi-urgent CT and MRI examinations of the spine and musculoskeletal system

**B. Interpersonal and Communication Skills** – at the end of this rotation, the resident should be able to:

1. Dictate accurate and concise reports for complex musculoskeletal imaging studies including those involving traumatic, neoplastic, infectious and inflammatory spinal pathologies.

**C. Professionalism** – at the end of this rotation, the resident should be able to:

1. Demonstrate a commitment to excellence and on-going professional development.

**D. Medical Knowledge** – at the end of the rotation, the resident should be able to:

1. Demonstrate an increasing ability to recognize abnormalities on musculoskeletal imaging studies and discuss a differential diagnosis.
2. Demonstrate the ability to recognize urgent and semi-urgent spinal and musculoskeletal pathologies on MRI and CT studies.

**E. Practice-Based Learning and Improvements** – at the end of the rotation, the resident should be able to:

1. Facilitate the teaching of medical students and other health care professionals

**F. Systems-Based Practice** – at the end of the rotation, the resident should be able to:

1. Practice cost-effective evaluation of patients requiring advanced musculoskeletal imaging studies that does not compromise the quality of care.

#### **ROTATION 4**

**A. Patient Care** – at the end of the rotation, the resident should be able to:

1. Understand the indications and technical aspects of arthrography, and bone biopsy.
2. Demonstrate a basic ability to triage and protocol advanced musculoskeletal imaging studies.
3. Demonstrate a basic ability to post-process from musculoskeletal CT studies and MR angiograms.
4. Counsel and educate patients and their families regarding different musculoskeletal imaging studies.

**B. Interpersonal and Communication Skills** – at the end of the rotation, the resident should be able to:

1. Dictate accurate and concise reports for musculoskeletal imaging studies using advanced CT and MR imaging techniques.
2. Consult effectively with senior level clinical colleagues in all relevant disciplines.

**C. Professionalism** – at the end of the rotation, the resident should be able to:

1. Demonstrate accountability to patients, society and the profession.
2. Demonstrate a commitment to the ethical principles pertaining to business practices.

**D. Medical Knowledge** – at the end of the rotation, the resident should be able to:

1. Discuss criteria for a modifying musculoskeletal imaging studies and the need for image guided procedures based upon the patient's clinical problem.
2. Discuss complex principles of CT and MR physics.
3. Recognize subtle and/or complex musculoskeletal and spinal pathologies on MRI and CT and give a differential diagnosis.
4. Demonstrate a basic ability to interpret arthrography, CT arthrography and MR arthrography.

**E. Practice-Based Learning and Improvements** – at the end of the rotation, the resident should be able to:

1. Apply basic knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness.

**F. Systems-Based Practice** – at the end of the rotation, the resident should be able to:

1. Know how types of musculoskeletal practices differ from one another, including methods of controlling costs and allocating resources.

2. Resident Supervision

Orthopaedic residents will act strictly as observers without clinical responsibility.

Contact Information:

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3. Clinical Activities

A. Radiology Reading Room 7 A.M. – 5 P.M.

B. Arthrograms

C. Biopsies

#### 4. Required Reading

MRI of Orthopaedic Surgeons – A. Jay Khanna

#### 5. Didactic Activities

Conferences:

- Vascular Anomalies
- Multidisciplinary Spine
- Sports Arthroscopy
- Foot & Ankle
- Orthopaedic Grand Rounds
- Sarcoma Conference
- Fellows' Lecture
- Radiology Resident Lectures

#### 6. Schedule

Monday – Friday

7 AM to 5 PM

MSK Reading Room

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