

**Interventional Radiology Rotation at UIC (Early Level)**  
**Goals and Objectives**  
**Effective Date: 7/15/2025**

<b>Name of Rotation:</b>	Interventional Radiology Rotation at UIC (Early Level)
<b>PGY Level:</b>	PGY-2 or PGY-3
<b>Supervising Attending(s):</b>	James Bui, MD Ron Gaba, MD, MS Andrew Lipnik, MD Malone Fiona, MD Tanious Michael N

**I. Competency-based goals and objectives for each trainee assignment at each educational level:**

**Overall Goals:**

After completion of this IR rotation (approximately 4 weeks, typically PGY-2 or PGY-3 year), the resident should be able to:

1. Perform pre-procedure clinical evaluation of IR patient including focused history and physical; and relevant clinical, laboratory, and imaging evaluation and pre-procedure sedation assessment.
2. Independently obtain consent for basic procedures
3. Perform basic IR procedures with focus on basic US- and CT-guided procedures (see procedure addendum)
4. Perform daily rounds on IR inpatient service performed by resident.
5. Evaluate patients for basic IR procedures in IR clinic
6. Begin to actively participate in self-directed radiology education for life-long learning

**Specific Objectives:**

**A. Patient Care**

1. Performs a focused history and physical
2. Understand basic treatment plans with routine assistance from a faculty member
3. Independently obtain consent for basic procedures
4. Demonstrates proper use of PPE
5. Perform image-guided procedures appropriate to skill level (see procedure addendum)
6. Complete post-procedure care and follow-up for patients that have undergone image guided procedures. This includes documentation of the procedure, appropriate orders, and communication with patient and referring physician.
7. Evaluate patients in IR clinic for image guided interventions including obtaining history and physical, evaluating imaging and pertinent laboratory studies.

8. Manage post procedural complications with attending discussion and round on IR patients who have had body interventions.

## **B. Medical knowledge**

1. Recognize normal anatomy of the chest abdomen and pelvis
2. Be able to identify and procedural implications of abnormal pathology in the chest abdomen and pelvis after review with attending faculty.
3. Recognize imaging artifacts with some prompting from the attending faculty.
4. Perform at an appropriate level on national or departmental in-service exams.

## **C. Practice-based Learning and Improvement**

1. Timely post procedural notes and dictations. Dictations can have some correction by the attending but the trainee should improve over the course of the month.
2. Document any potential procedural or other complications in the medical record and through the appropriate hospital risk-management system after consulting with the faculty.

## **D. Interpersonal and Communications Skills**

1. Obtain clinical history from patient in IR clinic
2. Before performing interventional procedures, counsel patients and obtain informed consent (eg, explain conduct and purpose for procedure, explain risks, benefits and alternatives, solicit and answer patient questions) for simple procedures without discriminating based on religious, ethnic, sexual, or educational differences and honoring patient confidentiality
3. Communicate to the referring physician on the day of the exam any significant or unexpected abnormalities identified on the examination AND document in the report who was called at what date and time.

## **E. Professionalism**

1. Arrive on time and fulfill the clinical and educational tasks necessary as part of the daily routine. This includes looking up relevant articles, completing background reading, and attending all intradepartmental conferences and those interdepartmental conferences relevant to the IR service.
2. Is an effective health care team member, promoting primacy of patient welfare, patient autonomy, and social justice
3. Demonstrates the following professional behaviors:
  - is truthful
  - recognizes personal limitations and seeks help when appropriate
  - recognizes personal impairment and seeks help when needed
  - responds appropriately to constructive criticism
  - places needs of patients before self
  - maintains appropriate boundaries with patients, colleagues, and others
  - exhibits tolerance and acceptance of diverse individuals and groups

4. Is an effective health care team member, that demonstrates the following professional behaviors:
  - recognizes the importance and priority of patient care and advocates for patient interests
  - fulfills work-related responsibilities
  - maintains patient confidentiality
  - fulfills Institutional and Program Requirements related to professionalism and ethics
  - prepares for and attends required
5. Comply with the provisions of the Health Insurance Portability and Accountability Act (HIPAA) and all state confidentiality rules.
6. Perform procedures only with adequate supervision
7. Ensure that meaningful informed consent is obtained
8. Stay within ACGME resident work hour requirements to ensure that undue fatigue does not harm the patient's care
9. Communicate respectfully and clearly at all times to the referring services

#### **F. Systems-based Practice**

1. Attending monthly IR morbidity and mortality conference
2. Is Basic Cardiac Life Support (BCLS)-certified (all residents)
3. Is Advanced Cardiovascular Life Support (ACLS)-certified (IR residents)
4. Join at least one of our professional organizations Society of Interventional Radiology (SIR), American College of Radiology (ACR), American Roentgen Ray Society (ARRS), Association of University Radiologists (AUR), or Radiological Society of North America (RSNA).
5. Begin to discuss quality improvement project with radiology faculty with goal of completing the project at the end of the residency.

## II. Regularly scheduled didactic educational experiences:

DR residents and PGY2-4 IR residents are expected to attend regularly scheduled core radiology lectures (typically 8am or 9am-12pm on Tuesdays), including when at Mercy. Additionally, DR residents and PGY2-4 IR residents on the IR rotation are expected to attend below IR lectures when not in conflict with core radiology lectures. PGY-5 and PGY-6 IR residents should always attend below IR lectures.

	7am	8am
<b>1st Tuesday</b>	Advanced/Clinical IR Topic	Basic IR
<b>2nd Tuesday</b>	M&M	IR Cases
<b>3rd Tuesday</b>	Advanced/Clinical IR Topic	Basic IR
<b>4th Tuesday</b>	Medical Student/Resident Presentation	IR Cases
<b>5th Tuesday</b>	Advanced/Clinical IR Topic	Basic IR
<b>Every Friday</b>	Multidisciplinary Liver Conference (7:30am)	

## III. Delineation of trainee responsibilities for patient care, progressive responsibility for patient management, and supervision of trainees over the continuum of the program:

During the rotation, the radiology resident will gain progressive experience and responsibility for the work-up, management decisions, and follow-up of IR patients in the outpatient and inpatient setting. The radiology resident will function as an integral member of the team, reporting to, and working directly with, the IR faculty. The radiology resident will participate in performing procedures in the interventional radiology suites, with their involvement being at either the primary operator or first assistant level, depending upon the complexity of the case and the radiology resident skill level, with supervision provided by the IR faculty (see addendum for typical procedure skills by rotation level). Additionally, the radiology resident is expected to help manage and coordinate the care of any inpatients for which the interventional service is providing consultative care.

### Addendum

Examples of procedures based on rotation level. Mastery of procedural skills is a complex time and experience dependent process, and each trainee may be expected to progress at a different pace. The below procedures are simply representative examples, however individual residents may be introduced to more advanced procedures earlier or later in training depending on progression of skills.

#### Early

- **Biopsy:** Thyroid FNA, Superficial Soft Tissue Biopsy
- **Drainage:** Paracentesis, Thoracentesis
- **Venous Access:** Tunneled/non-tunneled line removal

#### Mid

- **Biopsy:** Liver, Lung, Retroperitoneal

- **Drainage:** Chest tube, Abdominal Abscess, Abscess drain check/exchange/removal, G-tube check/exchange
- **Venous Access:** Tunneled/Non-tunneled CVC placement, PICC Placement, Chest Port removal
- **Dialysis:** Extremity Venography

**Late**

- **Biopsy:** Transjugular Liver Biopsy, Percutaneous Kidney, Spine/Bone biopsy
- **Drainage:** Percutaneous Nephrostomy Tube Placement, Percutaneous Chole Tube Placement
- **Venous Access:** Chest Port Placement
- **Arterial:** A-line placement, Basic arterial access and angiography
- **Dialysis:** Fistulogram with basic intervention (e.g. angioplasty)
- **Miscellaneous:** IVC Filter Placement

**Advanced (PGY-5)**

- **Biopsy:** Challenging/higher risk biopsies (e.g. small lung lesions)
- **Drainage:** Percutaneous Biliary Drain Placement; Tunneled Pleural/Peritoneal Drain Placement; G-tube Placement
- **Arterial:** Angiography/embolization for hemorrhage/trauma
- **Dialysis:** Decлот
- **Oncology:** TACE, Ablation
- **Portal Hypertension:** TIPS
- **Miscellaneous:** Simple IVC Filter/Intravascular Foreign Body Retrieval, Thrombolysis,

**Advanced (PGY-6)**

- **Biopsy:** Challenging/higher risk biopsies (e.g. mediastinal masses)
- **Drainage:** Transvaginal/transrectal drain placement
- **Dialysis:** AVF creation; Central venous recanalization
- **Oncology:** TACE, Y-90, Ablation
- **Portal Hypertension:** TIPS, BRTO
- **Miscellaneous:** Complex IVC Filter/Intravascular Foreign Body Retrieval, Thrombolysis, Vertebroplasty/Kyphoplasty

**Interventional Radiology Rotation at UIC (Middle Level) Goals and Objectives Effective Date: 7/1/2020**

<b>Name of Rotation:</b>	Interventional Radiology Rotation at UIC (Middle Level)
<b>PGY Level:</b>	PGY-2 or PGY-3
<b>Supervising Attending(s):</b>	James Bui, MD Ron Gaba, MD, MS Andrew Lipnik, MD Matthew Niemeyer, MD Charles Ray, MD, PhD, MS Ketan Shah, MD

## **I. Competency-based goals and objectives for each trainee assignment at each educational level:**

### **Overall Goals:**

After completion of this IR rotation (approximately 4 weeks, typically PGY-2 or PGY-3 year), the resident should be able to:

1. Independently perform pre-procedure clinical evaluation of IR patient including focused history and physical; and relevant clinical, laboratory, and imaging evaluation and preprocedure sedation assessment.
2. Independently obtain consent for intermediate procedures
3. Perform IR procedures appropriate to skill level (see procedural addendum)
4. Perform daily rounds on IR inpatient service performed by resident.
5. Evaluate patients for basic IR procedures in IR clinic
6. Begin to actively participate in self-directed radiology education for life-long learning

### **Specific Objectives:**

#### **A. Patient Care**

1. Performs a basic pre-procedural history and physical
2. Formulates a pre-procedural assessment and plan with routine assistance from a faculty member
3. Independently obtain consent for intermediate procedures
4. Performs basic post-procedural care with assistance from a faculty member
5. Perform image-guided procedures appropriate to skill level (see procedure addendum)
6. Assists with complex procedures
7. Demonstrate appropriate sterile technique during procedures
8. Demonstrates proper use of PPE
9. Discusses the indications and potential complications of pharmacological agents (including contrast) and how to prevent contrast related complications
10. Discusses the potential complications of procedures and their management
11. Recognizes complications and enlists help
12. Apply the general principles and guidelines of radiation safety during IR procedures.

#### **B. Medical Knowledge**

1. Recognizes normal and common variant arterial and venous anatomy, vascular and organ anatomy on non-invasive and invasive imaging
2. Know the indications and contraindications for basic IR procedures
3. Begin to learn the indications and contraindications for complex IR procedures
4. Identify, understand, and understand the most common methods of radiation protection, their principles and practical applications including the rationale for lead shielding, lead protective clothing, protective gloves and the “distance squared rule”.
5. Learn how radiation dose is estimated in interventional radiology and methods for dose reduction.

6. Interpret basic non-invasive imaging studies to help determine that the requested procedure is appropriate, and if not to consult the clinical service on assigning the correct procedure.
7. Become familiar with the uses and complications associated with medications used for conscious sedation.
8. Know the materials needed for basic procedures
9. Recognize expected and unexpected imaging findings indicating successful or unsuccessful completion of basic procedures.
10. Perform at an appropriate level on national or departmental in-service exams

### **C. Practice-based Learning and Improvement**

1. Is aware of personal knowledge and expertise and uses feedback from teachers, colleagues, and patients
2. Demonstrates critical thinking skills and understands research design
3. Attend the interdepartmental conferences
4. Attend IR Mortality and Morbidity conference
5. As a member of the interventional radiology team, appropriately guide and direct the educational activities of rotating medical students.

### **D. Interpersonal and Communications Skills**

1. Write clear concise pre procedural and post procedural notes in the chart for basic procedures and after consultation with the attending for complex procedures
2. Obtain informed consent for basic procedures
3. Obtain informed consent for complex procedures after discussion with attending
4. Write clear concise notes after daily clinical rounds on patients that the resident was engaged in
5. Remind medical students to use appropriate lead shielding and sterile technique while observing procedures
6. Inform the clinical team of procedural complications that occurred during the procedure in accord with the department's "critical results" protocol e.g. pneumothorax following ultrasound guided thoracentesis
7. After consultation with attending, outline an action plan for procedural complications for the referring service

### **E. Professionalism**

1. Arrive on time and fulfill the clinical and educational tasks necessary as part of the daily routine. This includes looking up relevant articles, completing background reading, and attending all intradepartmental conferences and those interdepartmental conferences relevant to the IR service.
2. Is an effective health care team member, promoting primacy of patient welfare, patient autonomy, and social justice
3. Demonstrates the following professional behaviors:
  - is truthful

- recognizes personal limitations and seeks help when appropriate
  - recognizes personal impairment and seeks help when needed
  - responds appropriately to constructive criticism
  - places needs of patients before self
  - maintains appropriate boundaries with patients, colleagues, and others
  - exhibits tolerance and acceptance of diverse individuals and groups
4. Is an effective health care team member, that demonstrates the following professional behaviors:
    - recognizes the importance and priority of patient care and advocates for patient interests
    - fulfills work-related responsibilities
    - maintains patient confidentiality
    - fulfills Institutional and Program Requirements related to professionalism and ethics
    - prepares for and attends required
  5. Comply with the provisions of the Health Insurance Portability and Accountability Act (HIPAA) and all state confidentiality rules.
  6. Perform procedures only with adequate supervision
  7. Ensure that meaningful informed consent is obtained
  8. Stay within ACGME resident work hour requirements to ensure that undue fatigue does not harm the patient's care
  9. Communicate respectfully and clearly at all times to the referring services

#### **F. Systems-based Practice**

1. Describes the departmental incident/occurrence reporting system
2. Learn how IR physicians and procedures contribute to the total care of the patient
3. Understand methods to decrease radiation dose to the patient and operator during IR procedures.
4. Become familiar with typical errors that contribute to wrong doses or wrong medications during conscious sedation.
5. Observe for problems in timely delivery of procedures to IR patients
6. Observe the interaction of technologists, nurses, environmental services, pathologists, referring clinicians, family members, and transport team members in the successful care of IR patients

#### **II. Regularly scheduled didactic educational experiences:**

DR residents and PGY2-4 IR residents are expected to attend regularly scheduled core radiology lectures (typically 8am or 9am-12pm on Tuesdays), including when at Mercy. Additionally, DR residents and PGY2-4 IR residents on the IR rotation are expected to attend below IR lectures when not in conflict with core radiology lectures. PGY-5 and PGY-6 IR residents should always attend below IR lectures.

	7am	8am
<b>1st Tuesday</b>	Advanced/Clinical IR Topic	Basic IR
<b>2nd Tuesday</b>	M&M	IR Cases
<b>3rd Tuesday</b>	Advanced/Clinical IR Topic	Basic IR
<b>4th Tuesday</b>	Medical Student/Resident Presentation	IR Cases
<b>5th Tuesday</b>	Advanced/Clinical IR Topic	Basic IR
<b>Every Friday</b>	Multidisciplinary Liver Conference (7:30am)	

### **III. Delineation of trainee responsibilities for patient care, progressive responsibility for patient management, and supervision of trainees over the continuum of the program:**

During the rotation, the radiology resident will gain progressive experience and responsibility for the work-up, management decisions, and follow-up of IR patients in the outpatient and inpatient setting. The radiology resident will function as an integral member of the team, reporting to, and working directly with, the IR faculty. The radiology resident will participate in performing procedures in the interventional radiology suites, with their involvement being at either the primary operator or first assistant level, depending upon the complexity of the case and the radiology resident skill level, with supervision provided by the IR faculty (see addendum for typical procedure skills by rotation level). Additionally, the radiology resident is expected to help manage and coordinate the care of any inpatients for which the interventional service is providing consultative care.

#### **Addendum**

Examples of procedures based on rotation level. Mastery of procedural skills is a complex time and experience dependent process, and each trainee may be expected to progress at a different pace. The below procedures are simply representative examples, however individual residents may be introduced to more advanced procedures earlier or later in training depending on progression of skills.

#### **Early**

- **Biopsy:** Thyroid FNA, Superficial Soft Tissue Biopsy
- **Drainage:** Paracentesis, Thoracentesis
- **Venous Access:** Tunneled/non-tunneled line removal

#### **Mid**

- **Biopsy:** Liver, Lung, Retroperitoneal
- **Drainage:** Chest tube, Abdominal Abscess, Abscess drain check/exchange/removal, G-tube check/exchange
- **Venous Access:** Tunneled/Non-tunneled CVC placement, PICC Placement, Chest Port removal
- **Dialysis:** Extremity Venography

#### **Late**

- **Biopsy:** Transjugular Liver Biopsy, Percutaneous Kidney, Spine/Bone biopsy
- **Drainage:** Percutaneous Nephrostomy Tube Placement, Percutaneous Chole Tube Placement

- **Venous Access:** Chest Port Placement
- **Arterial:** A-line placement, Basic arterial access and angiography
- **Dialysis:** Fistulogram with basic intervention (e.g. angioplasty)
- **Miscellaneous:** IVC Filter Placement

**Advanced (PGY-5)**

- **Biopsy:** Challenging/higher risk biopsies (e.g. small lung lesions)
- **Drainage:** Percutaneous Biliary Drain Placement; Tunneled Pleural/Peritoneal Drain Placement; G-tube Placement
- **Arterial:** Angiography/embolization for hemorrhage/trauma
- **Dialysis:** Declot
- **Oncology:** TACE, Ablation
- **Portal Hypertension:** TIPS
- **Miscellaneous:** Simple IVC Filter/Intravascular Foreign Body Retrieval, Thrombolysis,

**Advanced (PGY-6)**

- **Biopsy:** Challenging/higher risk biopsies (e.g. mediastinal masses)
- **Drainage:** Transvaginal/transrectal drain placement
- **Dialysis:** AVF creation; Central venous recanalization
- **Oncology:** TACE, Y-90, Ablation
- **Portal Hypertension:** TIPS, BRTO
- **Miscellaneous:** Complex IVC Filter/Intravascular Foreign Body Retrieval, Thrombolysis, Vertebroplasty/Kyphoplasty

**Interventional Radiology Rotation at UIC (Later Level) Goals and Objectives Effective Date: 7/1/2020**

<b>Name of Rotation:</b>	Interventional Radiology Rotation at UIC (Later Level)
<b>PGY Level:</b>	PGY-3 or PGY-4
<b>Supervising Attending(s):</b>	James Bui, MD Ron Gaba, MD, MS Andrew Lipnik, MD Matthew Niemeyer, MD Charles Ray, MD, PhD, MS Ketan Shah, MD

**I. Competency-based goals and objectives for each trainee assignment at each educational level:**

**Overall Goals:**

After completion of this IR rotation (approximately 4 weeks, typically PGY-3 or PGY-4 year), the resident should be able to:

1. Independently perform pre-procedure clinical evaluation of IR patient including focused history and physical; and relevant clinical, laboratory, and imaging evaluation and preprocedure sedation assessment.
2. Obtain consent for moderately complex procedure
3. Perform IR procedures appropriate to skill level (see procedural addendum)
4. Perform daily rounds on IR inpatient service performed by resident.
5. Admit and discharge IR service patients; Start longitudinal care of IR patients, including follow-up post treatment.
6. Actively participate in self-directed learning including presenting articles relevant to care of the patient

### **Specific Objectives:**

#### **A. Patient Care**

1. Complete pre-procedure workup documentation and orders for patients to undergo image guided body interventions including but not limited to pre-procedure history and physical and pre-moderate sedation evaluation.
2. Formulates a pre-procedural assessment and plan with minimal assistance from a faculty member
3. Obtain consent for moderately complex procedure
4. Perform image-guided procedures appropriate to skill level (see procedure addendum) 5. Demonstrates proper use of PPE
6. Performs routine post-procedural care with minimal assistance from a faculty member
7. Recognizes complications and enlists help
8. Manages complications with assistance
9. Implement methods to decrease radiation dose to the patient and operator during IR procedures including but not limited to: uses intermittent fluoroscopy, uses magnification appropriately and judiciously, and modifies the fluoroscopy rate during procedures
10. Interpret non-invasive imaging studies to help determine that the requested procedure is appropriate, and if the wrong procedure is requested, consult with the clinical service to decide on an appropriate course of action with indirect supervision of the attending radiologist

#### **B. Medical Knowledge**

1. Describes pathophysiology of arterial and venous disease
2. Demonstrate an understanding of indications, contraindications, needle path, risks and post procedural management of CT and US guided procedures including management of complications
3. Demonstrate an understanding of indications, contraindications, radiation risks, and post procedural management of fluoroscopically guided procedures including management of complications Describes the common complications of treatment of arterial and venous disease

4. Describes the common complications of embolic therapy
5. Describes pathophysiology and disorders
6. Describes the benefits of and indications for percutaneous interventions
7. Describes the common complications of percutaneous interventions

### **C. Systems-based Practice**

1. Describes specialty-specific QI initiatives
2. Incorporates specialty-specific QI into clinical practice
3. Participates in the departmental incident/occurrence reporting system
4. Describes the technical and professional components of imaging costs in the subspecialty division
5. Creates reports that contain the elements necessary to support exam coding with minimal correction from faculty
6. Join at least one of our professional organizations Society of Interventional Radiology (SIR), American College of Radiology (ACR), American Roentgen Ray Society (ARRS), Association of University Radiologists (AUR), or Radiological Society of North America (RSNA).

### **D. Interpersonal and Communications Skills**

1. Working with program faculty members, oversees and teaches junior learners on how to communicate effectively with patients, families, and caregivers
2. Efficiently generates clear and concise reports on common complex cases that do not need substantial faculty member corrections
3. Communicates effectively and professionally in all situations
4. Effectively manages transitions of care and hand-offs
5. Working with program faculty members, oversees and teaches junior learners on how to communicate effectively and professionally

### **E. Professionalism**

1. Arrive on time and fulfill the clinical and educational tasks necessary as part of the daily routine. This includes looking up relevant articles, completing background reading, and attending all intradepartmental conferences and those interdepartmental conferences relevant to the IR service.
2. Is an effective health care team member, promoting primacy of patient welfare, patient autonomy, and social justice
3. Demonstrates the following professional behaviors:
  - is truthful
  - recognizes personal limitations and seeks help when appropriate
  - recognizes personal impairment and seeks help when needed
  - responds appropriately to constructive criticism
  - places needs of patients before self
  - maintains appropriate boundaries with patients, colleagues, and others
  - exhibits tolerance and acceptance of diverse individuals and groups

4. Is an effective health care team member, that demonstrates the following professional behaviors:
  - recognizes the importance and priority of patient care and advocates for patient interests
  - fulfills work-related responsibilities
  - maintains patient confidentiality
  - fulfills Institutional and Program Requirements related to professionalism and ethics
  - prepares for and attends required
5. Comply with the provisions of the Health Insurance Portability and Accountability Act (HIPAA) and all state confidentiality rules.
6. Perform procedures only with adequate supervision
7. Ensure that meaningful informed consent is obtained
8. Stay within ACGME resident work hour requirements to ensure that undue fatigue does not harm the patient's care
9. Communicate respectfully and clearly at all times to the referring services

**F. Practice-based Learning and Improvement**

1. Continually seeks and incorporates feedback to improve performance
2. Develops a learning plan and uses published review articles and guidelines
3. Assesses and provides feedback to junior learners
4. Selects evidence-based information to answer specific questions
5. Demonstrates knowledge of basic principles underlying the ethical conduct of research and the protection of human subjects
6. Identifies a faculty mentor and begins a scholarly project
7. When appropriate, maintains data safety and patient monitoring to ensure continued protection of human subjects

**II. Regularly scheduled didactic educational experiences:**

DR residents and PGY2-4 IR residents are expected to attend regularly scheduled core radiology lectures (typically 8am or 9am-12pm on Tuesdays), including when at Mercy. Additionally, DR residents and PGY2-4 IR residents on the IR rotation are expected to attend below IR lectures when not in conflict with core radiology lectures. PGY-5 and PGY-6 IR residents should always attend below IR lectures.

	<b>7am</b>	<b>8am</b>
<b>1st Tuesday</b>	Advanced/Clinical IR Topic	Basic IR
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<b>3rd Tuesday</b>	Advanced/Clinical IR Topic	Basic IR
<b>4th Tuesday</b>	Medical Student/Resident Presentation	IR Cases
<b>5th Tuesday</b>	Advanced/Clinical IR Topic	Basic IR
<b>Every Friday</b>	Multidisciplinary Liver Conference (7:30am)	

### **III. Delineation of trainee responsibilities for patient care, progressive responsibility for patient management, and supervision of trainees over the continuum of the program:**

During the rotation, the radiology resident will gain progressive experience and responsibility for the work-up, management decisions, and follow-up of IR patients in the outpatient and inpatient setting. The radiology resident will function as an integral member of the team, reporting to, and working directly with, the IR faculty. The radiology resident will participate in performing procedures in the interventional radiology suites, with their involvement being at either the primary operator or first assistant level, depending upon the complexity of the case and the radiology resident skill level, with supervision provided by the IR faculty (see addendum for typical procedure skills by rotation level). Additionally, the radiology resident is expected to help manage and coordinate the care of any inpatients for which the interventional service is providing consultative care.

#### **Addendum**

Examples of procedures based on rotation level. Mastery of procedural skills is a complex time and experience dependent process, and each trainee may be expected to progress at a different pace. The below procedures are simply representative examples, however individual residents may be introduced to more advanced procedures earlier or later in training depending on progression of skills.

#### **Early**

- **Biopsy:** Thyroid FNA, Superficial Soft Tissue Biopsy
- **Drainage:** Paracentesis, Thoracentesis
- **Venous Access:** Tunneled/non-tunneled line removal

#### **Mid**

- **Biopsy:** Liver, Lung, Retroperitoneal
- **Drainage:** Chest tube, Abdominal Abscess, Abscess drain check/exchange/removal, G-tube check/exchange
- **Venous Access:** Tunneled/Non-tunneled CVC placement, PICC Placement, Chest Port removal
- **Dialysis:** Extremity Venography

#### **Late**

- **Biopsy:** Transjugular Liver Biopsy, Percutaneous Kidney, Spine/Bone biopsy
- **Drainage:** Percutaneous Nephrostomy Tube Placement, Percutaneous Chole Tube Placement
- **Venous Access:** Chest Port Placement
- **Arterial:** A-line placement, Basic arterial access and angiography
- **Dialysis:** Fistulogram with basic intervention (e.g. angioplasty)
- **Miscellaneous:** IVC Filter Placement

#### **Advanced (PGY-5)**

- **Biopsy:** Challenging/higher risk biopsies (e.g. small lung lesions)
- **Drainage:** Percutaneous Biliary Drain Placement; Tunneled Pleural/Peritoneal Drain Placement; G-tube Placement
- **Arterial:** Angiography/embolization for hemorrhage/trauma

- **Dialysis:** Declot
- **Oncology:** TACE, Ablation
- **Portal Hypertension:** TIPS
- **Miscellaneous:** Simple IVC Filter/Intravascular Foreign Body Retrieval, Thrombolysis,

**Advanced (PGY-6)**

- **Biopsy:** Challenging/higher risk biopsies (e.g. mediastinal masses)
- **Drainage:** Transvaginal/transrectal drain placement
- **Dialysis:** AVF creation; Central venous recanalization
- **Oncology:** TACE, Y-90, Ablation
- **Portal Hypertension:** TIPS, BRTO
- **Miscellaneous:** Complex IVC Filter/Intravascular Foreign Body Retrieval, Thrombolysis, Vertebroplasty/Kyphoplasty

**Interventional Radiology Rotation at UIC (Advanced PGY-5) Goals and Objectives Effective Date: 7/1/2020**

<b>Name of Rotation:</b>	Interventional Radiology Rotation at UIC (Advanced PGY-5)
<b>PGY Level:</b>	PGY-5
<b>Supervising Attending(s):</b>	James Bui, MD Ron Gaba, MD, MS Andrew Lipnik, MD Matthew Niemeyer, MD Charles Ray, MD, PhD, MS Ketan Shah, MD

**I. Competency-based goals and objectives for each trainee assignment at each educational level:**

**Overall Goals:**

After completion of this rotation IR rotations (approximately 40-52 weeks, typically PGY-5 year), the resident should be able to:

1. During the preprocedure evaluation, understand how to modify patient factors and procedural technique to perform higher risk procedures.
2. Perform more complex IR procedures with less assistance
3. Recognize errors and able to reduce them, understanding limitations and seek attending assistance when appropriate.
4. Teach earlier year trainees basic procedures and fundamentals of patient workup.
5. Continue longitudinal care of IR patients, seeing them in IR clinic before and after procedures.
6. Monitor IR consultation service, seeing patients in a timely manner and under direction of upper level resident or attending

7. Complete IR procedure case log with submission to program director at least every 6 months

### **Specific Objectives:**

#### **A. Patient Care**

1. Chooses appropriate peri-procedural laboratory and imaging studies
2. Independently formulates a pre-procedural assessment and plan for common disorders
3. Independently formulates and implements a post-procedural care plan for uncomplicated procedures
4. Perform IR procedures appropriate to skill level (see procedural addendum)
5. Teaches other learners to perform routine procedures
6. Teaches other learners and professionals about the use of pharmacological agents
7. Manages complications with assistance including but not limited to contrast/anaphylactic reaction, over sedation, pain, nausea/vomiting, arrhythmia, decreased oxygen saturation, low blood pressure, sepsis, hypoglycemia, bleeding/hematoma.
8. Apply low dose radiation technique in both adults and children, eg minimizes dose to the patient with appropriate collimation and filters
9. Counsels and monitors patients, as appropriate, regarding radiation exposure
10. Actively follow patients in the inpatient and outpatient settings.

#### **B. Medical Knowledge**

1. Demonstrates appropriate decision-making for treatment of arterial and venous disease with assistance from faculty member
2. Knows the effects of various treatments of arterial and venous disease
3. Describes appropriate steps to reduce the risk of complications in treatment of arterial and venous disease, as well as how to manage those complications with assistance from faculty member
4. Demonstrates appropriate decision-making for the treatment of the target organ
5. Chooses appropriate embolic agent/dose
6. Demonstrates appropriate decision-making for percutaneous interventions
7. Describes appropriate steps to reduce the risk of complications during percutaneous interventions, as well as how to manage those complications
8. Pass the ABR Core Examination

#### **C. Practice-based Learning and Improvement**

1. Demonstrates a balanced and accurate self-assessment of competence, and investigates clinical outcomes and areas for continued improvement
2. With little external guidance, performs self-directed learning using evidence-based information
3. Organizes educational activities at the program level
4. Critically reviews and interprets the literature with the ability to identify study aims, hypotheses, design, and biases
5. When appropriate, applies the principles of ethics and good clinical practice to the protection of human subjects recruited to participate in research

6. Analyzes data appropriate to project

#### **D. Interpersonal and Communications Skills**

1. Communicates complex and difficult information, such as medical errors, complications, and adverse events
2. Efficiently generates clear and concise reports on all cases that do not need substantial faculty member corrections
3. Generates tailored reports meeting the specific needs of the referring physicians

#### **E. Professionalism**

1. Arrive on time and fulfill the clinical and educational tasks necessary as part of the daily routine. This includes looking up relevant articles, completing background reading, and attending all intradepartmental conferences and those interdepartmental conferences relevant to the IR service.
2. Is an effective health care team member, promoting primacy of patient welfare, patient autonomy, and social justice
3. Demonstrates the following professional behaviors:
  - is truthful
  - recognizes personal limitations and seeks help when appropriate
  - recognizes personal impairment and seeks help when needed
  - responds appropriately to constructive criticism
  - places needs of patients before self
  - maintains appropriate boundaries with patients, colleagues, and others
  - exhibits tolerance and acceptance of diverse individuals and groups
4. Is an effective health care team member, that demonstrates the following professional behaviors:
  - recognizes the importance and priority of patient care and advocates for patient interests
  - fulfills work-related responsibilities
  - maintains patient confidentiality
  - fulfills Institutional and Program Requirements related to professionalism and ethics
  - prepares for and attends required
5. Comply with the provisions of the Health Insurance Portability and Accountability Act (HIPAA) and all state confidentiality rules.
6. Perform procedures only with adequate supervision
7. Ensure that meaningful informed consent is obtained
8. Stay within ACGME resident work hour requirements to ensure that undue fatigue does not harm the patient's care
9. Communicate respectfully and clearly at all times to the referring services
1. Is an effective health care team leader, promoting departmental and institutional goals regarding primacy of patient welfare, patient autonomy, and social justice

## F. Systems-based Practice

1. Participates in identifying system errors and implementing potential systems solutions
2. Understands departmental cost savings initiatives
3. Understands the revenue cycle
4. Creates reports that contain the elements necessary to support exam coding

## II. Regularly scheduled didactic educational experiences:

DR residents and PGY2-4 IR residents are expected to attend regularly scheduled core radiology lectures (typically 8am or 9am-12pm on Tuesdays), including when at Mercy. Additionally, DR residents and PGY2-4 IR residents on the IR rotation are expected to attend below IR lectures when not in conflict with core radiology lectures. PGY-5 and PGY-6 IR residents should always attend below IR lectures.

	7am	8am
<b>1st Tuesday</b>	Advanced/Clinical IR Topic	Basic IR
<b>2nd Tuesday</b>	M&M	IR Cases
<b>3rd Tuesday</b>	Advanced/Clinical IR Topic	Basic IR
<b>4th Tuesday</b>	Medical Student/Resident Presentation	IR Cases
<b>5th Tuesday</b>	Advanced/Clinical IR Topic	Basic IR
<b>Every Friday</b>	Multidisciplinary Liver Conference (7:30am)	

## III. Delineation of trainee responsibilities for patient care, progressive responsibility for patient management, and supervision of trainees over the continuum of the program:

During the rotation, the radiology resident will gain progressive experience and responsibility for the work-up, management decisions, and follow-up of IR patients in the outpatient and inpatient setting. The radiology resident will function as an integral member of the team, reporting to, and working directly with, the IR faculty. The radiology resident will participate in performing procedures in the interventional radiology suites, with their involvement being at either the primary operator or first assistant level, depending upon the complexity of the case and the radiology resident skill level, with supervision provided by the IR faculty (see addendum for typical procedure skills by rotation level). Additionally, the radiology resident is expected to help manage and coordinate the care of any inpatients for which the interventional service is providing consultative care.

### Addendum

Examples of procedures based on rotation level. Mastery of procedural skills is a complex time and experience dependent process, and each trainee may be expected to progress at a different pace. The below procedures are simply representative examples, however individual residents may be introduced to more advanced procedures earlier or later in training depending on progression of skills.

**Early**

- **Biopsy:** Thyroid FNA, Superficial Soft Tissue Biopsy
- **Drainage:** Paracentesis, Thoracentesis
- **Venous Access:** Tunneled/non-tunneled line removal

**Mid**

- **Biopsy:** Liver, Lung, Retroperitoneal
- **Drainage:** Chest tube, Abdominal Abscess, Abscess drain check/exchange/removal, G-tube check/exchange
- **Venous Access:** Tunneled/Non-tunneled CVC placement, PICC Placement, Chest Port removal
- **Dialysis:** Extremity Venography

**Late**

- **Biopsy:** Transjugular Liver Biopsy, Percutaneous Kidney, Spine/Bone biopsy
- **Drainage:** Percutaneous Nephrostomy Tube Placement, Percutaneous Chole Tube Placement
- **Venous Access:** Chest Port Placement
- **Arterial:** A-line placement, Basic arterial access and angiography
- **Dialysis:** Fistulogram with basic intervention (e.g. angioplasty)
- **Miscellaneous:** IVC Filter Placement

**Advanced (PGY-5)**

- **Biopsy:** Challenging/higher risk biopsies (e.g. small lung lesions)
- **Drainage:** Percutaneous Biliary Drain Placement; Tunneled Pleural/Peritoneal Drain Placement; G-tube Placement
- **Arterial:** Angiography/embolization for hemorrhage/trauma
- **Dialysis:** Decлот
- **Oncology:** TACE, Ablation
- **Portal Hypertension:** TIPS
- **Miscellaneous:** Simple IVC Filter/Intravascular Foreign Body Retrieval, Thrombolysis,

**Advanced (PGY-6)**

- **Biopsy:** Challenging/higher risk biopsies (e.g. mediastinal masses)
- **Drainage:** Transvaginal/transrectal drain placement
- **Dialysis:** AVF creation; Central venous recanalization
- **Oncology:** TACE, Y-90, Ablation
- **Portal Hypertension:** TIPS, BRTO
- **Miscellaneous:** Complex IVC Filter/Intravascular Foreign Body Retrieval, Thrombolysis, Vertebroplasty/Kyphoplasty

**Interventional Radiology Rotation at UIC (Advanced PGY-6) Goals and Objectives Effective Date: 7/1/2020**

<b>Name of Rotation:</b>	Interventional Radiology Rotation at UIC (Advanced PGY-6)
<b>PGY Level:</b>	PGY-6

<b>Supervising Attending(s):</b>	James Bui, MD Ron Gaba, MD, MS Andrew Lipnik, MD Matthew Niemeyer, MD Charles Ray, MD, PhD, MS Ketan Shah, MD
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**I. Competency-based goals and objectives for each trainee assignment at each educational level:**

**Overall Goals:**

After completion of this rotation IR rotations (approximately 40-52 weeks, typically PGY-6 year), the resident should be able to:

1. Independently perform a complex procedure
2. Independently manage complications
3. Establish learning skills that will lend to independent life-long learning
4. Establish habit of longitudinal periprocedural care of patients including routine follow-up of patients post procedure of relevant procedures.
5. Lead in-patient rounds and consultation service, assigning responsibilities to junior residents
6. Although fine tuning skills, still understands limitations and seeks attending assistance.
7. Manage the workflow of patients in the IR suites to learn systems limitations and how improve patient satisfaction
8. Establish working relationships with interdepartmental services
9. Teach junior residents, medical students or other learners about IR
10. Will have completed 1000 IR procedures

**Specific Objectives:**

**A. Patient Care**

1. Adjusts procedural plan based upon peri-procedural laboratory and imaging results
2. Independently formulates a pre-procedural assessment and plan for less common disorders
3. Independently formulates and implements a post-procedural care plan for complicated/complex procedures
4. Independently supervises junior learners in the clinical setting
5. Perform IR procedures appropriate to skill level independently (see procedural addendum)
6. Independently manages complications
7. Teaches other learners to perform complex procedures
8. Optimizes exposure parameters based upon the individual patient and procedure
9. Counsels and monitors patients, as appropriate, regarding radiation exposure

## **B. Medical Knowledge**

1. Demonstrates appropriate decision-making for treatment of arterial and venous disease
2. Knows the effects of various treatments of arterial and venous disease
3. Describes appropriate steps to reduce the risk of complications in treatment of arterial and venous disease, as well as how to manage those complications
4. Teaches other learners or professionals aspects of arterial and venous disease and/or therapy
5. Performs scholarly activity showing knowledge of arterial disease, venous disease, embolic therapy, percutaneous organ access
6. Describes the various embolic agents and their mechanism of action
7. Describes appropriate steps to reduce the risk of complications during transcatheter embolization, as well as how to manage those complications
8. Teaches other learners or professionals aspects of embolization materials and/or treatment
9. Teaches other learners or professionals aspects of percutaneous interventions

## **C. Systems-based Practice**

1. Leads a team in the design and implementation of a QI project for the program
2. Routinely participates in root cause analysis
3. Describes billing and coding of subspecialty-specific exams, and recognizes and corrects incorrect coding

## **D. Interpersonal and Communications Skills**

1. Serves as a role model for effective and compassionate communication for junior learners
2. Working with program faculty members, oversees and teaches junior learners on how to generate clear and concise reports
3. Under direct faculty member supervision, organizes departmental and interdisciplinary teaching conferences
4. Serves as a role model for effective and professional communication
5. Accurately, logically, and concisely present findings at Tumor Board or other multidisciplinary interdepartmental conferences, and answer questions with some assistance from the radiology faculty in attendance.

## **E. Professionalism**

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  8. Stay within ACGME resident work hour requirements to ensure that undue fatigue does not harm the patient's care
  9. Communicate respectfully and clearly at all times to the referring services

**F. Practice-based Learning and Improvement**

1. Develops a process to remain current in knowledge over time
2. Organizes educational activities at the program level
3. Demonstrates understanding of statistical analyses and epidemiology
4. Presents completed scholarly project to peers for review and critique
5. Independently plans and executes a research project
6. Continue to maintain a procedure log detailing all invasive procedures performed by the resident including his or her role, complications, preceptor name, and date, showing an increasing number or complexity as compared to a mid-level resident.

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#### **Advanced (PGY-6)**

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