

Interventional Radiology (First Year, First Block)

This rotation involves performance and interpretation of diagnostic and therapeutic angiograms and venograms, dialysis access, line placement, drainage procedures, and other interventional procedures as well as interpretation of CT arteriograms

Patient Care

Goal

Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents are expected to:

Knowledge Objectives:

- (1) Describe contrast induced nephropathy, including prevention, treatment, and appropriate alternatives (e.g. CO₂).
- (2) Identify vascular anatomy (arterial and venous), and
- (3) Describe indications for more common interventional procedures.
- (4) Basic knowledge of indications and contraindications, as well as risks and benefits of image guided biopsies and drainages utilizing all available guidance modalities (fluoroscopy, CT, ultrasound, and potentially MRI) to include soft tissue biopsy, bone biopsy and procedures in the neck, chest and abdomen.

Skill Objectives:

- (1) Become facile with PACs and utilize available information technology to manage patient information,
- (2) Be able to perform an arterial puncture safely,
- (3) Evaluate patients for various common interventional procedures, demonstrate understanding of indications, contraindications, and patient preparation,
- (4) Successfully insert PICC lines and permacaths with only supervision in most cases,
- (5) Safely perform arterial punctures,
- (6) Safely perform and interpret venograms and fistulograms with minimal assistance,
- (7) Accurately interpret most CTA examinations prior to performing any interventional procedures.
- (8) Performance of basic biopsies and drainages utilizing all available guidance modalities (fluoroscopy, CT, ultrasound) to include soft tissue biopsy, bone biopsy and procedures in the neck, chest and abdomen.
- (9) Management of complications related to the procedures, including pneumothorax and biopsy related hemorrhage.
- (10) Always adhere to ALARA radiation principle, and
- (11) Provide concise, accurate reports on most studies.

Behavior and Attitude Objectives:

- (1) Work with the health care team in a professional manner to provide patient-centered care, and
- (2) Notify referring clinician for urgent, emergent, or unexpected findings, and document in dictation.
- (3) Consistently perform pre-operative work ups on patients undergoing procedures.
- (4) Diligent follow up and rounding on patients who have undergone procedures and management of any post operative complications.

Medical Knowledge

Goal

Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care. Residents are expected to:

Knowledge Objectives:

- (1) Identify relevant anatomic structures on vascular studies,
- (2) Learn basic approach to drainage procedures (GI, GU, and abscess), and
- (3) Demonstrate understanding of Seldinger technique.

Skill Objectives:

- (1) Successfully insert PICC lines and permacaths with only supervision in most cases,
- (2) Safely perform an arterial puncture,
- (3) Safely perform and interpret venograms and fistulograms with minimal assistance, and
- (4) Accurately interpret most CTA examinations.

Behavior and Attitude Objectives:

- (1) Recognize limitations of personal competency and ask for guidance when appropriate.

Practice-Based Learning and Improvement

Goal

Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning. Residents are expected to develop skills and habits to be able to:

Knowledge Objectives:

- (1) Assess angiographic and CT images for quality and suggest methods of improvement.

Skill Objectives:

- (1) Demonstrate independent self-study using various resources including texts, journals, teaching files, and other resources on the internet,
- (2) Facilitate the learning of students and other health care professionals, and
- (3) Participate in daily teaching conferences and weekly case review conferences as well as other scheduled conferences occurring during their rotation (e.g. M&M, Dialysis Access Conference).

Behavior and Attitude Objectives:

- (1) Incorporate formative feedback into daily practice, positively responding to constructive criticism, and
- (2) Follow-up interesting or difficult cases without prompting and share this information with appropriate faculty and fellow residents.

Systems Based Practice

Goal

Residents must demonstrate an awareness of, and responsiveness to, the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. Residents are expected to:

Knowledge Objectives:

(1) Understand how their image interpretation affects patient care.

Skill Objectives:

- (1) Provide accurate and timely interpretations to decrease length of hospital and emergency department stay,
- (2) Appropriately notify the referring clinician if there are urgent or unexpected findings and document such without being prompted; and
- (3) Practice using cost effective use of time and support personnel.

Behavior and Attitude Objectives:

(1) Advocate for quality patient care in a professional manner, particularly concerning imaging utilization issues

Professionalism

Goal

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents are expected to demonstrate:

Knowledge Objectives:

- (1) Understanding of the need for respect for patient privacy and autonomy, and
- (2) Understanding of their responsibility for the patient and the service, including arriving in the reading room promptly each day, promptly returning to the reading room after conferences, completing the work in a timely fashion, and not leaving at the end of the day until all work is complete. If the resident will be away from a service (for time off, meeting, board review, etc.), this must be arranged in advance with the appropriate faculty.

Skill Objectives:

(1) Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.

Behavior and Attitude Objectives:

(1) Respect, compassion, integrity, and responsiveness to patient care needs that supersede self-interest.

Interpersonal and Communication Skills

Goal

Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and professional associates. Residents are expected to:

Knowledge Objectives:

(1) Know the importance of accurate, timely, and professional communication.

Skill Objectives:

- (1) Produce concise and accurate reports on most examinations,
- (2) Communicate effectively with physicians, other health professionals, and
- (3) Obtain informed consent with the utmost professionalism.

Behavior and Attitude Objectives:

- (1) Work effectively as a member of the patient care team.

Interventional Radiology (Second Year, Second Block)

This rotation involves performance and interpretation of diagnostic and therapeutic angiograms and venograms, dialysis access, line placement, drainage procedures, and other interventional procedures, as well as interpretation of CT arteriograms. This rotation will include at-home call responsibilities.

Patient Care

Goal

Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents are expected to:

Knowledge Objectives:

- (1) Be facile with more complex interventional procedures, including the indications, contraindications, and patient preparation, and
- (2) Identify aberrant vascular anatomy on conventional angiography/venography and CT angiograms.
- (3) Intermediate knowledge of indications and contraindications, as well as risks and benefits of image guided biopsies and drainages utilizing all available guidance modalities (fluoroscopy, CT, ultrasound, and potentially MRI) to include soft tissue biopsy, bone biopsy and procedures in the neck, chest and abdomen.

Skill Objectives:

- (1) Perform basic venous access procedures with faculty assistance,
- (2) Interpret and perform basic arteriographic examinations with assistance and more advanced examinations with supervision,
- (3) Perform declotting procedures in A-V fistula patients with direct assistance,
- (4) Percutaneously place inferior vena cava filters with direct supervision,
- (5) Perform permacath placement, biliary, nephrostomy, and abscess drainage procedures with direct supervision,
- (6) Performance of intermediate biopsies and drainages utilizing all available guidance modalities (fluoroscopy, CT, ultrasound, and potentially MRI) to include soft tissue biopsy, bone biopsy and procedures in the neck, chest and abdomen.
- (7) Management of complications related to the procedures, including pneumothorax and biopsy related hemorrhage.
- (8) Always adhere to ALARA radiation principle, and
- (9) Provide concise, accurate reports on most studies.

Behavior and Attitude Objectives:

- (1) Work with the health care team in a professional manner to provide patient-centered care, and
- (2) Notify referring clinician for urgent, emergent, or unexpected findings, and document in dictation.
- (3) Consistently perform pre-operative work ups on patients undergoing procedures.
- (4) Diligent follow up and rounding on patients who have undergone procedures and management of any post operative complications.

Medical Knowledge

Goal

Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care. Residents are expected to:

Knowledge Objectives:

(1) Demonstrate anatomic understanding of more advanced vascular techniques.

Skill Objectives:

(1) Interpret and perform more advanced arteriographic examinations with assistance,

(2) Perform declotting procedures in A-V fistula patients with direct assistance,

(3) Percutaneously place inferior vena cava filters with direct supervision,

(4) Perform biliary, nephrostomy, and abscess drainage procedures with direct supervision, and

(5) Perform most venous access procedures with minimal assistance.

Behavior and Attitude Objectives:

(1) Recognize limitations of personal competency and ask for guidance when appropriate.

Practice-Based Learning and Improvement

Goal

Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning. Residents are expected to develop skills and habits to be able to:

Knowledge Objectives:

(1) Assess angiographic and CT images for quality and suggest methods of improvement.

Skill Objectives:

(1) Demonstrate independent self-study using various resources including texts, journals, teaching files, and other resources on the internet,

(2) Facilitate the learning of students and other health care professionals, and

(3) Participate in weekly teaching conference.

Behavior and Attitude Objectives:

(1) Incorporate formative feedback into daily practice, positively responding to constructive criticism, and

(2) Follow-up interesting or difficult cases without prompting and share this information with appropriate faculty and fellow residents.

Systems Based Practice

Goal

Residents must demonstrate an awareness of, and responsiveness to, the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. Residents are expected to:

Knowledge Objectives:

(1) Understand how their image interpretation affects patient care.

Skill Objectives:

- (1) Provide accurate and timely interpretations to decrease length of hospital and emergency department stay,
- (2) Appropriately notify the referring clinician if there are urgent or unexpected findings and document such without being prompted; and
- (3) Practice using cost effective use of time and support personnel.

Behavior and Attitude Objectives:

- (1) Advocate for quality patient care in a professional manner, particularly concerning imaging utilization issues.

Professionalism

Goal

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents are expected to demonstrate:

Knowledge Objectives:

- (1) Understanding of the need for respect for patient privacy and autonomy, and
- (2) Understanding of their responsibility for the patient and the service, including arriving in the reading room promptly each day, promptly returning to the reading room after conferences, completing the work in a timely fashion, and not leaving at the end of the day until all work is complete. If the resident will be away from a service (for time off, meeting, board review, etc.), this must be arranged in advance with the appropriate faculty and/or fellow.

Skill Objectives:

- (1) Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.

Behavior and Attitude Objectives:

- (1) Respect, compassion, integrity, and responsiveness to patient care needs that supersede self-interest.

Interpersonal and Communication Skills

Goal

Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and professional associates. Residents are expected to:

Knowledge Objectives:

- (1) Know the importance of accurate, timely, and professional communication.

Skill Objectives:

- (1) Produce concise and accurate reports on all examinations,
- (2) Communicate effectively with physicians, other health professionals, and
- (3) Obtain informed consent with the utmost professionalism.

Behavior and Attitude Objectives:

- (1) Work effectively as a member of the patient care team.

Interventional Radiology (Third Year, Third Block and Elective)

This rotation involves performance and interpretation of diagnostic and therapeutic angiograms and venograms, dialysis access, line placement, drainage procedures, and other interventional procedures, as well as interpretation of CT arteriograms.

Patient Care

Goal

Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents are expected to:

Knowledge Objectives:

- (1) Be facile with more complex interventional procedures, including the indications, contraindications, and patient preparation, and
- (2) Identify aberrant vascular anatomy on conventional angiography/venography and CT angiograms.
- (3) Advanced knowledge of indications and contraindications, as well as risks and benefits of image guided biopsies and drainages utilizing all available guidance modalities (fluoroscopy, CT, ultrasound, and potentially MRI) to include soft tissue biopsy, bone biopsy and procedures in the neck, chest and abdomen.

Skill Objectives:

- (1) Perform most venous access procedures with supervision,
- (2) Interpret and perform basic arteriographic examinations with minimal assistance and more advanced examinations with assistance and supervision,
- (3) Perform declotting procedures in A-V fistula patients with minimal assistance,
- (4) Percutaneously place inferior vena cava filters with supervision,
- (5) Perform basic biliary, nephrostomy, and abscess drainage procedures with supervision, and more advanced cases with assistance,
- (6) Performance of advanced biopsies and drainages utilizing all available guidance modalities (fluoroscopy, CT, ultrasound, and potentially MRI) to include soft tissue biopsy, bone biopsy and procedures in the neck, chest and abdomen.
- (7) Management of complications related to the procedures, including pneumothorax and biopsy related hemorrhage.
- (8) Always adhere to ALARA radiation principle, and
- (9) Provide concise, accurate reports on most studies.

Behavior and Attitude Objectives:

- (1) Work with the health care team in a professional manner to provide patient-centered care, and
- (2) Notify referring clinician for urgent, emergent, or unexpected findings, and document in dictation.
- (3) Consistently perform pre-operative work ups on patients undergoing procedures.
- (4) Diligent follow up and rounding on patients who have undergone procedures and management of any post operative complications.

Medical Knowledge

Goal

Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care. Residents are expected to:

Knowledge Objectives:

(1) Demonstrate anatomic understanding of more advanced vascular techniques.

Skill Objectives:

(1) Interpret and perform more advanced arteriographic examinations with minimal assistance,

(2) Perform declotting procedures in A-V fistula patients with minimal assistance,

(3) Percutaneously place inferior vena cava filters with supervision,

(4) Perform basic biliary, nephrostomy, and abscess drainage procedures with supervision, and more advanced cases with assistance, and

(5) Perform most venous access procedures with supervision.

Behavior and Attitude Objectives:

(1) Recognize limitations of personal competency and ask for guidance when appropriate.

Practice-Based Learning and Improvement

Goal

Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning. Residents are expected to develop skills and habits to be able to:

Knowledge Objectives:

(1) Assess angiographic and CT images for quality and suggest methods of improvement.

Skill Objectives:

(1) Demonstrate independent self-study using various resources including texts, journals, teaching files, and other resources on the internet,

(2) Facilitate the learning of students and other health care professionals, and

(3) Participate in daily teaching conference.

Behavior and Attitude Objectives:

(1) Incorporate formative feedback into daily practice, positively responding to constructive criticism, and

(2) Follow-up interesting or difficult cases without prompting and share this information with appropriate faculty and fellow residents.

Systems Based Practice

Goal

Residents must demonstrate an awareness of, and responsiveness to, the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. Residents are expected to:

Knowledge Objectives:

(3) Understand how their image interpretation affects patient care.

Skill Objectives:

- (1) Provide accurate and timely interpretations to decrease length of hospital and emergency department stay,
- (2) Appropriately notify the referring clinician if there are urgent or unexpected findings and document such without being prompted, and
- (3) Practice using cost effective use of time and support personnel.

Behavior and Attitude Objectives:

(1) Advocate for quality patient care in a professional manner, particularly concerning imaging utilization issues.

Professionalism

Goal

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents are expected to demonstrate:

Knowledge Objectives:

- (1) Understanding of the need for respect for patient privacy and autonomy, and
- (2) Understanding of their responsibility for the patient and the service, including arriving in the reading room promptly each day, promptly returning to the reading room after conferences, completing the work in a timely fashion, and not leaving at the end of the day until all work is complete. If the resident will be away from a service (for time off, meeting, board review, etc.), this must be arranged in advance with the appropriate faculty and/or fellow.

Skill Objectives:

(1) Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.

Behavior and Attitude Objectives:

(1) Respect, compassion, integrity, and responsiveness to patient care needs that supersede self-interest.

Interpersonal and Communication Skills

Goal

Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and professional associates. Residents are expected to:

Knowledge Objectives:

(1) Know the importance of accurate, timely, and professional communication.

Skill Objectives:

- (1) Produce concise and accurate reports on all examinations,
- (2) Communicate effectively with physicians, other health professionals, and

(3) Obtain informed consent with the utmost professionalism.

Behavior and Attitude Objectives:

(1) Work effectively as a member of the patient care team.