RADIOLOGY RESIDENCY
GOALS AND OBJECTIVES IN
ANGIOGRAPHY AND INTERVENTIONAL RADIOLOGY

I. FIRST ROTATION (4 Weeks)

A. Patient Care
   1. Perform appropriate history and physical and write a complete pre-procedure note.
   2. Take an informed consent from patient for angiography / interventional procedures.
   3. Learn to order and interpret appropriate labs abnormal lab values and correct abnormal lab values.
   4. Learn to adequately assess and follow patients' post-procedure course.
   5. Know the Stony Brook University Hospital “Minimal Standards” for ordering medications.

B. Medical Knowledge
   1. Learn to operate angiography table and controls.
   2. Learn how to set up and use angiography sterile tray.
   3. Learn sterile techniques, including pre-procedure scrub and patient preparation and dressing.
   4. Learn basic anatomy (external and fluoroscopic) for standard procedures.
   5. Learn peripheral venous and arterial access techniques including Seldinger technique.
   7. Learn from the nurses how to operate infusion pumps and how to solve the problems when their alarms indicate a problem.
   8. Learn cardiac and great vessel anatomy so that you can recognize the location of a catheter with respect to the cardiac chambers, tricuspid valve, pulmonary artery and its branches, and the aortic valve and great vessels arising from the aortic arch
   9. Learn the indications, techniques, and contraindications for image-guided fine needle aspiration biopsy.

C. Interpersonal and Communication General Competency
   1. Learn dictation format.
   2. Review surgical charge sheet and review ICD-9 codes.
   3. Begin to dictate basic cases at end of rotation.
   4. Notify referring practitioner of results and immediately notify appropriate personnel of complications or poor outcome of procedure or of results requiring emergent care.
D. Professionalism
   1. Demonstrate compassion and respect for the patient, be punctual, have a professional appearance.
   2. Understand patient’s rights including, but not limited to, Informed Consent, Advanced Directives, Do Not Resuscitate Orders, HIPPA and patient privacy, Pain Control, keeping patients draped to minimize patient exposure, appropriate patient clothing and covering during transport, etc.
   3. Treat technologists, nurses and other staff with respect and protect them from radiation or biological hazards.
   4. Teach patients about their conditions and care

E. Practice Based Learning and Improvement
   1. Review the studies and interpretation of procedures performed by other members of the department during your rotation.
   2. Watch and study the technique used by more experienced radiologists during your rotation to learn from them.
   3. Review any complications or poor outcomes that occurred in the division during your rotation to learn the root cause of the problem and develop and implement mechanisms to avoid the complications or poor outcomes in the future.

F. Systems Based Practice
   1. As per hospital policy:
      Confirm that you have the correct patient with two identifiers before starting a procedure. Confirm that you are about to perform procedure on the correct side before starting procedure.
   2. Use hospital information system to obtain laboratory data needed prior to study.
   3. Ensure that the personnel caring for the patients on the clinical units are aware of special orders or other preparation needed prior to study e.g. infusing platelets. As per hospital policy: For telephone orders, have appropriate personnel write down orders and read it back to you.
   3. Be certain that arrangements have been made to have patient transported to the special procedures suite.
   4. Be sure that outpatients have necessary insurance authorization
   5. Be certain that the personal caring for the patients on clinical units are aware of needed follow-up care. As per hospital policy: For telephone orders, have appropriate personnel write down orders and read it back to you.
   6. Maintain procedure log of all procedures in which you participated in the performance, interpretation, and reporting of the procedure for accreditation, credentialing, evaluation and possible program improvement. Record the medical record number, date, type of procedure, supervising radiology attending, and any complication.
   7. Understand the role of assisting patients to protect their rights and a source of patient information for staff.
8. Understand the role to help patients and family and staff resolve ethical dilemmas.

Assessment tools of Resident Performance
1. Review of Interventional Radiology Faculty and end-of-rotation resident evaluation form.
2. “360° degree” evaluation by nursing staff
3. ACR In-service examination results in Interventional Radiology
4. Self assessment tool: time and number of attempts needed to obtain successful access of vessels.

II. SECOND ROTATION
A. Review and Continue to Improve Upon the Goals and Objectives for the First Rotation

B. Patient Care
1. Refine pre-procedure work-up and post-procedure care.
2. Interact more with referring physicians on initial consultation and follow-ups.

C. Medical Knowledge
1. Learn selective catheterization techniques.
2. Learn various catheter shapes and sizes available.
3. Learn various wire shapes, sizes and consistency available.
4. Learn relatively common vascular anatomy variants
5. Learn cardiac and great vessel physiology so that you can recognize the pressure tracings obtained from the pulmonary catheter when it is located in the cardiac chambers and pulmonary artery and its branches and their significance during the procedure. It is required that you maintain Advanced Cardiac Life Support certification and Basic Life Support certification.
6. Learn the variants in the anatomy of the great vessels of the aortic arch.
7. Perform image-guided fine needle aspiration biopsy.
8. Learn the indications, contraindications and techniques or abscess or fluid collection drainage.

D. Interpersonal and Communication General Competency
1. Take an active role in dictating more complicated cases.

F. Professionalism
1. Teach Medical Students and more junior radiology residents about Interventional Radiology topics.

E. Practice Based Learning and Improvement
1. Attend intradepartmental conferences that meet with the Interventional Radiology faculty to learn form our practice’s experience.
2. Consider involvement in ongoing research project or publication with faculty and possibly also with interventional radiology fellows and interested medical students.
3. Consider planning and starting a new research project or publication with faculty and possibly also with interventional radiology fellows and interested medical students.

F. Systems Based Practice
   1. Regarding research or publication projects, Understand the requirements and procedures for Institutional Review Board approval of research.
   2. Be aware of the American College of Radiology Appropriateness criteria and Practice Guidelines and Technical Standards for interventional radiology (www.acr.org)

III. FINAL ROTATION (4 Weeks)

A. Review and Continue to Improve Upon the Goals and Objectives for the First Rotation
B. Patient Care
   1. Knowledge of catheter maintenance and follow-up care (includes dressing changes, flushing, input and output, when to change and remove.

C. Medical Knowledge
   1. Be able to complete basic diagnostic angiogram as primary operator.
   2. Be able to complete key components of interventional procedures as primary operator.
   3. Review cardiac arrhythmias, their physiology and their appearance on cardiac monitors and the emergent treatment of serious arrhythmias. It is optional but recommended that you renew your Advanced Cardiac Life Support certification. It is required that you maintain Basic Life Support certification.
   4. Understand the pathologic basis of various disease entities and how that correlates with their angiographic appearance.
   5. Develop more confidence in performing image-guided fine needle aspiration biopsy.
   6. Perform abscess or fluid collection drainage.

D. Interpersonal and Communication General Competency
   1. Be able to dictate, select ICD-9 codes and generate surgical codes and all basic angiography and interventional cases.
   2. Take an active role in presenting interesting interventional radiology cases in conferences to other radiologists and when appropriate to members of other departments.
F. Professionalism
1. Teach nursing staff, other Interventional Radiology staff, and residents from other departments as well as medical students and more junior radiology residents about topics in interventional radiology.

F. Systems Based Practice
1. Regarding research or publication projects, Understand the requirements and procedures for Institutional Review Board approval of research.
2. Be aware of Society of Interventional Radiology (www.sirweb.org) resources including its online Clinical Practice Guidelines, Quality Improvements Documents, Consensus Documents, Credentialing Statements, Policy and Position Statements, Technical Assessment Documents, Coding information, etc.