



Faculty Curriculum Director:

Brandt C. Wible, M.D.

Interventional Radiology, Saint Luke's Hospital on the Plaza

Fellowship: Johns Hopkins Hospital, Baltimore, MD

Radiology Residency: Medical College of Wisconsin, Milwaukee, WI

UMKC teaching faculty in Interventional Radiology:

1. Kenneth H. Cho, M.D. (SLH) – Section Chief
2. Nathan Saucier, M.D. (SLH)
3. John Borsa, M.D. (SLH)
4. Larry Ricci, D.O. (TMC)
5. Douglas Rivard, DO (CMH - Pediatric)
6. Brent E. Cully, MD (CMH - Pediatric)
7. Brenton Reading, MD (CMH-Pediatric)
8. William Roys, MD (KCVA)
9. Craig Smith, MD (KCVA)

General Introduction to Interventional Radiology Training

Radiology residents will spend 4-6 (4 core rotations required) months on the interventional radiology service during their residency. All aspects of interventional radiology will be taught during the residency. Specific responsibilities, goals and objectives for each rotation are described in this document. The UMKC interventional radiology faculty will provide residents with graded supervision using ACGME guidelines.

Resident responsibilities:

1. Complete competency check lists for basic IR procedures (see pages 9-14 below)
2. Be knowledgeable of the daily interventional procedure schedule.
3. Be available to assist with procedures during the day, except during scheduled conferences.
4. Review previous radiology studies and discuss findings with faculty prior to each procedure.
5. Assist with completion of *outpatient* pre-procedure documentation.
6. Complete the post-procedure note after each procedure.
7. Act as liaison with referring clinicians: evaluate requisitions for appropriateness, discuss findings with referring clinicians.
8. Prepare inpatients for procedures by reviewing diet, coagulation, consent and allergies.
9. Consult supervising faculty when questions arise beyond the scope of the resident's current level of training.

Staff responsibilities:

1. Review the goals and objectives with the resident at the beginning of each rotation.
2. Sign off on resident competencies at the end of each rotation as is appropriate.
3. Be available at all times for consultation by the resident.
4. Provide the resident with constructive feedback on their performance during the rotation.
5. Verify resident reports in a timely manner and inform the resident of any major changes.
6. Faculty will complete resident and all program evaluations in a timely professional manner.

Resident evaluation: As per UMKC Radiology Residency Handbook (360 degree evaluation based on 6 core competencies).

Tools of the Trade:

1. **Pharmacology.** Pre-procedural, procedural and post-procedural medications related to conscience sedation, renal insufficiency and allergic contrast reaction. (Saucier)
2. **Basic Interventional Technique and Equipment.** Needles, catheters, wires, sheaths, balloons, stents, embolic agents, retrieval devices, arterial access, closure devices, biopsy devices, drainage catheters, thrombolytic systems and percutaneous ablation devices. (Wible, Saucier, Borsa, Cho)
3. **Noninvasive Diagnostic Vascular Imaging.** CT, US, MRI. Review of normal anatomy, discussion on modality specific appearance of pathology, and congenital/developmental anomalies. (Wible)
4. **Radiation Safety.** Recognition of potential dangers of IR radiation exposure and steps to limit exposure. (Wible)

Arterial Intervention

5. **Endovascular Thoracic and Abdominal Aorta Aneurysmal Repair.** Pre-procedural planning with CT/MRI. Stent graft placement. Endoleak classification and repair technique. (Saucier, Borsa)
6. **Peripheral Vascular Disease.** Etiology, non-invasive and invasive evaluation, treatment of iliac, femoral, popliteal disease. Appreciation and treatment of complications. (Borsa)
7. **Kidney and Adrenal Gland.** Discuss uncontrolled HTN, atherosclerotic renal arterial disease, FMD, adrenal vein sampling. (Borsa)
8. **Mesenteric Ischemia and GI Bleed.** Including mesenteric vascular anatomy and anomalies; causes and treatment of acute and chronic ischemia; causes, evaluation and embolics used in GI bleed; and portal venous thrombosis. (Saucier)
9. **Acute Hemorrhage.** Diagnosis and treatment of a) traumatic vascular injury specific to spleen, liver, kidney, pelvis, peripheral vessels, b) bronchial artery embolization, c) obstetrical hemorrhage. (Wible, Borsa, Cho)
10. **Vasculitis, Aneurysm and Pseudoaneurysm.** Classification, common presentations, evaluation (CT/MRI/Angio) and treatment of vasculitis. Current techniques in treatment of aneurysm and pseudoaneurysm. (Saucier, Borsa)
11. **Gynecologic and Pelvic Intervention.** Evaluation and treatment of uterine fibroids (UAE). (Wible, Saucier)
12. **Carotid Artery Disease.** Etiology, non-invasive and invasive evaluation, treatment carotid disease. Appreciation and treatment of complications. (Saucier)
13. **Vascular Variant Anatomy.** Commonly seen normal variants to arterial and venous anatomy, excluding cardiac anomalies. (Wible)

Venous Intervention

14. **IVC Filters.** Indication for placement and retrieval. Venous anomalies affecting IVC filtration. Filter deployment and retrieval technique. Findings on pulmonary angiography. (Wible, Saucier)
15. **Deep Venous Thrombosis and Post Thrombotic Syndrome.** Venography, thrombolysis, infusion catheters, Trellis, PTA, stenting, recanalization. (Wible, Saucier)
16. **Vascular Malformations.** Etiology, evaluation (clinical and radiographic), treatment and follow-up related to the full range of vascular malformations and lymphatic malformations, with disease-specific discussion of HHT, PAVM, KTW. (Cho)
17. **Central Venous Access.** Indications to place or remove CVL. Types and appropriate access locations of CVL, complications of CVL, central venous stenosis including SVC syndrome. (Cho, Blanscet)
18. **Portal Hypertension, TIPS & BRTO.** Patient evaluation including MELD, procedural technique and complications, patient follow-up. (Borsa)
19. **Hemodialysis.** Clinical, non-invasive and radiographic evaluation of dialysis catheters, grafts and fistula. Declot technique. (Cho)
20. **Gynecologic and Pelvic Intervention.** Female pelvic congestion syndrome. Male varicocele. (Cho)

Oncologic Intervention

21. **Transarterial Chemoembolization and Radioembolization, Portal Vein Embolization.** Indication

for treatment, patient evaluation and exclusion criteria, tumor lysis syndrome, post-embolization symptoms, multidisciplinary approach. (Wible, Cho)

22. **Percutaneous Ablation Techniques.** RFA, cryoablation, microwave, high-intensity ultrasound. (Wible)

Non-vascular Intervention

23. **Biopsy and Abscess Evaluation and Treatment Technique.** Patient evaluation, drain follow-up, and advantages and disadvantages of CT, US, Flouro, MRI assisted procedures. (Cho)
24. **Hepatobiliary Intervention.** Biliary disease processes, radiologic evaluation (PTC) and treatment options including PBD/stents, cholecystostomy drains. (Saucier, Cho)
25. **Nephroureteral Intervention.** Nephroureteral obstruction, renal calculus disease, post-surgical urinary diversions. (Borsa)
26. **Enteric Tubes.** Indications and techniques for placement of gastrostomy, gastrojejunostomy, jejunostomy, and cecostomy tubes. (Cho)
27. **Pain Management.** Vertebroplasty, kyphoplasty, RFA of osteoid osteoma, palliative celiac block and percutaneous ablation of metastatic disease. (Borsa)

Unknown and Challenge Cases

28. **Unknown and Challenge Cases** (Wible, Saucier, Borsa, Cho)
29. **Senior Review and Mock Boards** (Wible, Saucier, Borsa, Cho)

This curriculum is supplemented by the following interdisciplinary lectures:

- | | | |
|----|---------------------------|------------------|
| 1. | SLH - Biweekly Wed 7 am | Pulmonary |
| 2. | SLH - Biweekly Thurs 7 am | Gastrointestinal |
| 3. | SLH - Monthly Thurs noon | Journal club |
| 4. | SLH - Biweekly noon | Oncology |
| 5. | TMC - Monthly Mon noon | Endocrine |
| 6. | TMC - Weekly Wed noon | Tumor |
| 7. | TMC - Biweekly Fri 11am | Pulmonary |

Interventional radiology – Rotation 1 – Goals and Objectives

I. Patient care:

- (a) The resident should understand the indications for all procedures.
- (b) The resident should review the medical record and talk with the referring doctor to obtain clarification when the indication for a procedure is uncertain.
- (c) The resident should always be familiar with available medical records.
- (d) All procedures should be discussed with supervising faculty.

II. Medical Knowledge:

- (a) The resident should be familiar with the risks, benefits, and alternative methods of treatment for every procedure that they assist with.
- (b) The resident should be familiar with the relevant anatomy for every procedure that they assist with.
- (c) The resident should be familiar with all of the medications commonly administered during interventional radiology procedures.
- (d) The resident should develop a thorough understanding of the venous anatomy of the head, neck, chest, abdomen, pelvis and extremities.
- (e) The resident should develop an understanding of the devices available for long-term venous access.
- (f) The resident should become knowledgeable about common health problems treated by the interventional radiology service, including:
- Pleural effusion
 - Ascites
 - Solid tumors requiring biopsy
 - Thyroid disease

- Abscess
 - Pneumothorax
 - Pseudoaneurysm
- (g) The resident should work to develop basic interventional radiology skills considered necessary in the practice of general radiology, including:
- US-guided venous access – internal jugular, peripheral, femoral
 - Non-tunneled central and peripheral venous catheter placement
 - Ultrasound-guided thoracentesis
 - Ultrasound-guided paracentesis
 - CT-guided biopsy
 - Ultrasound-guided biopsy
 - CT-guided abscess drainage
 - CT-guided and fluoroscopy-guided chest tube placement
 - Ultrasound-guided thrombin injection
- (h) The resident should consult supervising faculty and appropriate reading material when unfamiliar with a disease or its management.

III. Practice Based Learning and Improvement:

- (a) The resident should consistently use written and electronic reference materials, and demonstrate evidence of independent learning.
- (b) The resident should follow-up abnormal studies by talking with referring physicians and reviewing patient medical records.
- (c) The resident should be competent with use of the Saint Lukes Hospital PACS and other electronic medical records.

IV. Interpersonal Communication Skills:

- (a) The resident should be able to effectively communicate the results of studies to referring clinicians when needed.
- (b) The resident should be able to communicate the basic procedural steps, benefits and risks to patients and families in order to obtain informed consent.
- (c) The resident should be able to convey the results of examinations through completion of hand-written post procedure notes.
- (d) The resident should be able to dictate accurate reports with indications, technique, findings and conclusions.

V. Professionalism:

- (a) Residents should dress appropriately at work and wear a name badge.
- (b) Promptness and availability at work are expected of every resident.
- (c) Nurses and technologists should be treated with respect.
- (d) Residents should observe ethical principles at all times.
- (e) Patient confidentiality should be observed at all times.
- (f) Residents are required to complete an on line professionalism module at least biannually.

VI. System Based practice:

- (a) Residents should be familiar with the interventional radiology departmental policies and medical record forms.
- (b) Residents should understand the role of interventional radiology in the overall management of patient illness and make proper recommendations when needed.
- (c) Residents should dictate and correct their reports in a timely fashion.

Reading list:

1. Vascular and Interventional Radiology, 2nd Edition, Valji, K, Saunders Elsevier, 2006.
2. Vascular and Interventional Radiology: The Requisites, Kaufman, JA, Lee, MJ, Mosby, 2003.
3. Abrams' Angiography: Interventional Radiology, 2nd Edition, Baum, S, Pentecost, MJ, Lippincott Williams & Wilkins, 2005.

Interventional radiology – Rotation 2 – Goals and Objectives

I. Patient care:

- (a) The resident should understand the indications for all procedures.
- (b) The resident should review the medical record and talk with the referring doctor to obtain clarification when the indication for a procedure is uncertain.
- (c) The resident should always be familiar with available medical records.
- (d) All procedures should be discussed with supervising faculty.

II. Medical Knowledge:

- (a) The resident should be familiar with the risks, benefits, and alternative methods of treatment for every procedure that they assist with.
- (b) The resident should be familiar with the relevant anatomy for every procedure that they assist with.
- (c) The resident should be familiar with all of the medications commonly administered during interventional radiology procedures.
- (d) The resident should develop a thorough understanding of the arterial anatomy of the head, neck, chest, abdomen, pelvis and extremities
- (e) The resident should develop a thorough understanding of the devices commonly used in the interventional suite while performing vascular procedures, including: needles, sheaths, diagnostic catheters, guide wires, snares, balloons, stents, arterial closure devices, thrombectomy catheters and embolic devices.
- (f) The resident should become knowledgeable about common vascular health problems treated by the interventional radiology service, including:
 - Venous thromboembolic disease
 - Peripheral arterial disease
 - Mesenteric ischemia
 - Renal failure
 - Acute traumatic hemorrhage
 - Acute gastrointestinal bleeding
 - Acute pulmonary hemorrhage
 - Uterine fibroids
 - Pelvic congestion syndrome
- (g) The resident should work to develop basic interventional radiology skills considered necessary in the practice of vascular interventional radiology, including:
 - Femoral artery and vein access – micropuncture technique, sheath placement
 - AV dialysis graft / fistula access
 - Arterial and venous catheter manipulation
 - Microcatheter technique
 - Use of arterial closure devices
 - Catheter directed thrombolysis
 - Use of mechanical thrombectomy devices
 - IVC filter placement and retrieval
 - Use of balloons and stents – vascular
 - Use of embolic materials – coils, particles
 - Uterine fibroid embolization
 - Gonadal vein embolization
 - Use of snares for intravascular foreign body retrieval
- (h) The resident should consult supervising faculty and appropriate reading material when unfamiliar with a disease or its management.

III. Practice Based Learning and Improvement:

- (a) The resident should consistently use written and electronic reference materials, and demonstrate evidence of independent learning.
- (b) The resident should follow-up abnormal studies by talking with referring physicians and reviewing patient medical records.
- (c) The resident should be competent with use of the Saint Lukes Hospital PACS and other electronic medical records.

IV. Interpersonal Communication Skills:

- (a) The resident should be able to effectively communicate the results of studies to referring clinicians when needed.
- (b) The resident should be able to communicate the basic procedural steps, benefits and risks to patients and families in order to obtain informed consent.
- (c) The resident should be able to convey the results of examinations through completion of hand-written post procedure notes.
- (d) The resident should be able to dictate accurate reports with indications, technique, findings and conclusions.

V. Professionalism:

- (a) Residents should dress appropriately at work and wear a name badge.
- (b) Promptness and availability at work are expected of every resident.
- (c) Nurses and technologists should be treated with respect.
- (d) Residents should observe ethical principles at all times.
- (e) Patient confidentiality should be observed at all times.
- (f) Residents are required to complete an on line professionalism module at least biannually.

VI. System Based practice:

- (a) Residents should be familiar with the interventional radiology departmental policies and medical record forms.
- (b) Residents should understand the role of interventional radiology in the overall management of patient illness and make proper recommendations when needed.
- (c) Residents should dictate and correct their reports in a timely fashion.

Reading list:

1. Vascular and Interventional Radiology, 2nd Edition, Valji, K, Saunders Elsevier, 2006.
2. Vascular and Interventional Radiology: The Requisites, Kaufman, JA, Lee, MJ, Mosby, 2003.
3. Abrams' Angiography: Interventional Radiology, 2nd Edition, Baum, S, Pentecost, MJ, Lippincott Williams & Wilkins, 2005.

Interventional radiology – Rotation 3 – Goals and Objectives

I. Patient care:

- (a) The resident should understand the indications for all procedures.
- (b) The resident should review the medical record and talk with the referring doctor to obtain clarification when the indication for a procedure is uncertain.
- (c) The resident should always be familiar with available medical records.
- (d) All procedures should be discussed with supervising faculty.

II. Medical Knowledge:

- (a) The resident should be familiar with the risks, benefits, and alternative methods of treatment for any procedure that they assist with.
- (b) The resident should be familiar with the relevant anatomy for every case that they assist with.
- (c) The resident should be familiar with all of the medications commonly administered during interventional radiology procedures.
- (d) The resident should develop a thorough understanding of hepatobiliary anatomy and genitourinary anatomy.
- (e) The resident should develop a thorough understanding of the devices commonly used in the interventional suite while performing hepatobiliary and genitourinary procedures, including: needles, sheaths, diagnostic catheters, guide wires, balloons, stents, and drainage catheters.
- (f) The resident should become familiar with common non-vascular health problems treated by the interventional radiology service, including:
 - Chronic biliary obstruction
 - Acute biliary ductal injury – bile leak
 - Cholecystitis

- Nephroureteral calculus disease
 - Renal obstruction – non-calculus
 - Ureteral injury – urine leak
 - Bladder outlet obstruction and incontinence
 - Chronic malignant pleural effusion and ascites
- (g) The resident should continue to develop their basic radiology procedure skills and vascular interventional radiology skills. The resident should also work to develop additional interventional radiology skills considered necessary in the practice of non-vascular interventional radiology, including:
- Transhepatic cholangiogram
 - Biliary drainage catheter placement
 - Cholecystostomy tube placement
 - Antegrade pyelogram
 - Nephrostomy tube placement
 - Ureteral stent / catheter placement
 - Nephrolithotripsy access
 - Suprapubic foley catheter placement
 - Use of balloons and stents – non-vascular
 - Tunneled pleural and pericardial drainage catheter placement
- (h) The resident should consult supervising faculty and appropriate reading material when unfamiliar with a disease or its management.

III. Practice Based Learning and Improvement:

- (a) The resident should consistently use written and electronic reference materials, and demonstrate evidence of independent learning.
- (b) The resident should follow-up abnormal studies by talking with referring physicians and reviewing patient medical records.
- (c) The resident should be competent with use of the Saint Lukes Hospital PACS and other electronic medical records.

IV. Interpersonal Communication Skills:

- (a) The resident should be able to effectively communicate the results of studies to referring clinicians when needed.
- (b) The resident should be able to communicate the basic procedural steps, benefits and risks to patients and families in order to obtain informed consent.
- (c) The resident should be able to convey the results of examinations through completion of hand-written post procedure notes.
- (d) The resident should be able to dictate accurate reports with indications, technique, findings and conclusions.

V. Professionalism:

- (a) Residents should dress appropriately at work and wear a name badge.
- (b) Promptness and availability at work are expected of every resident.
- (c) Nurses and technologists should be treated with respect.
- (d) Residents should observe ethical principles at all times.
- (e) Patient confidentiality should be observed at all times.
- (f) Residents are required to complete an on line professionalism module at least biannually.

VI. System Based practice:

- (a) Residents should be familiar with the interventional radiology departmental policies and medical record forms.
- (b) Residents should understand the role of interventional radiology in the overall management of patient illness and make proper recommendations when needed.
- (c) Residents should dictate and correct their reports in a timely fashion.

Reading list:

1. Vascular and Interventional Radiology, 2nd Edition, Valji, K, Saunders Elsevier, 2006.
2. Vascular and Interventional Radiology: The Requisites, Kaufman, JA, Lee, MJ, Mosby, 2003.

3. Abrams' Angiography: Interventional Radiology, 2nd Edition, Baum, S, Pentecost, MJ, Lippincott Williams & Wilkins, 2005.

Interventional radiology – Rotation 4, optional 5+ – Goals and Objectives

I. Patient care:

- (a) The resident should understand the indications for all procedures.
- (b) The resident should review the medical record and talk with the referring doctor to obtain clarification when the indication for a procedure is uncertain.
- (c) The resident should always be familiar with available medical records.
- (d) All procedures should be discussed with supervising faculty.

II. Medical Knowledge:

- (a) The resident should be familiar with the risks, benefits, and alternative methods of treatment for every procedure that they assist with.
- (b) The resident should be familiar with the relevant anatomy for every case that they assist with.
- (c) The resident should be familiar with all of the medications commonly administered during interventional radiology procedures.
- (d) The resident should develop an understanding of sclerosing agents.
- (e) The resident should develop a thorough understanding of the devices and materials used to perform hepatic chemoembolization, hepatic Y-90 radioembolization, solid tumor radiofrequency ablation, transjugular liver biopsy and shunt creation, percutaneous vascular malformation sclerotherapy, endovascular management of aortic aneurism, and treatment of vertebral compression fractures.
- (f) The resident should become familiar with common vascular and non-vascular health problems treated by the interventional radiology service, including:
 - Hepatic metastatic disease
 - Primary hepatocellular malignancy
 - Portal hypertension – cirrhosis, Budd Chiari
 - Pulmonary and renal malignancy – primary and metastatic
 - Osteoid osteoma
 - Abdominal aortic aneurism
 - Thoracic aortic aneurism
 - Vascular malformations
 - Symptomatic benign renal and hepatic cysts
 - Acute vertebral compression fracture
- (g) The resident should continue to develop their basic radiology procedure skills, vascular interventional radiology skills and non-vascular interventional radiology skills. The resident with special interest in interventional radiology should work to develop additional interventional radiology skills, including:
 - Technique for hepatic chemoembolization
 - Advanced mesenteric vascular evaluation and pretreatment protective embolization
 - Technique for hepatic Y-90 radioembolization
 - Transjugular liver biopsy
 - TIPSS creation
 - Placement and use of radiofrequency ablation probes
 - Endovascular management of abdominal aortic aneurism
 - Endovascular management of thoracic aneurism and penetrating ulceration
 - Percutaneous sclerotherapy for vascular malformations
 - Sclerotherapy for benign renal and hepatic cysts
 - Transpedicular needle placement - vertebroplasty and kyphoplasty
- (h) The resident should consult supervising faculty and appropriate reading material when unfamiliar with a disease or its management.

III. Practice Based Learning and Improvement:

- (a) The resident should consistently use written and electronic reference materials, and demonstrate evidence of independent learning.
- (b) The resident should follow-up abnormal studies by talking with referring physicians and reviewing patient medical records.
- (c) The resident should be competent with use of the Saint Lukes Hospital PACS and other electronic medical records.

IV. Interpersonal Communication Skills:

- (a) The resident should be able to effectively communicate the results of studies to referring clinicians when needed.
- (b) The resident should be able to communicate the basic procedural steps, benefits and risks to patients and families in order to obtain informed consent.
- (c) The resident should be able to convey the results of examinations through completion of hand-written post procedure notes.
- (d) The resident should be able to dictate accurate reports with indications, techniques, findings and conclusions.

V. Professionalism:

- (a) Residents should dress appropriately at work and wear a name badge.
- (b) Promptness and availability at work are expected of every resident.
- (c) Nurses and technologists should be treated with respect.
- (d) Residents should observe ethical principles at all times.
- (e) Patient confidentiality should be observed at all times.
- (f) Residents are required to complete an on line professionalism module at least biannually.

VI. System Based practice:

- (a) Residents should be familiar with the interventional radiology departmental policies and medical record forms.
- (b) Residents should understand the role of interventional radiology in the overall management of patient illness and make proper recommendations when needed.
- (c) Residents should dictate and correct their reports in a timely fashion.

Reading list:

1. Vascular and Interventional Radiology, 2nd Edition, Valji, K, Saunders Elsevier, 2006.
2. Vascular and Interventional Radiology: The Requisites, Kaufman, JA, Lee, MJ, Mosby, 2003.
3. Abrams' Angiography: Interventional Radiology, 2nd Edition, Baum, S, Pentecost, MJ, Lippincott Williams & Wilkins, 2005.

Interventional Radiology Procedure Competency Checklists

Instructions: All IR forms for competency are to be completed by the end of the 3rd IR rotation. At the end of each 1 month rotation, residents should place these forms in their portfolio. At the beginning of the month a new set of forms may be completed and the data compiled to as to meet all competencies by the end of the 3rd rotation.

Lung biopsy – CT-guided

Name of resident: _____ Rotation 1 ___ 2 ___ 3 ___ 4 ___

Resident demonstrates ability to obtain informed consent: Yes ___ No ___ Faculty sign off _____

Resident demonstrates ability to use sterile technique: Yes ___ No ___ Faculty sign off _____

Resident has completed the following required procedure: *Lung biopsies – CT-guided*
(must complete 3 or more)

1. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

2. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

3. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

Interventional Radiology Procedure Competency Checklist ***Solid organ (liver/kidney) biopsy***

Name of resident: _____ Rotation: 1 ___ 2 ___ 3 ___ 4 ___

Resident demonstrates ability to obtain informed consent: Yes ___ No ___ Faculty sign off _____

Resident demonstrates ability to use sterile technique: Yes ___ No ___ Faculty sign off _____

Resident has completed the following required procedure: *Solid organ (liver/kidney) CT-guided or ultrasound-guided biopsy* (must complete 3 or more)

1. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

2. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

3. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

Interventional Radiology Procedure Competency Checklist
Paracentesis – ultrasound-guided

Name of resident: _____ Rotation 1____ 2____ 3____ 4____

Resident demonstrates ability to obtain informed consent: Yes___No___ Faculty sign off_____

Resident demonstrates ability to use sterile technique: Yes___No___ Faculty sign off_____

Resident has completed the following required procedure: *Paracentesis – ultrasound-guided* (must complete 3 or more)

1. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

2. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

3. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

Interventional Radiology Procedure Competency Checklist
Thoracentesis – ultrasound-guided

Name of resident: _____ Rotation 1____ 2____ 3____ 4____

Resident demonstrates ability to obtain informed consent: Yes___No___ Faculty sign off_____

Resident demonstrates ability to use sterile technique: Yes___No___ Faculty sign off_____

Resident has completed the following required procedure: *Thoracentesis – ultrasound-guided* (must complete 3 or more)

1. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

2. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

3. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

Interventional Radiology Procedure Competency Checklist
Non-tunneled central venous access

Name of resident: _____ Rotation 1____ 2____ 3____ 4____

Resident demonstrates ability to obtain informed consent: Yes___No___ Faculty sign off_____

Resident demonstrates ability to use sterile technique: Yes___No___ Faculty sign off_____

Resident has completed the following required procedures: *Non-tunneled central venous access* (must complete 3 or more)

1. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

2. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

3. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

Interventional Radiology Procedure Competency Checklist:
Abscess drainage – CT-guided

Name of resident: _____ Rotation 1____ 2____ 3____ 4____

Resident demonstrates ability to obtain informed consent: Yes___No___ Faculty sign off_____

Resident demonstrates ability to use sterile technique: Yes___No___ Faculty sign off_____

Resident has completed the following required procedures: *Abscess drainage – CT-guided* (must complete 3 or more)

1. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

2. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

3. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

Interventional Radiology Procedure Competency Checklist
Femoral arterial or venous access

Name of resident: _____ Rotation 1____ 2____ 3____ 4____

Resident demonstrates ability to obtain informed consent: Yes___No___ Faculty sign off_____

Resident demonstrates ability to use sterile technique: Yes___No___ Faculty sign off_____

Resident has completed the following required procedures: *Femoral arterial or venous access* (must complete 3 or more):

1. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

2. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

3. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

Interventional Radiology Procedure Competency Checklist
Chest Tube Placement or Removal

Name of resident: _____ Rotation 1____ 2____ 3____ 4____

Resident demonstrates ability to obtain informed consent: Yes___No___ Faculty sign off_____

Resident demonstrates ability to use sterile technique: Yes___No___ Faculty sign off_____

Resident has completed the following required procedures: *Chest Tube placement or removal* (must complete 3 or more)

1. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

2. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

3. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

Interventional Radiology Procedure Competency Checklist
Tunneled Central Venous Catheter Removal

Name of resident: _____ Rotation 1____ 2____ 3____ 4____

Resident demonstrates ability to obtain informed consent: Yes___No___ Faculty sign off_____

Resident demonstrates ability to use sterile technique: Yes___No___ Faculty sign off_____

Resident has completed the following required procedures: *Tunneled central venous catheter removal* (must complete 3 or more)

1. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

2. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____

3. Patient Name: _____ Date of Birth: _____ Procedure Date: _____
Outcome: _____ Faculty sign off: _____