

# GOALS and OBJECTIVES

The following are the objectives to be successfully completed by the IR fellow at the completion of training.

## I. Patient Care

Fellows must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of disease and the promotion of health under the direct supervision of the interventional radiology attending.

### **Knowledge-based Objectives**

The fellow **will demonstrate**:

- Use of effective communication and caring and respectful behavior when interacting with patients of all ages and their families
- Ability to gather essential and accurate information about patients when appropriate (from chart, images/PACS, lab, referring MDs)
- Ability to explain image guided invasive procedures to a patient and obtain informed consent for the following types cases:

Venous access

Enteric access

Diagnostic venography & arteriography

Arterial stenting and embolization

Venous stenting and embolization

Angioplasty/Venoplasty

Cholangiography, biliary drainage procedures and stent placement

Nephrostomy access and ureteral stent placement

Tube and catheter replacements of all types

Image guided biopsy and drainage procedures

IVC filter placement and removal

Gastrostomy and GJ placement

Chemoembolization/DEBE/Radioembolization

Radiofrequency/Microwave/Cryo-Ablation

Endovenous Laser Ablation

Pain Procedures: Vertebral Augmentation

Neurolysis or ablation

Nerve Block

- Ability to write pre-procedure problem focused history and physical exam
- Ability to write pre and post-procedure notes on the above
- Ability to work with other health care professionals to provide patient focused care in the post procedure period

### **Skill-based Objectives**

The fellow **will demonstrate**:

-Ability to use the Electronic Medical Record (EMR) to obtain needed patient information and enter pre/post procedural orders for interventional radiology procedures

-Ability to use PACS to review pertinent imaging studies

-Ability to perform the following as primary operator:

    Ultrasound guided access for:

        Venous access

            Non tunneled access

            Tunneled catheters

            Ports

        Arterial access

    Port and tunneled catheter removal

    Ultrasound guided:

        Liver biopsies

        Thoracentesis/pleural drain placement

        Paracentesis/peritoneal drain placement

    Fluoroscopic tube replacement

    Hepatobiliary procedures:

        PTC and biliary drainage

        Cholangioplasty

        Biliary stent placement

        TIPS

        BRTO

    Enteric Access:

        Gastrostomy and Gastrojejunostomy placement

Embolization procedures:

- Uterine Fibroid Embolization
- Chemoembolization/Radioembolization
- Portal Vein Embolization

Diagnostic arteriography

- Excluding the heart and brain
- Pulmonary arteriography

Arterial Interventions:

- Vascular malformation embolization and sclerotherapy
- Angioplasty
- Thrombolysis
- Stent placement
- Embolization

Diagnostic venography

- Systemic veins
- Portal veins

Venous interventions:

- IVC filter placement and removal
- Endovenous Laser Ablation
- Intravascular Foreign Body Removal
- Hemodialysis access revision
  - Thrombolysis
  - Venoplasty
  - Endovascular stent placement
  - Thrombectomy
- Transjugular liver biopsy
- DVT thrombolysis and thrombectomy
- Pulmonary thrombolysis
- Venoplasty
- Venous stent placement
- Adrenal venous sampling

Genitourinary interventions:

- Nephrostomy and nephroureteral tube placement
- Ureteral stent placement

Ablations:

- Radiofrequency, Microwave and Cryoablation

Pain Procedures:

- Vertebral Augmentation
- Neurolysis/nerve block

## **II. Medical Knowledge**

Fellows should be able to demonstrate knowledge about established and evolving interventional radiological procedures and clinical protocols.

### ***Knowledge-based Objectives***

The fellow **will demonstrate**:

- Recognition of normal and abnormal arterial and venous anatomy.
- Recognition of normal and abnormal findings for:
  - Biliary Anatomy
  - Genitourinary Anatomy
- An understanding of basic radiation safety.
- An understanding of the risks, benefits, and possible complications related to procedures in which they participate.
- Recognition of the importance of obtaining all relevant information before initiation of the procedure.
- Recognition of limitations in personal knowledge and personal skill set.

### ***Skill-based Objectives***

The fellow **will demonstrate**:

Familiarity with the normal ultrasound anatomy of the liver, gallbladder, biliary tree and kidneys.

Familiarity with cross-sectional and angiographic vascular anatomy in the chest, abdomen, pelvis and extremities.

Familiarity with the normal and obstructed appearance of a cholangiogram and pyelogram/nephrostogram.

Familiarity with percutaneous drainage catheters

Familiarity with placement of thermal ablation probes

Familiarity with the (appearance) of entities commonly seen in the interventional suite including:

### **Hepatobiliary**

Biliary obstruction on cholangiography  
Transplant liver with anastomotic stricture or leak  
Portal Hypertension  
Neoplasm  
    Primary and metastatic

### **Spine/Musculoskeletal**

Joint effusion  
Vertebral compression fracture  
Bone and soft tissue tumors

### **Renal**

Hydronephrosis  
Tumors  
Nephrolithiasis

### **Vascular**

Deep venous thrombosis  
Aneurysms and psuedoaneurysms  
PVD with occlusion  
Tumor vascularity  
Vascular malformations

### **Miscellaneous**

Pleural effusions  
Ascites

## **III. Practice Based Learning and Improvement**

Fellows must be able to investigate and evaluate patient care practices, assess scientific evidence, and improve their patient care practices.

### ***Knowledge-based Objectives***

The Fellow **will demonstrate:**

Evidence of independent study using textbooks, journal articles and online resources

Appropriate follow-up of interesting cases and complications (biopsy results, follow-up from clinicians or resolution of abnormal lab values, etc.)

Interest in teaching medical students, other residents, and special procedures technologists and nurses

### ***Skill-based Objectives***

The fellow **will demonstrate:**

Use of PACS

Ability to do a web-based literature search pertinent to interventional practice or interesting/complicated cases

Ability to review and present articles in the literature for journal clubs and conferences

Ability to construct and present a 45 minute IR Grand Rounds on an IR-related topic of their choice

## **IV. Interpersonal and Communication Skills**

Fellows must be able to demonstrate interpersonal and communication skills that result in effective information exchange with patients, patient families, and all levels of professional associates.

### ***Knowledge-based Objectives***

The Fellow **will demonstrate:**

Ability to work as an effective member of the imaging team and contribute to the clinical care of patients

Discuss imaging results with medical students, residents/fellows and faculty on the telephone and in person

### ***Skill-based Objectives***

The fellow **will demonstrate:**

Ability to dictate correct and concise written reports for procedures in which they participated

## **V. Professionalism**

Fellows must demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.

### ***Knowledge-based Objectives***

The fellow **will demonstrate:**

Ability to discuss routine invasive procedures with patients (and families as appropriate) with sensitivity to cultural differences

Commitment to ethical principles (informed consent, confidentiality)

Professional dress, demeanor and attitude in the reading room, angiography suite, and patient care areas

### ***Skill-based Objectives***

The fellow **will demonstrate:**

Respect toward all members of the health care team

Timely answering of pages

On time arrival for work and conferences

## **VI. Systems-Based Practice**

Fellows must demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value.

### ***Knowledge-based Objectives***

The fellow **will demonstrate:**

Knowledge of how their image interpretation, image guided procedure and communication affects patient care

Practice of techniques for cost effective utilization of supplies, time, and personnel in the Radiology Department

Use of timely performance and interpretation of studies/procedures to decrease length of hospital stay for in-patients

Concern for assisting patients with complexities of the health care system whenever possible

***Skill-based Objectives***

The fellow **will demonstrate:**

Ability to use structured reports appropriately for interventional radiology, making changes to the dictations as needed based on procedural details

Ability to determine and appropriately document medical necessity for procedures (with staff guidance)

Select & recommend the appropriate interventional radiological procedure to best address the patient's health problems