Welcome to the Emory University Division of Interventional Radiology and Image Guided Medicine.

The following information should answer many questions and serve as a useful guide to IR Division Policy.

**FACULTY MEMBERS**

Gail Peters, M.D.
Assistant Professor of Radiology
Fellowship Program Director

Darren Kies, M.D.
Assistant Professor of Radiology
Fellowship Associate Program Director

C. Matthew Hawkins, M.D.
Assistant Professor of Radiology
Fellowship Assistant Program Director

Zachary Bercu, M.D.
Assistant Professor of Radiology

Irwin Best, M.D.
Assistant Professor of Radiology

Sean Dariushnia, M.D.
Assistant Professor of Radiology

R. Mitchell Ermentrout, M.D.
Assistant Professor of Radiology

Charles A. Gilliland, M.D.
Assistant Professor of Radiology
Chief of IR Service, St. Joseph’s Hospital

Noel (Clay) Haskins, M.D.
Assistant Professor of Radiology
Chief of IR Service, VA Medical Center

Abdel Jaffan, M.D.
Assistant Professor of Radiology
Chief of IR Service, Emory Johns Creek Hospital
Curtis Lewis, M.D., MBA, JD, FSIR, FACR
Assistant Professor of Radiology

Louis Martin, M.D.
Professor of Radiology

Janice Newsome, M.D.
Assistant Professor of Radiology
Chief of IR Service at Emory Midtown Hospital

David Prologo, MD
Assistant Professor of Radiology

**Physician extenders:**

Elizabeth “Liz” Lawson Favaro, RN
Joy Summers, PA-C
Gerarda Sanchez, PA-C
Laresa Woodard, PA-C

**Patient Care Coordinators:**

Traci Atlee
Patient Scheduling Coordinator
(404) 712-0566

Elizabeth (Betsy) White
Patient Scheduling Coordinator
404-712-0566

**Administrative Assistants (Clinic Coordinators):**

Tiffany Benton
Administrative Assistant
Fellowship Coordinator
(404) 712-7118

Zenisha Bain
Medical Secretary
(404) 712-7032

John Heard
Medical Secretary
(404) 712-0507
Your paycheck will be direct deposited. Your bank information will be taken during orientation. If you have not established your bank account(s) as of yet, you will have to pick up your check on the last working day of the month. The check is at Human Resources: 1599 Clifton Road, reception desk.

Emory provides fellows and their families with medical coverage. You should have received information and forms from the School of Medicine Registrar's office regarding your insurance and other benefits.

**Within the first month, please give Tiffany Benton an electronic copy of your updated CV so that this information is in our computer and in your personal file.**

With an institution of this size, it is impossible to let you know where everything is located, but don't hesitate to ask if you're lost.

All administrative/secretarial work is to be given to and completed by Tiffany Benton. Any problems with support staff, work completion, schedules etc., see Tiffany Benton.

**We require all fellows to have worked on and submitted at least one manuscript during the fellowship.** Ample opportunity exists and faculty will help you. Please submit a copy of the final version of any manuscript or presentation to Tiffany Benton for the director's file. A signed Authorship Responsibility and Conflict of Interest form MUST also be submitted.

**EDUCATIONAL FUND**

You have $1000 educational fund: You may use this fund to pay for:

- Dues to professional societies or Medical Licensures (except for the last 3 months of employment)
- Travel to scientific/continuing education conferences or to present scientific work
- Textbooks

You have an additional $500 for medical books. This can be used only for medical books/e-books.

You need to submit the original invoice to be paid OR pay for the item and submit the original receipt and credit card statement to Tiffany Benton for submission to Emory Radiology accounting for reimbursement. It will take approximately 6-8 weeks for reimbursement. This process will be coordinated and expedited by Tiffany Benton.
CONFERENCES: All Fellows are required to attend morning conferences

1. Thursday IR Grand Rounds series 0630-0800 in EUH Annex building room N122
2. 1st Tuesday each month Vascular Surgery in classroom B-C at 0630, second floor
3. Journal Club evening meeting twice yearly

ALL PATIENT ROUNDS, ORDERS & DISCHARGES MUST BE COMPLETED PRIOR TO MORNING CONFERENCE @ 0700

NOTE: Before morning conference begins, each fellow MUST check in with the PPCA to be certain their first patient has been worked up and consented. (6:30 to 7:00 a.m.) This is critical to getting the cases started on time.

Morbidity & Mortality Conference

Typically scheduled on the last Thursday of each month from 0630-0800.

A fellow will be assigned to moderate the M&M conference with duties as below:

1. Obtain a list of patients to be presented from all faculty & fellows.
2. Collect slides from all fellows and add them to your own.
3. Place slides into a PowerPoint presentation.
4. Print the patient M & M information sheets sent to you by the other fellows for their cases. Give the sheets to the attending involved in the case. If that attending is not present, give to Dr. Peters, Kies or Hawkins. The attendings will take written notes during the discussion. They will give the sheets back to the moderator after conference.
5. Transfer/type notes taken on all cases during the M & M discussion to the patient information M & M sheets. These are to be turned in electronically to Tiffany and Dr. Best by the Monday after the conference.

Each fellow at each hospital is responsible for reporting his/her own complications. Information (pt initials, MRN, involved fellow/staff initials, complication) is to be filled out on the patient information M & M sheets. These should be forwarded to the M & M moderator by Wednesday, the day before the conference. Tiffany will send out a reminder.

You will go through your case(s) and do the following:

1. Review the clinical information in powerchart. Define the complication.
2. Make slides with pertinent clinical information and **good quality images** which clearly demonstrate the complication.
3. Review and summarize pertinent literature to add to the discussion. Your references should be typed/transferred onto the patient information M & M sheets before they are sent to the moderator.

4. Send the filled out/typed patient information M & M sheets to the moderator by Wednesday.

5. Send the slides to the fellow who is moderating the M & M.

The physician(s) responsible for the case will provide details of the case, point out image findings, and discuss nature of the incident during the M & M.

It is easiest to make M & M slides as you go. In other words, do not wait until the night before to prepare your cases. When you have a complication, it is easy to pick the best images and make a few slides. The clinical information is fresh in your mind. There will be very little to look up. A quick lit search and 5 minutes will get the paperwork done and slides made. That only leaves you with a review of the paper(s) the night before.

**Interdepartmental Conferences**

Vascular Surgery: 6:30am-7:30am **first Tuesday each month**
classroom B-C second floor EUH

GI Tumor Conference: 4:30 pm **every Tuesday** evening
WCI Rm # C4018 WCI 4th Floor Classroom

Liver conference **Friday mornings @ 0700 @ Woodruff**
5th floor Dermatology Conference room

On any post call day during your EUH rotations, you will be expected to attend the morning interdisciplinary conferences listed above. You will attend the afternoon conference on post call days during which you were not called in after midnight.

**CHOA**

Pediatric patients are almost exclusively done under general anesthesia. Outpatients are consented in the pre-procedure area @ Egleston/CHOA on the morning of the procedure. Inpatients are consented the night before the procedure. You will communicate with the technologists, Kyle Thurman and Quincy Roberts.

Egleston Lab Phone: (404) 785-2077
Kyle Thurman: (404) 606-9707

Quincy Roberts: (404) 550-2538

**Rules and Regulations regarding Vacations and time off:**

Only one Fellow may be away at any time...Except for those presenting at IR meetings (SIR, WCIO, VIVA or ISET) or attending the SIR Spring Practicum course.

One week (5 days) of vacation is to be taken before 10/31. On November 1st, you will have 10 days remaining.

Two weeks (10 days) of vacation are to be taken by February 28th. On March 1st, you will have 5 vacation days remaining.

The final 5 days of vacation may be taken between March 1st and June 15th.

There is no rule against taking your vacation earlier. These guidelines are meant to distribute the vacation throughout the year and keep the hospitals staffed evenly.

**No vacation may be scheduled during the last 2 weeks of June. No exceptions. Do not make promises to a future employer which you will be unable to fulfill.**

Vacations will be requested through the chief fellow and approved by Dr. Peters. Please visit the link below for policy on sick leave

[http://med.emory.edu/gme/housestaff/housestaff_policies/section4.html](http://med.emory.edu/gme/housestaff/housestaff_policies/section4.html)

NOTE: Please notify Tiffany Benton if you call in sick, late, etc. You MUST also call and speak to the IROD at Emory, or the IR attending of the day at Grady, EUHM, CHOA or the VA.

All travel for which your available educational fund is to be used, including international and regional meetings, post-graduate courses, etc. must be approved well IN ADVANCE by Dr. Peters.
**Interventional Radiology Report Format:**

Procedure(s):

Date of procedure:

Indication: Must justify medical necessity. Be specific. Do not use “rule out”

Operators: (must include an attending name)

Medications: Do not dictate “see medical record”

Contrast: Type and amount in mL

Fluoro time:

Access site(s):

Device(s): deployed or Catheter type placed:

Complications:

Technique and Findings:

Impression:

Plan or Recommendations:

All cases which will be returning for maintenance should have a specific plan stated:

Examples:

1. Routine PCN tube change in 8 weeks
2. This patient is on the benign stricture protocol, and will return in 2 weeks for biliary tube up-sizing

[Attestation Statement]—place initials of faculty in brackets. Attending will enter the attestation statement.

**All reports will be dictated on the day of the procedure.**

All Fellows are viewed by HCFA as Fellows who are reimbursed for their services under Part A of the Medicare Fee Schedule. Therefore, the Attending Physician must be physically present during the "key portion" of a service; otherwise, we may not bill for the procedure. The "key portion" is defined by the Attending Physician. There must be
documentation in the patient's medical record of the Attending's presence and the level of the service to be billed.
[ ] is placed at the end of each report to allow the attending to insert the “attestation” at the end of the report.

Because the Referring Physician (in most cases) has already determined which procedure he wants for his patient, performing the consult and obtaining informed consent is considered part of the procedure and may not be billed as a consult. In the event that the IR service is requested for a consult, there must be documentation by the Attending Physician of a complete history, physical exam, and medical decision making. Medical decision making that occurs prior to a case is separately billable if it is appropriately documented.

**SCRUBS**

The scrubwear policy complies with infection control standards and JCAHO regulations. This scrubwear policy has been designed to control costs, distribution and scrubwear usage and improve professional image. Scrubs are available for your use on the 3rd floor of the hospital just outside of the OR; please use the scrubs from the “scrub closet”. All scrubs must be returned before leaving the fellowship.

**Lab Coats:**

Lab coats are ordered at the beginning of the academic year by Tiffany Benton. Each fellow will receive two lab coats. Laundry services are available at the hospital. When laundry services are needed please give the lab coats to Tiffany so that proper paper work can be completed.

**Film Badges:**

One of your first didactic lectures will be on Radiation Safety.

All film badges are delivered to your department at the beginning of each month (sometimes a few days earlier). Please exchange old badges for new ones on the first of the month. It is your responsibility to obtain a new badge and turn in your old badge every month. This is strictly enforced by the Radiation Safety Officer. Any unusual dose or event is reported to you within seven days. All old badges are due by the 10th of each month. Any badges that are not returned by the 10th are charged $20 per badge.


**Medical Records:**

The use of EeMR/powerchart will allow you to access the electronic patient record, thus bypassing the problems associated with paper medical charts.

**Film Availability on PACS for 0700 daily work rounds:**

It is the Reading Room Coordinator’s (Lynn Coram-Allen) responsibility to pull images needed for the day's cases from the PACS archive to the PACS Web Server. If you want to review a study, you must ask her to load it.

**Faculty Advisors:**

A faculty member is assigned as an advisor to each fellow and will meet with you on a quarterly basis to discuss progress and help with problems you may have.

- Gail Peters, MD  
- Zachary Bercu, MD  
- Irwin Best, MD  
- R. Mitchell Ermentrout, MD  
- Charles Gilliland, MD  
- Matt Hawkins, MD  
- Darren Kies, MD  
- Janice Newsome, MD

- Justin Stenz  
- Anil Syal  
- Ikponmwosa “IK” Iyamu  
- Digvijay “Dig” Singh  
- Christopher Conner  
- Atul Gera  
- Ziga Cizman  
- Tanay Patel
**Professionalism:**

1. Please do not discuss case distribution with your colleagues in public spaces.
2. Do not use foul language. Remember that patients, both unsedated and sedated hear MUCH MORE than you think.
3. You are a representative of Emory, and we have a very fine reputation to maintain. Be a compassionate physician and treat all patients with respect.

All Emory staff (techs, nurses and support staff) are to be treated with respect and as members of the health care team. Likewise, you should be treated with the same courtesy. Please inform Dr. Peters if you observe or experience any problems in this area.

Please feel free to meet with the Nurse Managers (Richard Elliot and Melva Banks) or Technical supervisor (Karen Bell-Moore) if you have any questions regarding the staff or Emory policies.

**Dictations/documentation:**

All discharge summaries MUST be placed in the powerchart hospital system. In compliance with JCAHO regulations, sanctions will be imposed against the Attending Faculty for three (3) delinquent discharge summaries. If you participated in the case, you are responsible for the dc summary. The following should be included in the dc summary:

1. Diagnosis
2. Treatments/Procedures
3. Hospital course
4. Discharge meds—do not write see medical record. LIST the meds and doses
5. Specific f/u plan

You must dictate ALL your cases PRIOR to leaving for the evening. It is suggested you dictate each case after its completion rather than letting them accumulate. Any cases not dictated within 24 hours will be brought to your attention. You will need to dictate the case immediately, even if this means coming in on your day off or missing participation in a case you want to do. Delinquent medical records cannot be tolerated.

The attending staff has admitting privileges. If you have a referring physician who would like a patient admitted to the IR service, please give all necessary information to the PPCA charge nurse.

The Interventional Radiology and Image Guided Medicine Section has its own admitting service in which adult patients are admitted directly to our service and cared for only by
physicians on our service. It is solely our responsibility to see and to provide the care for these patients while they are in the hospital. A clinic appointment must be arranged on ALL IR patients BEFORE the patient is discharged. This is done by e-mailing the admin person for the attending and asking them to schedule the appointment.

Many of you may have not been involved with direct patient care for quite some time. Please do not be embarrassed if you lack of knowledge or experience in this regard. Feel free at all times to consult with the staff regarding your questions so that all of our patients receive optimum care.

**INTERVENTIONAL RADIOLOGY ADMISSIONS:**

Below is a summary of **things that must be done for each patient who is to be admitted to Interventional Radiology.**

1. It is the responsibility of the fellow who is doing the procedure to see the patient the evening prior to or the morning of the procedure and to perform and record a complete history and physical. Your history should include chief complaint, history of present illness, past medical history, review of systems, current medications, drug allergies, and impression and plan. Your physical examination need not be as detailed as that which would be required by the medicine service, however, it does need to be thorough and contain all pertinent information.

2. While the patient is in the hospital, a daily progress note needs to be recorded in the EMR. This is the responsibility of the fellow who did the procedure.

3. Prior to discharge, you must:
   a) Fill out the discharge summary
   b) Call the medical secretary/admin to schedule a f/u appointment in IR clinic
   c) Counsel your patient
   d) Provide any needed prescriptions

4. Overnight admissions (e.g. following angioplasty, chemo, UFE) will require pre-conference rounds in early a.m. so that discharge orders are written in a timely fashion. COMMUNICATE!

5. NO PATIENT is to be discharged without a follow-up appointment in the IR clinic. Please do NOT discharge patients on the agreement that the patient should call us.

6. The PA/NP will work with the Fellow on the admission/discharge of patients; however, the Fellow is ultimately responsible that each step in the admission/discharge process is completed.
IR Consultations:

Emergency consults require the fellow on-call to see the patient, evaluate the situation, and then contact the attending on-call. A consult should be placed in the EMR.

The technologist supervisor (flow coordinator or FC) is responsible for ensuring patient flow in the department. This individual will work with you to minimize room downtime and maximize room turnover while delivering high quality care. Please work with this person by following their direction.

Pre procedure Responsibilities, Patient work-ups and consents:

Review pertinent previous imaging studies and labs.

Consult with primary care team for special orders including pre procedure blood or platelet transfusions, FFP, etc.

Write appropriate pre-procedure orders.

All inpatients scheduled for week days must be worked up the night prior to procedure.

**All inpatients scheduled for EUH on Monday must be worked up and consented over the weekend by the fellow on call.**

The fellows will present the day's cases at 0700 morning conference providing all the necessary information, including discussion of previous imaging findings and present treatment plan for VIR. Make these presentations concise and accurate. Please use standard medical presentation format.

It is the consult fellow’s responsibility to follow-up and communicate with the inpatient and flow coordinators on patient status (those requiring blood products, checking on lab values, or any other factors impeding the patient's procedure being done).

THE ON CALL PHYSICIAN (especially on weekends) should have a copy of the next day's schedule. Please remember that, in the evening, the individual on-call should pull a copy of the next day’s schedule off the computer before going home. Any cases which must be scheduled during the night can be properly afforded an appropriate time slot. This is especially imperative over the weekend when add-ons will require coordination and planning with regard to elective cases already scheduled for Monday.

All out-patient work up is responsibility of the IR fellow assigned to the patient during the “fellow huddle”. Be prompt and comprehensive in working up these out-patients, so the work flow will be efficient. Evaluate each patient prior to arrival to procedure room. **If for some reason you did not personally do the work up, you need to read it and**
know about the patient BEFORE you scrub in. The moderate sedation form must be completed in powerchart. This patient information and documentation is to insure safe sedation.

The quality and legibility of the patient evaluation is essential for accurate transmission of information to the physician performing the procedure and the supervising attending.

All work-ups should include a complete but focused history and physical examination, review of pertinent laboratory and imaging procedures. The ASA level should be assigned. Prior issues with conscious sedation should be noted. Emphasize any unusual risks to the performance of the procedure.

It is essential to know the following about all patients:

1. Diagnosis warranting medical necessity for the procedure
2. Heart disease?
3. Lung disease: COPD or OSA or PE?
4. Diabetes? If so, last FS or glucose. On metformin? Insulin?
5. HTN—beta blocked?

These things should be specifically documented in writing on each workup.

All patients will be prepped by the technologists assigned to the room. Fellows should be present and scrubbed before the technologist has finished. You may get your table ready as the tech finishes. This will improve room turnover as they will not need to find you and wait for you to scrub.

Post Procedure Fellow Responsibilities:

1. Write a brief-op note with pertinent information for clinicians.
2. Write post procedure orders appropriate for the type case completed.

Whenever feasible in our reports, progress notes, letters to referring physicians, we should make an effort to develop a clinical care plan. This merely indicates that we have thought about and developed a method of follow up and an approach to the patient on return to the IR department. The Clinical Care Plan will provide an outline for improved continuity of care in our interventional follow up.

3. Fellows are responsible for maintaining a procedure log. This log will give you your case counts and other information needed for CAQ and hospital privileges in the future.
4. Fellows are responsible for checking the images stored to PACS. It is important that the pertinent images have been recorded. If you find that the filming of a case
is inadequate, it is your responsibility to talk to the technologist who processed and transferred the study and guide them through the re filming. This must be done by the end of the day, preferably immediately after the case. Once the images are deleted from the machine, we are left with those stored to PACS. Images are deleted frequently, so be certain to look at images as you dictate. **DO NOT DICTATE FROM MEMORY!**

5. **Follow-up rounds** - morning following procedure where indicated by patient condition and for your patients admitted to IR service. Remember to round early enough to **be on time to the 7 a.m. conference.**

6. **Record morbidity & mortality at the time of occurrence and continue** clinical follow-up until time of discharge on all M & M patients. It is easiest to make your slides for the monthly M&M while you are dictating the case—you are already looking at the images and it will be easy to make a few slides right then and there.

Remember, these are only guidelines. Each patient has individual needs and you will develop your own format for patient care. Don't hesitate to ask staff if you have questions about patient care.

**Pre procedure general considerations:**

On call to VIR @ [time] for [procedure]

Hold ALL blood thinners (ASA, Plavix, Coumadin, Lovenox, sub q heparin), include time to stop heparin

NPO after MN—or other arranged/planned time— except meds with a sip

IV-D5 1/2 NS or LR + 20 MEQ KCL AT 75 -125 cc/hr

Blood products and timing of initiation

**Post procedure angio considerations:**

Bed rest x 2-6 hours, depending if closure device was used or if patient is anticoagulated

Continue IV ? hours
Complications - Call VIR fellow on call—place your PIC # and/or the IR phone 404-821-7271

Post procedure bed rest and monitoring may need to be increased depending on the size of sheath used, anticoagulation status, stability of groin, etc.

**Nephrostomy Tube Pre-procedure:**

Antibiotic: prophylaxis on all patients (without allergy) with 500 mg IV Levaquin

Ampicillin (1 gm IV) and Gent (3-5 mg/kg 1 dose) may be substituted in septic patients

**Post PCN:**

- Bed rest x 4-6 hours
- Monitor vitals q 15 min x 4, q 30 min x 4, q 1 hr x 3
- Monitor nephrostomy tube output every shift and record.
- Flush tube q 6 hr until urine clears.
- Tylox/Lortab/Percocet 1-2 po or Demerol 50-75 mg 1M q 3-4 hrs pm pain
- Antibiotic IV (2-4 doses)
- If cloudy or infection suspected, urine sample to lab for C&S

**Biliary Drainages Procedures:**

- All patients must be prophylaxed with antibiotics. Usually Zosyn, 4.5 g or equivalent
- Never aspirate internal-external drains. Forward flush only.
- Monitor biliary tube output every shift and record.
- Tylox/Lortab/Percocet/oxycodone 1-2 po or Demerol 50-75 mg 1M q 3-4 hrs
- Continue antibiotic coverage as necessary --Zosyn or Cipro

**Percutaneous Liver Biopsies**

- Bed rest on right side x 2 hours
- VS q 15 min x 4, q 30 min x 6
- Orthostatics and call fellow prior to discharge
- Oxycodone po on arrival to same day surgery prn pain

**Post IVC filters**

No central lines without fluoroscopy. Risk of wire entanglement with filter.

**Other Admissions:**
Patient rapport is of the utmost importance. To enhance this, try to minimize the unexpected. For example: Tell UFE patients that an IV will be started and a Foley placed. It will be removed the next morning. Explain the PCA pump and the plan to change over to oral meds the morning after the procedure. Don't make absolute promises about when the procedure will be done or when they will leave - give them the best information you have, but keep some flexibility for unexpected events. Reassure them that the nursing staff can contact you by phone or beeper at any time if problems should arise.

Remember, your history and physical examination does not need to be as extensive as on the medicine service, but should be problem-focused and complete. In other words, you should ask about past medical history, etc., and your examination should be reasonably complete - not just restricted to the vascular system.

If a complication occurs, and the patient is transferred to another service, you should continue to follow that patient and write regular notes. This is part of good patient care AND it markedly enhances our rapport with the clinical services.

At Emory, we have powerchart as our EMR. Use requires a special training session which will be set up for each of you. The information is secure, and password protected. You will have access to the entire patient chart.

DUTY HOURS:

Duty Hours - **We will comply with ACGME regulations.** In accordance with ACGME regulations, your duty hours need to be recorded and monitored through New Innovations. **Your duty hours must be logged weekly through New Innovations** ([www.newinnov.com](http://www.newinnov.com)). Only hours “IN THE HOSPITAL” are logged. See attached Duty Hours Regulations. **No vacation will be granted if your case log and duty hours are not up to date.**

MISCELLANEOUS

As a Fellow in Interventional Radiology, your parking is provided. You will receive a parking pass and information from the GME office during your orientation.
There is a NO SMOKING policy within the perimeter of the hospital and University. Smoking is permitted in designated locations only.

SunTrust Bank is conveniently located at the corner of Clifton and North Decatur. The bank is open Monday-Friday 9:00 a.m. to 4:00 p.m.

   SunTrust has ATMs located  
      in the tunnel  
      and on the ground floor next to the cafeteria

   Bank of America’s ATM is located at the Student Center

Clerical supplies can be obtained from Tiffany Benton.

Only business related long distance calls are allowed on hospital phones.

All outgoing mail is placed in the outgoing mail basket in the mailroom (room C140). Your personal mailbox is located in this room also. It is very important that you check your boxes on a regular basis. Many materials are placed in your box.

You must keep up with your e-mail. Dr. Peters will send out information on a regular basis. Conference schedules and other important memos are distributed by the faculty and office of GME.

Keys: You will be provided with all necessary keys. See Tiffany Benton.

Finally, please be sensitive to the fact that the technical staff has been working in this department for many years. We pride ourselves on having highly skilled and knowledgeable technologists, nurses and support staff to assist during your fellowship. Please be respectful of their experience and knowledge. They can be very helpful to you as you learn interventional procedures and take care of your patients.

**Moonlighting:**

Not permitted during the fellowship.
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  
  Epidural Steroid Injection  
  Neurolysis
• 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
  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
Gonadal 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
Epidural Steroid Injection
Neurolysis
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 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:
Liver/Biliary
Biliary obstruction on cholangiography
Transplant liver with anastomotic stricture or leak

Spine/Musculoskeletal
Arthrography
Epidural/Facet/Nerve Root Anatomy

Interventional Oncology
Hepatic tumor vascularity

Renal
Hydronephrosis

Vascular
Deep venous thrombosis
Aneurysms and pseudoaneurysms
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 Fellows, 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, Fellows/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

**Goals Specific to Pediatric Interventions**

The follow are the expected objectives to be successfully completed by the fellow at the end of the pediatric rotations.

**Patient Care**

The interventional radiology fellow should gain sufficient experience to safely and effectively perform image-guided procedures on all pediatric patients and become acquainted with the myriad of diseases unique to the pediatric population.

He or she should understand cultural and professional aspects of pediatric care, consent and sedation issues, radiation safety, contrast rates and volumes, and pediatric specific IR equipment selection.
Knowledge and Skill Based Objectives

The fellow will demonstrate the use of effective communication and caring and respectful behavior when interacting with pediatric patients and their families.

They will develop the ability to gather essential and accurate information about their patients by review of their medical records, imaging procedures, laboratory results and by direct communication with the referring physician and others directly caring for the patient.

They will develop the ability to explain image guided invasive procedures to the patient and their family and obtain informed consent for the entire spectrum of diagnostic tests and treatments offered by the Interventional Radiology section.

Fellows will develop the ability to obtain a focused medical history, perform a quality physical examination, and write pre and post-procedure notes on their patients.

They will closely work with other health care professionals to provide patient focused care in the radiology department. These objectives will include:

- Recognition of basic normal and abnormal arterial and venous anatomy.
- Recognition of normal and abnormal findings
- 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.
- Evidence of independent study using textbooks, journal articles and online resources.
- Appropriate follow-up of interesting cases and cases with interest in teaching medical students, other fellows, and special procedures technologists about interesting cases.
- Use of the CHOA PACS’ system.
- Ability to do a web-based literature search pertinent to care of their patients.
- Ability to skillfully present medical knowledge and patient care issues at departmental, multi-disciplinary, regional and national conferences
**Interpersonal and Communication Skills**

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

He or she must work as an effective member of the interventional radiology team, contribute to the clinical care of patients and be able to discuss results with medical students, fellows and faculty on the telephone, at the bed side and in the conference room.

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

**System 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.

The fellow will demonstrate knowledge of how their image interpretation, image guided procedure and communication affects patient care and the image of the Division of Interventional Radiology and Image Based Medicine.

The fellow must strive to practice 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, and assist patients with complexities of the health care system whenever possible.

**Professionalism**

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