Residency Training in Gastrointestinal & Genitourinary Radiography/Fluoroscopy, Brigham and Women’s Hospital Revised October 2010

Overall educational goals for the program:

Residents will spend eight full-time weeks working in gastrointestinal and genitourinary radiography & fluoroscopy, and will be expected to develop general competency in interpreting abdominal radiographs and in performing and interpreting fluoroscopic studies of the gastrointestinal and genitourinary tracts. General competency is defined as a thorough understanding of the indications and techniques for performing exams of the gastrointestinal and genitourinary tracts, the ability to interpret and perform exams, as well as the ability to guide clinical colleagues in choosing the correct exam for their patients with gastrointestinal or genitourinary problems. Residents will learn single and double-contrast techniques for examining hollow viscera, dynamic imaging techniques for evaluating swallowing, voiding, and defecating functions, and standard patient positioning for evaluating the gastrointestinal and genitourinary tracts. Residents will develop a mastery of the normal structures and pathological processes in the gastrointestinal and genitourinary tracts. The goal of residency training in gastrointestinal and genitourinary radiography and fluoroscopy is to develop residents who can interpret and perform these types of imaging exams independently and provide knowledgeable consultations to clinical colleagues wishing to evaluate patients with gastrointestinal and genitourinary disorders.

Competency-based goals and objectives for each trainee assignment at each educational level:

Rotation 1. The educational goals of this rotation contribute to the overarching goals of this program through an introduction to the principles of radiography and x-ray fluoroscopy physics, basic anatomy and physiology of the gastrointestinal and genitourinary systems, basic protocols, and introduction to diseases and pathology commonly encountered. The activities in which trainees participate lend themselves to the achievement of proficiency in the following ACGME core competencies:

Medical Knowledge:
1. Patient positioning
   a. Know the difference between upright, supine, and decubitus images of the abdomen and when to acquire each
   b. Know how to position patients on the fluoroscopy table to perform esophagrams, upper GI series, small bowel follow through studies, barium enemas, hysterosalpingograms, and voiding cystourethograms
2. Basics of Quality Control
   a. Recognize technical adequacy of exams
b. Recognition of artifacts

3. Basic knowledge of contrast agents used for fluoroscopy exams
   a. Know indications and contraindications for using barium and water-soluble contrast agents
   b. Know when to use citrocarbonate for a double contrast exams

4. Basic anatomy of the gastrointestinal and genitourinary tracts
   a. Recognize normal and abnormal findings in symptomatic patients
   b. Recognize post-operative anatomy commonly seen such as gastric bypass, low anterior resections for rectal cancer, ileoanal J pouches, and psoas hitch procedures
   c. Learn how to position patients to evaluate the full anatomy for an individual exam, e.g. oblique views to assess the hepatic and splenic flexures of the colon during a barium enema

5. Common disease processes in the gastrointestinal and genitourinary tracts
   a. Learn how to recognize and assess ulcers, polyps, strictures, and obstruction
   b. Learn how to demonstrate fistulae and post-operative leaks

6. Reporting
   a. Learn the essential elements for concise and accurate reporting of radiographs and fluoroscopy exams.
   b. Know which results are critical and should be communicated directly to the referring clinician

Patient Care:
1. Protect patient confidentiality
2. Always introduce yourself and assess the patient’s understanding of why a study is being performed
3. Explain clearly how the procedure will be performed and ask if the patient has any questions about the exam before you begin
4. Demonstrate an appropriate, professional and compassionate demeanor toward patients
5. Adhere to institutional patient safety protocols, such as “time outs”

Practice-based learning and improvement:
1. Apply acquired knowledge to new situations
2. Demonstrate initiative in correcting errors in interpretation and reporting
3. Demonstrate application of outside reading to daily practice

Communication and Interpersonal skills:
1. Learn mechanics of reporting using the PowerScribe dictation system
2. Create reports that are clear and concise using appropriate imaging terminology
3. Report recommendations for further evaluation when necessary based on your findings
4. Call referring physician with all results that are unexpected or require further imaging or intervention according to the department’s critical alert notification system
5. Communicate findings and recommendations effectively to patients

**Professionalism:**
1. Demonstrate respect for patients and all members of the health care team
2. Respect patient confidentiality
3. Present oneself as a professional in appearance and communication
4. Demonstrate a responsible work ethic with regard to work assignments
5. Report to work on time and stay until all assigned tasks are completed

**Systems-based practice:**
1. Understand the role of abdominopelvic radiography and fluoroscopy in the general population
2. Understanding of practice differences for gastrointestinal and genitourinary tract imaging between community based and academic based practice
3. Work effectively with affiliated services such as urology (voiding cystourethrogram), obstetrics (hysterosalpingography) and speech and swallow (modified barium swallows) in the fluoroscopy area to optimize patient care
4. Use hospital-based systems such as the electronic medical record to communicate effectively with other departments for patient care
5. Understand the hospital-based and department-based guidelines for reporting critical results
6. Participate in interdisciplinary discussions and conferences with general surgery, urology, gastroenterology, and pathology when practicable

**Advanced Rotation(s):**

**Medical Knowledge:**
1. Improve diagnostic interpretive skills
   - Calcification analysis and assessment
   - Mass analysis and assessment
   - Develop further understanding of additional mammographic views
   - Develop an understanding of secondary findings on mammography
   - Appropriate workup of various clinical problems/symptoms
2. Continue skill development in performing and interpreting abdominal fluoroscopic studies including: upper gi series; barium enema (single and double contrast); hysterosalpingography; urodynamics; modified (video) barium swallow; and biliary tract examinations.
4. Perform abscessograms and fistulograms.

**Patient Care:**
1. Protect patient confidentiality
2. Always introduce yourself and assess the patient’s understanding of why a study is being performed
3. Explain clearly how the procedure will be performed and ask if the patient has any questions about the exam before you begin
4. Demonstrate an appropriate, professional and compassionate demeanor toward patients
5. Adhere to institutional patient safety protocols, such as “time outs”

Practice-based learning and improvement:
1. Apply knowledge to new situations
2. Demonstrate initiative in correcting errors in interpretation and reporting
3. Demonstrate application of outside reading to daily practice

Communication and Interpersonal skills:
1. Senior residents will take on increasing communication duties including contacting referring physicians with urgent or unexpected results
2. Concise and clear reports
3. Correct identification of lesion location
4. Concordance between lesion descriptors and assessments
5. Communicate effectively with patients
6. Senior residents will take on increasing responsibility for preparing teaching conferences
7. Senior residents will take on additional duties consulting with referring physicians about studies performed.
8. Senior residents will take an active role in mentoring junior residents on rotation

Professionalism:
1. Demonstrate respect for patients and all members of the health care team
2. Respect patient confidentiality
3. Present oneself as a professional in appearance and communication
4. Demonstrate a responsible work ethic with regard to work assignments

Systems-based practice:
1. Work effectively in various settings within the abdominal imaging section
2. Able to use hospital-based systems to communicate effectively with other departments for patient care
3. Understanding of hospital-based guidelines for communicating positive findings
4. Participate in interdisciplinary discussions and conferences with surgery, oncology, and pathology when practicable
5. Understanding of population based and individual cost-benefit analysis in managing abdominal imaging findings

Patient Care:
1. Protect patient confidentiality
2. Always introduce yourself and assess the patient’s understanding of why a study is being performed
3. Explain clearly how the procedure will be performed and ask if the patient has any questions about the exam before you begin
4. Demonstrate an appropriate, professional and compassionate demeanor toward patients
5. Adhere to institutional patient safety protocols, such as “time outs”

**Practice-based learning and improvement:**
1. Apply knowledge to new situations
2. Demonstrate initiative in correcting errors in interpretation and reporting
3. Demonstrate application of outside reading to daily practice

**Communication and Interpersonal skills:**
1. Concise and clear reports
2. Correct identification of lesion location
3. Concordance between lesion descriptors and assessments
4. Contact referring physician on all positive examinations or need for additional imaging
5. Communicate effectively with patients

**Professionalism:**
1. Demonstrate respect for patients and all members of the health care team
2. Respect patient confidentiality
3. Present oneself as a professional in appearance and communication
4. Demonstrate a responsible work ethic with regard to work assignments

**Systems-based practice:**
1. Work various settings within the abdominal imaging section
2. Use hospital-based systems to communicate effectively with other departments for patient care
3. Understanding of hospital-based guidelines in communicating positive findings
4. Participate in interdisciplinary discussions and conferences with surgery, oncology, and pathology when practicable
5. Understanding of population based and individual cost-benefit analysis in managing positive imaging findings

**Regularly scheduled didactic educational experiences:**

Didactic sessions and case-based conferences on a variety of topics in gastrointestinal and genitourinary radiography and fluoroscopy are incorporated into a four week block each year covering abdominal imaging and intervention. In addition, these topics are also covered intermittently over the course of the entire year in daily morning teaching sessions as part of the abdominal CT and MRI rotations.

Weekly interdisciplinary conferences are also held on a variety of topics which incorporate imaging of the gastrointestinal and genitourinary tracts according to the following schedule:

Tuesdays 12-1 pm, every other week: **Inflammatory Bowel Disease**, Joint conference with the Departments of Radiology, Gastroenterology, Colorectal Surgery, and Pathology
Wednesdays 8-9 am, weekly: **GU Conference***, Joint conference with the Departments of Radiology, Urology, and Pathology

Fridays 12-1 pm, weekly: **Pancreas Conference**, Joint conference with the Departments of Radiology, Gastroenterology, General Surgery, and Pathology

* Junior resident on the fluoroscopy rotation prepares these cases in coordination with the pathology fellow on service

**Delineation of trainee responsibilities for patient care, progressive responsibility for patient management, and supervision of trainees over the continuum of the program:**

In the first rotation through GI/GU fluoroscopy training, residents will be instructed in how to interpret radiography and how to perform basic fluoroscopic exams of the gastrointestinal and genitourinary tracts such as esophagrams, modified barium esophagrams, upper GI series, small bowel follow through exams, barium enemas, hysterosalpingography, and voiding cystourethrography. They will at first observe the attending physician communicating with the patient and performing the exam, then they will progress to doing so themselves with direct supervision by staff during performance of the first few of each type of exam. Studies will be interpreted together with the attending radiologist at a viewing workstation. As trainees gain competency towards the middle of the first rotation, they will perform basic exams independently and more complicated exams under the tutelage of an upper year resident. On the second and third rotations, the residents will gain further experience in performing common exams and learn more complex examinations such as abscessograms, double contrast barium enemas, and retrograde urethrogramgrams, again initial by watching, then being directly supervised, and finally performing the exams independently. Third and fourth year radiology residents are expected to be able to mentor first and second year residents during fluoroscopy procedures, showing a level of understanding that allows one to teach the procedure to someone less experienced. In addition, by the last rotation in fluoroscopy, residents should have the knowledge, experience, and confidence to be able to communicate critical results to referring clinicians and to provide effective consultative services for imaging requests independently.