

## **Fluoroscopy (First Year, First Block)**

This rotation involves interpretation of abdominal radiographs, performance and interpretation of contrast fluoroscopy studies of the gastrointestinal and urinary tracts, and ERCP interpretation.

### **Patient Care**

#### Goal

Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents are expected to:

#### Knowledge Objectives:

- (1) Recognize the signs of life-threatening conditions on abdominal radiographs (extra-luminal gas, bowel obstruction, abscess),
- (2) Differentiate the physical properties of iodinated contrast media and barium contrast agents, including their indications and contraindications,
- (3) Discuss the classification, symptoms, and signs of contrast reactions and the clinical management including appropriate use of pharmacologic agents and their mode of administration and doses,
- (4) Understand the pre-medication regimen for contrast sensitive patients including drugs, doses, and dose scheduling,
- (5) Discuss indications, contraindications, and dosing of glucagon,
- (6) Differentiate between limited and complete IVU examinations, and
- (7) Discuss the current indications for IVU, VCU, Cystogram, RUG and HSG examinations.
- (8) Perform and Interpret basic GI Fluoro examinations including upper and lower GIs and Esophageal examinations and Swallowing Studies (both and single and contrast examinations).
- (9) Perform and Interpret hysterosalpingograms (HSG).
- (10) Interpret basic imaging for support of ERCP.

#### Skill Objectives:

- (1) Screen patients who are at risk from injection of intravascular radiographic contrast materials,
- (2) Provide emergency treatment for adverse reactions to intravenous contrast material,
- (3) Become facile with PACs and utilize available information technology to manage patient information in HIPAA compliant fashion,
- (4) Follow conventional fluoroscopy protocols of the urinary tract (intravenous urogram, nephrostogram, retrograde urethrogram, voiding cystourethrogram, cystogram, and hystersalpingograms, and cholangiograms,
- (5) Perform routine esophagram, modified barium swallow, UGI, small bowel and enema examinations;
- (6) Always adhere to ALARA radiation principle, and
- (7) Provide concise, accurate reports on studies with supervision.

#### Behavior and Attitude Objectives:

- (1) Work with the health care team in a professional manner to provide patient centered care, and

(2) Notify referring clinician for urgent, emergent, or unexpected findings, and document in dictation.

## **Medical Knowledge**

### Goal

Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care. Residents are expected to:

### Knowledge Objectives:

- (1) Identify relevant anatomic structures on contrast studies, and
- (2) Diagnose more common pathologic conditions in the abdomen and pelvis and understand their pathophysiology.

### Skill Objectives:

- (1) Accurately perform and interpret all basic GI contrast studies, including Esophagus, UGI, LGI,
- (2) Accurately interpret typical ERCP studies, and
- (3) Accurately interpret common GU pathology on routine studies including IVU, VUC, Cystogram, RUG and basic findings on HSG's.

### Behavior and Attitude Objectives:

- (1) Recognize limitations of personal competency and ask for guidance when appropriate.

## **Practice-Based Learning and Improvement**

### Goal

Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning. Residents are expected to develop skills and habits to be able to:

### Knowledge Objectives:

- (1) Assess conventional radiographs and fluoroscopy images for quality and suggest methods of improvement.

### Skill Objectives:

- (1) Demonstrate independent self-study using various resources including texts, journals, teaching files, and other resources on the internet,
- (2) Facilitate the learning of students and other health care professionals.

### Behavior and Attitude Objectives:

- (1) Incorporate formative feedback into daily practice, positively responding to constructive criticism, and
- (2) Follow-up interesting or difficult cases without prompting and share this information with appropriate faculty and fellow residents.

## **Systems Based Practice**

### Goal

Residents must demonstrate an awareness of, and responsiveness to, the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. Residents are expected to:

#### Knowledge Objectives:

(1) Understand how their image interpretation affects patient care.

#### Skill Objectives:

(1) Provide accurate and timely interpretations to decrease length of hospital and emergency department stay,

(2) Appropriately notify the referring clinician if there are urgent or unexpected findings and document such without being prompted; and

(3) Practice using cost effective use of time and support personnel.

#### Behavior and Attitude Objectives:

(1) Advocate for quality patient care in a professional manner, particularly concerning imaging utilization issues.

## **Professionalism**

### Goal

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents are expected to demonstrate:

#### Knowledge Objectives:

(1) Understanding of the need for respect for patient privacy and autonomy, and

(2) Understanding of their responsibility for the patient and the service, including arriving in the reading room promptly each day, promptly returning to the reading room after conferences, completing the work in a timely fashion, and not leaving at the end of the day until all work is complete. If the resident will be away from a service (for time off, meeting, board review, etc.), this must be arranged in advance with the appropriate faculty.

#### Skill Objectives:

(1) Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation, and

(2) Respect, compassion, integrity, and responsiveness to patient care needs that supersede self-interest.

## **Interpersonal and Communication Skills**

### Goal

Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and professional associates. Residents are expected to:

#### Knowledge Objectives:

(1) Know the importance of accurate, timely, and professional communication.

**Skill Objectives:**

- (1) Produce concise and accurate reports on most examinations, and
- (2) Communicate effectively with physicians, other health professionals.

**Behavior and Attitude Objectives:**

- (1) Work effectively as a member of the patient care team.

## **Fluoroscopy (Second Year, Second Block)**

This rotation involves interpretation of abdominal radiographs, performance and interpretation of contrast fluoroscopy studies of the gastrointestinal and urinary tracts, and ERCP interpretation.

### **Patient Care**

#### Goal

Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents are expected to:

#### Knowledge Objectives:

- (1) Recognize the signs of life-threatening conditions on abdominal radiographs (extra-luminal gas, bowel obstruction, abscess),
- (2) Differentiate the physical properties of iodinated contrast media and barium contrast agents, including their indications and contraindications,
- (3) Discuss the classification, symptoms, and signs of contrast reactions and the clinical management including appropriate use of pharmacologic agents and their mode of administration and doses,
- (4) Understand the pre-medication regimen for contrast sensitive patients including drugs, doses, and dose scheduling,
- (5) Discuss indications, contraindications, and dosing of glucagon,
- (6) Differentiate between limited and complete IVU examinations, and
- (7) Discuss the current indications for IVU, VCU, Cystogram, RUG and HSG examinations.
- (8) Perform and Interpret basic GI Fluoro examinations including upper and lower GIs and Esophageal examinations and Swallowing Studies (both and single and contrast examinations).
- (9) Perform and Interpret hysterosalpingograms (HSG).
- (10) Interpret basic imaging for support of ERCP.
- (11) Recognize the more subtle findings like pneumatosis or gaseous distension on conventional abdominal radiographs,
- (12) Recognize the more subtle findings like pneumatosis or gaseous distension on conventional abdominal radiographs,
- (13) Accurately prescribe contrast agents in more complex fluoroscopy cases, and
- (14) Describe postoperative changes of urinary tract including renal transplantation and urinary diversions (including ileal conduit, orthotopic neobladder and other bladder replacement) and appropriate diagnostic evaluation.

#### Skill Objectives:

- (1) Perform urinary and gastrointestinal tract contrast procedures in more complex patients and post-operative patients, including pouchogram, fistulogram, cholangiograms, and conduitogram examinations,
- (2) Always adhere to ALARA radiation principle, and
- (3) Provide concise, accurate reports on all studies, including more difficult post-operative cases.

#### Behavior and Attitude Objectives:

- (1) Work with the health care team in a professional manner to provide patient-centered care, with increasing responsibility in providing consultations, and

(2) Notify referring clinician for urgent, emergent, or unexpected findings, and document in dictation.

(3) Work closely with assigned faculty member to complete the daily workload of fluoroscopic examinations, as well as, all abdominal films for both GI and GU indications, all IVPs, all urology plain films including cystograms and loopograms for example, and the C-arm fluoroscopy list performed outside the radiology department. Any critical or reportable finding should be reported to the originating service and properly documented.

## **Medical Knowledge**

### Goal

Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care. Residents are expected to:

### Knowledge Objectives:

(1) Diagnose more advanced pathologic conditions in the abdomen and pelvis and understand their pathophysiology.

### Skill Objectives:

(1) Accurately interpret most contrast fluoroscopy studies, and  
(2) Accurately interpret all GU studies, including nephrostograms (antegrade pyelography) and conduit/pouchograms.

### Behavior and Attitude Objectives:

(1) Recognize limitations of personal competency and ask for guidance when appropriate.

## **Practice-Based Learning and Improvement**

### Goal

Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning. Residents are expected to develop skills and habits to be able to:

### Knowledge Objectives:

(1) Assess conventional radiographs and fluoroscopy images for quality and suggest methods of improvement, without being prompted.

### Skill Objectives:

(1) Demonstrate independent self-study using various resources including texts, journals, teaching files, and other resources on the internet,  
(2) Present at least one patient case at weekly GI Conference, and  
(3) Facilitate the learning of students and other health care professionals.

### Behavior and Attitude Objectives:

(1) Incorporate formative feedback into daily practice, positively responding to constructive criticism, and

(2) Follow-up interesting or difficult cases without prompting and share this information with appropriate faculty and fellow residents.

### **Systems Based Practice**

#### Goal

Residents must demonstrate an awareness of, and responsiveness to, the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care. Residents are expected to:

#### Knowledge Objectives:

(1) Understand how their image interpretation affects patient care.

#### Skill Objectives:

- (1) Provide accurate and timely interpretations to decrease length of hospital and emergency department stay,
- (2) Appropriately notify the referring clinician if there are urgent or unexpected findings and document such without being prompted; and
- (3) Practice using cost effective use of time and support personnel.

#### Behavior and Attitude Objectives:

(1) Advocate for quality patient care in a professional manner, particularly concerning imaging utilization issues.

### **Professionalism**

#### Goal

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents are expected to demonstrate:

#### Knowledge Objectives:

- (1) Understanding of the need for respect for patient privacy and autonomy, and
- (2) Understanding of their responsibility for the patient and the service, including arriving in the reading room promptly each day, promptly returning to the reading room after conferences, completing the work in a timely fashion, and not leaving at the end of the day until all work is complete. If the resident will be away from a service (for time off, meeting, board review, etc.), this must be arranged in advance with the appropriate faculty.

#### Skill Objectives:

- (1) Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation, and
- (2) Respect, compassion, integrity, and responsiveness to patient care needs that supersede self-interest.

### **Interpersonal and Communication Skills**

#### Goal

Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with patients, their families, and professional associates. Residents are expected to:

**Knowledge Objectives:**

(1) Know the importance of accurate, timely, and professional communication.

**Skill Objectives:**

(1) Produce concise and accurate reports on all examinations, and

(2) Communicate effectively with physicians, other health professionals.

**Behavior and Attitude Objectives:**

(1) Work effectively as a member of the patient care team.

### **Fluoroscopy (Third Year and beyond, Third Block on)**

This rotation involves interpretation of abdominal radiographs, performance and interpretation of contrast fluoroscopy studies of the gastrointestinal and urinary tracts, and ERCP interpretation. The resident is able to perform independently based on demonstration of clinical competence in the previous rotation and read-out with the supervising faculty. Given this level of competence, this resident is able to teach lower-level residents and medical students.

### **Patient Care**

#### **Goal**

Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Residents are expected to:

#### **Knowledge Objectives:**

- (1) Recognize the signs of life-threatening conditions on abdominal radiographs (extra-luminal gas, bowel obstruction, abscess),
- (2) Differentiate the physical properties of iodinated contrast media and barium contrast agents, including their indications and contraindications,
- (3) Discuss the classification, symptoms, and signs of contrast reactions and the clinical management including appropriate use of pharmacologic agents and their mode of administration and doses,
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- (5) Discuss indications, contraindications, and dosing of glucagon,
- (6) Differentiate between limited and complete IVU examinations, and
- (7) Discuss the current indications for IVU, VCU, Cystogram, RUG and HSG examinations.
- (8) Perform and Interpret basic GI Fluoro examinations including upper and lower GIs and Esophageal examinations and Swallowing Studies (both and single and contrast examinations).
- (9) Perform and Interpret hysterosalpingograms (HSG).
- (10) Perform and Interpret basic imaging for support of ERCP.
- (11) Recognize the more subtle findings like pneumatosis or gaseous distension on conventional abdominal radiographs,
- (12) Recognize the more subtle findings like pneumatosis or gaseous distension on conventional abdominal radiographs,
- (13) Accurately prescribe contrast agents in more complex fluoroscopy cases, and
- (14) Describe postoperative changes of urinary tract including renal transplantation and urinary diversions (including ileal conduit, orthotopic neobladder and other bladder replacement) and appropriate diagnostic evaluation.

#### **Skill Objectives:**

- (1) Perform urinary and gastrointestinal tract contrast procedures in more complex patients and post-operative patients, including pouchogram, fistulogram, cholangiograms, and conduitogram examinations,
- (2) Always adhere to ALARA radiation principle, and
- (3) Provide concise, accurate reports on all studies, including more difficult post-operative cases.

#### Behavior and Attitude Objectives:

- (1) Work with the health care team in a professional manner to provide patient-centered care, with increasing responsibility in providing consultations, and
- (2) Notify referring clinician for urgent, emergent, or unexpected findings, and document in dictation.
- (3) Work closely with assigned faculty member to complete the daily workload of fluoroscopic examinations, as well as, all abdominal films for both GI and GU indications, all IVPs, all urology plain films including cystograms and loopograms for example, and the C-arm fluoroscopy list performed outside the radiology department. Any critical or reportable finding should be reported to the originating service and properly documented.

### **Medical Knowledge**

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#### Knowledge Objectives:

- (1) Diagnose more advanced pathologic conditions in the abdomen and pelvis and understand their pathophysiology.

#### Skill Objectives:

- (1) Accurately interpret most contrast fluoroscopy studies, and
- (2) Accurately interpret all GU studies, including nephrostograms (antegrade pyelography) and conduit/pouchograms.

#### Behavior and Attitude Objectives:

- (1) Recognize limitations of personal competency and ask for guidance when appropriate.

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Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning. Residents are expected to develop skills and habits to be able to:

#### Knowledge Objectives:

- (1) Assess conventional radiographs and fluoroscopy images for quality and suggest methods of improvement, without being prompted.

#### Skill Objectives:

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#### Behavior and Attitude Objectives:

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#### Knowledge Objectives:

- (1) Understand how their image interpretation affects patient care.

#### Skill Objectives:

- (1) Provide accurate and timely interpretations to decrease length of hospital and emergency department stay,
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#### Skill Objectives:

- (1) Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation, and
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**Knowledge Objectives:**

(1) Know the importance of accurate, timely, and professional communication.

**Skill Objectives:**

(1) Produce concise and accurate reports on all examinations, and

(2) Communicate effectively with physicians, other health professionals.

**Behavior and Attitude Objectives:**

(2) Work effectively as a member of the patient care team.