

## **Ultrasound (First Year)**

This rotation involves interpretation of basic sonography of the abdomen, pelvis, thyroid, scrotum, and obstetrical cases. Also, introduction to color and spectral Doppler studies of carotid arteries, upper and lower extremity and abdominal vasculature. Most ultrasound-guided aspirations and biopsies will be performed on the ultrasound rotation and others on the interventional rotation.

### **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:**

- Be familiar with all departmental US protocols found in reading room binder, and
- Know the key types of ultrasound examinations, see below
- Understand indications, contraindications, and patient preparation for sonographically-guided procedures.

#### **Skill Objectives:**

- Become facile with Scanning, using PACS and utilizing available information technology to manage patient information,
- Observe and assist in US-guided aspirations and biopsies under direction of faculty
- Perform basic sonography with minimal assistance, including US of the chest, abdomen, pelvis, and lower extremities, and
- Coordinate activities in the reading room, including assisting on providing direction for the technologists, consultation for other clinicians, and answering the phone.

#### **Behavior and Attitude Objectives:**

- Work with the health care team in a professional manner to provide patient-centered care.
- 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:**

- Understand clinical application of ultrasound,
- Identify relevant anatomic structures on US images, and
- Diagnose common pathologic conditions in the abdomen and pelvis and understand their pathophysiology.
- Understand the elements of key ultrasound examinations including gallbladder, liver, renal, pelvic, FAST for ER, chest for fluid, extremity for DVT. The goal at this level is to begin to understand the basics and what it takes to master them.

**Skill Objectives:**

- Perform basic sonography with minimal assistance, including US of the chest for fluid, abdomen for gallbladder or liver disease, pelvis for fibroids or ectopic, and lower extremities for thrombosis.

**Behavior and Attitude Objectives:**

- 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:**

- Assess US images for quality and suggest methods of improvement.

**Skill Objectives:**

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

**Behavior and Attitude Objectives:**

- Incorporate formative feedback into daily practice, and
- 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:**

- Understand how their image interpretation affects patient care.

**Skill Objectives:**

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

**Behavior and Attitude Objectives:**

- 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:**

- Understanding of the need for respect for patient privacy and autonomy, and
- 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:**

- 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
- Professionalism and compassion while obtaining informed consent in all patients undergoing US-guided procedure.

**Behavior and Attitude Objectives:**

- 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:**

- Know the importance of accurate, timely, and professional communication.

**Skill Objectives:**

- Produce concise and accurate reports on most examinations,
- Communicate effectively with physicians, other health professionals, and
- Obtain informed consent with the utmost professionalism.

**Behavior and Attitude Objectives:**

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

## **Ultrasound (Second Year)**

This rotation involves performance and interpretation of basic sonography of the abdomen, pelvis, thyroid, scrotum, and obstetrical cases. Also, introduction to color and spectral Doppler studies of carotid arteries, upper and lower extremity and abdominal vasculature. Most ultrasound-guided aspirations and biopsies will be performed on the ultrasound rotation and others on the interventional rotation.

### **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:**

- Be familiar with all departmental US protocols found in reading room binder, and
- Know the key types of ultrasound examinations, see below
- Understand indications, contraindications, and patient preparation for sonographically-guided procedures.

#### **Skill Objectives:**

- Become facile with Scanning, using PACS and utilizing available information technology to manage patient information,
- Observe and assist in US-guided aspirations and biopsies under direction of faculty or fellow,
- Perform basic sonography with minimal assistance, including US of the chest, abdomen, pelvis, and lower extremities, and
- Coordinate activities in the reading room, including assisting on providing direction for the technologists, consultation for other clinicians, and answering the phone.

#### **Behavior and Attitude Objectives:**

- Work with the health care team in a professional manner to provide patient-centered care.
- 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:**

- Understand clinical application of ultrasound,
- Identify relevant anatomic structures on US images, and
- Diagnose common pathologic conditions in the abdomen and pelvis and understand their pathophysiology.
- Understand the elements of key ultrasound examinations including gallbladder, liver, renal, pelvic, FAST for ER, chest for fluid, extremity for DVT. The goal at this level is to begin to understand the basics and what it takes to master them.

**Skill Objectives:**

- Perform basic sonography with minimal assistance, including US of the chest for fluid, abdomen for gallbladder or liver disease, pelvis for fibroids or ectopic, and lower extremities for thrombosis.

**Behavior and Attitude Objectives:**

- 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:**

- Assess US images for quality and suggest methods of improvement.

**Skill Objectives:**

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

**Behavior and Attitude Objectives:**

- Incorporate formative feedback into daily practice, and
- 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:**

- Understand how their image interpretation affects patient care.

**Skill Objectives:**

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

**Behavior and Attitude Objectives:**

- 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:**

- Understanding of the need for respect for patient privacy and autonomy, and
- 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 and/or fellow.

**Skill Objectives:**

- 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
- Professionalism and compassion while obtaining informed consent in all patients undergoing US-guided procedure.

**Behavior and Attitude Objectives:**

- 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:**

- Know the importance of accurate, timely, and professional communication.

**Skill Objectives:**

- Produce concise and accurate reports on most examinations,
- Communicate effectively with physicians, other health professionals, and
- Obtain informed consent with the utmost professionalism.

**Behavior and Attitude Objectives:**

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



## **Ultrasound (Third/Fourth Year)**

This rotation involves performance and interpretation of intermediate sonography of the abdomen, pelvis, thyroid, scrotum, and obstetrical cases. Also, an intermediate level of color and spectral Doppler studies of carotid arteries, upper and lower extremity and abdominal vasculature. Most ultrasound-guided aspirations and biopsies will be performed on the ultrasound rotation and others on the interventional rotation.

### **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:**

- Describe more common sonographic artifacts.
- List indications, contraindications, and patient preparation for sonographically-guided procedures.

#### **Skill Objectives:**

- Become facile with scanning and utilize available information technology to manage patient information,
- Perform US-guided aspirations and biopsies with occasional help from faculty, and
- Coordinate activities in the reading room, including providing direction for the technologists, consultation for other clinicians, and answering the phone.

#### **Behavior and Attitude Objectives:**

- Work with the health care team in a professional manner to provide patient-centered care, and
- 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:**

- Understand clinical application of ultrasound,
- Identify relevant anatomic structures on US images, and
- Diagnose all pathologic conditions in the abdomen and pelvis and understand their pathophysiology.

**Skill Objectives:**

- Accurately interpret all US examinations, and
- Begin to perform more complex sonographic examinations such as US of the carotid and visceral arteries, upper extremity arteries and veins, scrotum, and gravid uterus.

**Behavior and Attitude Objectives:**

- 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:**

- Assess US images for quality and suggest methods of improvement.

**Skill Objectives:**

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

**Behavior and Attitude Objectives:**

- Incorporate formative feedback into daily practice, and
- 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:**

- Understand how their image interpretation affects patient care.

**Skill Objectives:**

- Provide accurate and timely interpretations to decrease length of hospital and emergency department stay,

- Appropriately notify the referring clinician if there are urgent or unexpected findings and document such without being prompted; and
- Practice using cost effective use of time and support personnel.

**Behavior and Attitude Objectives:**

- 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:**

- Understanding of the need for respect for patient privacy and autonomy, and
- 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:**

- 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
- Professionalism and compassion while obtaining informed consent in all patients undergoing US-guided procedure.

**Behavior and Attitude Objectives:**

- 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:**

- Know the importance of accurate, timely, and professional communication.

**Skill Objectives:**

- Produce concise and accurate reports on most examinations,

- Communicate effectively with physicians, other health professionals, and
- Obtain informed consent with the utmost professionalism.

**Behavior and Attitude Objectives:**

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