

Department of Anesthesiology: Regional Anesthesiology and Acute Pain Medicine
Fellowship

Curriculum for Point of Care Ultrasound Elective Rotation

Description of Educational Experience

Fellows will work closely with anesthesiologists and intensive care unit intensivists learning about and performing point-of-care ultrasound in the perioperative setting, including in the preoperative holding area, intraoperatively, and postoperatively in the intensive care unit. Fellows will have access to the SonoSim program within the WVU Simulation Lab to practice basic skills for sonography. Reference materials will be compiled, along with a high yield handout for immediate bedside referencing. This is a 2-week elective rotation. A post-exam will be conducted at the conclusion of this rotation. This rotation will be performed WVU's Ruby Memorial Hospital.

The fellow will be evaluated daily through direct observation and daily feedback provided by anesthesiology faculty and intensivists. The fellow will be evaluated at the end of the rotation by the attending anesthesiologists and intensivists and will, in turn, evaluate each faculty member as well, both by E*Value. Ad hoc evaluations may also be performed more frequently using E*Value if desired. The fellow will evaluate the rotation and lectures at the end of the 2 weeks using E*Value.

Daily scanning will be conducted using the Butterfly iQ ultrasound probe. The images obtained from these scans will be uploaded confidentially to a HIPAA-compliant cloud server, which will be reviewed by the rotation coordinator. Scans will be reviewed and discussed with the fellow daily. Expectations will be to perform 8 to 10 ultrasound exams per day. 1 exam is defined as 4 cardiac windows plus either a lung, abdominal, or vascular examination. Exceptions are FAST exams, which will count altogether as 1 exam. Additional patients with interesting ultrasound findings (complicated pleural effusions, abdominal masses, etc.) will be noted and compiled the night before by the rotation coordinator and given to the fellows. Sonographers from the echocardiography lab are available for shadowing on Tuesdays and Thursdays of each week. The fellows will participate at least once but are encouraged to go as many times as they would like.

1. Patient Care and Procedural Skills

Goal

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

- Demonstrate proficiency in the following of standards for patient care and established guidelines and procedures for patient safety, error reduction, and improved patient outcomes.
- Demonstrate pre-operative patient evaluation and optimization of clinical status prior to a surgical procedure with the application of point of care ultrasound

Department of Anesthesiology: Regional Anesthesiology and Acute Pain Medicine
Fellowship

- Demonstrate proficiency in interpretation of point of care ultrasound data with application of this data to guide clinical management
- Understand the limitations of point of care ultrasound and when to fall back onto other diagnostic modalities

2. Medical Knowledge

Goal

Fellows 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. Fellows are expected to:

- Demonstrate understanding of which ultrasound views are optimal for specific organ pathology
- Demonstrate understanding of the ergonomics and technique of correct ultrasound technique, including correct positioning for patient and sonographer comfort
- Demonstrate understanding with cardiac, pulmonary, abdominal, vascular and airway pathology using sonographic techniques
- Understand and demonstrate the core principles of a PoCUS examination, including its limitations
- Understand and demonstrate how a FAST and e-FAST examination is performed
- Demonstrate proficiency in ultrasound physics in the context of point of care ultrasound
- Demonstrate an understanding of lung ultrasound
- Demonstrate when to rely on further examination or additional expertise due to equivocal results on ultrasound examination
- Demonstrate proficiency with the anatomy and physiology of the structures being imaged
- Demonstrate understanding of the importance of postoperative ultrasound imaging
- Demonstrate proficiency in the principles of using ultrasound to guide volume resuscitation but also understanding the limitations of such techniques
- Demonstrate more challenging vascular access techniques using the ultrasound, including knowledge of various vascular access sites with their own unique advantages and pitfalls

3. Practice- Based Learning and Improvement

Goal

The fellow 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. By the end of the rotation, the fellow will be expected to:

Department of Anesthesiology: Regional Anesthesiology and Acute Pain Medicine
Fellowship

- Demonstrate ability to identify opportunities to improve personal clinical practices using evidence-based guidelines
- Demonstrate ability to analyze and modify practice based on self-directed learning
- Demonstrate proficiency in actively promoting education of all team members and other providers regarding clinical practice and optimizing patient care

4. Interpersonal and Communication Skills

Goal

The fellow must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. By the end of the rotation the fellow will be expected to:

- Demonstrate willingness and understanding of the importance of disclosing medical errors or complications to patients and/or families
- Demonstrate management of patient and family conflicts in complex situations (e.g., cultural factors, end-of-life issues), including in communication with persons of different socioeconomic and cultural backgrounds
- Demonstrate proficiency in effectively participating in multidisciplinary communication

5. Professionalism

Goal

Fellows must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. By the end of the rotation, the fellow will be expected to:

- Demonstrate leadership in serving as a resource to other trainees such as residents and medical students in addressing professional practice and its impact on well-being
- Demonstrate an appreciation of the importance of effective communication at all levels
- Demonstrate an understanding of the importance of respectful and culturally sensitive interactions with patients and colleagues
- Demonstrate ability to provide constructive feedback to other colleagues in the patient care team to enhance patient care
- Demonstrate ability to correlate feedback with self-reflection to enhance patient care.
- Demonstrate a desire to teach other trainees such as residents and medical students the need to balance patient, personal, institutional, and societal needs when providing healthcare

Department of Anesthesiology: Regional Anesthesiology and Acute Pain Medicine
Fellowship

- Demonstrates the ability to balance personal, institutional, and societal goals with professional responsibilities

6. Systems Based Practice

Goal

Fellows 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. By the end of the rotation, the fellow will be expected to:

- Demonstrate participating in-patient safety or quality improvement efforts, as well as identifying opportunities to improve practice to optimize patient care
- Demonstrate recognition of opportunities to reduce total costs of care and improve efficiency of clinical care without compromising patient outcomes