Kaweah Health: GME Ultrasound G & O, Anesthesiology

Overview

The goal of the point of care ultrasound (POCUS) curriculum is to provide a practical and didactic experience to enable anesthesiology residents to develop competency in POCUS applications relevant to perioperative and acute care practice. Residents will develop competency in ultrasound physics, image generation, acquisition, interpretation, and clinical integration of focused ultrasound findings. This curriculum is designed in alignment with ACGME Anesthesiology Milestones and with the American Society of Anesthesiologists consensus recommendations supporting diagnostic POCUS by adequately trained anesthesiologists. For complete details on all following items including clinical, didactics, requirements, methods, and resources, refer to www.kaweahem.com/ultrasound.

By completion of the required POCUS experience, anesthesiology residents will be able to:

- Patient Care (PC): Select and perform focused POCUS examinations relevant to perioperative care, obtain interpretable images, and integrate findings into immediate bedside clinical decision making with appropriate supervision.
- Medical Knowledge (MK): Describe basic ultrasound physics, probe selection, machine controls, artifacts, and normal versus common pathologic findings for perioperative cardiac, pulmonary, abdominal, gastric, and airway ultrasound applications.
- Interpersonal and Communication Skills (ICS): Communicate POCUS findings, uncertainty, and limitations clearly to supervising physicians and the care team and document examinations appropriately.
- Professionalism (PROF): Use POCUS within the scope of training, recognize limitations, seek additional consultation or formal imaging when indicated, and follow documentation and quality assurance processes.
- Practice-Based Learning and Improvement (PBLI): Incorporate direct observation, image review, simulation, and QA feedback to improve image acquisition, interpretation, and clinical application over time.
- Systems-Based Practice (SBP): Use POCUS to improve perioperative efficiency, procedural safety, and clinical decision making while adhering to institutional workflow for study review, documentation, and image archiving.

Residents should, upon completion of this rotation, feel comfortable applying their ultrasound skills in the ICU, where a Sonosite PX unit is already in place and Sonosite Synchronicity is anticipated to be available by 3rd quarter 2026. They should understand the practical operation of the ultrasound machine and the Sonosite Synchronicity workflow sufficiently to perform focused studies, submit them for review, document findings, and archive completed examinations in the appropriate ICU clinical workflow.

Scheduling

- Scanning shifts will be scheduled every weekday except for the required Thursday afternoon image review and during anesthesiology conference time.

- Time off request must be approved by both the Anesthesiology PD and the GME ultrasound director.
- Expect to be scheduled more solo shifts, e.g. afternoon, the last three weeks of the rotation.

Anesthesia-Specific Applications

Cardiac

Residents will develop competency in the following focused cardiac applications:

- Views: Parasternal Long Axis, Parasternal Short Axis, Apical Four Chamber, Subcostal Four Chamber, and Subcostal IVC view.
- Ability to use 2D, color flow Doppler, and M-mode
- Assessment of biventricular function and gross wall motion abnormalities.
- Recognition of pericardial effusion and tamponade physiology.
- Volume status assessment, including suspected hypovolemia and response to volume therapy in the appropriate clinical context.
- Recognition of basic valvular abnormalities at a focused screening level.
- Recognition of findings that may raise concern for major aortic pathology and require urgent escalation and confirmatory imaging.
- Transesophageal echocardiogram when opportunity available

Pulmonary

Residents will develop competency in the following pulmonary applications:

- Views: Lung, pleura, diaphragm, and recognition of common artifacts including A-lines and B-lines.
- Recognition of pneumothorax, pleural effusion, and pulmonary edema.
- Use of lung ultrasound findings to support perioperative assessment of respiratory status.

Abdomen and Gastric

Residents will develop competency in the following abdominal and gastric applications:

- Views: right upper quadrant, left upper quadrant, pelvis, and gastric views.
- Recognition of the presence or absence of free fluid in focused abdominal assessment.
- Assessment of gastric content and volume in appropriately selected perioperative patients.

Airway-Related Structures

Residents will develop competency in ultrasound identification of the following airway-related structures:

- Trachea.
- Tracheal rings.
- Cricoid cartilage.
- Cricothyroid membrane.
- Thyroid cartilage.
- Vocal cords.
- Hyoid bone.
- Epiglottis.
- Tongue.
- Esophagus.

Vascular Access Applications

- Ultrasound-guided peripheral IV placement.
- Ultrasound-guided central venous line placement.
- Ultrasound-guided arterial line placement.

Scanning Responsibilities

- Demonstrate competency in the core anesthesiology ultrasound applications by performing a minimum of 25 cardiac, pulmonary, abdominal, and airway examinations in each category, for a total case volume sufficient to support supervised competency development during the rotation.
- Average one complete exam per hour x 8 hours the first week and two exams per hour x 8 hours during weeks 2 through 4. (Complete refers to ending it by sending to the attending)
- The total number of exams required is decreased by any GME excused days off, e.g. wellness days.
- The first and last exam should be respectively within 30 minutes of the start and end of the shift.
- Know how to assign oneself, perform, interpret, document, and assign studies to the ED attending.
- Introduce yourself to all attendings and check the ED tracking board for scanning opportunities.
- Scan with the ultrasound faculty and/or fellow when they are present and with the ED patient's attending physician when they are not present. These studies will subsequently undergo QA.
- Be listed as the primary performer for at least 75% of the exams.
- For each exam, there can be multiple observers, but only the primary performer and one additional performer get credit toward their total number required for successful completion of the rotation.
- After completing a scan, use Connect Messenger to notify the attending that the exam is complete and place a brief note stating “POCUS complete” in the ED progress note.
- Maintain equipment using “CLEAR” (Clean, Locate, Energize, Augment, Remove).
- Demonstrate commitment to research by enrolling patients in any ongoing ultrasound research.

- Demonstrate familiarity with the Sonosite PX unit and Sonosite Synchronicity workflow sufficient to perform focused studies, document findings and assign them to the appropriate attending.
- Make up missed or tardy shifts at the discretion of both the ultrasound and anesthesiology program directors.

For each core application area, the resident will be able to:

- Identify relevant anatomy and sono-anatomy.
- Select the appropriate probe, preset, and machine settings for the examination being performed.
- Acquire standard views and optimize image quality with appropriate supervision.
- Distinguish normal from common pathologic findings at a focused perioperative level.
- Recognize indeterminate or concerning findings that require additional workup.

Passing Requirements for Rotation Include

- Perform 225 or more POCUS exams at the previously discussed pace.
- Attend program-specific conference days, journal clubs, and QA sessions.
- Complete the required 15 modules in the POCUS 101 course.
- Set up an account in Sim Lab BodyWorks Eve and perform exams in each topic.
- Through QA review and direct observation, demonstrate the ability to obtain interpretable images and provide appropriate focused interpretations for core anesthesiology applications.
- Demonstrate competency with the PX unit and Sonosite Synchronicity workflow by performing studies, documenting them and assigning them to the appropriate attendings.
- Successful completion of this rotation will contribute evidence toward achievement of relevant ACGME Anesthesiology Milestones in patient care, medical knowledge, communication, professionalism, practice-based learning, and systems-based practice.