Phase 2/3 Elective Description

Campus: All Campus
Elective/Experience Title: Point of Care Ultrasound "POCUS"
Location of Elective: Any campus Emergency Dept

Department: Emergency Medicine
Course Number: EMRG 9210

Preceptor(s): David Collins, MD
Period(s) Offered: Any
Number of students per period: 1 per site per period

Course Prerequisites: None
Revised Curriculum Phase(s):

Purpose: Point of care ultrasound (POCUS) can augment bed-side decision making in many fields of medicine. This course will allow medical students entering these fields to become familiar with the physics of ultrasound imaging, the techniques used to acquire the images, and the ways in which image interpretation can help the clinician better understand the patient's real-time anatomy and pathophysiology.

Objectives:

Following successful completion of this elective, the student will be able to:

1. Independently execute operation of the Butterfly IQ device linked to a smartphone or tablet. (competency 1.7, 3.6)
2. Identify normal anatomic structures within the chest, abdomen, pelvis, head, and extremities. (competency 2.3)
3. State the indications to perform an EFAST (extended focused assessment with sonography in trauma) exam. (competency 3.2, 3.3, 3.5)
4. Execute an EFAST exam by acquiring and interpreting the indicated ultrasound images. (competency 1.7, 3.5, 3.6)
5. State the indications to perform a RUSH (rapid ultrasound for shock and hypotension) exam. (competency 3.2, 3.3, 3.5)
6. Execute a RUSH exam by to acquiring and interpreting the indicated ultrasound images. (competency 1.7, 3.5, 3.6)
7. Summarize the disease processes in the chest, abdomen, pelvis, as well as skin, neuro, and musculoskeletal systems identifiable by point of care ultrasound. (competency 2.5)
8. State the sensitivities/specificities of POCUS and adopt strategies to locate pertinent information in scientific literature. (competency 1.6, 2.5)
9. Generate a presentation including a POCUS case encountered during the rotation and present the case effectively to peers and faculty. (competency 1.8)

Instructional Activities:

During this elective, the student will be involved in/experience:

1. Course text available at UNDSMHS library's "Access Medicine." a. Course Baston C.M., & Moore C, & Krebs E.A., & Dean A.J., & Panebianco N(Eds.), (2018). Pocket Guide to POCUS: Point-of-Care Tips for Point-of-Care Ultrasound. McGraw Hill. https://accessmedicinemhmedical-com.ezproxylr.med.und.edu/content.aspx?bookid=2544&sectionid=210277484

2. Obtain a Butterfly IQ portable ultrasound from the hospital Emergency Department. Ask faculty where the ultrasound is located. Use it to scan and upload de-identified images to the Butterfly portal, where QA will be performed remotely by the course preceptor. All imaged body parts must have undergone another imaging procedure of the same body part (XR, CT, US, or MRI) during the same encounter which is read by a hospital credentialed radiologist. Return the Butterfly IQ device in working order to the department at course completion.

3. Obtain and upload the following images: EFAST (10), RUSH (10), aorta (5), skin bone or soft tissue (5)

4. Weekly quality assurance/improvement with Dr. Collins regarding the images acquired during the rotation. The student will use this formative feedback to improve skills throughout the rotation.

5. Instructional videos assigned by Dr. Collins. See attached file for links that will be included in curriculum.

6. Complete the pre- and post-test examination.

7. Present one interesting POCUS case (including your images) at Emergency Medicine Case Presentation Day (the last Thursday of the rotation). Slides templated located here: https://med.und.edu/technology-resources/branding-and-templates.html.

8. Attend Mid-Clerkship Feedback Session. This virtual meeting serves as your Mid-Clerkship Feedback Session and is scheduled for the second Thursday of your Emergency Medicine rotation. The Emergency Medicine Administrative Assistant will contact you to arrange a 15-minute Zoom meeting with Dr. O'Keefe. During this session, you'll have the opportunity to both give and receive feedback on your experience in the rotation thus far.

Criteria for Grading: During and following this elective, the preceptor will:

1. Utilize the standardized UNDSMHS senior elective evaluation form.

2. By direct review of uploaded images, assess the student's ability to operate the Butterfly IQ and obtain POCUS images (objective 1, 4, 6).

3. Evaluate by direct observation the student(s)'s presentation(s) (objective 8, 9)

4. Evaluate by direct review the student's post-test of 25 questions. 75% will be required to pass (objective 2, 3, 5, 7, 8).

Remediation: In the event of remediation, the student will take a new 25 question post-test. In addition, the preceptor (Dr. Collins) will arrange to meet with the student at their main site for a hands-on skills assessment.

Criteria for Honors: In addition to the criteria above the student will do the following to obtain honors:

1. Submit case presentation in a poster format. Posters may be displayed at the ND State Trauma Conference. Preferred poster template is 48x36 UND branded poster template: https://med.und.edu/technology-resources/branding-and-templates.html.

Resources for POCUS course:

- https://www.susme.org/home/learning-modules/learning-modules/
- https://www.coreultrasound.com/rush-exam/
- https://www.coreultrasound.com/efast/