Kent Emergency Medicine
Medical Student Emergency Ultrasound Rotation

Welcome to Emergency Ultrasound for Medical Students!
Join Kent residents and Kent Hospital’s Fellowship-trained Ultrasound Director, Dr. Neal Madhani, MD, in a rotation where you will learn emergency medicine-specific ultrasound skills in the Kent Emergency Department.

Roughly half of your shifts will be dedicated to scanning patients with our Ultrasound Director and/or a senior resident. The remainder of your shifts will be emergency department clinical shifts where you will be able to utilize your ultrasound skills in real time. You will also have access to the EMSono curriculum to facilitate virtual and asynchronous learning. Your ultrasound knowledge and clinical application of ultrasound to emergency medicine will be monitored throughout your rotation, both via the EMsono platform as well as in-person scanning. At the end of your rotation, you will be provided with an EM sub-specialty rotation SLOE.

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Goals and Objectives
The emergency ultrasound rotation has been established to address all major indications for Emergency Ultrasound. The student is expected to:
1. Understand the rationale for bedside US along with the indications and contraindications.
2. Learn to use ultrasound for the bedside diagnostic evaluation of emergency medical conditions and diagnoses, resuscitation of the acutely ill or injured patient, and procedural guidance.
3. Demonstrate practical competency in emergency ultrasound. Progress will be reviewed throughout and at the end of the rotation.
4. Keep a personal log of emergency ultrasound exams. Each student should obtain approximately 100 scans over the course of a four-week rotation, or approximately 75 scans over the course of a two-week rotation. Students should log scans performed in vivo as well as during ultrasound workshops.
5. Review current emergency ultrasound literature.
6. Prepare a mini lecture (<10 minutes) on an emergency ultrasound topic to present at resident didactics.
The Emergency Ultrasound Rotation will focus on the following ACGME Core Competencies:

Patient Care: provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.

1. To appreciate the utility of ultrasound in the Emergency Department, both as a diagnostic tool and as a procedural aide, in the improvement of efficiency, patient satisfaction, and overall patient care.
2. To become competent with ultrasound as a procedural aide for the following procedures:
   a. Peripheral intravenous access
   b. Central venous access
   c. Paracentesis
   d. Arthrocentesis
   e. Abscess localization and drainage
   f. Foreign body localization and removal

Medical Knowledge: demonstrate medical knowledge about established and evolving biomedical, clinical, and cognate (e.g. epidemiological and social-behavioral) sciences and the application of this knowledge to patient care.

1. To gain a basic understanding of ultrasound physics and how images are acquired.
2. To learn image acquisition and interpretation of EM bedside US for the following studies:
   a. Aorta
   b. Cardiac
   c. E-FAST
   d. Gallbladder
   e. Lower Extremity DVT
   f. Early Obstetrical
   g. Renal/Bladder
   h. Soft Tissue
   i. Ocular
   j. RUSH
3. To critically review the EM ultrasound literature, both supporting and refuting ultrasound use in the Emergency Department.

Professionalism: demonstrate professionalism, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to a diverse patient population.
1. To obtain an appreciation for ultrasound and the invasiveness of these scans/procedures and to take the need for privacy and appropriate draping into account while performing the scans.
2. To always maintain a high level of professionalism while performing ultrasound scans/procedures.

**Interpersonal and Communication Skills:** demonstrate interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and other health professionals.

1. To learn how to explain the ultrasound scan/procedure in terminology appropriate for patients, colleagues, and consultants.

**Practice-Based Learning and Improvement:** demonstrate practice-based learning and improvement that involves investigation and evaluation of their own patient care, appraisal and assimilation of scientific evidence, and improvements in patient care.

1. To garner proficiency in ultrasound by performing multiple scans/procedures throughout the month.
   a. Each scan/procedure is different and will prepare the student for the next opportunity.
   b. Students will need to scan, scan, scan … and then scan some more.

**Systems-Based Practice:** demonstrate systems-based practice, as manifested by actions that demonstrate an awareness of, and responsiveness to, the larger context and system of health care and the ability to effectively call on system resources to provide care that is of optimal value.

1. To gain an appreciation how emergency ultrasound can greatly improve patient flow and care by giving immediate answers to clinical questions.
2. To understand ultrasound-guided procedures have greater success rates, are quicker, and are associated with improved patient satisfaction and decreased complications.
Additional Reading:

Rosen's Emergency Medicine, 9th Edition
Marx, John A., MD
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OR

Tintinalli’s Emergency Medicine, 9th edition
Tintinalli, J., MD
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With focus on the ultrasound section(s) of the following chapters:
- Multiple Trauma
- Trauma in Pregnancy
- Abdominal Aortic Aneurysm
- Pulmonary Embolism and Deep Vein Thrombosis
- Disorders of the Liver and Biliary Tract
- General Approach to the Pregnant Patient
- Emergency Ultrasound