

**Ronald Reagan UCLA Medical Center /Olive View-UCLA Medical Center Emergency Medicine Residency
Rotation Curriculum**

Rotation: **Ultrasound (PGY2)**

Site: Ronald Reagan UCLA Medical Center (RRMC)
757 Westwood Plaza
Los Angeles, CA 90095

Olive View-UCLA Medical Center (OVMC)
14445 Olive View Drive
Sylmar, CA 91324

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Schedule: Contact Dr. Partida 2 weeks prior to the start of the rotation to schedule your rotation experiences.

Description of Rotation:

The Ultrasound rotation is a 2 week rotation. The rotation expands and reinforces residents' bedside ultrasound skills. The rotation supplements daily ultrasound experience in our emergency departments and our ultrasound educational sessions.

Goals and Objectives

GOALS AND OBJECTIVES	INSTRUCTIONAL METHOD		RESOURCES	OUTCOMES	EVALUATION METHODS
	<u>Experiential</u>	<u>Didactic</u>			
		Forum			
Develop an understanding of the use and utility of US practice in the emergency room.					
1. Review the ACEP policy on Use of Ultrasound imaging by Emergency Physicians.	Residents will receive an introductory lecture at the start of the Ultrasound rotation	Lecture and PowerPoint	Partida and US Fellow	ACEP Emergency Ultrasound Guidelines Cosby, Karen, and Kendall, John Practical Guide to Emergency Ultrasound. Philadelphia: Lippincott	
2. Learn the primary indications of emergency room ultrasound.		Lecture and PowerPoint			
3. Discussed the importance of timely access to imaging. - Central line placement - Evaluation of the Hypotensive patient. - Diagnostic scans in the hemodynamically unstable trauma patient.		Lecture and PowerPoint			
Gain an understanding of the fundamentals of ultrasound transmission and image production.	Residents will participate in a practical ultrasound lab.		Partida and US Fellow		Milestone: Resident will be able to effectively orient an ultrasound image with appropriate transducer selection as well as optimize image quality. Direct observation

1. Become acquainted with the physics of ultrasound technology.		Lab				
2. Learn the difference between impedance, attenuation, and resolution.		Lecture and PowerPoint				
3. Understand the implications of reverberation, mirror , ring down, shadowing, enhancement, edge artifact, and side lode.		Lecture and PowerPoint				
4. Become acquainted with US equipment including transducer, transducer orientation, Gain, Time gain compensation, Focus, Freeze, B-mode, M-mode.		Lab				
Demonstrate the ability to effectively and efficiently obtain a FAST scan.	Residents are required to complete a minimum of 6 hours each week of bedside patient ultrasounds as well as 6 hours each week of one on one ultrasounding with an instructor.		Partida, US fellow, UCLA Attendings during trauma activations			Direct observation and image review
1. Become familiar with normal ultrasound anatomy associated with the FAST scan in the four views: Perihepatic, perisplenic, Pelvic, and Pericardial.		Lecture, PowerPoint, Lab				
2. Learn the appropriate transducer orientation for each view of the FAST scan.		Lab				

3. Become acquainted with the pertinent landmarks of the perihepatic views: liver, right kidney, Morison's pouch.		Lecture, PowerPoint, Lab				
4. Become acquainted with the pertinent landmarks of the perisplenic views: spleen and left kidney.		Lecture, PowerPoint, Lab				
5. Become acquainted with the pertinent landmarks of the pelvic views: bladder, uterus, and possible foley identification.		Lecture, PowerPoint, Lab				
6. Become acquainted with the pertinent landmarks of the pericardial views: right and left ventricle, left and right atrium, liver, and pericardial markings.		Lecture, PowerPoint, Lab				
7. Understand the fluid flow patterns in the abdomen and pelvis.		Lecture, PowerPoint, Lab				
8. Learn to identify free fluid in each of the four FAST scan views.		Practice on patients				
9. Become familiar with the sonographic evidence associated with cardiac tamponade.		Practice on patients				
10. Become acquainted with common artifacts and pitfalls commonly occurring during the FAST scan.	Residents will participate in 3 hours of ultrasound image review each week.	Lecture, PowerPoint, Lab, Practice on patients, and Image Review				

Demonstrate the ability to effectively perform a liver, gallstone and biliary tree ultrasound.	Residents are required to complete a minimum of 6 hours each week of bedside patient ultrasounds as well as 6 hours each week of one on one ultrasounding with an instructor.		Partida, US Fellow and both UCLA and Olive View attendings		Milestone: Resident will be able to successfully log normal gallbladder, cholelithiasis, cholecystitis, and biliary disease.	Direct observation and image review
1. Understand the clinical applications for ultrasound in the emergency room for detecting gallstones, diagnosing cholecystitis, imaging biliary obstruction and visualizing ascites.		Lecture, PowerPoint, Lab				
2. Become familiar with the normal ultrasound anatomy of the liver, hepatic veins, portal veins, hepatic artery, bile duct, gallbladder, and Morison's pouch.		Lecture, PowerPoint, Lab				
3. Learn to identify gallstones and gallbladder sludge within the gallbladder.		Practice on patients				
4. Learn to identify ultrasound findings suggestive of cholecystitis including sonographic Murphy's sign, gallbladder distention, gallbladder wall edema, pericholecystic fluid, intraluminal material, increased flow with color Doppler.		Practice on patients				

5. Become familiar with common artifacts and pitfalls associated with the right upper quadrant ultrasound including side lobe artifact, shadowing, and failure to visualize the gallbladder in two dimensions (both the long and short axis).	Residents will participate in 3 hours of ultrasound image review each week.	Lecture, PowerPoint, Lab, Practice on patients, and Image Review				
Demonstrate the ability to perform an emergency echocardiography.	Residents are required to complete a minimum of 6 hours each week of bedside patient ultrasounds as well as 6 hours each week of one on one ultrasounding with an instructor.		Partida, US Fellow, and UCLA and OliveView attendings		Milestone: Resident will be able to successfully log normal cardiac images, pericardial effusions, LV strain, and RV strain.	Direct observation and image review
1. Learn the three basic echocardiography views: subxiphoid window, parasternal long axis view, apical four chamber view.		Lecture, PowerPoint, Lab				
2. Become familiar with the normal ultrasound anatomy of the heart.		Lecture, PowerPoint, Lab				
3. Understand the ultrasound findings associated with pericardial effusion and tamponade.		Lecture, PowerPoint, Lab				
4. Learn to identify normal, moderately depressed, and severely depressed left ventricular function.		Practice on patients				

5. Become familiar with identifying evidence of right ventricular strain.		Practice on patients				
6. Become acquainted with the use of ultrasound in circulatory shock		Practice on patients				
Demonstrate the ability to effectively perform a renal ultrasound.	Residents are required to complete a minimum of 6 hours each week of bedside patient ultrasounds as well as 6 hours each week of one on one ultrasounding with an instructor.		Partida, US Fellow and both UCLA and OliveView attendings		Milestone: Resident will be able to successfully log images of normal kidneys, nephrolithiasis, hydronephrosis, as well as post void residuals.	Direct observation and image review
1. Understand the clinical applications for ultrasound in the emergency room evaluation of flank or abdominal pain, hematuria, and acute renal failure.		Lecture, PowerPoint, Lab				
2. Become familiar with the normal ultrasound anatomy of the kidneys and bladder as well as be able to identify appropriate landmarks.		Lecture, PowerPoint, Lab, Practice on patients				
3. Learn to identify hydronephrosis by ultrasound as well as be able to distinguish between mild, moderate and severe hydronephrosis.		Practice on patients				
4. Learn to identify renal calculi.		Practice on patients				
5. Be able to calculate post void residual.		Practice on patients				

<p>6. Become familiar with common artifacts and pitfalls associated with renal ultrasound including failure to recognize the importance of time in developing hydronephrosis with onset of symptoms, the limitation of ultrasound in identifying all renal stones, and the inability of ultrasound to distinguish exact cause of hydronephrosis,.</p>	<p>Residents will participate in 3 hours of ultrasound image review each week.</p>	<p>Lecture, PowerPoint, Lab, Practice on patients, and Image Review</p>				
<p>Demonstrate the ability to use ultrasound in emergent procedures.</p>	<p>Residents are required to complete a minimum of 6 hours each week of bedside patient ultrasounds as well as 6 hours each week of one on one ultrasounding with an instructor.</p>		<p>Partida, US Fellow and both UCLA and Olive View attendings</p>		<p>Milestone: Resident will be able to successfully perform ultrasound guided central venous, peripheral venous access, paracentesis, and pericardiocentesis.</p>	<p>Direct observation and image review</p>
<p>1. Understand the clinical indications for ultrasound in central venous access, peripheral venous access, paracentesis, and pericardiocentesis.</p>		<p>Lecture</p>				
<p>2. Review the procedure for using ultrasound in central venous access, peripheral venous access, paracentesis, and pericardiocentesis.</p>		<p>Lecture</p>				

3. Discuss pitfalls associated with ultrasound use with each emergent procedure.	Residents will participate in 3 hours of ultrasound image review each week.	Lecture, PowerPoint, Lab, Practice on patients, and Image Review				
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Assessment

Monitoring of the accomplishment of the stated objectives will be performed using the following methods:

Global Rating: end of rotation evaluation of resident performance with respect to the stated objectives by the rotation director. Input from the Ultrasound fellow is incorporated.