

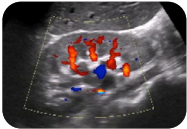
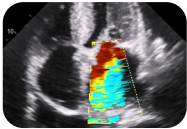
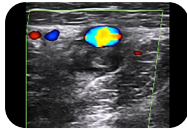
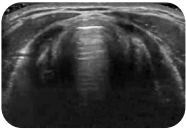


The SonoSim Ultrasound Training Solution in Accordance with AIUM's Practice Parameter for the Performance of Point-of-Care Ultrasound Examinations

In 2019, the American Institute of Ultrasound in Medicine (AIUM), in collaboration with various professional societies from diverse specialties, released their [Practice Parameter for the Performance of Point-of-Care Ultrasound Examinations](#). The goal of this practice parameter is "to assist practitioners performing point-of-care ultrasound examinations to evaluate the abdomen and retroperitoneum, thorax, or heart or to assess for deep vein thrombosis (DVT)."¹

The award-winning, patented **SonoSim Ultrasound Training Solution** matches these industry recommendations through an ecosystem of cloud-based courses, knowledge assessments, interactive SonoSimulator® scanning cases, performance tracking, and access to real-patient pathology.

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¹American Institute of Ultrasound in Medicine. AIUM Practice Parameter for the Performance of Point-of-Care Ultrasound Examinations. J Ultrasound Med. 2019 Apr;38(4):833-849.

Abdominal		
Evaluation of the Urinary System	SonoSim Course & Lesson	Relevant SonoSimulator Cases
Indications		
Acute kidney injury	<i>Renal Core Clinical: Case Studies</i>	<i>eFAST & FAST Cases</i> <i>Renal Core Clinical Cases</i> <i>SonoSim LiveScan® Trauma Care Cases</i>
Oliguria	<i>Bladder Core Clinical: Case Pathologies</i> <i>Renal Core Clinical: Case Studies</i>	<i>Bladder Core Clinical Cases</i>
Hematuria	<i>Bladder Core Clinical: Case Pathologies</i> <i>Renal Core Clinical: Case Studies</i>	<i>Renal Core Clinical Cases</i>
Undifferentiated shock	<i>RUSH: All Lessons</i>	<i>eFAST & FAST Cases</i> <i>RUSH Cases</i> <i>SonoSim LiveScan® Critical Care Cases</i>
Evaluation for hydronephrosis	<i>Renal Core Clinical: Obstructive Uropathy, Case Studies</i>	<i>Renal Core Clinical Cases</i> <i>Genitourinary Challenge Cases</i> <i>SonoSim LiveScan® Genitourinary Cases</i>
Confirmation of Foley catheter placement	<i>Bladder Core Clinical: Foley Catheter Placement, Case Pathologies</i>	<i>Bladder Core Clinical Cases</i> <i>eFAST Cases</i> <i>RUSH Cases</i> <i>SonoSim LiveScan® Critical Care, Genitourinary, & Trauma Care Cases</i>
Urinary retention	<i>Bladder Core Clinical: Bladder Volume Measurement</i>	<i>Bladder Core Clinical Cases</i> <i>Renal Core Clinical Cases</i> <i>Genitourinary Challenge Cases</i> <i>SonoSim LiveScan® Genitourinary Cases</i>
Evaluation for renal calculi, masses, or cysts	<i>Renal Core Clinical: Case Studies</i>	<i>Renal Core Clinical Cases</i> <i>Genitourinary Challenge Cases</i>
Evaluation for a perinephric abscess	<i>Renal Core Clinical: Case Studies</i>	--
Exam components: kidney evaluation		
Acquire appropriate views (long- & short-axis)	<i>Renal Anatomy & Physiology: Sonographic Technique</i> <i>Renal Core Clinical: Renal Imaging</i>	<i>Renal Anatomy & Physiology Cases</i> <i>Renal Core Clinical Cases</i> <i>Abdomen Challenge Cases</i> <i>Genitourinary Challenge Cases</i> <i>SonoSim LiveScan® Genitourinary Cases</i>
Obtain optimal patient positioning		
Evaluate size & echogenicity		
Presence of hydronephrosis	<i>Renal Core Clinical: Obstructive Uropathy, Case Studies</i>	<i>Renal Core Clinical Cases</i> <i>Genitourinary Challenge Cases</i> <i>SonoSim LiveScan® Genitourinary, Early Stage Pregnancy, & Late Stage Pregnancy Cases</i>
Take renal measurements	<i>Renal Core Clinical: Anatomy, Case Studies</i>	<i>Renal Anatomy & Physiology Cases</i> <i>Renal Core Clinical Cases</i> <i>Genitourinary Challenge Cases</i> <i>SonoSim LiveScan® Genitourinary Cases</i>

Use Doppler <i>(if appropriate)</i>	<i>Renal Anatomy & Physiology: Sonographic Technique</i> <i>Renal Core Clinical: Anatomy, Obstructive Uropathy, Case Studies</i>	<i>SonoSim LiveScan® Genitourinary Cases</i> <i>Genitourinary Challenge Cases</i>
Possible abnormal findings: kidney evaluation		
Hydronephrosis	<i>Renal Core Clinical: Obstructive Uropathy, Case Studies</i>	<i>Renal Core Clinical Cases</i> <i>Genitourinary Challenge Cases</i> <i>SonoSim LiveScan® Genitourinary, Early Stage Pregnancy, & Late Stage Pregnancy Cases</i>
Renal calculi	<i>Renal Core Clinical: Case Studies</i>	<i>eFAST Cases</i> <i>Renal Core Clinical Cases</i> <i>Genitourinary Challenge Cases</i> <i>SonoSim LiveScan® Genitourinary, Early Stage Pregnancy, & Trauma Care Cases</i>
Renal cysts	<i>Renal Core Clinical: Case Studies</i>	<i>Renal Core Clinical Cases</i> <i>Abdomen Challenge Cases</i> <i>Genitourinary Challenge Cases</i> <i>SonoSim LiveScan® Genitourinary Cases</i>
Exam components: hepatorenal & splenorenal spaces		
Evaluate for presence of free or loculated fluid	<i>eFAST: All Lessons</i> <i>FAST: All Lessons</i> <i>Renal Core Clinical: Anatomy, Case Studies</i>	<i>eFAST & FAST Cases</i> <i>Paracentesis Cases</i> <i>Renal Core Clinical Cases</i>
Document extent and location of fluid	<i>eFAST: All Lessons</i> <i>FAST: All Lessons</i>	<i>SonoSim LiveScan® Genitourinary & Trauma Care Cases</i>
Exam components: bladder evaluation		
Acquire appropriate views (long- & short-axis)	<i>Bladder Anatomy & Physiology: Sonographic Technique</i> <i>Bladder Core Clinical: Normal Bladder Sonography, Case Pathologies</i>	<i>Bladder Anatomy & Physiology Cases</i> <i>Bladder Core Clinical Cases</i> <i>Genitourinary Challenge Cases</i>
Obtain optimal patient positioning	<i>Bladder Anatomy & Physiology: Sonographic Technique</i> <i>Bladder Core Clinical: Normal Bladder Sonography</i>	<i>SonoSim LiveScan® Genitourinary Cases</i>
Evaluate for degree of distention	<i>Bladder Core Clinical: Pathophysiology, Bladder Volume Measurement, Case Pathologies</i>	<i>Bladder Core Clinical Cases</i> <i>Genitourinary Challenge Cases</i> <i>SonoSim LiveScan® Genitourinary Cases</i>
Evaluate for correct Foley catheter placement <i>(if applicable)</i>	<i>Bladder Core Clinical: Foley Catheter Placement, Case Pathologies</i>	<i>Bladder Core Clinical Cases</i> <i>eFAST Cases</i> <i>RUSH Cases</i> <i>SonoSim LiveScan® Critical Care, Genitourinary, & Trauma Care Cases</i>
Measure post-void residual <i>(if applicable)</i>	<i>Bladder Anatomy & Physiology: Bladder Volume Measurement</i> <i>Bladder Core Clinical: Bladder Volume Measurement</i>	<i>Bladder Core Clinical Cases</i> <i>Renal Core Clinical Cases</i>
Possible abnormal findings: bladder evaluation		
Obstructed Foley catheter	<i>Bladder Core Clinical: Foley Catheter Placement, Case Pathologies</i>	<i>Bladder Core Clinical Cases</i> <i>eFAST Cases</i> <i>RUSH Cases</i> <i>SonoSim LiveScan® Critical Care, Genitourinary, & Trauma Care Cases</i>

Bladder abnormalities	Bladder Core Clinical: Case Pathologies	Bladder Core Clinical Cases Genitourinary Challenge Cases
Luminal abnormalities		
Wall thickening		
Masses		
Evaluation of the Hepatobiliary System	SonoSim Course & Lesson	Relevant SonoSimulator Cases
Indications		
Abdominal pain	Intestinal/Biliary Core Clinical: Gallbladder Evaluation	Intestinal/Biliary Core Clinical Cases
Follow-up of known or suspected abnormalities in the abdomen		Abdomen Challenge Cases SonoSim LiveScan® Hepatobiliary Cases
Abnormal laboratory values	Intestinal/Biliary Core Clinical: Gallbladder Evaluation	Intestinal/Biliary Core Clinical Cases
Signs or symptoms that may be referred from the abdominal regions, such as jaundice	--	SonoSim LiveScan® Hepatobiliary Cases
Abdominal trauma	eFAST: All Lessons FAST: All Lessons	eFAST Cases FAST Cases
Search for the presence of free or loculated peritoneal fluid	eFAST: All Lessons FAST: All Lessons Intestinal/Biliary Core Clinical: Gallbladder Evaluation Paracentesis	Intestinal/Biliary Core Clinical Cases Abdomen Challenge Cases Paracentesis Cases SonoSim LiveScan® Hepatobiliary Cases
Exam components		
Acquire appropriate views (long- & short-axis)	Biliary Tree Anatomy & Physiology: Sonographic Technique Intestinal/Biliary Core Clinical: Gallbladder Evaluation	Biliary Tree Anatomy & Physiology Cases Intestinal/Biliary Core Clinical Cases Abdomen Challenge Cases
Obtain optimal patient positioning		
Measure gallbladder wall	Biliary Tree Anatomy & Physiology: Sonographic Technique Intestinal/Biliary Core Clinical: Common Bile Duct Evaluation	
Measure common bile duct		
Assess for sonographic Murphy sign	Intestinal/Biliary Core Clinical: Gallbladder Evaluation	Intestinal/Biliary Core Clinical Cases
Possible abnormal findings		
Pericholecystic fluid	Intestinal/Biliary Core Clinical: Gallbladder Evaluation	Intestinal/Biliary Core Clinical Cases SonoSim LiveScan® Hepatobiliary Cases
Masses	Intestinal/Biliary Core Clinical: Gallbladder Evaluation	Abdomen Challenge Cases Genitourinary Challenge Cases SonoSim LiveScan® Hepatobiliary Cases
Cysts	--	Intestinal/Biliary Core Clinical Cases Renal Core Clinical Cases Abdomen Challenge Cases Genitourinary Challenge Cases SonoSim LiveScan® Hepatobiliary Cases

Evaluation of Free Abdominal Fluid	SonoSim Course & Lesson	Relevant SonoSimulator Cases
Indications		
Shock	eFAST & FAST: All Lessons	eFAST & FAST Cases
Hypotension	RUSH: All Lessons	RUSH Cases
Evaluation for the presence, extent, and complexity of free fluid	eFAST & FAST: All Lessons	eFAST & FAST Cases
Evaluation for the presence of hemoperitoneum		
Evaluation of the trauma patient		
Procedural guidance	Paracentesis	Paracentesis Cases
Evaluation for occult ectopic pregnancy	eFAST & FAST: All Lessons OB/GYN Core Clinical: Pathologic Conditions Advanced First-Trimester Pregnancy: Pathologic Conditions	eFAST & FAST Cases OB/GYN Core Clinical Cases Advanced First-Trimester Pregnancy Cases
Exam components		
Obtain optimal patient positioning	eFAST & FAST: All Lessons Paracentesis	eFAST & FAST Cases Paracentesis Cases
Document extent and location of any fluid identified		
Evaluate for fluid in perisplenic recess	eFAST & FAST: LUQ Views, Performing the FAST Exam, Case Studies Paracentesis	
Evaluate for fluid in hepatorenal recess	eFAST & FAST: RUQ Views, Performing the FAST Exam, Case Studies Paracentesis	
Evaluate for fluid in perihepatic recess		
Evaluate for fluid in suprapubic recess	eFAST & FAST: Pelvic Views, Performing the FAST Exam, Case Studies Paracentesis	
Paracentesis preparation		
Survey scan	Paracentesis	Paracentesis Cases
Doppler to identify vasculature		
Evaluation of the Abdominal Aorta	SonoSim Course & Lesson	Relevant SonoSimulator Cases
Indications		
A palpable or pulsatile abdominal mass or abdominal bruit	Aorta/IVC Core Clinical: Introduction	Aorta/IVC Core Clinical Cases
Unexplained lower back pain, flank pain, or abdominal pain		
An undifferentiated shock state	RUSH: The Pipes – AAA	
Undiagnosed acute anemia	--	
Screening for an abdominal aortic aneurysm or dissection	Aorta/IVC Core Clinical: All Lessons RUSH: The Pipes – AAA	
Limitations		
Body habitus	Aorta/IVC Core Clinical: Introduction, Imaging Technique	--
Obesity		

The degree of injury and rate of bleeding	<i>Aorta/IVC Core Clinical: Introduction</i>	--
Bowel gas	<i>Aorta/IVC Core Clinical: Aortic Anatomy</i>	<i>Aorta/IVC Core Clinical Cases</i>
Patient positioning	<i>Aorta/IVC Core Clinical: Imaging Technique</i>	
Patients who are either in pain or combative secondary to traumatic injury	<i>Aorta/IVC Core Clinical: Aortic Case Studies</i>	
Operator knowledge	<i>Aorta/IVC Core Clinical: All Lessons</i>	
Exam components		
Position transducer at appropriate location	<i>Aorta/IVC Anatomy & Physiology: Sonographic Technique</i> <i>Aorta/IVC Core Clinical: Aortic Anatomy, Imaging Technique</i> <i>RUSH: The Pipes – AAA</i>	<i>Aorta/IVC Anatomy & Physiology Cases</i> <i>Aorta/IVC Core Clinical Cases</i>
Acquire appropriate views (long- & short-axis)	<i>Aorta/IVC Anatomy & Physiology: Sonographic Technique</i> <i>Aorta/IVC Core Clinical: Imaging Technique</i> <i>RUSH: The Pipes – AAA</i>	
Take appropriate measurements (long- & short-axis)	<i>Aorta/IVC Core Clinical: Aortic Case Studies</i>	
Assess for intraluminal irregularity, a mass or narrowing, or an extraluminal mass or collection	<i>Aorta/IVC Core Clinical: Clinical Considerations, Aortic Case Studies</i>	<i>Aorta/IVC Core Clinical Cases</i>
Fluid or a mass adjacent to the aorta should be documented		
Document maximal size and location of aneurysm	<i>Aorta/IVC Core Clinical: Aortic Case Studies</i>	
Possible abnormal findings		
Aneurysm	<i>Aorta/IVC Core Clinical: Aortic Case Studies</i>	<i>Aorta/IVC Core Clinical Cases</i>
Intraluminal irregularity		
Mass or narrowing		
Extraluminal mass or collection		

Abdominal Concepts Not Covered:

Evaluation of the Abdominal Aorta – Indications: Palpable abnormalities such as an abdominal mass or organomegaly

Evaluation of the Abdominal Aorta – Limitations: Subcutaneous emphysema, Adhesions from prior surgery

Cardiac		
General Objectives	SonoSim Course & Lesson	Relevant SonoSimulator Cases
Indications		
Undifferentiated shock	<i>Cardiology Core Clinical: Case Studies</i>	<i>Cardiology Core Clinical Cases</i> <i>SonoSim LiveScan® Cardiac Resuscitation Cases</i>
Evaluation of the pericardial space	<i>Cardiology Core Clinical: Parasternal Long-Axis View, Parasternal Short-Axis View – Mid-Ventricle, Apical Four-Chamber View, Subcostal Four-Chamber View, Case Studies</i> <i>FoCUS – Part I: Imaging Windows</i> <i>Resuscitative TEE: Echocardiographic Anatomy, Echocardiographic Technique</i> <i>Pericardiocentesis</i>	<i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I & II Cases</i> <i>Resuscitative TEE Cases</i> <i>Pericardiocentesis Cases</i> <i>SonoSim LiveScan® Cardiac Resuscitation Cases</i>
Evaluation of left ventricular (LV) and right ventricular (RV) size and function	<i>Cardiology Core Clinical: Parasternal Long-Axis View, Parasternal Short-Axis View – Mid-Ventricle, Apical Four-Chamber View, Subcostal Four-Chamber View</i> <i>FoCUS – Part I: Imaging Windows</i> <i>Resuscitative TEE: Echocardiographic Anatomy</i>	<i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I & II Cases</i> <i>Resuscitative TEE Cases</i> <i>SonoSim LiveScan® Cardiac Resuscitation Cases</i>
Determination of volume responsiveness	<i>Cardiology Core Clinical: IVC Evaluation & RAP</i>	<i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I & II Cases</i> <i>SonoSim LiveScan® Cardiac Resuscitation Cases</i>
Evaluation for severe valvular dysfunction	<i>Cardiology Core Clinical: Parasternal Long-Axis View, Parasternal Short-Axis View – Base, Apical Four-Chamber View</i> <i>FoCUS – Part I: Pulmonary Artery Pressure Measurements, Case Studies II</i> <i>FoCUS – Part II: Valvular Regurgitation, Aortic Regurgitation, Mitral Regurgitation, Tricuspid Regurgitation, Pulmonic Regurgitation, Valvular Stenosis, Aortic Stenosis, Mitral Stenosis, Tricuspid Stenosis, Pulmonic Stenosis</i>	<i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I & II Cases</i>
Cardiopulmonary symptoms	<i>Cardiology Core Clinical: Introduction, Case Studies</i> <i>FoCUS – Part I: Pulmonary Artery Pressure Measurements, Case Studies II, Summary</i>	<i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I Cases</i> <i>SonoSim LiveScan® Cardiac Resuscitation Cases</i>
Determining presence of left atrial enlargement	<i>Cardiology Core Clinical: Parasternal Short-Axis View – Base, Apical Four-Chamber View</i> <i>FoCUS – Part I: Imaging Windows</i>	<i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I Cases</i>
Screening for hypertrophic cardiomyopathy in youth athletes	<i>FoCUS – Part I: Case Studies I</i>	<i>SonoSim LiveScan® Cardiac Resuscitation Cases</i>
Limitations of point-of-care ultrasound heart exam		
Body habitus	<i>Cardiology Core Clinical: Parasternal Long-Axis View, Subcostal Four-Chamber View, IVC Evaluation & RAP</i>	--
Subcutaneous emphysema	<i>FoCUS – Part I: Case Studies I</i>	

Off-axis views	<i>Cardiology Core Clinical: Parasternal Long-Axis View, Parasternal Short-Axis View – Mid-Ventricle, Parasternal Short-Axis View – Base, Apical Four-Chamber View, Subcostal Four-Chamber View, IVC Evaluation & RAP</i> <i>FoCUS – Part I: Imaging Windows</i>	<i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I & II Cases</i>
Limitations of assessment for hemopericardium		
Pericardial fat pads	<i>Cardiology Core Clinical: Case Studies</i> <i>Pericardiocentesis</i>	<i>Cardiology Core Clinical Cases</i>
Cysts	<i>FoCUS – Part III [Coming Soon]</i>	
Preexisting pericardial fluid	<i>Cardiology Core Clinical: Parasternal Long-Axis View, Parasternal Short-Axis View – Mid-Ventricle, Apical Four-Chamber View, Subcostal Four-Chamber View, Case Studies</i> <i>Pericardiocentesis</i>	<i>Cardiology Core Clinical Cases</i> <i>Pericardiocentesis Cases</i>
Scanning technique		
Apply appropriate grayscale techniques	<i>Heart Anatomy & Physiology: Sonographic Technique</i> <i>Cardiology Core Clinical: Parasternal Long-Axis View, Parasternal Short-Axis View – Mid-Ventricle, Parasternal Short-Axis View – Base, Apical Four-Chamber View, Subcostal Four-Chamber View, IVC Evaluation & RAP</i> <i>FoCUS – Part I: Imaging Windows</i>	<i>Heart Anatomy & Physiology Cases</i> <i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I & II Cases</i>
Apply appropriate Doppler techniques	<i>Cardiology Core Clinical: Parasternal Short-Axis View – Base, Case Studies</i> <i>FoCUS – Part I: Doppler Ultrasound</i>	<i>FoCUS – Part I & II Cases</i>
Obtain proper patient positioning	<i>Heart Anatomy & Physiology: Sonographic Technique</i>	<i>Heart Anatomy & Physiology Cases</i> <i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I & II Cases</i> <i>Resuscitative TEE Cases</i>
Adjustment of the depth and gain for optimal visualization	<i>Cardiology Core Clinical: Parasternal Long-Axis View, Parasternal Short-Axis View – Mid-Ventricle, Parasternal Short-Axis View – Base, Apical Four-Chamber View, Subcostal Four-Chamber View, IVC Evaluation & RAP</i> <i>Resuscitative TEE: Echocardiographic Technique</i>	
Acquire 5 basic views (as applicable)	<i>See below sections for information on each view</i>	
Parasternal Long-Axis View	SonoSim Course & Lesson	Relevant SonoSimulator Cases
Exam components		
Point transducer indicator towards patient's right shoulder at 2nd-3rd intercostal space adjacent to left side of sternum	<i>Heart Anatomy & Physiology: Sonographic Technique</i> <i>Cardiology Core Clinical: Parasternal Long-Axis View</i> <i>FoCUS – Part I: Imaging Windows</i>	<i>Heart Anatomy & Physiology Cases</i> <i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I & II Cases</i>
Acquire view that shows mitral and aortic valves in view with the left ventricle in the long axis		

Point-of-care information obtained		
Assessment of LV function	<i>Cardiology Core Clinical: Parasternal Long-Axis View, Case Studies</i> <i>FoCUS – Part I: Imaging Windows</i>	<i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I & II Cases</i> <i>SonoSim LiveScan® Cardiac Resuscitation Cases</i>
Left atrium size		
Mitral and aortic valve evaluation		
Right ventricular (RV) enlargement		
Septal bowing		
Measurement of the aortic root	<i>FoCUS – Part I: Imaging Windows</i>	
Evaluation for pericardial effusion	<i>Cardiology Core Clinical: Parasternal Long-Axis View, Case Studies</i> <i>FoCUS – Part I: Imaging Windows</i> <i>Pericardiocentesis</i>	<i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I & II Cases</i> <i>Pericardiocentesis Cases</i> <i>SonoSim LiveScan® Cardiac Resuscitation Cases</i>
Parasternal Short-Axis View	SonoSim Course & Lesson	Relevant SonoSimulator Cases
Exam components		
Point transducer indicator towards the patient's left shoulder	<i>Heart Anatomy & Physiology: Sonographic Technique</i> <i>Cardiology Core Clinical: Parasternal Short-Axis View – Mid-Ventricle, Parasternal Short-Axis View – Base</i> <i>FoCUS – Part I: Imaging Windows</i>	<i>Heart Anatomy & Physiology Cases</i> <i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I & II Cases</i>
Acquire view that shows a cross section of the left-ventricle with the papillary muscles in view		
Point-of-care information obtained		
LV function (i.e., fractional shortening)	<i>Cardiology Core Clinical: Parasternal Short-Axis View – Mid-Ventricle, Parasternal Short-Axis View – Base, Case Studies</i> <i>FoCUS – Part I: Imaging Windows</i>	<i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I & II Cases</i>
Septal motion evaluation		
Right ventricle (RV) enlargement causing displacement of the septum		
Segmental wall motion abnormalities	<i>FoCUS – Part III [Coming Soon]</i>	<i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part III Cases [Coming Soon]</i>
Apical 4-Chamber View	SonoSim Course & Lesson	Relevant SonoSimulator Cases
Exam components		
Point transducer indicator towards the patient's left side	<i>Heart Anatomy & Physiology: Sonographic Technique</i> <i>Cardiology Core Clinical: Apical Four-Chamber View</i> <i>FoCUS – Part I: Imaging Windows</i>	<i>Heart Anatomy & Physiology Cases</i> <i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I & II Cases</i>
Acquire view that shows all four chambers with both the mitral & tricuspid valves in view		
Point-of-care information obtained		
Compare RV to LV size	<i>Cardiology Core Clinical: Apical Four-Chamber View, Case Studies</i> <i>FoCUS – Part I: Imaging Windows</i>	<i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I & II Cases</i>
Evaluate LV function		
Evaluate the mitral and tricuspid valves		
Assess for pericardial effusion	<i>Cardiology Core Clinical: Apical Four-Chamber View, Case Studies</i> <i>Pericardiocentesis</i>	<i>Cardiology Core Clinical Cases</i> <i>FoCUS – Part I & II Cases</i> <i>Pericardiocentesis Cases</i>

Subcostal 4-Chamber View	SonoSim Course & Lesson	Relevant SonoSimulator Cases
Exam components		
Point transducer indicator towards the patient's left side in a subxiphoid position	Heart Anatomy & Physiology: Sonographic Technique Cardiology Core Clinical: Subcostal Four-Chamber View FoCUS – Part I: Imaging Windows	Heart Anatomy & Physiology Cases Cardiology Core Clinical Cases FoCUS – Part I & II Cases
Acquire view that shows all four chambers		
Point-of-care information obtained		
Compare RV to LV size	Cardiology Core Clinical: Subcostal Four-Chamber View, Case Studies FoCUS – Part I: Imaging Windows	Cardiology Core Clinical Cases FoCUS – Part I & II Cases
Pericardial effusion	Cardiology Core Clinical: Subcostal Four-Chamber View, Case Studies Pericardiocentesis	Cardiology Core Clinical Cases FoCUS – Part I & II Cases Pericardiocentesis Cases
Subcostal IVC View	SonoSim Course & Lesson	Relevant SonoSimulator Cases
Exam components		
Point transducer indicator towards the patient's head	Cardiology Core Clinical: IVC Evaluation & RAP	Cardiology Core Clinical Cases FoCUS – Part I & II Cases
Acquire view that shows the IVC in a longitudinal axis joining the right atrium		
Point-of-care information obtained		
IVC diameter and variability	Cardiology Core Clinical: IVC Evaluation & RAP, Case Studies	Cardiology Core Clinical Cases FoCUS – Part I & II Cases
Volume assessment		
Pericardial effusions around the right atrium	Cardiology Core Clinical: Subcostal Four-Chamber View, Case Studies Pericardiocentesis	Cardiology Core Clinical Cases FoCUS – Part I & II Cases Pericardiocentesis Cases

Cardiac Concepts Not Covered:

General – Limitations of point-of-care ultrasound heart exam: Thoracic dressings

Deep Vein Thrombosis		
DVT Ultrasound	SonoSim Course & Lesson	Relevant SonoSimulator Cases
Indications		
Swollen lower extremity or extremities	DVT Core Clinical: Introduction	DVT Core Clinical Cases
Pain or erythema in lower extremities		
Suspected pulmonary embolus		
Limitations		
Body habitus	DVT Core Clinical: Sonographic Technique, Imaging Tips & Pitfalls	DVT Core Clinical Cases
Inability to identify key anatomic points	DVT Core Clinical: Normal Anatomy & Physiology, Sonographic Technique	
General		
Proximal vs. distal nomenclature	DVT Core Clinical: Normal Anatomy & Physiology, POCUS DVT Examination	DVT Core Clinical Cases
Documentation of DVT findings	DVT Core Clinical: POCUS DVT Examination	
Exam components		
Compression technique	DVT Core Clinical: Sonographic Anatomy, Sonographic Technique, POCUS DVT Examination, Imaging Tips & Pitfalls	DVT Core Clinical Cases
Assess for positive signs of DVT (visualization of echogenic material and/or noncompressibility of a venous segment)	DVT Core Clinical: Sonographic Anatomy, Sonographic Technique, POCUS DVT Examination, Case Studies, Imaging Tips & Pitfalls	
Doppler’s role in DVT evaluation	DVT Core Clinical: Sonographic Anatomy, Sonographic Technique, Imaging Tips & Pitfalls	
Vessels screened in POCUS exam	DVT Core Clinical: POCUS DVT Examination	
Acquire appropriate views (long- & short-axis)	DVT Core Clinical: Sonographic Technique	
Possible abnormal findings		
Positive DVT signs	DVT Core Clinical: Sonographic Anatomy, Sonographic Technique, POCUS DVT Examination, Case Studies, Imaging Tips & Pitfalls	DVT Core Clinical Cases

Deep Vein Thrombosis Concepts Not Covered:

DVT Ultrasound – Indications: Unexplained hypoxemia, Unexplained dyspnea

Thoracic		
General Objectives	SonoSim Course & Lesson	Relevant SonoSimulator Cases
Scanning technique		
Transducer type	<i>Lungs Anatomy & Physiology: Sonographic Technique</i>	<i>Lungs Anatomy & Physiology Cases</i>
Machine settings	<i>Pulmonary Core Clinical: Introduction</i> <i>Advanced Pediatric Lung Sonography: Sonographic Technique</i>	<i>Pulmonary Core Clinical Cases</i> <i>Advanced Pediatric Lung Sonography Cases</i>
Transducer positioning	<i>Lungs Anatomy & Physiology: Sonographic Technique</i> <i>Pulmonary Core Clinical: Lung Evaluation</i> <i>Advanced Pediatric Lung Sonography: Sonographic Technique</i>	<i>Pediatric Challenge Cases</i> <i>Pulmonary Challenge Cases</i>
Lung Ultrasound	SonoSim Course & Lesson	Relevant SonoSimulator Cases
Indications		
Dyspnea	<i>Pulmonary Core Clinical: Alveolar Interstitial Syndrome</i>	<i>Pulmonary Core Clinical Cases</i>
Suspicion of pneumothorax	<i>Pulmonary Core Clinical: Pneumothorax Rule-Out, Pneumothorax Rule-In</i> <i>Advanced Pediatric Lung Sonography: Sonographic Anatomy, Case Studies</i>	<i>Pulmonary Core Clinical Cases</i> <i>Advanced Pediatric Lung Sonography Cases</i>
Assessment for pleural effusions	<i>Pulmonary Core Clinical: Pleural Effusion</i> <i>Advanced Pediatric Lung Sonography: Sonographic Anatomy, Case Studies</i>	<i>Pulmonary Core Clinical Cases</i> <i>Advanced Pediatric Lung Sonography Cases</i>
Evaluation for the presence of alveolar consolidation	<i>Pulmonary Core Clinical: Lung Consolidation</i> <i>Advanced Pediatric Lung Sonography: Sonographic Anatomy, Case Studies</i>	<i>Pediatric Challenge Cases</i> <i>Pulmonary Challenge Cases</i>
Respiratory failure	<i>Pulmonary Core Clinical: All Lessons</i>	--
Undifferentiated shock	<i>RUSH: All Lessons</i>	<i>RUSH Cases</i>
Assessment of the volume status		
Diaphragmatic function	<i>Lungs Anatomy & Physiology: Sonographic Anatomy</i> <i>Pulmonary Core Clinical: Lung Evaluation</i>	<i>Lungs Anatomy & Physiology Cases</i> <i>Pulmonary Core Clinical Cases</i>
Thoracic trauma (focused assessment with sonography for trauma)	<i>eFAST: All Lessons</i> <i>FAST: All Lessons</i>	<i>eFAST Cases</i> <i>FAST Cases</i>
Planning or guidance for an invasive thoracic procedure	<i>Thoracentesis</i>	<i>Thoracentesis Cases</i>
Limitations for thoracic ultrasound		
Subcutaneous emphysema	<i>Pulmonary Core Clinical: Pneumothorax Rule-Out, Imaging Adjuncts</i>	<i>Pulmonary Challenge Cases</i>
Patient positioning	<i>Lungs Anatomy & Physiology: Sonographic Technique</i> <i>Pulmonary Core Clinical: Lung Evaluation</i> <i>Advanced Pediatric Lung Sonography: Sonographic Technique</i>	<i>Lungs Anatomy & Physiology Cases</i> <i>Pulmonary Core Clinical Cases</i> <i>Advanced Pediatric Lung Sonography</i> <i>Pediatric Challenge Cases</i> <i>Pulmonary Challenge Cases</i>
Degree of injury	<i>Pulmonary Core Clinical: All Lessons</i>	<i>Pulmonary Core Clinical Cases</i>

Patients who are in pain/combatative	eFAST: All Lessons	eFAST Cases
Operator knowledge	Lungs Anatomy & Physiology: All Lessons Pulmonary Core Clinical: All Lessons Advanced Pediatric Lung Sonography: All Lessons	Lungs Anatomy & Physiology Cases Pulmonary Core Clinical Cases Advanced Pediatric Lung Sonography Cases Pediatric Challenge Cases Pulmonary Challenge Cases
Limitations for pneumothorax evaluation		
Main-stem bronchus intubation	Airway Core Clinical: Endotracheal Tube Localization	--
Failure to recognize the lung pulse as cardiac-induced movement	Pulmonary Core Clinical: Imaging Artifacts	Pulmonary Core Clinical Cases
Patients with severe chronic obstructive pulmonary disease or other lung pathology inhibiting adequate visualization of lung sliding		
Limitations for B-line evaluation		
Ability to differentiate between cardiogenic and noncardiogenic pulmonary edema	Pulmonary Core Clinical: Alveolar Interstitial Syndrome Advanced Pediatric Lung Sonography: Sonographic Anatomy	Pulmonary Core Clinical Cases Advanced Pediatric Lung Sonography Cases Pediatric Challenge Cases Pulmonary Challenge Cases
Limitations for consolidation pattern evaluation		
Body habitus	Pulmonary Core Clinical: Lung Consolidation	Pulmonary Core Clinical Cases
Failure to place the transducer in the posterior thorax to detect a posteriorly located consolidation		
Exam components		
Transducer positioning	Lungs Anatomy & Physiology: Sonographic Technique Pulmonary Core Clinical: Lung Evaluation Advanced Pediatric Lung Sonography: Sonographic Technique	Lungs Anatomy & Physiology Cases Pulmonary Core Clinical Cases Advanced Pediatric Lung Sonography Cases Pediatric Challenge Cases Pulmonary Challenge Cases
Lung sliding & pneumothorax evaluation	Pulmonary Core Clinical: Lung Evaluation, Pneumothorax Rule-Out, Pneumothorax Rule-In Advanced Pediatric Lung Sonography: Sonographic Anatomy, Imaging Tips & Pitfalls, Case Studies	Pulmonary Core Clinical Cases Advanced Pediatric Lung Sonography Cases Pediatric Challenge Cases Pulmonary Challenge Cases
B-line evaluation	Pulmonary Core Clinical: Alveolar Interstitial Syndrome Advanced Pediatric Lung Sonography: Sonographic Anatomy, Sonographic Technique, Case Studies	Pulmonary Challenge Cases

Possible abnormal findings		
Pneumothorax	<i>Pulmonary Core Clinical:</i> Pneumothorax Rule-Out, Pneumothorax Rule-In <i>Advanced Pediatric Lung Sonography:</i> Sonographic Anatomy, Case Studies	<i>Pulmonary Core Clinical Cases</i> <i>Advanced Pediatric Lung Sonography Cases</i>
B-lines	<i>Pulmonary Core Clinical:</i> Alveolar Interstitial Syndrome <i>Advanced Pediatric Lung Sonography:</i> Sonographic Anatomy, Sonographic Technique, Imaging Tips & Pitfalls, Case Studies	<i>Pulmonary Core Clinical Cases</i> <i>Advanced Pediatric Lung Sonography Cases</i> <i>Pediatric Challenge Cases</i> <i>Pulmonary Challenge Cases</i>
Consolidation pattern	<i>Pulmonary Core Clinical:</i> Lung Consolidation <i>Advanced Pediatric Lung Sonography:</i> Sonographic Anatomy, Sonographic Technique, Imaging Tips & Pitfalls, Case Studies	<i>Pulmonary Core Clinical Cases</i> <i>Advanced Pediatric Lung Sonography Cases</i> <i>Pediatric Challenge Cases</i>
Pleural Ultrasound	SonoSim Course & Lesson	Relevant SonoSimulator Cases
Indications		
Dyspnea	<i>Pulmonary Core Clinical:</i> Alveolar Interstitial Syndrome	<i>Pulmonary Core Clinical Cases</i> <i>Pulmonary Challenge Cases</i>
Evaluation for the presence, size, and complexity of pleural effusions	<i>Pulmonary Core Clinical:</i> Pleural Effusion <i>Advanced Pediatric Lung Sonography:</i> Sonographic Anatomy, Case Studies	<i>Pulmonary Core Clinical Cases</i> <i>Advanced Pediatric Lung Sonography Cases</i> <i>Pediatric Challenge Cases</i>
Evaluation for the presence of hemothorax	<i>eFAST:</i> All Lessons <i>FAST:</i> All Lessons <i>Advanced Pediatric Lung Sonography:</i> Sonographic Anatomy	<i>eFAST Cases</i> <i>FAST Cases</i>
Evaluation of the thickness and irregularity of the pleural line	<i>Advanced Pediatric Lung Sonography:</i> Sonographic Anatomy, Case Studies	<i>Pulmonary Core Clinical Cases</i> <i>Advanced Pediatric Lung Sonography Cases</i> <i>Pediatric Challenge Cases</i> <i>Pulmonary Challenge Cases</i>
Suspicion of interstitial lung disease	<i>Pulmonary Core Clinical:</i> Alveolar Interstitial Syndrome <i>Advanced Pediatric Lung Sonography:</i> Sonographic Anatomy, Case Studies	
Evaluation of pneumothorax	<i>Pulmonary Core Clinical:</i> Pneumothorax Rule-Out, Pneumothorax Rule-In <i>Advanced Pediatric Lung Sonography:</i> Sonographic Anatomy, Case Studies	
Determination of the lung point	<i>Pulmonary Core Clinical:</i> Pneumothorax Rule-In <i>Advanced Pediatric Lung Sonography:</i> Sonographic Anatomy, Case Studies	<i>Pulmonary Core Clinical Cases</i> <i>Advanced Pediatric Lung Sonography Cases</i>
Exam components		
Assess for anechoic or echogenic fluid	<i>Pulmonary Core Clinical:</i> Pleural Effusion <i>Advanced Pediatric Lung Sonography:</i> Sonographic Anatomy, Case Studies	<i>Pulmonary Core Clinical Cases</i> <i>Advanced Pediatric Lung Sonography</i> <i>Pediatric Challenge Cases</i>
Evaluate pleural line for thickness, irregularity, and lung sliding	<i>Pulmonary Core Clinical:</i> Lung Evaluation <i>Advanced Pediatric Lung Sonography:</i> Sonographic Anatomy, Case Studies	

Possible abnormal findings		
Pleural effusion	<i>Pulmonary Core Clinical: Pleural Effusion</i> <i>Advanced Pediatric Lung Sonography: Sonographic Anatomy, Case Studies</i>	<i>Pulmonary Core Clinical Cases</i> <i>Pulmonary Challenge Cases</i>
Pleural line thickness or irregularity	<i>Advanced Pediatric Lung Sonography: Sonographic Anatomy, Case Studies</i>	<i>Pulmonary Core Clinical Cases</i> <i>Advanced Pediatric Lung Sonography Cases</i> <i>Pediatric Challenge Cases</i>
Pneumothorax	<i>Pulmonary Core Clinical: Pneumothorax Rule-Out, Pneumothorax Rule-In</i> <i>Advanced Pediatric Lung Sonography: Sonographic Anatomy, Case Studies</i>	<i>Pulmonary Core Clinical Cases</i> <i>Advanced Pediatric Lung Sonography Cases</i>

Thoracic Concepts Not Covered

Lung Ultrasound – Indications: Abnormal blood gases or other laboratory findings consistent with lung pathology, Pleural-based masses

Lung Ultrasound – Limitations for thoracic ultrasound: Obesity, Adhesions from prior surgery

Lung Ultrasound – Limitations for pneumothorax evaluation: Patients after pleurodesis