



Saturday October 18

Pediatric Point-of-Care Ultrasound (POCUS) Training Workshop

Target Audience: Pediatricians from all subspecialties

Workshop General Objectives

By the end of this workshop, participants will be able to:

- Understand the principles of pediatric POCUS.
 - Perform focused ultrasound examinations of the lungs, abdomen, heart (including eFAST echo) and brain (via transcranial Doppler imaging).
 - Perform ultrasound guided peripheral IV cannulation.
 - Integrate ultrasound findings into pediatric clinical practice and decision-making.
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10:30 am – 13:00 pm :

eFAST – Lung Ultrasound

- **Introduction to Pediatric POCUS**
- **eFAST echo training (Pericardial, pleural & diaphragmatic, perihepatic, perisplenic & pelvic)**
Participants will learn to:
 - Describe the anatomy and sonographic windows assessed in the eFAST exam, including:
 - Right and left upper quadrants (hepatorenal and splenorenal recesses)
 - Pelvis (pouch of Douglas/rectovesical space)
 - Pericardium (subxiphoid cardiac view)
 - Anterior thorax (for pneumothorax and pleural effusion)
 - Perform a complete eFAST scan, including acquisition of standard views in a logical, time-sensitive sequence.
 - Identify normal findings and differentiate them from pathological ones, including:
 - Free intraperitoneal fluid
 - Pericardial effusion
 - Pneumothorax (absence of lung sliding, barcode sign)
 - Hemothorax (pleural effusion)
 - Understand the limitations and pitfalls of eFAST
- **Lung Ultrasound training:**

Participants will learn to:

- Identify normal lung ultrasound artifacts, such as A-lines and lung sliding.
- Differentiate between key pathological findings, including:
 - Pleural effusion
 - Pneumothorax
 - Interstitial syndrome
 - Lung consolidation
- Perform a systematic lung ultrasound exam, including anterior, lateral, and posterior thoracic views.
- Interpret lung ultrasound findings in common pediatric conditions, such as pneumonia, bronchiolitis, pulmonary edema, and trauma.
- Recognize limitations and pitfalls of lung ultrasound in clinical practice.

14:30 pm – 17:45 pm :

Transcranial imaging – US guided PIV access – Focused Cardiac US

- Transcranial Doppler imaging (TCI)

Participants will learn to:

- Understand the relevant neurovascular anatomy, including major intracranial vessels accessible by TCI (middle cerebral artery, anterior cerebral artery, basilar artery).
- Perform a basic TCD examination, using appropriate probe positioning and machine settings to obtain Doppler waveforms.
- Interpret normal TCD waveforms, including recognition of flow direction, velocity, and pulsatility index.
- Recognize abnormal TCD findings, such as:
 - Elevated flow velocities
 - Absent or reversed flow (in brain death or increased intracranial pressure)
 - Signs of vasospasm or hyperemia

- Ultrasound guided Peripheral vascular access

Participants will learn to:

- Identify relevant vascular anatomy and landmarks
- Select appropriate ultrasound equipment and settings
- Acquire and interpret real-time ultrasound images of peripheral veins
- Perform dynamic ultrasound-guided vascular cannulation
- Recognize and minimize complications

- Focused cardiac ultrasound

Participants will learn to:

- Understand the clinical indications and scope of focused cardiac ultrasound, particularly in acute pediatric care settings.
- Recognize basic cardiac anatomy on ultrasound
- Identify and obtain standard transthoracic cardiac windows, including:
 - Subxiphoid
 - Parasternal long-axis
 - Parasternal short-axis
 - Apical four-chamber
- Differentiate normal from abnormal findings related to:
 - Left and right ventricular size and function
 - Pericardial effusion
 - Volume status (IVC assessment)

- Signs of cardiac tamponade or right heart strain
- Interpret basic dynamic cardiac images to assess for:
 - Global contractility
 - Effusion & tamponade
 - Hypovolemia or hypervolemia
 - Cardiac arrest
- Recognize the limitations of focused cardiac ultrasound