

**American College of Physicians - Internal Medicine Meeting 2026
San Francisco, CA**

POCUS for Beginners

Faculty Information

Director:

Nilan Schnure, MD, Member

Michelle Beam, MD

Rebecca Davis, MD, FACP

Nicole Keane, MD

Kaahu Leite-Ah Yo, MD

Carley Little, MD

Roxanna Pourmirzaie, MD

Moshin Dahodwala, Resident/Fellow Member

Posted Date:

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POCUS for Beginners – ACP 2026 San Francisco Resources Handout

Ultrasound Basics

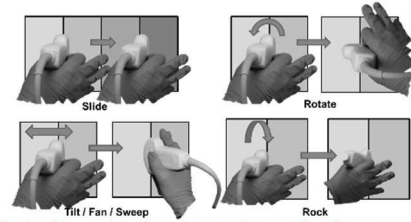
Indications

- Should be combined with **history and physical examination**
- Remember for every exam: **Probe, Presets, Patient Position**

Selected Resource for Physical Examination diagnostic performance:

- McGee, Steven. Evidence-based physical diagnosis e-book. Elsevier Health Sciences, 2021.
- Narula, Jagat, Y. Chandrashekar, and Eugene Braunwald. "Time to add a fifth pillar to bedside physical examination: inspection, palpation, percussion, auscultation, and insonation." JAMA cardiology 3.4 (2018): 346-350.

Probe Motion

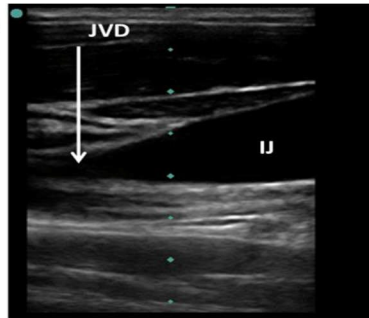


POCUS JVD

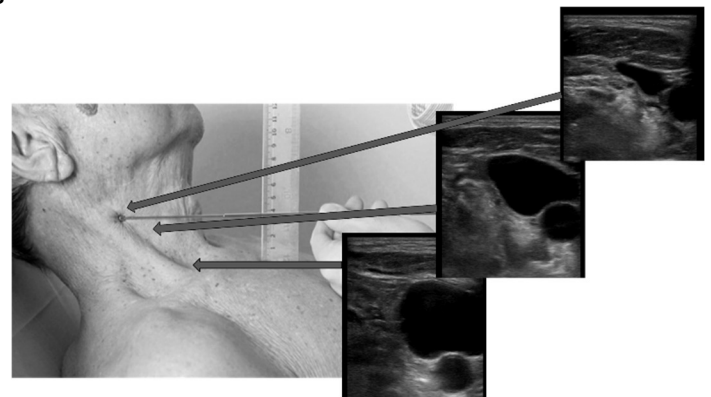
- **Probe(s):** linear probe, **Preset:** Venous, Superficial, **Position:** Patient upright or angled
- Using light pressure on the probe, identify the **internal jugular** in the **longitudinal plane** by finding the **internal jugular** in the **transverse plane** and then **rotating** the probe so the **indicator is cranial**
- Acquire an image in which the **internal jugular** narrows into a **"paintbrush"** appearance
- The height where the **internal jugular** tapers correlates with **jugular venous distention**



Hand Position



Longitudinal View



Transverse view at different levels (JVD is 2nd)

Selected Resources:

- Wang, Libo, et al. "Accuracy of Ultrasound Jugular Venous Pressure Height in Predicting Central Venous Congestion." Annals of internal medicine (2021).
- Brennan, J. Matthew, et al. "A comparison by medicine residents of physical examination versus hand-carried ultrasound for estimation of right atrial pressure." The American journal of cardiology 99.11 (2007): 1614-1616.

Pulmonary POCUS

- Indicated for **dyspnea** or **respiratory failure**
- **Probe(s):** Any, but body or curved, **Preset:** Lung, **Position:** Patient upright or supine
- Anchor hand on skin. Ensure perpendicularity to pleural. **Indicator is cranial**
- Identify Anchoring anatomy: **Rib, Pleura Rib**
- Put together pattern of A, B, and C into clinical picture



A lines

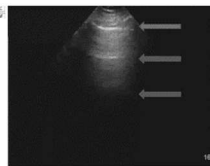
• **A** is for **A**cross

• **A** is for **A**ir

• Indicate air filled lungs, seen in **NORMAL** patients

• Also in **PTX, COPD/Asthma, PE, and Airway** lesions

• Only visible when probe is **perpendicular** to pleura



B lines

• **B** is for **B**ottom (of the screen)

• **B** is for **B**ad

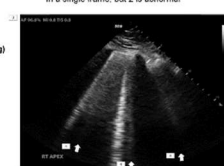
• Indicate **alveolar-interstitial syndrome** (fluid, scarring)

• Specific definition:

- Vertical
- Start at the pleura and extend to the bottom of the screen
- Move with the pleura
- Oblique A lines

• Differential includes:

- Alveolar fluid (cardiogenic edema, pulm. bleed, etc)
- Pulmonary fibrosis
- Interstitial edema
- Atelectasis
- More to come



Traditionally indicate pathology when 3 or more in a single frame, but 2 is abnormal

Consolidations

• No air -> Solid appearance

- Atelectasis
- Pneumonia
- Infarction



Selected Resources:

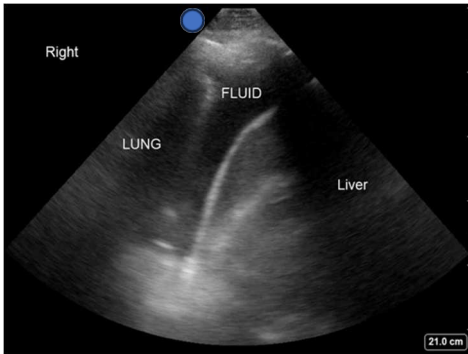
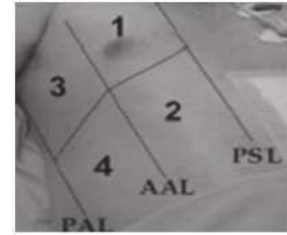
- Volpicelli, Giovanni, et al. "International evidence-based recommendations for point-of-care lung ultrasound." Intensive care medicine 38.4 (2012): 409-415.
- Tierney, David M., et al. "Comparative performance of pulmonary ultrasound, chest radiograph, and CT among patients with acute respiratory failure." Critical care medicine 48.2 (2020): 151-157.
- Gargani, Luna, and Giovanni Volpicelli. "How I do it: lung ultrasound." Cardiovascular ultrasound 12.1 (2014): 1-10.
- Baston, Cameron, and T. Eoin West. "Lung ultrasound in acute respiratory distress syndrome and beyond." Journal of Thoracic Disease 8.12 (2016): E1763.

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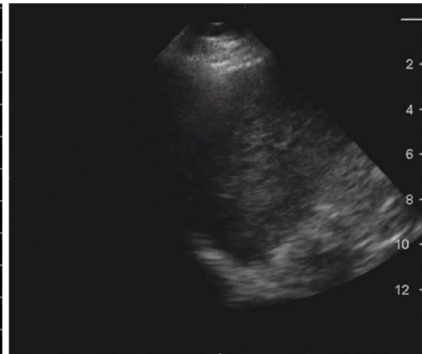
Resources Handout

Pleural Ultrasound for Effusion

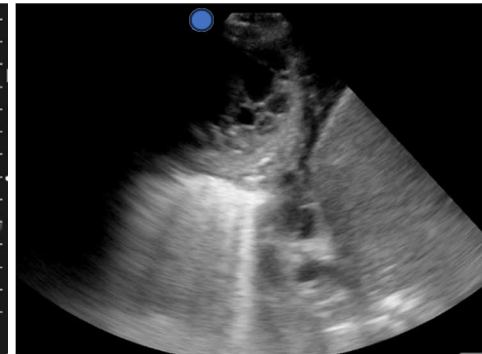
- Indicated for **dyspnea** or **respiratory failure**
- **Probe(s)**: Phased or curved, **Preset**: Abdomen, **Position**: Patient upright or supine
- Anchor hand on skin. Place at Zone 4 / Base of lung. **Indicator is cranial**
- Identify Anchoring anatomy: **Diaphragm, Liver or Spleen, Lung**
- Identify **Lung Curtain** or **Effusion**
- Look for **Loculations**



Labeled Anatomy Small Effusion



Lung Curtain (no Effusion)



Loculated effusion

Selected Resources:

- Cotton, Darrel William, et al. "Point of Care Ultrasound for the General Internist: Pleural Effusions." *Canadian Journal of General Internal Medicine* 13.2 (2018).
- Liu, Rachel B., et al. "The practice and implications of finding fluid during point-of-care ultrasonography: a review." *JAMA internal medicine* 177.12 (2017)
- Shkolnik, Boris, et al. "Diagnostic accuracy of thoracic ultrasonography to differentiate transudative from exudative pleural effusion." *Chest* 158.2 (2020)

Pulling it all together

- POCUS requires knowledge of **Indications, Image Acquisition, Image Interpretation, and Clinical Integration**
- Diagnostic performance in isolation is superior to physical exam and chest radiograph, but the strength of POCUS is that it is **never used in isolation of other clinical findings**
- People serious about POCUS **save their images for portfolio review**
- Combining multiple POCUS exams is essential for high quality information

JVD	Lungs	Pleura	Diagnoses
-	A lines	Lung Curtain	Normal COPD Asthma
+	B lines	+/- Effusion	CHF
+	A lines	Lung Curtain	DVT PE Tamponade
-	A / B or Consolidation	+/- Effusion	Pneumonia
-/+	A lines / Consolidation	Large Effusion	Pleural effusion

Example of combining multiple examination

Selected Resources:

- Díaz-Gómez, José L., Paul H. Mayo, and Seth J. Koenig. "Point-of-care ultrasonography." *New England Journal of Medicine* 385.17 (2021): 1593-1602.
- Qaseem, Amir, et al. "Appropriate use of point-of-care ultrasonography in patients with acute dyspnea in emergency department or inpatient settings: a clinical guideline from the American College of Physicians." *Annals of internal medicine* 174.7 (2021): 985-993.
- Wagner, Mike, Keith R. Barron, and Renee Dversdal. "Internal Medicine Point of Care Ultrasound: Indicators It's Here to Stay." *Journal of general internal medicine* 34.10 (2019): 1956-1958.
- Bhagra, Anjali, et al. "Point-of-care ultrasonography for primary care physicians and general internists." *Mayo Clinic Proceedings*. Vol. 91. No. 12. Elsevier, 2016.
- Soni, Nilam J., et al. "Point-of-care ultrasound for hospitalists: a position statement of the Society of Hospital Medicine." *Journal of hospital medicine* 14 (2019): E1.