

Translating the probe: Education of residents in lung ultrasound

Introduction:

Cardiopulmonary complications are one of the leading causes of maternal morbidity and mortality. Point of care ultrasound (POCUS) is a validated tool to diagnose pulmonary edema, even in the hands of a novice sonographer^{1,2,3}. While both anesthesiologists and obstetricians are well suited to utilize point of care lung ultrasound given their familiarity with ultrasound, many residents have no formal lung ultrasound training. We present the results of a training session aimed at translating the ultrasound experience of OBGYN residents to lung ultrasound.

Figure 1. Pre/Post-Test Sample

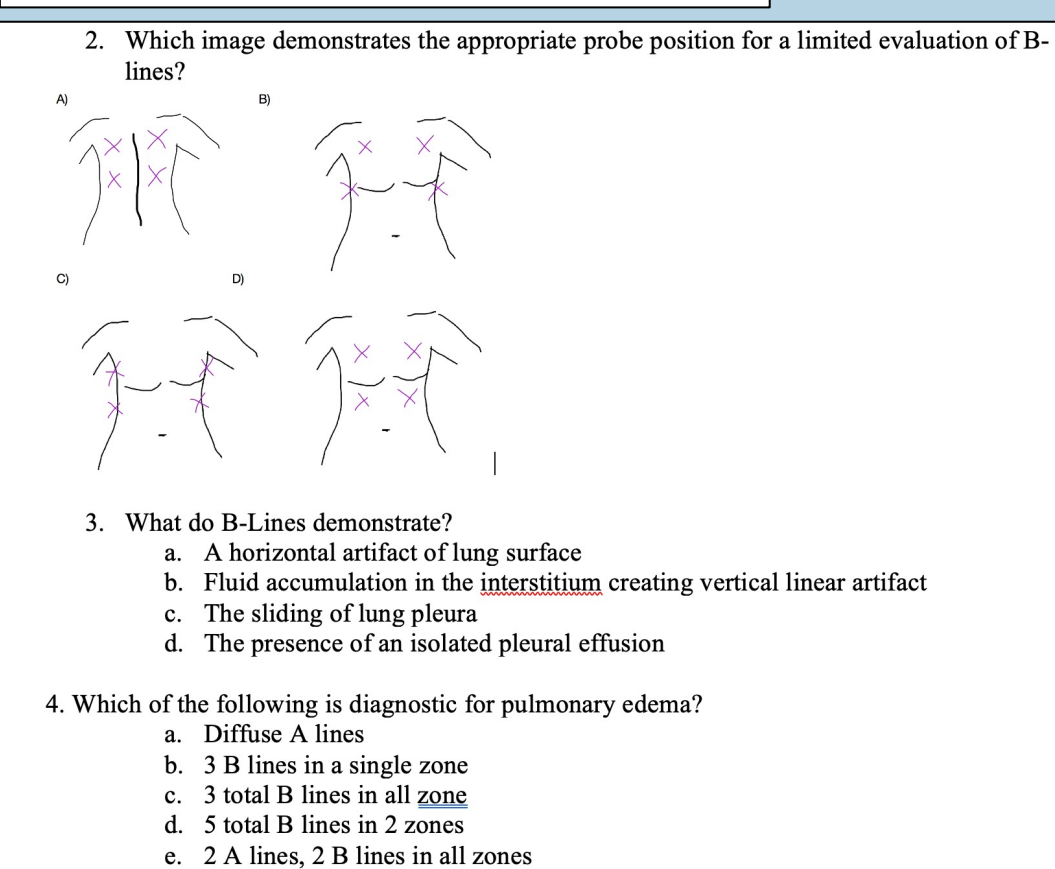
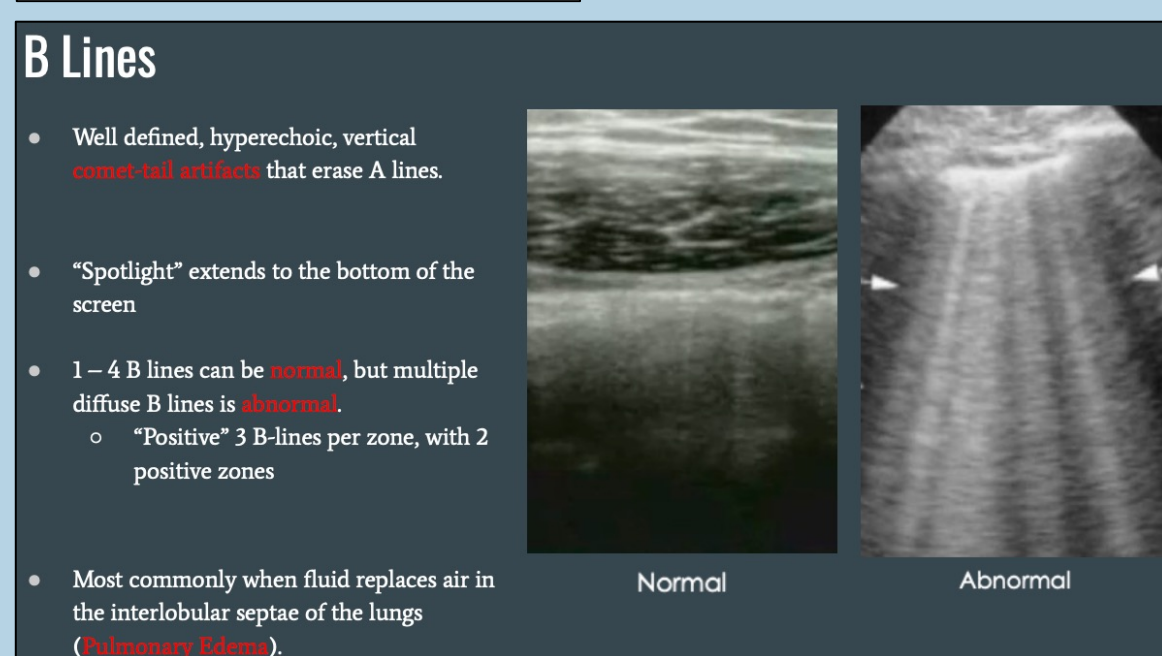


Figure 2. Lecture Slide

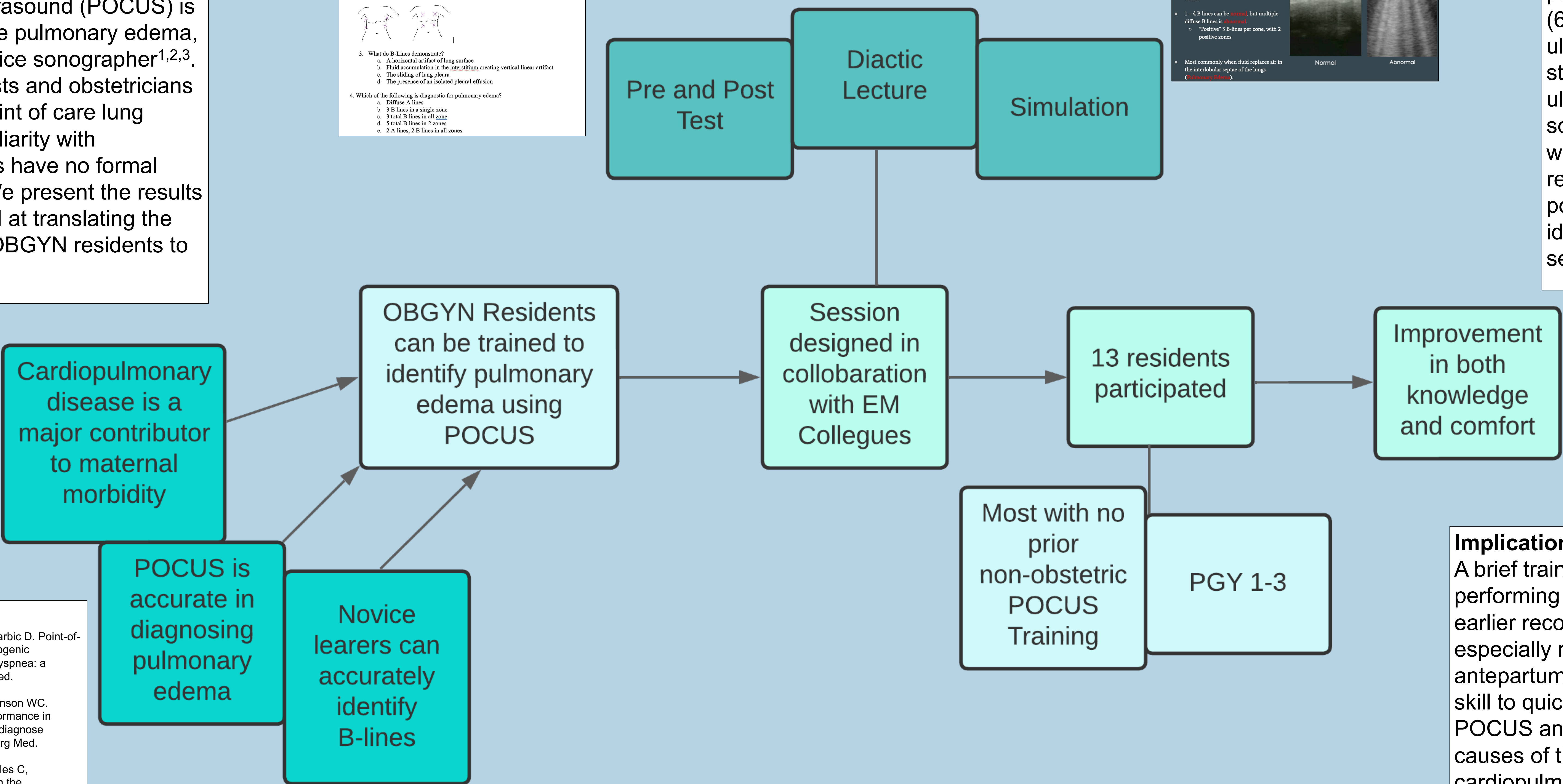


Results:

Thirteen residents, ranging from PGY1-3 years, participated and completed pre and post-tests. Most (61%) residents had no prior training in non-obstetric ultrasound. Notably, three residents (23% of the total study group) reported having more than 20 hours of ultrasound training attended the same medical school, University of California-Irvine. Improvement was noted across knowledge-based and image recognition questions, with a mean improvement post-test of 28%. 65% of residents felt comfortable identifying pulmonary edema on ultrasound post-session.

References:

- Al deeb M, Barbic S, Featherstone R, Dankoff J, Barbic D. Point-of-care ultrasonography for the diagnosis of acute cardiogenic pulmonary edema in patients presenting with acute dyspnea: a systematic review and meta-analysis. Acad Emerg Med. 2014;21(8):843-52.
- Chiem AT, Chan CH, Ander DS, Kobylivker AN, Manson WC. Comparison of expert and novice sonographers' performance in focused lung ultrasonography in dyspnea (FLUID) to diagnose patients with acute heart failure syndrome. Acad Emerg Med. 2015;22(5):564-73.
- Ramsingh D, Alexander B, Le K, Williams W, Canales C, Cannesson M. Comparison of the didactic lecture with the simulation/model approach for the teaching of a novel perioperative ultrasound curriculum to anesthesiology residents. J Clin Anesth. 2014;26(6):443-54.



Implications:

A brief training resulted in a clear benefit for residents in performing limited lung exam for B-lines. This may allow for earlier recognition and treatment of pulmonary edema, especially mobilizing delivery teams in the setting of antepartum preeclampsia. It is time to equip residents with the skill to quickly evaluate cardiopulmonary complications with POCUS and allow for more rapid treatment. As we study the causes of the severe morbidity and mortality of cardiopulmonary complications, we should also study the tools for better identifying it at the bedside.