

R1 Ultrasound Workshop # 2

Introduction and Objectives

I. Introduction

Point of care ultrasound (PoCUS) can provide real time information regarding a patient's status that serves as an adjunct to the traditional clinical assessment. In the hands of the bedside clinician PoCUS allows for real time therapeutic and diagnostic decision making as well as improving the quality and safety of bedside procedures. The mounting evidence has established a clear role for PoCUS in acute care medicine.

Ultrasound workshop 2 is a hands on follow up to the bootcamp ultrasound workshop. The focus includes machine operation, basics of image acquisition and imaging of the IJ, IVC and lungs to assess volume status and identify lung diseases. After completing the workshop, the participant should be capable of operating the machine independently and obtain images of the lung IJ, IVC and lung.

II. Rules of PoCUS?

PoCUS differs substantially from an ultrasound performed in the radiology department. It is important that the clinician follows the "rules" of PoCUS in order to incorporate ultrasound in a purposeful and efficient manner while avoiding the potential problems associated with overstepping one's skill level.

1. PoCUS is an adjunct to the clinical assessment and NOT a stand alone investigation.

US findings MUST be interpreted in the context of a full history, physical examination and other investigations.

2. PoCUS is a limited exam.

PoCUS exams are NOT comprehensive examinations of an organ or system. They are abbreviated, only incorporating components that provide information that will help with real time decision making in a timely fashion.

3. Have a focussed question before starting the exam.

This helps focus the exam and prevents the clinician from getting stuck in unfamiliar territory that is not relevant or that they are not qualified to interpret.

4. Know what you are looking for before starting the exam.

If you don't know what you are looking for you might miss it.

Objectives

1. Machine operation
2. Review basic ultrasound physics as it pertains to image acquisition and image interpretation
3. Review machine operation/knobology and transducer use
4. Review limitation and potential pitfalls of PoCUS
5. Review the normal ultrasound anatomy of the anterior neck
6. Review the use of ultrasound to identify the height of the JVP
7. Able to reliably obtain images of the IVC
8. Able to apply IVC maximum diameter and collapsibility index into volume assessment
9. Identifies potential pitfalls that can affect imaging and interpretation of the IVC
10. Review the technique of scanning the lung
11. Review the artefacts associated with a normal lung scan
12. Understands how to apply different lung scanning protocols
13. Able to recognize the appearance of pneumothorax, interstitial syndromes, pleural effusions and pneumonia on ultrasound
14. Able to combine JVP/IVC and lung ultrasound to formulate a multi-exam assessment of volume status

IV. How to use the Website

The website contains pre-workshop learning resources that have been designed to provide background knowledge allowing the workshops to focus on hands on skills. Therefore, it is essential that all of the materials be reviewed prior to the workshop.

There are 4 modules. Each module contains a list of objectives which should be viewed before proceeding with the learning resources. Use the objectives to help focus your learning while reviewing the resources. The resources consist of podcasts, power point presentations, ultrasound literature and images. The literature is provided for your interest and is not required prior to participating in the workshops.