

## **Point of Care Ultrasound**

### **Approach to Learning POCUS and Basic Curriculum CMH Ventura**

#### **Theory of Learning POCUS**

1. First, learn how to produce a good image of the target organ. A good image results from a combination of didactics and practice on live subjects. Learn where to place the probe to start looking for the target organ, what the right preset settings are, and how to adjust the image.
  - Download images to the Butterfly cloud. The preceptor will review them and provide feedback.
  - When rotating on Radiology, ER, or ICU and using one of the cart-based machines with a superior image, the respective ultrasound technologist or attending physician can review the images.
  - Self-learning modules: when rotating on a service where you have a cart based machine available, take time to learn how to use that machine.
2. Get to know the appearance of normal anatomy. Reviewing online images will help you develop the pattern recognition that will allow you to pick up the target organ amongst all that gray. Knowing some basic principles will help you know how to interpret the image, e.g. a solid versus cystic mass or a stone vs polyp in the gallbladder.
3. Learn what pathology looks like. This recognition will require reviewing online libraries which demonstrate pathology as well as clinical information e.g. Sonographic Murphy's sign.
4. Understand pitfalls when scanning patients.

#### **Modules and Curriculum**

We will use two sources for the curriculum for independent learning of POCUS:

- Butterfly Education
- The Sonosite Institute

We selected these sources because they will all be available to all residents and faculty for free; Butterfly content came with our Butterfly Purchase - you can access it online using your Butterfly log on or on the Butterfly app on your phone or tablet. Sonosite Institute is available to anyone at an institution where a Sonosite has been purchased. Go to [Sonositeinstitute.com](http://Sonositeinstitute.com) and obtain logon credentials using the serial number of one of our machines in MMG or the ER. The ER serial number is 04X1FW. Courses and webinars are available.

ACP also has content available to members.

## **Getting started**

### **Fundamentals**

#### **Butterfly**

1. Introduction to Butterfly
2. Orientation
3. Gel and Butterfly
4. Holding the Butterfly
5. Activating the Butterfly

### **Cardiac/cardiovascular**

#### **Butterfly**

1. Focused Cardiac Protocol
2. PLAX-parasternal long view
3. apical 4 chamber(AP4)-basics
4. apical-5 chamber(AP5)-basics
5. Subcostal 4 chamber (SC4) basics
6. Cardiac PLAX Pericardia effusion
7. Cardiac-HfrEF
8. E-Point septal separation
9. IVC-midline view
10. IVC-hepatic view
11. IVC-percent collapse
12. IVC-plethoric view

#### **Sonosite**

Course: Cardiac Imaging 1 (2hr 20min)

### **Abdomen**

#### **Gallbladder**

##### **Butterfly**

Gallbladder exam

##### **Sonosite**

Gallbladder (3h, but you can skip the introduction and pretest)

#### **Aorta**

##### **Butterfly**

Go to Education and choose Aorta under category

Do all 9 modules, starting with Aorta Protocol

## **For Thoracic Aorta**

Suprasternal Notch-basics

## **Sonosite**

Course: Aorta (2hr 8min) (optional if time)

## **FAST**

### **Butterfly**

Right upper quadrant-Basics

Left upper quadrant-Basics

Pelvic Windo-basics

FAST-Splenic hematoma and ruq ff

FAST-Positive pelvis window

FAST-Splenic laceration

## **Procedures**

### **Sonosite**

Central line management

Paracentesis (optional-residents get this on their rotation)

Ultrasound guided Thoracentesis

## **Shock**

Webinar: Point of care ultrasound in the shock patient - offers an excellent discussion of the rapid evaluation of an unstable patient with hypotension or shock

## **Ocular (optional)**

### **Sonosite**

Ocular Ultrasound

## **Ob/Gyn**

### **Butterfly**

Female Pelvis

1<sup>st</sup> trimester-Gestational Sac

1<sup>st</sup> Trimester fetal pole and yolk sac

1<sup>st</sup> trimester M-mode Fetal HR

Ovary scanning