UF HEALTH ICU Ultrasound Curriculum Training (Updated 6/6/2018)

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Please refer to MyTraining modules for continued training in ultrasound modalities (type in "ultrasound" in the search function

Ultrasound Documentation/Saving:

Saving Images to Machines (Do NOT use USB drives or any non-encrypted file storage devices, this would be against our current Privacy rules). ALL Intensive Care Units and Emergency Department areas have ultrasound machines that have the ability to save machines to a server (Qpath and Visage/EPIC). Most of the knobology is similar in most ultrasound machines, but you may have to consult someone in the unit that uses the machine frequently if you have difficulty.

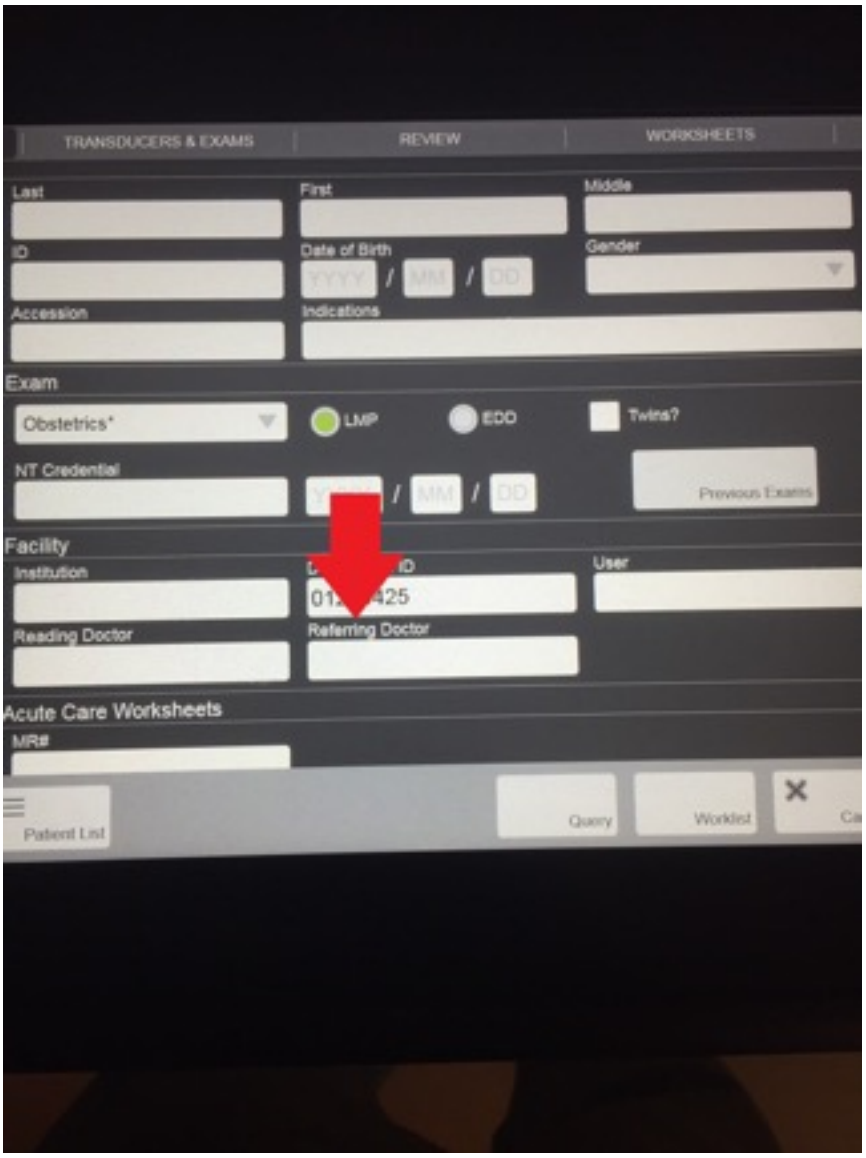
There are three ways to use the ultrasound machines:

- **Crashing patient** ultrasound study - just use, do not worry about saving, although after the acute phase, you should repeat exam and place appropriate notes since ultrasound was used to alter patient care. Place name, MR, and operator (in the "referring doctor" blank)
- **Educational study** - See step 3 below; no prior order to do
- **Billing study** - See step 3 below; prior to turning machine on, go to the patient order screen and place order "US in ICU". This will create a connection between the machine and the patient.

1. Take the machine to the patient's bedside first, then Turn ON machine. This is important since sometimes the wireless connection may change if you move from one area of the unit to another. Wait about 30 seconds to 1 minute prior to putting patient info. Wait until the Wireless signal (bottom right of most machines) is available or you will have issues with the next steps.
2. Press 'New Patient' on keyboard/touchscreen, or any "Patient" selection area available.
3. If **EDUCATIONAL**: Enter patient info [the MR number only]; and place your epic username in the "referring doctor" section (see picture below). If an attending/fellow is supervising you, you can put their epic username in the "reading doctor" blank.

   If **BILLING**: Place order in EPIC as "Ultrasound in ICU". Click/touch on "Worklist" tab at bottom of screen, then "Update" worklist, and select patient to be studied. You should always "update", otherwise the patient may not appear on the list.
4. Select exam type. This can be optional and can be changed any time. Do not forget to place your epic username in the "referring doctor" section. (see picture below). If an attending/fellow is supervising you, you can put their epic username in the "reading doctor" blank.
5. Tab over to 'exit' , "done", once the patient is selected.
6. At this point you can still change transducer or exam type , but you can also do this later.
7. Remember to place the appropriate label (hearts, lungs, or vascular structures) either through text or picto that are available on all machines, this will help in the quality assurance process.

8. Once image acquired that you want, press ‘freeze’.
9. Then press ‘store’ or ‘save’ button. This will save the stillshot, if you want a 3 sec clip, do not freeze the image, just press ‘store’ or “save” as you are doing the scan
10. When finished with exam, press ‘end exam’ on keyboard or in the “patient” input area.
11. If you want to review your scans you can find them through the ‘archive’ or “review” buttons, or through Qpath. If you have entered the “US in ICU” order, you will also be able to find these on the patient’s EPIC chart with other imaging. When you go to visage, but sure to click the “4x4” tab.
12. Complete note in procedure note area (see below for more details). Procedure type is “POCT bedside ultrasound”, indication should be hypoxia, hypotension, or hemodynamic instability (if doing for vascular access). In the free text section, type in “.USCC” and a dropdown menu will be made available for all the ultrasound procedures we do. You do not need to include the images here, if steps followed above, they will be saved to Qpath or PACS. Do not delete any portion of the note as it has gone through compliance, billing, etc to be approved for use. If you did not perform the function indicated, simply state “Not Performed”.



Procedure Notes

If the decision is made to perform one for billing by your Attending physician, the images must be ordered through EPIC and loaded onto Visage/PACS/EPIC/McKesson. If you do an 'educational' ultrasound and subsequently make management decision from it, you can still place a short progress note using these same templates and can show other physicians archived ultrasound images/clips through Qpath (see Qpath instruction sheet on website).

The following are the ultrasound procedures that are to be placed into the chart to complete documentation. Billing for individual ultrasounds can only be done by providers (Attending physicians and extensions of these physicians) who are credentialed by the hospital to perform them and through the individual billing departments (MICU, SICU, NeuroICU, CICU, PICU, ED).

Use "POCT Bedside Ultrasound" to enter into the procedure location.
The indication pre and post procedure should by HYPOXIA or HYPOTENSION
Use the smartphrase ".uscc"; this will give a drop-down list with fields to complete

There will be CCM Ultrasound Scanning Rounding opportunities throughout each month to perform with specific attending physicians who are credentialed to perform them in order to ensure quality instruction when obtaining these images.

Core

1. **Procedural/Vascular** – for use in procedures the physician is already proficient in without ultrasound guidance including but not limited to central venous lines and tube thoracostomy, evaluation of relevant vessels for access and for determination of thrombosis in critical care settings
2. **Abdomen** – for evaluation intraperitoneal hemorrhage, pericardial tamponade, hemothorax, and assessment for gross abnormalities of kidney (hydronephrosis) and aorta (aneurysm) in the evaluation of critically ill unstable hypotensive patients
3. **Transthoracic echocardiogram basic limited** – for evaluation of pericardial tamponade, pericardial effusion, to evaluate cardiac function, activity, and evaluate volume status in the critically ill hypotensive patient
4. **Lung** – for evaluation of presence of hemothorax, pneumothorax, pulmonary edema, consolidations, and other pleural effusions in the evaluation of critically ill hypoxic patient

Advanced/Optional/Limited studies

5. **Aorta**- Ultrasound to determine the presence of abdominal aortic aneurysm to evaluate hypotension in the critically ill patient
6. **Renal** - renal ultrasound to determine presence of hydronephrosis, assessment of presence of bladder volume for evaluation of oligoanuria in critically ill patients
7. **Gallbladder** - abdominal ultrasound to detect evidence of cholelithiasis, cholecystitis, choledocholithiasis, or fluid around gallbladder in the acutely hypotensive patient

8. **hTEE (Imacor)** - for evaluation of pericardial tamponade, pericardial effusion, to evaluate cardiac function, activity, and evaluate volume status in the critically ill hypotensive patient

Quality Assurance Process

The QA process will be done through Qpath (see Qpath instruction sheet) and will be required as a continuing process for fellows and attending physicians performing ultrasound in the intensive care units. Qpath allows individuals to submit cases for review. ICU fellows will be required to submit 2 QA's per application per month (limited cardiac, thoracic, vascular/procedural, abdomen). This should result in approximately 80 reviewed scans per year (~25% of all scans done). In addition, faculty who are identified as "Reviewers" are able to review scans on an intermittent basis. The following is the scale we will be using:

5 : Excellent images, adequate for evaluation and decision making - No intervention required

4 : Good images, ***adequate for evaluation and decision making*** - PDF sent to fellow/attending physician on what could have been done better

3 : Poor to Good images, ***not adequate for evaluation and decision making*** - PDF sent to fellow/attending physician on what could have been done better

2 : Inadequate images; ***not adequate for any interpreation to perform, unable to identify system studied***; PDF sent to fellow/attending physician on what could have been done better

1 : Poor to good images; ***patient care decision with possible risk*** (chest tube placed for no pleural effusion causing pneumothorax, chest tube placed in abdomen, poor heart function evaluated as hyperdynamic and inappropriately given IV fluids); intervention required is meeting with all attending physicians and fellow involved with action plan