



Ultrasound Credentialing & Curriculum for CCRMC FM Residency

1. Purpose:

To establish a credentialing process and a curriculum for an ultrasound program in the family medicine residency program at Contra Costa Regional Medical Center and Clinics.

2. Background:

The AMA is an advocate of point of care ultrasound testing by non radiologists. In a position paper in December 2001 it is stated: “The AMA recognizes that ultrasound imaging is within the scope of practice of physicians with training in the technology, and that physicians should qualify for privileging if they possess appropriate training as specified by their respective specialty association.” Currently emergency medicine has the most inclusive US curriculum and credentialing program that includes all aspects of clinical medicine. 95% of all emergency medicine residencies have a US curriculum and credentialing process. The family medicine literature focuses on the development OB/GYN US curriculum that can be utilized by family physicians. The following ultrasound curriculum and credentialing process is a synthesis of emergency medicine and family medicine data. Such a synthesis is suited for the family medicine residency at Contra Costa Regional Medical Center that promotes full spectrum family medicine training with a strong emphasis in OB/GYN.

3. References:

1. Policy Statement, “Emergency Ultrasound Guidelines”, American College of Emergency Physicians, Annals of Emergency Medicine, Vol 53, No.4,pp 550-570, April 2009.
2. Stein, Nobay. “Emergency Department Ultrasound Credentialing: A Sample Policy and Procedure”. The Journal of Emergency Medicine, Vol 37, No.2 pp. 153-159, 2009.
3. AAFP Ultrasonography, Diagnostic on OB/GYN (Position Paper).2011.

4. Indications of use:

The US exam by a family medicine physician is beneficial to patient care if the test provides quick answers to a direct and focused question at the bedside.

Clinical medicine is dependent on appropriate history, physical exam and laboratory findings. No clinically useful diagnosis or procedure will be solely dependent on the use of ultrasound imaging. For example a patient will be considered to have a diagnosis of biliary colic if they have a history of RUQ pain, postprandial vomiting, and stones noted on the gallbladder US. In an asymptomatic patient, the finding of incidental gallstones on US exam is not clinically useful. While it is considered the standard of care to use ultrasound imaging in placing an internal jugular central venous catheter, the US image is not helpful if the clinician doesn't have the appropriate equipment or training to put in a central line. Point of care US use therefore can be considered an aid in diagnosis like an EKG, chest x-ray or blood test, and as an adjunct for doing a procedure. Bedside US is utilized with the physical exam but should be considered a separate process that adds anatomic, functional, and physiologic information to patient care. The use of US in clinical medicine should never be the sole reason to provide diagnosis, disposition or guide a procedure of a patient.

5. Rationale for Use:

Point of care ultrasound testing will allow the clinician to increase diagnostic accuracy. Bedside physician performed ultrasound can safely guide procedures in an unstable patient, where seconds or minutes count and it is not possible to transfer the patient to radiology. Bedside ultrasound can provide information that can lead to life saving treatment.

Point of care ultrasound testing will also facilitate rapid disposition of patients in a busy clinic, labor and delivery suite or emergency department. The patient with biliary colic will be grateful that they receive a diagnosis in clinic and get appropriate and timely referral to a specialist that is not contingent on getting a outpatient RUQ US that may take weeks to be scheduled. The labor and delivery suite is open 24 hours a day, and with the sheer volume of patients and rapidly changing clinical course, it is not reasonable or cost effective to have laboring and nonlaboring patients get formal US imaging. ED studies have demonstrated that point of care US testing not only leads to timely diagnosis and aids in procedures but it also speeds up care and decreases the overall length of stay of patients in a busy emergency department.

6. Participation in US curriculum and credentialing:

- a. The US certificate program for residents is completely voluntary and participation is not required in order to graduate from the Family Medicine residency.

- b. While there will be strict criteria to establish US competency the program will be largely self-guided by interested residents. For example, a resident may decide that they want to spend the majority of time learning OB US and will choose not to get training in ocular US imaging. The certificate of competency will denote the total number and type of US tests completed by the resident. The document will allow the graduating resident to apply for ultrasound privileges and serve as reference for further training needs.

7. Credentialing Process:

- a. Each resident will need to take a 16-24 hour introductory ultrasound course that covers the core applications with hands-on sessions. It is anticipated that an introductory US course will be taught each summer to incoming first year residents.
- a. For “General Competency in Ultrasound” a minimum of 150 ultrasound exams need to be saved and logged in New Innovations and signed off by an appropriate supervising physician. Learning in residency is helped by repetition. The more US scans a resident performs, given the huge overlap in the learning curve for all US exams, the more competent they will be in US testing upon graduation.
- b. For “Diagnostic Ultrasound” a resident will show a minimum of 25 documented and reviewed cases for each of the core applications. Ultrasound testing for diagnostic purposes should only be done if clinically indicated. There will be no set criteria of how many positive or negative exams need to be documented in these 25 documented cases. For example, an ocular US done on a patient with blurry vision and flashing lights will count as one exam regardless if a detached retina is found or not.
- c. For “Procedural Ultrasound” a resident will document 5 US-guided procedures. For low volume procedures it will be acceptable to complete a module of an ultrasound-guided procedure with simulation on a high quality ultrasound phantom.
- d. OB/GYN Ultrasound- 25 scan criteria will be utilized for basic US scanning criteria denoted in curriculum section. The OB/GYN department will manage advanced OB/GYN scanning criteria and credentialing process.

8. Supervision:

- a. Supervision will come from all interested departments with the thought that supervising physicians can teach and sign off residents on US exams that is

within their scope of practice and training. The discussed curriculum and credentialing process is for family medicine residents only. Attending physicians will need credentialing from their respective departments to perform point of care ultrasound exams.

b. Residents can supervise other residents doing US scans if they complete a minimum of 150 total scans and completed the minimum amount diagnostic or procedural scans for the indicated core application. For instance a resident who has 150 scans logged and has done 25 gallbladder scans can supervise a resident who is deficient in gallbladder scans.

c. Supervision of the family medicine US program will be designated by the family medicine residency director. Currently the program is managed within the global health and ultrasound program of the Contra Costa Family Medicine residency program. Co-director's of the global health and ultrasound program, Neil Jayasekera MD and Kevin Bergman MD, lead the current US committee. Other committee members include, Tom McCoy DO (emergency medicine), Stuart Forman MD (critical care), Judy Bliss MD (OB/GYN), Denis Mahar MD (cardiology) and Robert Liebig MD (radiology).

9. Documentation:

a. All images that will be used for clinical decision-making or guidance in a procedure will need to be saved and uploaded to the PACS radiology system under "Unverified images". Saving of images will allow for quality control measures and can be helpful if a resident asks for a radiologist to look at the images for verification.

b. Each US procedure will be logged into New Innovations and signed off by the appropriate supervising physician.

All logged procedures, if applicable, should have the following comments in the remarks section:

1. Formal US finding
2. Surgical finding
3. Patient outcome

c. All US imaging that is documented in the medical record should be deemed a bedside US or point of care US so the reader knows that the scan was not done in the radiology department. Supervising physician, unless the resident is credentialed to do the US scan, should also be documented.

d. As ultrasound is non-invasive and carries no radiation burden a signed consent is not needed for its use. Signed consents are needed for the procedure where an ultrasound is utilized.

10. Core applications:

1. OB/GYN- basic and advanced
2. Trauma
3. AAA
4. Cardiac
5. Biliary
6. Urinary Tract
7. DVT
8. Soft tissue/musculoskeletal
9. Thoracic
10. Ocular
11. Procedural Guidance

1 A. Basic OB/GYN ultrasound:

1. Detection of intrauterine pregnancy.
2. Detection of fetal heart tones in all stages of pregnancy.
3. Dating of the pregnancy.
4. Detection of free fluid in the pelvis.

Physicians comfortable in such procedures including emergency physicians, family physicians working in clinic and OB/GYN physicians can supervise basic OB/GYN ultrasound.

1 B. Advanced OB/GYN ultrasound:

Advanced OB/GYN ultrasound includes basic ultrasound and much more. The criteria below are set forth by the OB/GYN department and supported by the AAFP Ultrasonography, Diagnostic in OB/GYN Position Paper. Basic OB/GYN US procedures can be done by any physician credentialed to do such ultrasounds. All Advanced OB/GYN US procedures not listed in Basic OB/GYN US will be proctored and credentialed by the OB/GYN dept.

1. Evaluation of early pregnancy for viability, location, dating and recognition of molar pregnancy.
2. Placental location and evaluation of previa and abruption.
3. Fetal presentation.
4. Gestational age by CRL in first trimester and composite BPD, FL, AC in second and third trimester.
5. Evaluation of EFW in second and third trimester.
6. Amniotic Fluid Index.

7. Biophysical profile.
8. Evaluation of fetal heart rate.
9. Confirmation of fetal death.
10. Ultrasound guidance for amniocentesis for lung maturity (rarely done at CCRMC).
11. Ultrasound assistance in delivery of multiple gestations.
12. Presence or absence of IUD in uterus.

2. Trauma

e FAST Exam - extended Focused assessment with sonography in Trauma.

- a. Is there free fluid/blood in the abdomen?
- b. Is there fluid/blood in the pericardium?
- c. Is there fluid/blood in the thorax?
- d. Is there a pneumothorax?

3. Abdominal Aortic Aneurysm (AAA):

Be able to perform scan and know indications for use i.e. patient presenting with symptoms concerning for aortic dissection need a CT scan with IV contrast to help make a diagnosis.

4. Cardiac Echo:

- a. Detection of pericardial effusion.
- b. Assessment of Global contractility (i.e. hypokinesis vs. normal).
- c. Assessment of Right Ventricle size (i.e. is RV bigger than LV).
- d. Presence of cardiac activity (i.e. diagnosis of PEA or asystole).
- e. Measurement of IVC to assess volume status.

5. Hepatobiliary System:

- a. Detection of gallstones.
- b. Assessment of common bile duct dilatation.
- c. Presence of sonographic Murphy's sign.

6. Urinary Tract:

- a. Assessment of pre-void and post-void bladder volume.
- b. Detection of hydronephrosis.

7. Deep Venous Thrombosis:

Two point test of the lower extremity. Complete leg venous Doppler only done in Radiology department. Learn to utilize appropriate algorithm with two point test to exclude DVT.

8. Soft tissue/musculoskeletal:

- a. Soft tissue infection- cellulitis vs. abscess
- b. Foreign bodies

9. Thoracic:

- a. Pneumothorax- non-traumatic
- b. Pleural Effusion

10 Ocular:

- a. Retinal detachment , vitreous hemorrhage

11. Procedural Guidance:

- a. Central venous access.
- b. Peripheral vein access- i.e. basilic, brachial vein
- c. Thoracentesis
- d. Paracentesis
- e. Joint aspiration
- f. Nerve blocks
- g. Abscess drainage
- h. Multiple other procedures.

APPROVED:

SIGNATURE OF RESIDENCY PROGRAM DIRECTOR

SIGNATURE OF COURSE INSTRUCTOR