

Emergency Ultrasound Course

Dr Justin Bowra

**ED Course Manual 5:
Credentialing**

Why all the fuss? Why credential in point-of-care US (POCUS)?

- POCUS is quite a different skill to traditional US in the Radiology Dept. In a way, it is much harder. We have to be the sonographer (expert in image acquisition) AND the radiologist (expert in image interpretation) AND the clinician ordering the scan (expert in the clinical context). To top it off, we are also resuscitating the patient!
- So let's break it down. POCUS requires us to learn and become competent in the following areas:
 - Image acquisition (physics, knobology, knowing how to generate the best pictures)
 - Image interpretation (familiarity with artifacts and the variety of normal and abnormal findings we may encounter)
 - Clinical context (what's the question we are trying to answer? How will POCUS help?)

But I didn't need to be credentialed in using a stethoscope! Surely this is just the same?

Yes you did. The credentialing exam for using a stethoscope is called Medical School. The day that POCUS is routinely incorporated into medical school curricula, and examined in your final exam, is the day that we can stop with all this credentialing malarkey. That day will come, but it's not here yet.

Let's look at the credentialing options for critical care POCUS.

For most of us, this boils down to either the ACEM or ASUM process... and in fact the two are complementary.

Australasian College for Emergency Medicine (ACEM)

For details, see www.acem.org.au

The credentialing process for ED Ultrasonography covers:

1. Trauma Examination (EFAST)
2. Suspected AAA
3. Echo in Life Support (ELS = basic echo = focused cardiac US).
4. Vascular access: in fact ACEM advises that an intro course suffices for this, and a formal ongoing log book is not required.

For the first three applications / modules, let's see what's needed:

1. An introductory workshop
2. A log book of proctored scans, of which 50% are indicated and at least 5 are positive for each module
3. For ELS, the successful candidate must correctly interpret a further 25 scans showing pathology (eg tamponade, RV strain) under supervision

4. An exit exam (scanning a patient or volunteer) under the supervision of an appropriately qualified supervisor.

The introductory US workshop

- A certain amount of didactic time & hands on time
- Teacher/machine: candidate ratio $\leq 1:5$
- An exit exam (MCQ)
- Formally approved by ACEM US subcommittee
- This course is accredited for all of the above modules

Logged Exams

EFAST

- At least 25 accurate, credentialed trauma examinations
- 50% of these exams must be clinically indicated.
- At least 5 should be positive for intraperitoneal, pleural or pericardial fluid... or pneumothorax

AAA

- 15 accurate, credentialed scans of the aorta
- 50% of these exams must be clinically indicated.
- 5 should demonstrate an aneurysm.

Echocardiography in Life Support

- At least 25 accurate, credentialed cardiac examinations
- 50% of these exams must be clinically indicated.
- There is no formal requirement for them to be positive
- At least 5 of these should be clinically indicated (i.e. in the setting of cardiac arrest or haemodynamic compromise). These scans should be reviewed by a sonologist (this may occur later using recorded images / loops). Findings should also be compared with clinical data and noted whether the findings were accurate.
- At least 5 examinations should be performed under the direct supervision of a sonologist.
- In addition, candidates should interpret a further 25 examinations, which have been performed either by themselves or by other practitioners (for example, previously recorded scans).
- These 50 cases must include at least two cases each of tamponade, right heart failure / massive PE, hypovolemia or distributive shock and left ventricular failure.

Credentialing Examination (a real time exam performed on a patient or volunteer in front of the examiner)

- Ability to create adequate ultrasound images.

- Identify any relevant artefacts or pathology present during real time scanning and/or on videotaped scans and/or hard copies of scans. Recognize an inadequate scan.
- Know the indications and limitations of POCUS.

**Once you're credentialed:
Maintenance of Credentials**

- 3 hours of ultrasound training per year in each modality (4 for ELS)
- 25 FAST scans per year
- 15 AAA scans per year
- 25 ELS scans per year
- EDs in which bedside ultrasound is performed must conduct bi-monthly audits of the ultrasound examinations as part of the department's quality improvement process.

Australian Society of Ultrasound in Medicine (ASUM)

www.asum.com.au

ASUM covers the bases for those of us who want to do more than just the above modules- eg if you want to expand your practice to include DVT or biliary scanning. There are two options available:

1. The DDU (Diploma of Diagnostic US): this takes two years and is plenty of work. It's recommended for those who really want to practice at the highest level possible in Australia. A DDU program is now available specifically in Emergency Medicine.
2. The CCPU (Certificate of Clinician-Performed US). For the core ED modules described above a CCPU is unnecessary, strictly speaking. Its credentialing process is essentially a mirror image of the ACEM process in these modules, which reflects the fact that it was created by ASUM after extensive consultation with ACEM, and the ASUM CCPU Certification Board includes FACEMs. However, as noted above, this route is perfect for clinicians who want a modular certificate in other applications such as DVT, biliary, early pregnancy and a host of other units.

Procedure for obtaining Certificate of Clinician Performed Ultrasound

Pre-requisites

- ASUM member or clinical affiliate
- Registered medical practitioner

Basic Requirements for the core EM modules

- Complete the online ASUM course in Applied Physics and Instrumentation
- Complete an approved introductory course in BELS/EFAST/AAA (eg this course)
- Log book requirement essentially as per ACEM. Log book templates are available to ASEM members. Candidates submit their completed logbooks to ASUM for assessment.

Advanced Requirements

- Complete at least one Advanced Module within 5 years after completion of the basic requirements. Advanced modules include:
 - Acute Pelvis
 - DVT and Vascular Access
 - Acute Gynae and 1st Trimester Bleeding
 - Acute Scrotum
 - Ocular
 - Kidneys & Bladder
- Complete 25 examinations in each of the advanced modalities within 2 years of completing each advanced course, at least 50% clinically indicated (3-5 positive).

Recertification

- Practical Requirements
 - 15 EFAST examinations per year over 5 year period, at least 50% clinically indicated with at least 20% positive
 - 10 AAA examinations per year over 5 year period, at least 50% clinically indicated with at least 20% positive
 - 15 examinations per year over 5 year period, in each of the advanced modalities, at least 50% clinically indicated with at least 20% positive
- Ongoing education requirement: a minimum number of hours/ year of ongoing US education (eg in US department or at accredited workshops)

Quality Improvement

- A database of all ED ultrasound scans will be used for continuous quality improvement review, individual and department performance monitoring, and teaching.
- There will be a periodic review of sonograms for both image quality and interpretation.
- Tracking clinical outcomes of patients who were scanned in the ED will also be used to monitor the clinical interpretation of ultrasound studies. This may be in the form of obtaining reports of follow-up imaging procedures or surgical findings. Errors in clinical interpretation or failure to obtain appropriate images can then be identified and reviewed.

What about documentation?

This depends on individual clinicians, their EDs and hospitals. But there are a couple of general principles:

- You should assume you will be asked to justify the actions you took based on your ultrasound examination. So at the very least, document

the indication for the study and your findings in the patient record.

- **Do you need to save images?** This is a thorny one. Many clinicians (and some radiologists) adopt a 'less is more' approach and would prefer not to save any images at all. However, the ACEM and ASUM guidelines above make it clear that this is not an option.
- **How to save the images?** This can be a real pain. Many machine still default to irritating formats like DICOM (invented for radiology departments, not for clinicians with standard PCs or Macs). Fortunately, the machine manufacturers are starting to listen to clinicians and more machines are adopting simple JPEG/MPEG/MP4 formats and USB compatibility.
- **Where and how to back up your images?** This comes down to choice and availability. A standalone external USB hard drive is a workable solution, but how will you make sure it doesn't get stolen (along with all its confidential data)? And what if it crashes? Another option is to ask your friendly radiology department to let you use their PACS system- but this has its own headaches.