Australasian College
for Emergency Medicine

Credentialing for emergency medicine ultrasonography

Policy P733

v1.1 November 2019
acem.org.au

Document Review

Timeframe for review:	Every five years, or earlier if required.
Document authorisation:	Council of Education
Document implementation:	ED Ultrasound Committee
Document maintenance:	Department of Education and Training

Revision History

Version	Date	Pages revised / Brief Explanation of Revision
V1	August 2019	Amalgamation of P22 (Policy on Credentialing for Emergency Medicine Ultrasonography: Trauma and Suspected AAA) and P61 (Policy on Credentialing for Focused Echocardiography in Life Support)
V1.1	November 2019	Content updates

Related documents

G25 *Guidelines for Ultrasound Education Programs*

P21 *Policy on use of focused ultrasound in emergency departments*

Glossary

FELS: Focused echocardiography in life support.

PTEeXAM: Perioperative Transesophageal Echocardiography exam (US National Board of Echocardiography)

ASCeXAM: Examination of Special Competence in Adult Echocardiography (US National Board of Echocardiography).

PGDip Echo: Post graduate diploma of echocardiography (University of Melbourne)

PGCert/Dip of Clinical Ultrasound: Post graduate certificate or diploma of clinical ultrasound (University of Melbourne).

DDU: Diploma of diagnostic ultrasound (Australasian Society for Ultrasound in Medicine).

AAA: Abdominal aortic aneurysm

CPR: Cardiopulmonary resuscitation

CCPU: Certificate in Clinical Performed Ultrasound (Australasian Society for Ultrasound in Medicine)

1. Purpose and scope

This document is a policy of the Australasian College for Emergency Medicine (ACEM) and relates to credentialing for emergency medicine ultrasonography in emergency departments. This policy details the credentialing process that ACEM recommends for emergency physicians who wish to perform focused emergency medicine ultrasound on resuscitation and trauma patients and for procedural guidance.

Emergency Sonologists will often encounter cases where core applications (lung, AAA, FELS, vascular access, EFAST) are insufficient or unsuited to advance the clinical assessment or management of a patient. If the skills and training of the emergency physician allows, they should be actively encouraged to extend their scope of practice. The basic pathway to competency should be of a similar structure to that of core applications (theory and introductory phase, supervised practice, experience and exit assessment of competence).

ACEM does not credential practitioners to perform emergency medicine ultrasonography. This is the responsibility of the health authority. ACEM does not act as a credentialing body. In the absence of such a service, it would be reasonable for clinicians to follow a similar structure in their advanced ultrasound training as detailed in the ASUM CCPU or DDU modules. ACEM recognises that the possession of these qualifications (or equivalent) should infer minimum competency in the relevant areas.

In this document, the term sonologist is used to include practitioners who have successfully completed this credentialing process or equivalent (e.g. CCPU). In the case of focused echo, higher echocardiography training (such as PTEeXAM, ASCeXAM, PGDipEcho, PGCert / Dip. of Clinical Ultrasound, DDU) is considered appropriate.

2. Policy

ACEM supports measures to ensure that focused ultrasound examinations are available in a timely fashion for emergency department patients 24 hours per day. This should be almost immediate in the context of cardiac arrest, peri-arrest, or time-critical illness. Focused echocardiography should be rapidly available in the setting of a patient in cardiac arrest or with haemodynamic compromise.

Focused ultrasounds are limited, goal directed examinations performed to answer specific clinical questions. These examinations are not comprehensive and do not replace sonography offered by diagnostic imaging departments or those performed in dedicated echocardiography units.

Emergency physicians providing emergency ultrasound services should possess appropriate training and hands-on experience to perform and interpret focused ultrasound imaging.

3. Procedures and actions

The credentialing process requires candidates to:

- complete an appropriate instructional educational program that addresses the criteria described in G25 *Guidelines for Ultrasound Education Programs*;
- perform and record a requisite number of accurate proctored emergency department ultrasounds; and
- pass a summative assessment.

Once credentialed, emergency department sonologists must meet ongoing maintenance requirements.

It is recommended that those who have already completed equivalent requirements and who currently practice FELS, EFAST and AAA should be considered competent. These practitioners should meet relevant continuing professional development requirements.

4. Educational program

Content

The educational program should substantively cover the topics as outlined in G25 Guidelines on minimum criteria for Ultrasound Workshops (to be updated).

Format

It is recognized that it may be challenging to ensure that candidates meet the requirements of these educational programs in a single sitting. Therefore, the use of alternate teaching/learning strategies is to be encouraged, such as online lectures or alternatives for the theoretical components of these educational programs.

Candidates may also achieve the minimum educational requirements asynchronously, while ensuring that the minimum time and educational requirements are achieved.

Practical component

It is vital that the candidates spend adequate time learning the appropriate psychomotor skills involved in acquiring images under supervision. Practical scanning times outlined in G25 should be regarded as a minimum introductory requirement.

Ideally patients with real pathology will be scanned in a controlled setting. However, it is recognised that this can be impractical and simulators/simulated cases may be used to assist with skill acquisition where necessary.

5. Experience phase

Proctored and logged examinations are a required part of the credentialing process.

A proctored examination consists of an examination that is directly supervised, in real time, by a qualified supervisor. A confirmatory study should not be required. For each modality, at least two directly supervised formative assessments must be completed prior to a final, summative assessment.

Patients must be informed that the ultrasound examination is being performed for credentialing purposes and verbal or written consent obtained.

All ultrasound examinations must be documented, preferably in a personal logbook. The entry should include the patient's details, the date and type of ultrasound examination performed, the findings and the candidate's interpretation of those findings. The findings and interpretation should subsequently be compared to other clinical data and a notation made as to whether the scan findings were accurate. In the case where an examination was not directly supervised there should be confirmatory evidence of the accuracy of the examination. This may be via an additional/alternate study or by clear clinical evidence.

Minimum numbers of ultrasound examinations for each module are detailed below.

Extended Focused Assessment with Sonography for Trauma (EFAST)

A minimum of 25 accurate examinations must be performed. At least 50% of these examinations must be clinically indicated and at least five should be positive for either intraperitoneal, pleural, pericardial fluid, or pneumothorax.

Abdominal Aorta (AAA)

A minimum of 15 accurate examinations of the aorta must be performed. At least 50% of these examinations must be clinically indicated and at least three should demonstrate an aneurysm.

Basic Lung

A minimum of 25 accurate examinations of the lung must be performed. At least 50% of these examinations must be clinically indicated and at least five should demonstrate significant pathology e.g. pneumothorax, effusion, pneumonia, interstitial syndrome.

Focused Echo in Life Support (FELS)

A minimum of 25 accurate examinations of the heart must be performed.

At least five should be clinically indicated (i.e. shock/peri arrest/cardiac arrest) and 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 five examinations should be performed under the direct supervision of a sonologist, or cardiac sonographer.

Evidence of review of clinical images/loops from a further 25 cases should be provided. Ideally, this review should be undertaken with a supervisor to ensure that the candidate has viewed and correctly interpreted cases with appropriate pathology. The 25 cases reviewed must include at least two of the following cases, which are available from the ACEM website.

- Severe LV systolic impairment
- pericardial effusion
- hyperdynamic LV
- RV dilatation.

Of the minimum 50 FELS examinations (25 performed and 25 reviewed), cases must include at least two cases each of pericardial effusion, right heart failure / massive pulmonary embolism, hypovolemia or distributive shock and left ventricular failure.

Needle guidance (IV access)

For needle-guided procedures, a minimum of three directly supervised procedures must be performed for both in plane and out of plane needle guidance. Proficiency in in-plane and out of plane guidance is to be encouraged performing peripheral procedures before undertaking central procedures. It should be noted that although only three directly supervised procedures (two formative and one summative) are required for credentialing, this is due to limited access to trainers. To achieve proficiency, a candidate will need to perform at least 25 successful needle guided procedures. The use of simulators is encouraged where necessary to gain psychomotor skills in a safe environment.

Logbook cases

Up to 50% of log book cases can be completed in a non-clinical environment including a refresher educational program or 'finishing school'. All scans performed in a 'finishing school' environment must be directly supervised by one of the practitioners described in "Sonologist" on page 7, and educational feedback provided to the candidate.

6. Demonstration of competence

An emergency medicine sonologist or qualified sonographer will observe the candidate performing the ultrasound examination. This may be undertaken simultaneously as a Direct Observations of Procedural Skill (DOPS) assessment by FACEM Trainees. The candidate must demonstrate the ability to:

- acquire adequate ultrasound images of all the appropriate anatomical structures;
- identify any relevant artefacts or pathology present during real time scanning and/or on recorded scans and/or hard copies of scans;
- recognise an inadequate scan; and
- demonstrate an understanding of the indications and limitations of ultrasound examination for the condition in question.

Once the examination requirements are satisfied, the emergency medicine practitioner will be credentialed for the appropriate ultrasound module. The emergency medicine sonologist may then document the results of his/her ultrasound scans in the medical record and incorporate the results into clinical decisions.

ACEM has a formal link with the Australasian Society for Ultrasound Medicine. ACEM accepts successful completion of the Certificate in Clinician Performed Ultrasound (CCPU) as appropriate demonstration of competence.

7. Maintenance requirements

To maintain his/her credentials, the emergency medicine sonologist must undertake at least three hours of ultrasound training per year and perform 25 EFAST examinations for the EFAST module and 15 aorta scans for the AAA scan module over a two-year cycle. Doctors who have completed the CCPU will be required to maintain this credential.

In cases where the sonologist is more experienced the quality and consistency of their work should be able to be demonstrated. Sonographic examinations should consistently demonstrate reported pathology and minimum image sets and reports documented and recorded. These examinations should be open to independent scrutiny by a sonologist of similar qualification for the purposes of quality assurance. It is suggested that these, more advanced, sonologists perform at least 50 focused ultrasound examinations per year.

8. Documentation

Documentation of the ultrasound examination in the patient's medical record should be entitled appropriately, for example, as an "EFAST", "focused Echocardiography in Life Support (FELS)" or a "focused ED Ultrasound for Aortic Aneurysm". The notes should describe the views obtained, the adequacy of those views and indicate whether the findings were normal, abnormal or indeterminate. If the study was inadequate, this must be clearly stated, as such studies should not be used to make clinical decisions.

9. Defintions/explanations

Sonologist

A practitioner who has successfully completed this credentialing process or has successfully completed the Certificate in Clinician Performed Ultrasound (CCPU), or who possesses DDU (Diploma of Diagnostic Ultrasound), FRANZCR (Fellow of the Royal Australian and New Zealand College of Radiology) or equivalent, or qualifications such as the Postgraduate Certificate in Clinician Performed Ultrasound. In the case of focused echo, higher echocardiography training (such as PTEeXAM, ASCeXAM, PGDipEcho, PGCert / Dip of Clinical Ultrasound, DDU) is acknowledged as appropriate.

Focused ultrasound

Limited, goal directed examinations used to answer specific clinical questions. These examinations are not comprehensive and do not replace sonography offered by diagnostic imaging departments.

Bedside Echocardiography

Limited (non-comprehensive) echocardiographic examinations which are goal directed and performed to answer specific clinical questions.

Proctored studies

Ultrasound examinations that are directly supervised by a sonologist or registered sonographer practising in the relevant area. Alternatively, the ultrasound examinations are recorded or printed, and the images are then reviewed by the above-mentioned qualified practitioners at a later time, with feedback to the candidate to allow reflective practice.

EFAST examination (Extended Focused Assessment with Sonography for Trauma)

An ultrasound examination to detect the presence of hemoperitoneum, hemothorax, pneumothorax or hemopericardium. The examination involves a minimum of six views including:

- Right Upper Quadrant including the hepato-renal interface (Morison's pouch) and the right diaphragm/lung base.
- Left Upper Quadrant including the spleno-renal interface and left diaphragm.
- The pelvis, with assessment in longitudinal and transverse planes.
- Subxiphoid or intercostal views of the pericardium.
- The left parasternal views to detect lung sliding.
- The right parasternal views to detect lung sliding

Focused Abdominal Aorta scan

An assessment of the aorta in both transverse and longitudinal planes such that the aorta is visualised from the epigastrium to the aortic bifurcation. The study should include measurement of the maximum aortic diameter, in two planes. Typically, this would involve a record of 3 transverse views (proximal, mid and distal) and a longitudinal image. More images should be taken to demonstrate any pathology (such as AAA or aortic dissection) in both transverse and longitudinal, and may include clips.

Lung scan

A scan that includes labelled loops (or M mode, if cineloop not available, which would be unusual) of both sides of the thorax. Minimum records should include loops that correspond to upper/middle and lower lobes. These can be labelled per local protocol/Lichtenstein's lung zones/international consensus statement on lung ultrasound.

Focused Echocardiography in Life Support examination

Directed towards following the cardiac arrest/peri arrest scenario. Views may include subcostal, parasternal long axis, parasternal short axis, apical 4 chamber, and will be dictated by the clinical scenario and patient factors. It is recognised that in many patients, not all views will be of good quality. In addition, some echocardiographic windows may be inaccessible due to other factors such as contemporaneous procedures, such as Cardio-Pulmonary Resuscitation (CPR).

Information to be obtained in the Arrest/Haemodynamic compromise setting:

- Detection of pericardial effusion
- Assessment of left ventricular (LV) size and systolic function (as a 2D qualitative assessment)
- Assessment of right ventricular (RV) size and systolic function
- Gross estimate of fluid status (may require integration with other imaging e.g. lung/IVC)

The above findings are integrated with other clinical information, to consider causes of haemodynamic instability, for example hypovolemia, cardiogenic shock, tamponade, massive pulmonary embolism. Notably this examination is not comprehensive and does not evaluate valves, spectral doppler or diastolic function. It should not be used in lieu of comprehensive echocardiography, where clinically indicated.

Australasian College for Emergency Medicine
34 Jeffcott St
West Melbourne VIC 3003
Australia
+61 3 9320 0444
education@acem.org.au

acem.org.au