

Appendix 3

RCEM Point of Care Ultrasound (PoCUS) Curriculum 2021

Scope

The following guidance has been compiled with a focus on ensuring deliverability and achievability using the current structures in place.

There are many applications for PoCUS within the ED; an application being a discrete focused use, for example evaluation of the abdominal aorta for abnormal dilation. For the 2021 curriculum PoCUS has been divided into diagnostic and procedural modalities. During core training the EM trainee will focus on learning the theory of ultrasound and gaining experience of the procedural modalities. The diagnostic modalities are introduced in intermediate training and developed further during higher training. It is fundamental trainees have an understanding of the physics of ultrasound and recognise the importance of good clinical governance in PoCUS.

The technical abilities required to perform US guided fascia iliac compartment block and vascular access are similar and the frequency with which these procedures are performed is high. This provides the trainee with much opportunity to practice these techniques and gain familiarity using PoCUS. It is recognised that both vascular access and fascia iliac compartment block are frequently performed without the use of ultrasound, trainees should be encouraged to learn both anatomical and ultrasound assisted techniques.

Diagnostic	Procedural
Abdominal Aorta	Vascular Access - central and peripheral
eFAST / FAFF	Fascia iliaca compartment block
BELS (shock) and ELS	
Pleural US	

eFAST = Extended Focussed Assessment of Sonography in Trauma FAFF = Focussed Assessment For Free Fluid

BELS = Basic Echo in Life Support

ELS = Echo in Life Support

The extension of FAST to eFAST (extended FAST) adds in assessment of the pleura to look for pneumothorax and haemothorax as an extension of the standard 4 views obtained in FAST.

Introducing PoCUS from the onset of EM training integrates it's use for both the clinical management of the trainee's patients and procedural skills. Workplace based assessments can incorporate PoCUS as well i.e. an abdominal aorta scan included as part of an assessment of a patient presenting with abdominal pain.

Higher trainees will extend beyond performing scans as separate modalities when evaluating the shocked patient. Demonstrating an ability to combine all of the 4 PoCUS modalities into a formal assessment the critically ill / shocked patient allows a number of reversible life-threatening pathologies to be identified and the effects of therapeutic interventions to be monitored in a serial manner.

A number of 'shock protocols' exist and the RUSH protocol, ACES protocol and the EGLS protocols have been identified as suitable methods by which an experienced trainee can ultimately demonstrate competency in all core PoCUS modalities whilst managing a patient in an appropriately clinically relevant environment.

Encouraging this clinical integration of POCUS will assist in developing a 'POCUS mindset' whilst learning POCUS skills. Starting in ACCS should allow competence to be readily demonstrated in the clinical setting by the end of higher training.

Programme of learning

The spiral curriculum encourages the growth of knowledge and skill through continuous development during the EM training programme, this is as relevant for PoCUS as every other element of development.

Simulation is an acceptable method of gaining experience of abnormal findings or pathology and in keeping with other practical procedures DOPS assessments can be completed on simulated patients.

A number of PoCUS training opportunities are suggested below to help to guide trainees as to what is expected of them at different stages of their training.

Core training

Core training is a critical opportunity for EM trainees to focus on essential PoCUS skills that include the principles of image acquisition and optimisation, image interpretation and clinical integration of these findings. It is expected that supervision and observation of PoCUS during attachments to the other ACCS specialties can be undertaken by relevant trainers within those environments.

Suggested PoCUS training during core training
Completion of modular online training i.e. RCEMlearning PoCUS modules
Attendance at practical teaching session (via course or local training)
Evidence of PoCUS learning at the bedside
Start to compile a logbook
DOPS assessments in central and peripheral vascular access, fascia iliaca block

Intermediate training

Intermediate training introduces the diagnostic modalities. Evidence of e-learning modules that focus on PoCUS image interpretation should be obtained. Initial DOPS assessments of the diagnostic modalities can be achieved in a simulated environment or during observed practice. Due to the complexity of learning ECHO skills, it is recommended that an introduction to echo is attained during core and intermediate training. A suggested stepwise approach through training may involve starting with basic focussed ECHO, progressing to major unwell patients with presentations such as shortness of breath, chest pain or hypotension then resuscitation and the peri-arrest or cardiac arrest situation.

Echo in Life Support focuses only to identify :

1. Primary Question - Is the heart contracting?
2. Secondary Questions - Is there is a pericardial effusion causing tamponade?
- Is there is evidence of right ventricular strain?

Suggested PoCUS training during intermediate training
Completion of modular online training of PoCUS image interpretation
Attendance at practical teaching sessions (via course or local training)
Evidence of PoCUS learning at the bedside
Development of logbook
DOPS assessments in ELS, AAA assessment and eFAST

Higher training

During higher training the skills acquired during core and intermediate training are consolidated. All other aspects of ECHO are covered in Shock Assessment including IVC measurement, global contractility and assessment of fluid status (incorporating overload and hypovolaemia). The trainee PoCUS logbook should be kept up to date and relevant DOPS assessments can be completed, this may include teaching of the modalities to junior colleagues.

Programme of Assessment

DOPS remains the primary assessment tool for all PoCUS modalities in keeping with other practical skills and procedures. DOPS assessments can be used by the trainee to demonstrate :

1. That they have the knowledge , skills and behaviours to allow them to obtain an appropriate PoCUS image
2. That they have the knowledge, skills and behaviours to allow them to interpret the PoCUS image correctly and to identify relevant pathology.

These are 2 separate aspects that will need to be assessed using different techniques. In keeping with the other clinical SLO's the entrustment scale is used to describe the observed and predicted capability of obtaining an adequate clinical image with sign off being undertaken locally.

During higher training assessments should be carried out as part of the clinical management of a patient (this may be simulated) with an appropriate presentation and integrated into relevant recorded learning events.

Image interpretation is of equal importance and to ensure that this aspect is appropriately assessed a combination of log book, e-learning modules and formal assessment in RCEM exams is used. Numerous FOAMed and traditional resources are available to help with this. Simulation is also an appropriate way to locally assess interpretation of scans.

The goal of training is to achieve competency rather than rigid adherence to a fixed number of training scans however an indicative minimum number of scans is provided as guidance to both trainees and trainers about the number of scans that would reasonably be expected of a trainee. The introduction of the eportfolio based PoCUS logbook will make it achievable for scans to be more easily recorded and outcomes documented. If the indicative number of scans is not met by the end of the training programme then the supervisor should record on e-portfolio that they are aware of this but this should not impede progress if the appropriate entrustment level for the stage of training has been obtained.

Modality	Indicative number	Reflective Notes
AAA	25	5
eFAST / FAFF	25	5
ELS	10	5
Shock Assessment	25	5
Vascular Access	5	5
Fascia Iliaca Block	10	5

Administration and Clinical Governance of PoCUS in ED

It is recommended that emergency departments conducting EM PoCUS training have:

1. An adequate clinical governance framework. This includes local POCUS induction and training as well as a written code of practice and guidelines.
2. Modern and well-maintained PoCUS machine(s), which is (are) preferably connected directly onto systems of Picture Archiving and Communication System (PACS).

3. A consultant with a minimum of 6 months of level 1 PoCUS competence with the overall responsibility for all aspects of the training, administration and governance of PoCUS.

Suggested Milestones

It should be the exception that sign off is not achieved by the end of ST5.

ACCS	ST3-4	ST5	ST6
Complete online modules	Continue relevant online learning or attend relevant course	Consolidate log book	Consider undertaking enhanced training
Commence bedside learning	Consolidate log book	Sign off 'Shock Protocol'	Consolidate logbook
Sign off: Vascular Access Fascia Iliaca Block	Sign off ELS AAA eFAST / FAFF	Sign off ELS AAA eFAST / FAFF (if not achieved by ST4)	Consider teaching / assisting with development colleagues and governance
Commence log book	Complete online pathology learning		
Aim 1 scan per 2 weeks minimum	Aim 1 scan per week	Aim 1 scan per week minimum	Aim 1 scan per week minimum