

Echocardiography and Ultrasound Committee statement for the accreditation programme in point-of-care ultrasonography in Poland

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Abstract

Ultrasonography is becoming an essential part of the management of critically ill patients. There has been a sufficient body of evidence to support the incorporation of point-of-care ultrasound (POCUS) in anaesthesia and intensive care medicine training programme. Recently the European Society of Intensive Care Medicine recognized POCUS as an essential skill for European Intensive Care Medicine specialists and updated Competency Based Training in Intensive Care (CoBaTriCe). Following European training standards, the Ultrasound and Echocardiography Committee of the Polish Society of Anaesthesiology and Intensive Therapy issued this Position Statement for recommendations for the accreditation process in POCUS in Poland.

Key words: POCUS, point-of-care ultrasound, accreditation, intensive care.

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Ultrasonography (US) is now an important component of the assessment of critically ill patients [1–5]. Over the past decade, there has been continual improvement in US technology and greater clinical implementation [4] alongside more structured training for practitioners. Indeed, several accreditation pathways are now available specifically for critically ill patients [6, 7]. In parallel, there is a growing body of scientific evidence supporting the use of multi-modal, point-of-care ultrasound (POCUS) in the assessment, diagnostics, and procedural aspects of managing patients [3, 8–20].

In 2020, the Joint Commission on Accreditation of Healthcare Organizations and the Emergency Care Research Institute recognised the implementation of POCUS without the necessary safeguards as a major health risk [4]. These include the provision of a structured way for acquiring competencies and evaluation of skills to ensure safe practice.

The European Society of Intensive Care Medicine (ESICM) recognised the need to include POCUS as an essential competency for the European Intensive Care Medicine (ICM) specialist. In 2022, they updated Competency Based Training in Intensive Care (CoBaTriCe) and proposed the minimum standard of knowledge, skills, and attitudes required for a doctor to be identified as a specialist in ICM in Europe [21].

The aim of the Polish Society of Anaesthesiology and Intensive Therapy (PTAiIT) Ultrasound and Echocardiography Committee (UEC) recommendations is to:

- define essential POCUS competencies for anaesthesia and intensive care specialists and trainees in Poland,
- propose an accreditation process for POCUS training,
- outline evaluation of competencies.

RECOMMENDATIONS

UEC recommendations are based on the current scientific evidence and international guidelines for the general ICM population:

- Competency Based Training in Intensive Care (CoBaTriCe) [21],
- ESICM: Basic ultrasound head-to-toe skills for intensivists in the general and neurointensive care unit population [5],
- ESICM: Recommendations for core critical care ultrasound competencies as a part of specialist training in multidisciplinary intensive care: a framework proposed by the European Society of Intensive Care Medicine [22].

DISCREPANCIES

The 2021 ESICM consensus and expert recommendations produce one statement recommending

TABLE 1. Basic competencies in the Polish Diploma of Critical Ultrasound (PDCU)

Thorax	
Pneumothorax	Pleural line sliding, lung point, lung pulse, B-lines
Pleural effusion	Quantitative and qualitative assessment, ultrasound-guided drain placement
Interstitial syndrome	B-line, multiple B-lines, coalescence B-lines, waterfall sign, tissue-like pattern, lung ultrasound score
Consolidation	Localisation, size, bronchogram
Cardiac	
Patterns	Hypovolaemia, LV failure, RV failure, pericardial tamponade, cor pulmonale, severe valvular abnormalities
Left ventricle	Shape, size, thickness, systolic function (qualitative), systolic dysfunction, valves assessment (colour Doppler)
Right ventricle	Shape, size, thickness, systolic function, TAPSE, RV/LV ratio
Inferior vena cava	Size, respiratory variability, SAX/LAX
Abdomen	
Aorta	Abdominal aorta aneurysm
Urinary	Hydronephrosis, bladder volume
Free fluid	FAST, paracentesis
Vessels	
Cannulation	Real-time guidance SAX/LAX, artery, peripheral vessels, central access
Deep vein thrombosis	3-point compression test

SAX – short axis, LAX – long axis, LV – left ventricle, RV – right ventricle, TAPSE – tricuspid annular plane systolic excursion

the use of transcranial color-coded duplex (TCCD) insonation of the middle cerebral artery as a basic skill for qualitative waveform analysis and to measure the pulsatility index to rule out intracranial hypertension impairing cerebral perfusion (weak recommendation). UEC recognised the utility of TCCD and diaphragmatic ultrasound and will re-evaluate the feasibility of inclusion in the basic competencies in the Polish accreditation programme.

POLISH DIPLOMA OF CRITICAL ULTRASOUND

The essential POCUS competencies for anaesthesiology and intensive care specialists and trainees in Poland are defined as the Polish Diploma of Critical Ultrasound (PDCU).

The PDCU consists of four domains (cardiac, thorax, abdomen, and blood vessels) and each domain has defined ultrasound signs that candidates must be able to recognise (Table 1).

MODULAR STRUCTURE

To accommodate different educational and skill-set needs, a structured pathway for accreditation in POCUS was created. The core competencies are included in the PDCU and consist of basic US in cardiac, chest, abdomen, and blood vessels. Developing competencies in all four domains is required for the certification with PDCU (Figure 1). Essential competencies for the use of ultrasound devices are defined in Table 2.

ACCREDITATION PROCESS

For the PDCU, candidates should undertake a structured process of acquiring competencies by learning, practising, and evaluating.

The entry criteria for the certification process are:

- be a specialist or trainee in recognised specialties,
- attend an ultrasound course recognised by the UEC and have an identified mentor.

After acceptance for the certification process, candidates will have to collect a logbook consisting of cases in cardiac, thorax, abdominal, and vascular ultrasound. On completion of a logbook, candidates' competencies will be signed off by the supervisor and mentor (Figure 2).

SUPERVISORS AND MENTORS

The role of a supervisor is to oversee the accreditation process as a whole: logbook co-signing with

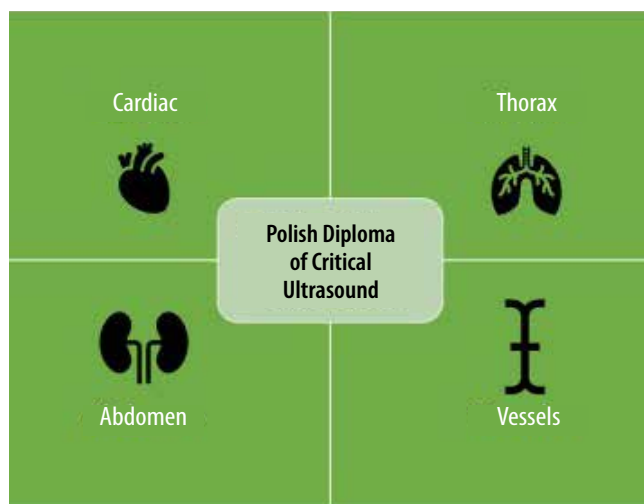


FIGURE 1. Modular structure of the Polish Diploma of Critical Ultrasound (PDCU)

TABLE 2. Essential competencies for the use of ultrasound devices

Ultrasound machine	Basic components and controls, ECG
Sound generation	Piezo-electric effects, probes, modalities
Physics	Frequency, amplitude, wavelength, propagation
Ultrasound in imaging	Interferences, reflection, attenuation, artefacts
Image quality	Focus, gain, frame rate, resolution
Doppler	Colour Doppler, theory of PW and CW
Image description	Echogenicity, localization
Image storage	Acquisition, export, conversion,
Probe manipulation	Sliding, fanning, rocking, rotating
Safety	Heat generation, disinfection

W – continuous wave Doppler, PW – pulsed wave Doppler

a mentor, and competency assessment. Supervisors will be appointed by the UEC.

Mentors are responsible for supporting trainees locally to obtain competencies in each domain. Mentors should be chosen from the same institution as a trainee to allow for hands-on training and regular feedback. A mentor could be any physician with PDCU or recognised ultrasound competencies as a part of the specialty training. There could be a different mentor for each domain.

The role of mentors is to:

- communicate with the supervisor on trainee progress,
- enable access to the ultrasound machine and patients,
- review logbooks,
- make recommendations for completing each module.

ASSESSMENT PROCESS

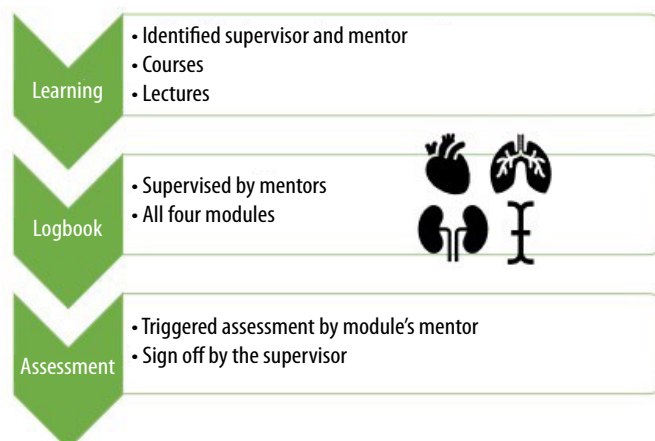
There is a continuous assessment based on the logbook and triggered assessment. PDCU will be granted to successful trainees who have fulfilled the requirements and logbook, and triggered assessments were signed off by mentors and the supervisor in all modules.

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FIGURE 2. Overview of the Polish Diploma of Critical Ultrasound (PDCU) accreditation process

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