

EUROPEAN DIPLOMA IN ADVANCED ECHOCARDIOGRAPHY (EDEC)

Guidelines

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1. Overview

The European Diploma in Advanced Critical Care Echocardiography (EDEC) accreditation is aimed at independently practicing intensivists, who regularly manage a broad range of acute illnesses in adult patients who wish to integrate advanced echocardiography into their practice. The accreditation process involves transthoracic (TTE) and transoesophageal echocardiography (TOE) because the two approaches are complementary. The diploma includes three distinct assessment components. Firstly, a logbook demonstrating the candidates own ability to acquire images, report accurately and interpret the data appropriately. Secondly, an examination consisting of three parts; a knowledge assessment consisting of multiple-choice questions, a clinical application test utilising single best answers and a practical component to assess proficiency using TOE on mannequins. Finally, the candidate must demonstrate adequate educational study, by undertaking a minimum of 40 Continuous Medical Education (CME) points delivered or endorsed by the EDEC committee. All this must be completed within a continuous 24-month period. The whole accreditation process is in **English**.

2. EDEC Registration

All candidates must meet the requirements as indicated on the ESICM website (<https://www.esicm.org/education/diploma/edec-2/>) and have their registration accepted before they are fully registered for EDEC certification.

2.1 Application process

Any full-time recognised intensivist who has attended a basic course in echocardiography in the last **two years** can apply for EDEC. It will be required to document their position as a full-time intensivist and to provide a certificate of attendance for the basic course. Candidates will also need to identify a potential local mentor and/or supervisor (who can function as both). Candidates will be informed by email of their acceptance to the EDEC curriculum. When notification of acceptance is received, EDEC candidates have a 24-month period to complete it.

2.2 Identify a mentor and a supervisor

Mentor

A mentor is an individual who may not have the full range of critical care echocardiography skills and interpretational knowledge but is one who can provide useful technical or cognitive training. This individual is locally available, easily accessible to the candidate and is the first contact for training. They will help refine the candidates' technique for image acquisition and validate a report as accurate (first stage validation). Examples may include: cardiologist, an echocardiography technician, an intensive care physician or a cardiac anaesthesiologist. They can provide vital skills and knowledge training in part, without the ability to deliver the whole diploma package.

Supervisor

Each candidate for accreditation must enrol with a suitably qualified supervisor who takes overall responsibility for the training opportunities and quality of education. This may include arranging visits to other centres if there are difficulties obtaining an adequate case-mix locally. The supervisor must be approved by the EDEC Committee and will consist of an individual with full TTE or TOE accreditation as awarded by a recognised national or international intensive care, cardiology, anaesthesia or emergency medicine body (see appendix A). Additionally, they should be actively performing and interpreting echocardiography in a critical care unit with appropriate evidence of ongoing continuing professional development. The supervisor should be identified at the time the applicant registers with ESICM. The names and contact details of existing certified supervisors in a candidate's region is available on the ESICM website.

The supervisor may be remote from the candidate, but if local, they may perform the functions of both the mentor and the supervisor. They are the responsible person who validates the logbook and guarantees to the EDEC Committee the competence of the individual seeking to attain the diploma (see appendix B).

The supervisor will meet with the learner and validate the logbook through the EDEC ePortfolio, the ESICM official digital learning environment for EDEC candidates pursuing the accreditation, offering access to learning components, an electronic logbook, and exam.

The supervisor is responsible for ensuring the logbook is finalised to the required standard and all other components as described have been completed, before submission to EDEC Committee. By doing so, they act as a guarantor to ESICM that the learner possesses the appropriate knowledge and competence in critical care echocardiography as defined by the EDEC Committee.

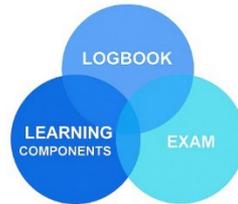
The Supervisor may act in co-operation with a local mentor who works with the candidate and helps him to achieve desired standard of echocardiographic image acquisition and interpretation. The Supervisor should ensure that any mentors have the appropriate skills and competence to facilitate the learner in their training programme.

Supervisor may perform both duties

A supervisor can perform both roles, if locally available to the candidate, but a mentor cannot be a substitute for the supervisor (unless they undergo the approval process to become a supervisor).

3. EDEC learning pathway

The EDEC learning pathway provides a structured framework combining accredited learning components, logbook and examination to support competency development in critical care echocardiography.



3.1 EDEC Continuing Medical Education (CME) learning components

The EDEC learning pathway requires candidates to complete structured learning activities amounting to at least **40 points**. This must include the mandatory **Advanced Course in Critical Care Echocardiography** at the **ESICM annual congress** (worth 12 points), which should be undertaken within the first 12 months of starting the accreditation process. Additional accredited EDEC activities include clinical case courses, monothematic sessions, self-study modules, virtual reality training, as well as recognised external and other approved learning activities. The number of points awarded for each activity will be specified and notified to candidates. Over a 24-month period the educational activities aim to cover all core topics of the EDEC curriculum, and these are delivered by the EDEC committee in combination with invited experts. If the live version is missed, a recorded version is subsequently made available on the ESICM Academy. Each activity will be rewarded a certificate of attendance, which is then uploaded to the ePortfolio as evidence. The active participation of a candidate will be monitored. It is mandatory that the candidate achieve this minimum requirement within a 24-month period from starting the EDEC process.

3.2 EDEC e-Logbook

The logbook will be collected simultaneously over a period of up to 24 months. The logbook must contain a minimum of 100 TTE clinical cases and 35 TEE clinical cases which are reported using the online reporting tool. Each case must be validated by the mentor and the supervisor. Sub-standard scans will not be counted towards the total. Basic scans with minimum or 'focused' data collected will not be accepted as this is an advanced qualification. All of the required major pathologies as described by the curriculum are required and should be represented in the logbook. A separate study performed for the same patient on at a different time may count as a separate study, but not if performed immediately (for instance after a fluid bolus), as this should be included in one report.

Once a minimum of **30 TTE** and **10 TEE** reports have been completed and validated by the mentor, supervisor and an EDEC committee member, the candidate may sit the examination (see below). In addition to permitting the candidate to take the examination, the initial 40 studies will be reviewed by an expert assigned by the EDEC Committee who will provide timely feedback to candidate and their supervisor through the ePortfolio platform. The aim of this feedback is to confirm that the progress made is as expected, and to ensure that the expected standard is achieved by the end of the logbook. Although the standard expected of these 40 initial studies is lower than the fully completed logbook, it constitutes a mid-point demonstration of competence which reassures the committee that adequate knowledge is present, increasing the chances of successfully passing the examination. In case of substandard evidence, the candidate may be denied sitting the EDEC exam the same calendar year and deferred to the second year of the two-year curriculum.

When the completed logbook is finished and validated by the supervisor, it is submitted to the EDEC Committee for evaluation. Once reviewed and validated, a report is made by the EDEC Committee recommending award of the Diploma. Borderline cases will be discussed by the EDEC Committee. A candidate may be required to provide additional evidence or echocardiographic cases if the standard presented is found to be insufficient. The number of extra cases requested is individualized depending on the deficiencies identified. Feedback and support from the EDEC committee and Supervisor will be provided to optimise the chances of success, should this occur.

When further evidence is required to validate a candidates' logbook, the candidate will be asked to prepare three cases from their logbook to share as examples of their work. This can be any case from their logbook (not additional cases) that showcase their ability and knowledge. A brief explanation regarding the clinical case, the echo report, and a collection of stills and videos from the dataset that supports your report findings along with information on how you used this data clinically will be submitted to the EDEC committee for review prior to final sign off. This will offer a final reassurance that the quality of your imaging, reporting and decision-making are consistent with finishing the EDEC process. In the near future, this will form a core component of the final assessment.

3.3 EDEC Exam

The exam consists of a theoretical knowledge component (part I), a clinical reporting component (part II) and a practical part in the form of an objective clinical skill exam (OSCE) assessing the candidate's ability to perform a TOE on a mannequin (part III). It is necessary to pass all three parts which are scored separately, with no compensation allowed (e.g., excellent theoretical results cannot compensate for failure in the practical part).

Full details on dates and venues, and registration forms, will be circulated by the ESICM office and further information will be provided on the ESICM website. A final information email will be sent approximately 1 week before the exam – a candidate will need to contact the ESICM Office if the information has not been received by this point. Candidates are requested to bring and present an ID document / passport to confirm their identity.

3.3.1 EDEC part I: Theoretical knowledge

This comprises 50 Multiple Choice Questions (MCQs), containing 5 true/false answers for each question, resulting in a total of 250 questions. The duration of the written part I exam is 90 minutes. Marking is based on +1 for correct answers, 0 for incorrect or unanswered questions. There will be no negative marking. The maximum possible score is 250. The exam runs online with calculators available, no other electronic devices including mobiles are allowed.

3.3.2 EDEC Part II: Clinical Cases

This contains 30 Single Best Answer (SBA) Questions covering the syllabus (Expert Round Table on Echocardiography in ICU, published in Intensive Care Med 2014). There are 10 case studies with 3 questions per case. Each question will have 4 possible answers and candidates will be asked to select the single best answer. Normal or near-normal studies may be presented. Each question is worth 1 point giving a total of 30. The clips and loops will repeat for 6 minutes each (10 per 60 min) and will contain sufficient information to answer the questions. The total duration is 1 hour. The exam runs online with calculators available, no other electronic devices including mobiles are allowed.

The total duration of the EDEC Part I and EDEC Part II examination is approximately 3 hours including a 20 minutes break. A proposed time is calculated as 90 minutes for Part I, 20 min break, 60 minutes for practical reporting Part II.

3.3.3 EDEC Part III: Hands-on

This consists of a onsite one-to-one Objective Clinical Skill Exam (OSCE) with an EDEC Committee member using a simulator model to assess the candidate's ability to perform a transoesophageal echo (TOE). The candidate will receive a clinical vignette, be asked to complete a comprehensive TOE with specific questions regarding pathologies and their clinical interpretations. Marks will be allocated based on practical skill, image quality and interpretation. The whole exam lasts 20 minutes.

Evaluation of the examination component

Scoring sheets for theoretical and practical parts of the exam are evaluated by a statistical and the EDEC Committee. Results of the exam are sent to the EDEC Candidates via e-mail three weeks after the exam. The results are final and there is no appeal process.

3.3.5 Unsuccessful candidates

In the case of failure, the exam may be reattempted according to the following scheme. The fees for all attempts are included in initial price. These attempts must be done within four years from the first exam registration.

- The first, original attempt
- The second attempt if a component or components is/are failed
- The third attempt if a component or components is/are failed once again

If the examination is not passed after three attempts, the candidate is requested to restart the EDEC Diploma process from the beginning.

4. Final accreditation

Once the educational activities have been completed, the finalised logbook validated by the EDEC committee and the three components of the EDEC Exam have been successfully passed, the diploma will be awarded.

All three components must be passed satisfactorily. For example, it is possible to pass the exam, but present a completed logbook that is rejected, meaning the diploma is not awarded. There is no ability to award a partial diploma.

A candidate may be asked for extra evidence to demonstrate that they embody the expertise expected by EDEC, as discussed above. An EDEC committee member will help guide the candidate through this period working with the supervisor and the mentor to help achieve the desired result.

The EDEC committee are committed to supporting the candidate through to successful completion. However, the high standards demonstrated by EDEC graduates ensures the quality and reputation of the Diploma and how it is perceived internationally. Therefore, maintaining the standards is a key priority for the committee. Guidance, support and advice will be offered to the EDEC candidates to help them reach the required standard and candidates.

5. Maintenance of echocardiography skills

Maintaining knowledge and skills is a vital component of any doctors practice. The best way to keep up to date is to utilize your skills in your daily clinical work. Some doctors find it helpful to continue to keep a logbook of their activity to satisfy evidence of their clinical skills, often required by national bodies. Maintaining CME points in this field also demonstrates ongoing commitment to development.

A useful way to maintain your EDEC practice is to become a part of the EDEC community by becoming a supervisor. Once you are an EDEC graduate, and use these skills in your daily practice, you qualify to become a supervisor. You will get access to the ongoing educational events delivered by EDEC and qualify for special resources directed at active supervisors. There are opportunities to contribute to the EDEC examination, teach on courses and even become part of the committee should you wish to do so.

In this way you continue to develop your knowledge and skills, contribute to the proliferation of this useful skill and become part of a community dedicated to providing the best care to a sick cohort of patients. Once you complete the Diploma, and start using the knowledge you obtain and see the difference it can make, you will be compelled to share it with your colleagues.

Appendix A: List of possible accreditations to allow supervisor status.

The following is not an exhaustive list and it should be anticipated that in time supervisors will be in possession of the EDEC diploma. Application by other potential supervisors can be submitted to ESICM/EDEC for consideration. Participation as teacher in recognized courses and/or publications in the domain of advanced echocardiography can be considered.

- European Society of Cardiology (ESC) TTE accreditation
- European Society of Cardiothoracic Anaesthetist (EACTA/ESC) TEE accreditation
- Any EU country cardiology specialist qualification
- United Kingdom BSE/ICS Critical Care TTE accreditation
- United Kingdom BSE/ACTA TOE accreditation
- Diploma in Diagnostic Ultrasound (DDU) Critical Care or Cardiology – Australasian Society for Ultrasound in Medicine (ASUM)
- Cardiology specialist qualification (FRACP / FCSANZ)
- American Echo Board Exam (ASCeXAM)
- Graduate Certificate in Critical Care Echo (GCCritCareEcho), University of Queensland

