



The Intensive Connection

European Diploma in Intensive Care Medicine

Exam Guidelines and Regulations

1. Introduction

In 2014, the Union Européenne des Médecins Spécialistes (UEMS, European Union of Medical Specialists) Multidisciplinary Joint Committee and the European Board in Intensive Care Medicine (MJCICM and EBICM) established the training requirements for the Core Curriculum of Multidisciplinary Intensive Care Medicine as Common training requirements (CTR ICM) based on CoBaTrICE and other relevant documents and concepts. This CTR ICM has now been adopted by the UEMS Council and will be presented to the European Commission.

The European Society of Intensive Care Medicine (ESICM) aims to have Intensive Care Medicine as a multidisciplinary field accessible by several medical specialties and focusing on the competences required to provide high-quality care, irrespective of the primary specialty. The aim of the ESICM examination for the European Diploma in Intensive Care Medicine is to promote standards in education and training in intensive care medicine in Europe and across the world. The exam is intended to be complementary to specialist postgraduate medical training and the taking of the two components of the exam should correspond to stages of experience/training in Intensive Care Medicine. The aim of the written exam (EDIC part I) is to test the specific theoretical Intensive Care Medicine knowledge, whereas the oral part (EDIC part II) aims to test the competencies, expertise and professional conduct at the end of the specific training (2-3 years) in Intensive Care Medicine.

2. General Concept

2.1. Eligibility

Candidates for the exam need to be fully registered Medical Doctors (i.e. internship completed). They should be enrolled in, or have completed, a national training programme in a primary specialty. These may include Anaesthesiology, General/Internal Medicine (and other medical specialties), General Surgery (and other surgical specialties), Accident & Emergency Medicine, Paediatrics or Intensive Care Medicine (if it is a primary specialty).

Intensive Care Medicine training should be undertaken in modules of dedicated, full-time, supervised training in Intensive Care Medicine. Admission criteria are:

- EDIC Part I entry criteria are:
 - 1) Fully-registered Medical Doctor (i.e. internship completed),
 - 2) Entry into or completion of a national training programme in a primary specialty and
 - 3) Entry into a national training programme in Intensive Care Medicine or satisfactory completion of 18 months' training in Intensive Care Medicine. (Criteria 2 and 3) are fulfilled if Intensive Care Medicine is recognised as a primary specialty).
- EDIC Part II: Successful completion of EDIC Part I and 24 months of training in Intensive Care Medicine.

The required documents for registration to EDIC Part I are:

- Copy of University-awarded medical degree
- Letter of confirmation from national or regional primary specialty Training Authority (e.g. College or Society),
- Document/letter confirming your training in ICM or completion of ICM training programme signed by
 - ✓ if you are in ICM training, the Training Authority, supervisor/mentor or Head of training
 - ✓ if you have completed your ICM training, the Head of Department or Head of Training Programme or other representative who certify your completion of ICM training.

To minimise the failure rate and to accommodate requests for candidates from outside Europe, it is recommended that candidates should acquire a thorough understanding of European ICM practice. It is recommended that this is best facilitated by working in an academic European ICU for a period of at least six months.

2.2 Structure of the exam

The EDIC Exam is a two-step exam, based on a set of competences for medical specialists in Intensive Care Medicine, as defined in the CoBaTrICE training programme. EDIC part I and part II have a common blue-print. The blue-print is based on the 12 areas of competence of CoBaTrICE, which include 102 competence statements. The CoBaTrICE competences define the minimum standard of knowledge, skills and attitude required for a doctor to be identified as a specialist in Intensive Care Medicine. They have been developed with the intention of being internationally applicable, but able to accommodate national practices and local constraints.

The Part I exam is a multiple-choice questionnaire written examination with 100 questions. Candidates have 3 hours to answer all the questions.

The Part II exam has the format of an Objectively Structured Clinical Examination (OSCE) with six skill stations. These include three clinical scenario stations of 25 minutes each and three computer-based stations of 12 minutes each, which assess data interpretation, such as radiological images, ECGs, and biochemical scenarios.

To obtain the EDIC Diploma, candidates must pass the two components (EDIC part I and EDIC part II) of the exam.

The EDIC exams are an English language-based exam. In order to achieve standardisation across countries, no documents are translated into any other languages.

Information about the EDIC exam is provided to candidates on the ESICM web pages. To apply and register for the exam, the candidate accesses the registration web page. The registration process occurs in three steps. First, the candidate creates his/her personal EDIC profile and the ESICM office

may contact the candidate to request any further information or clarification on his/her profile. Second, he/she books the exam. In a third and last step, the candidate receives confirmation once his/her application has been validated by the ESICM office.

Candidates cannot register for EDIC Part II until they have successfully completed EDIC Part I. During the registration process for EDIC Part II, candidates have to provide information on their personal profile, details of their postgraduate training in Intensive Care Medicine, with or without their primary specialty training and country of work.

Registration fees are published on the ESICM webpage. Candidates who are registered members of ESICM obtain a rebate. Candidates who have not paid their ESICM membership of the year of the exam when they are registering for the EDIC exam will automatically be billed the non-member's fee.

EDIC Part I is usually held once in the first half of the calendar year and once in the second half of the year. EDIC Part II once in the first half of the year and once in the second half of the year.

Each EDIC part II centre can accommodate a minimum of 36 candidates. In the future, further centres may become available in accordance with the accreditation process detailed below.

After the EDIC Part I and Part II examination, candidates' answers are transferred to the University of Heidelberg, Umbrella Consortium for Assessment Network (UCAN), where the data is analysed and the results reported to the ESICM Examinations Committee

. Thereafter, the Examinations Committee meets to validate the results and agree on the pass mark. The pass mark relies standard setting determined by established methods for high-stakes exams (i.e. Borderline regression, modified Angoff and Equating techniques) and as such may vary between editions and in case of EDIC II also between centres in order to standardise the difficulty of the exam

Finally, a feedback letter is provided to candidates no later than six weeks after the examination date. The letter also informs candidates of their results.

2.3. Appeal procedure

Complaint and Appeal procedure

If a candidate has been unsuccessful in the exam, a preliminary complaint can be made to the ESICM office. This is discussed by the EDIC Committee and the decision of the Committee is communicated to the complainant.

If the complainant is not satisfied with the decision of the EDIC Committee, they can then pursue the appeal process as described below. Any candidate who has failed the exam has the right to make a formal appeal to the Appeal Committee.

Appeal Committee

The Appeal Committee is chosen by the Chairs of EDIC, NEXT and the Education Training Committee and comprises:

- Three former members of the Examination Committee, one of which is the chair of the Appeal Committee
- A member of the NEXT Committee
- A representative of the ESICM Executive Committee

In order to avoid potential conflict of interest, an active member of the EDIC Committee or the Education and Training Committee cannot become a member of the Appeal Committee. The term of an Appeal Committee member is three years, renewable once.

Appeal Procedure

The candidate can appeal up to 60 days after the release of the exam result (date on the feedback letter). In addition, candidates cannot appeal against the content of the exam. The questions in EDIC parts I and II have been devised to examine established European standards of care, not local variations in practice. The content of both EDIC part I and part II exams has been revised by the EDIC Committee. The process of approval of the exam by the members of the EDIC Committee ensures that the content reflects appropriate clinical practice.

Candidates can appeal in case of any irregularities in the following processes:

- If the candidate is denied participation in an exam after the registration process has been completed and all requested documents have been provided
- Violation of the exam rules written in the EDIC parts I and II guidelines

It is forbidden to make copies, to scan or to take pictures of the EDIC Part I or Part II material. The candidate is allowed to make personal notes in order to improve the quality of his appeal document but not for training purposes.

The appeal documents have to be addressed to the Chair of the Appeal Committee and mailed to the EDIC office in Brussels within 60 days of the release of the exam results. The date on the email or the envelope postal stamp counts. The Appeal Committee has the right to formally refuse incorrect and/or incomplete appeal documents.

The formal appeal documents must include

- Dated and signed appeal letter from the candidate
- A statement clearly describing the violation of a specific exam regulation
- A copy of the examination regulation subject of the appeal
- If possible, documents proving violation of the examination regulation

Candidates' subjective impressions of having made mistakes while under stress due to the exam situation, or time constraints in EDIC part I or EDIC part II, are insufficient grounds to initiate the process of an appeal.

The Appeal Committee is not there to verify the validity of the examination content, or alter the score to influence the final examination result. The task of the Appeal Committee is to verify whether irregularities happened in the conduct of the exam processes.

A procedural fee of €200 is charged to the candidate as soon as the appeal documents are received by the EDIC office. If the candidate's appeal is upheld, the costs are reimbursed.

The candidate cannot make an appeal against the decision of the Appeal Committee: the decision of the Appeal Committee is final.

3. EDIC Part I

3.1. MCQ Exam

EDIC part I is a 100 multiple-choice question written examination in English. The exam contains type A questions – out of the five options (A to E) available, the single best answer has to be chosen – and type K' questions (max 50). The type K' questions require an individual answer T (true) or F (false), to each of the four statements, A to D.

3.2. Exam Blueprint

The blueprint of the exam is based on the CoBaTrICE competencies which define the minimum standard of knowledge, skills and attitudes required for a doctor to be identified as a specialist in Intensive Care Medicine. Whilst both EDIC part I and EDIC Part II use the same blueprint, the weightings of the exam domains are different.

Our blueprint is a matrix of 3 sub-blueprints: blueprint 1, 2 and 3. Their composition is shown in the table 1.

Blueprint 1	Blueprint 2			Blueprint 3			Weighting %		
Disease management	Pathophysiology	Assessment, diagnosis and monitoring	Treatment	ICU-Management	General knowledge	Adult patients	Paediatric patients	50%	Within domain
Cardiovascular disorders									20%
Renal and genito-urinary disorders									10%
Neurological disorders									15%
Gastrointestinal disorders									10%
Respiratory disorders									15%
Infections									20%
Other disorders (haemato-oncologic; metabolic-toxic; endocrine; peri-partum)									10%
Therapeutic interventions / Organ system support									30%
Medical treatment									50%
Organ system support									30%
Peri-operative care									20%
Practical procedures									10%
Respiratory system									40%
Cardiovascular system									40%
Central nervous system									20%
Patient general care									10%
Resuscitation & initial management of the critically ill patient									50%
Comfort and recovery									20%
End-of-life care									10%
Patient safety and health management system									20%

Table 1: EDIC 1 Blue prints domains and their respective weights.

The two last columns on the right indicate the weighting of each blueprint 1 domain or the relative number of questions to be included into the EDIC part I exam for each domain.

These percentages reflect the emphasis placed by the Examinations Committee on particular items within the blueprint.

The blueprint has been created in collaboration with ESICM and the Swiss Society of Intensive Care Medicine (SSICM).

3.3. Preparation of the exam

Each Examination Committee member prepares annually 15-20 new MCQs. The need for new questions is determined by the consultant educationalist to ensure a balanced representation of exam items according to the blueprint. The consultant educationalist is also responsible for the supervision of the exam item database and the assessment of its completeness. He/she will assign to each Examinations Committee member the task of creating new questions (or revising old questions), according to the blueprint.

The Examinations Committee discusses the need for new/revised questions at a post-exam meeting, so called “key-validation” meeting. New MCQs are discussed in small working groups of 3-5

Committee members and then presented to the Committee for final approval. Approval is valid, if at least 6 of the 12 Examinations Committee members are present. The production of new questions is shared with the Examination Committee of SSICM.

Both Committees revise all new questions reciprocally. Thereafter, the consultant educationalist (same person for both committees) prepares a first draft of the new exam, which consists of 60-70 new questions and 30-40 old questions. The latter includes the anchoring questions. Four months prior to the exam session, the representatives of both committees (Exam Editorial Board) meet to review and approve the new exam. It is the Exam Editorial Board's responsibility to ensure that the exam items are represented in accordance with the blueprint and that MCQs are consistent and grammatically correct. The Exam Editorial Board approves the final version of the exam. In order to maintain a good bank of MCQs the committee shall have at times an additional 100 MCQs minimum as a back-up exam stored with the data storage company (UCAN institute at the University of Heidelberg).

3.4 Online examination

The EDIC I examination is offered following an online format with the use of a virtual platform. Candidates connect remotely and take the exam according to the EDIC Part I candidates' technical requirements ([link](#)).

3.5. After the Exam

3.5.1. Objective Score Calculation

The EDIC part I exam has 100 MCQs, including questions of the Type A and Type K'. A correct answer of a Type A question scores 1 point. Type K' questions have 4 answers, each being correct or false. A Type K' question scores 1 point if candidate's statement to all four answers is correct, a half-point if three of the four statements are answered correctly, or zero points if less than three statements are answered correctly. Accordingly, the maximal number of points a candidate can be awarded is 100.

3.5.2. Clinical and Statistical Validity Analysis of EDIC Part I Exam

The exam is analysed by the UCAN institute at the University of Heidelberg. Difficulty and discriminatory power are calculated for each item and reported graphically. Exam reliability is assessed by the calculation of Cronbachs Alpha. The results of the exam are analysed and discussed by the Examination Committee during the "key-validation meeting", which is a joint meeting of the Examination Committees of ESICM and SSICM. At this meeting, all items with a low discriminatory power ($r < 0.05$), excessively easy or difficult items ($p < 0.2$ or > 0.95) are analysed and discussed.

Due to formal mistakes or unclear formulation, some questions may be eliminated from the final exam evaluation. To eliminate an item, the Examination Committee members present at the meeting (at least 8 members) need to agree.

3.5.3. Determination of Pass/Fail mark

The exam pass mark is set by the Examinations Committee every 3-5 years using the modified Angoff method with Cohen method as a backup procedure. In subsequent years, the same exam difficulty is maintained using statistical anchoring. This method is based on sharing a minimum of 30 MCQs with one of the previous editions. Then the performance of candidates on shared and non-shared MCQs is analysed and pass mark is calculated so that both editions have the same level of difficulty. To pass the EDIC I, the candidate must score a minimum number of points at the pass mark level.

3.5.4. Dissemination of Results and Counselling for failed candidates

After the “key-validation” meeting and after the final exam report is obtained (in general 4-6 weeks after the exam session), a candidate feedback letter is generated and sent to the candidates electronically.

The letter informs the candidate on the total number of points necessary to pass the exam, how many points she/he achieved and whether the result is pass or fail. In addition, personal performance of the candidate in relation to the exam population in the different domains of blue print 1 is disclosed. Candidates who fail are informed that they have to wait 12 months for the next attempt.

3.5.6. Planning Next Exam

Candidates who passed the EDIC Part I are given access to registration for the EDIC Part II. If the candidate fulfils registration criteria for the EDIC Part II exam, he/she can register as soon as the next registration period opens. Candidates who fail EDIC Part I have to wait 12 months before they can apply for the next exam.

4. EDIC part II

4.1. OSCE Exam

EDIC part II is a high-quality standard exam for the assessment of knowledge-related competences in Intensive Care Medicine at the end of training. To assure the quality of a high-level exam, the Examinations Committee decided to implement the “objective structured clinical examination” (OSCE) model lasting at least 2 hours. The EDIC part II exam will take place outside of the ICU environment and is delivered online. The exam content follows the EDIC blueprint (see point 3.2) derived from competencies listed in the CoBaTrICE syllabus.

Candidates will have to pass several skill stations, including three different clinical scenario stations using imitation patient charts and three computer stations where reading and interpretation of imaging, curves and biochemical scenarios is tested. Marking within clinical case scenario (CCS) stations and computer-based scenarios (CBS) is standardised, which means that for a given clinical problem or a vignette with a CT-scan of the abdomen, expected answers are prepared and scored by the Examinations Committee in advance. To minimise examiner-candidate bias, a candidate is seen by at least 9 different examiners, two different examiners for each CCS station and three different examiners in the CBS section (one per each different CBS).

The exam takes place virtually and candidates connect via the Internet with a link provided by the ESICM office and receive specific EDIC Part II candidates’ technical requirements [\(link\)](#) with information on how to connect and take the exam.

4.1.1. Clinical Case Scenario Station

The aim of the CCS station is to test the candidate’s attitude, competencies and professionalism in context of a clinical scenario derived from a patient chart within 25 minutes. In principle a CCS should not contain more than 3-4 main competence domains. Each domain is introduced by a vignette, followed by 1-5 questions with a maximum of five possible answers. Two of the CCS stations have 1 long case, one station has 2 short cases.

The clinical case is centred on the management of a well-defined clinical condition that presents to the ICU environment. Accordingly, the case will focus either around the ICU admission and the following days, a particular event during the patient’s ICU stay, or around the weaning phase from organ support therapy in the ICU. At the end, the candidate will be evaluated on whether he/she has sufficient knowledge and skills to manage this particular clinical scenario safely and competently.

4.1.2 Computer-based scenario

The CBS section includes three stations, each one testing candidates' knowledge, pattern recognition and diagnostic skills in three different Intensive Care Medicine competence domains.

The aim of the CBS is to broaden the spectrum of medical knowledge and skills tested in the exam. Each CBS session will last 12 minutes. The number of picture/scenarios expected answers per CBS may vary between 8 and 12, depending on their complexity, but should not be less than 8.

Three minutes are dedicated to the rotation from one CBS station to the other.

4.1.3 Rating and Standard Setting

For each predefined answer, the candidate will receive 1 point. Points are added up for each station separately. A pass mark is calculated for each station using borderline regression. To pass the station, the candidate must score a minimum number of points at the pass mark level. Insufficient points in one station cannot be compensated by points from another station. To pass EDIC II, a candidate must pass at least two CCSs and two CBSs stations. If a CCS station is split into 2 short cases the points from both are added together and the pass mark is set for the total number of points. So, in this case compensation between short cases is possible.

4.2. Exam venue

4.2.1. Requirements Criteria

The architecture, structure and organisation of an EDIC Part II exam centre are essential for the purpose of standardisation of the EDIC Part II exam. EDIC Part II exam centres are located in cities close to an airport hub, easily accessible from abroad. Applications have to be addressed to the Chair of the Examinations Committee. Application documents need to include:

- An application and motivation letter
- A description and plan of the exam building
- A description of accommodation facilities for examiners
- A tentative budget for the exam
- A list of potential examiners, including the Exam Centre Director

The Examinations Committee, based on the application file and according to their needs, will first express a provisional acceptance. Once the Exam Centre Director and all the examiners have fulfilled all the criteria listed in this chapter and the first exam has taken place, the final approval of the Exam Centre will be given and a certificate handed out to the Centre Director.

The Exam Centre Directors are provided with the specific indications on how to prepare the exam venue in order to deliver the exam online. Candidate will be connected remotely.

4.2.2. Exam Centre Director

The Exam Centre Director must be an experienced intensive care physician and educator holder of the EDIC diploma, or other comparable postgraduate specialist accreditation in Intensive Care Medicine. In addition, she/he:

- is an experienced EDIC Part II examiner
- has previously held a position of an Exam Centre co-director
- has previous experience of organising educational/scientific meetings
- has the full support of his/her own institution

The Examinations Committee nominates the Exam Centre Director. His/her term is three years, renewable more than once. The Exam Centre Director signs a three-year contract, in which he/she accepts:

- To act as the person responsible for the choice of the exam centre and the execution of the exam in accordance with the EDIC Part II exam regulations.
- To act as a co-director at least once prior to running her/his first exam session.
- To be audited by members of the Examinations Committee and/or the CESMA.
- To provide the EDIC office with an exam centre budget 6 months prior to the exam.
- To provide the EDIC office with a list of local examiners large enough to cope with the needs of the Exam Centre and the yearly fluctuation of examiners' availability.
- To run pre-exam examiners' workshops according to the EDIC regulations.
- To select and train a sufficient number of auxiliary staff members to cope with the Exam Centre's needs.
- To be present throughout the entire exam.
- To hand out and collect examiners' feedback at the end of the exam. (Examinees feedback are collected by email).
- To transfer correctly all candidates' exam data.
- To be responsible for the secure and safe storage of the iPads and, at the request of the EDIC office, to ship them back to Brussels when required.
- To test and guarantee the correct functioning of the iPads sufficiently in advance of the exam, in order to guarantee their function during the exam session.
- To answer any queries from the Examinations Committee and Appeal Committee within the appropriate time-frame.
- Not to exchange any correspondence with the exam candidates assigned to the Exam Centre without the mandate of the EDIC office.
- To attend Exam Centre Directors' pre-exam meetings.
- To mail the Exam Centre report to the EDIC office within 5 working days after the end of the exam.

4.2.3. Exam Centre Directors' meeting

An Exam Centre Directors' pre-meeting is organised twice a year. The aim of the meeting is to brief the Exam Centre Directors about the upcoming exam session. During the meeting, the CCS and CBS stations are presented and discussed. This meeting is mandatory for Exam Centre Directors organising the next exam session.

4.2.4. Exam Centre audit

After provisional acceptance of the application documents by the Examinations Committee, to get final accreditation, an EDIC Part II Exam Centre needs to be visited by an Examinations Committee delegation during its first exam session. Thereafter, the Examinations Committee can organise, at any time with short notice, an audit of the Exam Centre. The visiting team is comprised of members of the Examinations Committee, or experienced EDIC Part II examiners. The visiting team will write a report, which will focus on the following points:

- Structure and architecture of the exam location
- Logistics around the exam
- Correct development of the exam compliant with EDIC Part II regulations
- Conduct and appropriate development of the pre-examiners' workshop
- Respectful and friendly contact with the examinees and any other administrative staff.

4.3. Preparing the exam

4.3.1. Selection of CCS and CBS

The authors and co-authors of the CCS and CBS are the Examinations Committee members or experienced examiners. The CCS and CBS are subject to review by experienced members of the

Examinations Committee. The CCS section editor is responsible for ensuring that there is no thematic overlap between the CCS, the respect of CCS editing regulations, and compliance with the deadlines. In addition, a reviewer is assigned to each CCS.

The reviewer is responsible for the quality of the CCS and the correction of potential mistakes. The CBS section editor is, at the same time, a reviewer of all three CBS, and hence responsible for the internal consistence and quality of each CBS and the compliance with the deadlines. The Examinations Committee decides about the topics and the authorship of the three CCSs and three CBSs, six months prior to the exam.

The CCSs are selected from real live ICU cases. The examiners walk the candidate through the natural history and course of that particular case.

The three main domains of the CBSs are imaging, curves and biochemical scenarios. Ideally, vignettes are collected from daily ICU practice.

4.3.2. Selection of examiners

Examiners are selected on the basis of their knowledge of the subject, credibility and aptitude for teaching/education. The examiner is an established specialist in Intensive Care Medicine, with broad recognition among peers and practicing in Europe.

In addition, the examiner should also fulfil the following criteria:

- He/she is an ESICM member and successful holder of the EDIC diploma, or another comparable postgraduate specialist diploma in Intensive Care Medicine. Examples include the FICM (UK), FJFICMI (Ireland), FCICM (ANZ).
- He/she has an established track record in post-graduate training in Intensive Care Medicine in Europe or their country of practice.
- He/she is actively involved in the management of intensive care patients on a daily basis.
- He/she has been a formal observer of an EDIC Part II exam and is subsequently recommended by the Exam Centre Director.
- He/she has attended pre-exam workshops and observed one full EDIC part 2 examination. After acceptance, to maintain her/his certificate valid, she/he has to practice as an EDIC Part II examiner at least once during two consecutive years.

The Examinations Committee nominates examiners and, upon agreement with the examiner, enters his/her personal record into the EDIC Part II examiners' database. This information will only be used for the purpose of EDIC examinations. Upon request of an Exam Centre Director, the Examinations Committee can mandate one or more examiners to support an exam centre, if available.

Examiners act on a voluntary basis. No honoraria will be paid by ESICM. However, ESICM will cover costs generated by travelling, according to ESICM travel rules that the ESICM Office will provide to them, to and from the exam centre and lodging at the exam centre location for up to a maximum of three nights, according to the schedule of the exam day.

An examiner who would like to terminate his engagement for EDIC examinations has to provide a written notice of cancellation six month prior to the next exam date.

4.3.3. Training of examiners

It is essential that EDIC Part II examiners be trained to ensure a high-quality exam and to standardise their behaviour across EDIC Part II exam centres. The aim is to train examiners to standardise the exam process, to discuss the CCS and CBS and to be able to assess the behaviour and attitudes of the different candidates, especially the borderline candidates.

The training concept of the Examinations Committee involves a pre-Exam preparation workshop for all examiners.

The aim of the introductory workshop for new examiners is to introduce new examiners to their future activity. The main topics of part 1 are:

- The general aspects, principles and aim of the EDIC exams
- The aim, structure, organisation and rules of the EDIC Part II exam
- Instructions and practical exercises in how to behave in front of a candidate during the CCS and CBS.

This introductory course can be delivered by an experienced Exam Centre Director, locally or centrally organised by the Examinations Committee. For this purpose, the teaching film on CCS and CBS examination is shown. The course is mandatory for new examiners.

The centre director organises the pre-exam preparation workshop for all examiners immediately before the exam session. This workshop is mandatory for all examiners acting in the specific session. The aim of this pre-exam workshop is:

- To familiarise examiners with the CCS cases, to highlight possible difficulties and to discuss how much prompting is allowed and for which situation
- To familiarise examiners with CBS vignettes and to highlight possible difficulties
- To refresh the examiners' understanding of the regulations for examiners' behaviour
- To refresh examiners in the handling of iPads during the exam
- To remind examiners about the safety issues surrounding the exam
- To inform examiners about the logistics for the exam day.
- To inform examiners about potentially problematic candidates

A template for a pre-exam workshop, including a short introduction for new examiners, is explained in the indications given.

4.3.4. Auxiliary/technical staff for the exam day

To cope with the local exam logistics, auxiliary personnel are necessary. These could be either students or other persons from the university/hospital/post-graduate training college. Auxiliary personnel are needed to assist in the set-up of the exam hall(s) and assist the exam centre director.

4.4 Process and security during the exam

4.4.1 General remarks

The person responsible for the exam process is the Exam Centre Director. According to local needs, he/she decides upon the engagement of the auxiliary/technical staff and the examiners. He/she is responsible to ensure that examiners, while examining a candidate, have no conflict of interest. For quality purposes, he/she agrees to follow the following general rules for the conduct of the exam:

- The exam needs to be performed simultaneously in all EDIC exam centres
- Exchange examiners between CCS and CBS after each group
- Each candidate sees 9 different examiners
- Swap of interviewers within one CCS, each time
- Candidate performance is subjected to maximal confidentiality

In addition, the Exam Centre Director is responsible for the safety and confidentiality during the entire exam session. To guarantee safety and confidentiality, the following rules need to be applied:

- Exam centre directors and examiners are not allowed to keep any exam documents. Examinees are not allowed to take pictures or screenshots during the exam.
- Only the documents necessary for the relevant skill station should be present in each particular exam room/station.
- Examinees are allowed to take notes on a neutral piece of paper to be used during the CCS exams.
- Examinees are not allowed to take pictures or screenshots of the exam materials.

- During the exam session, examinees are permanently supervised by the Exam Centre Director and an examiner, or an auxiliary staff member.

Violations of the exam rules have to be communicated to the Exam Centre Director immediately. This applies to all types of violation of the exam regulations, but in particular to:

- Any irregularity that causes a time delay at a CCS or CBS station that has the potential to disadvantage an examinee
- Misconduct by an examinee or examiner
- Inability of an examiner or an examinee to continue the examination because of a health-related issue
- Examinees that do not join the exam links or any CCS or CBS station.

4.4.2. Examinees

Examinees may start their exam, following the links provided by ESICM to access the CCS and CBS stations and following the EDIC II candidates' guidelines.

4.4.3. Examiners

During the examiners' workshops, examiners must have been informed about the importance of the standardisation of the exam process among exam centres in order to minimise differences between centres. The standardisation of the examiners' behaviour during the exam is an important step of this process. Therefore, examiners have been trained to adhere to the following rules of behaviour when questioning an examinee:

CCS

- Watch time! 10 minutes are allowed to read and absorb the opening vignette of each long CCS and 25 minutes are allowed for each examinee to answer the questions put to them by the examiners. 5 minutes are allowed to read and absorb each of the short cases and 12.5 minutes for questions.
- Come to the point and focus on the question content
- Prompt 1-2 times
- At the end, the candidate cannot go back over any missed questions

CBS

- Instruction: Number of vignettes, time for each vignette, inform candidates about the option to go back to any missed vignette(s) at the end of the exam, if there is any time left
- Prompting 1x allowed, do not show anything on the computer screen
- At the end, if there is any time left, ask the following question to the candidate: "are there any images/slides you would like to see again?" without prompting! These can only be images/slides for which no answer was already given.

The Exam Centre Director is responsible for the teaching and the compliance of his examiners to these rules.

4.5 After the Exam

4.5.1. Clinical and statistical validity analysis of the assessment questions

Rating and marking of the exam items have been described under point 4.1.3

Once all exam results have been transferred to the server at the Heidelberg University, UCAN analyses the data using the Examiner software (same as for EDIC part I) and a report is generated.

Difficulty and discriminatory power are calculated for each item and reported graphically. Exam reliability is assessed by the calculation of Cronbach's Alpha. The results of the exam are analysed and discussed by the Examinations Committee during the EDIC Part II "key-validation" meeting, which

is held as soon as possible but no later than 15 days after the exam. At this meeting, all items with a low discriminatory power ($r\text{-value} < 0.05$) and excessively easy ($p\text{-value} > 0.95$) and difficult ($p\text{-value} < 0.2$) items are analysed and discussed. Due to formal mistakes and unclear formulation, some questions may be eliminated from the final exam evaluation. To eliminate an item, approx. 8-10 of the Examinations Committee members present at the meeting are needed to reach consent. Thereafter the pass mark is re-calculated.

4.5.2. Determination of Pass/Fail mark

As outlined in section 4.1.3, the use of widely described standard setting techniques, such as Angoff and Borderline Regression, means the pass mark may vary for each examination. These standard setting techniques allow adjustment of the pass mark in response to the difficulty of the examination.

4.5.3. Dissemination of Pass/Fail results and counselling for failed candidates

After the EDIC Part II “key-validation” meeting and the final exam report has been obtained (in general three weeks after the exam session), a candidate feedback letter is generated and sent to the candidates electronically. The information provided to the candidates is whether they passed or failed each station and also their overall result (pass or fail).

5. Contact address

5.1. EDIC Office

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