

EUROPEAN DIPLOMA IN INTENSIVE CARE

PART II / EXAMINATION PREPARATION

VOLUME 02

EDIC II

Decoded

SHARPEN YOUR JUDGEMENT. RISE TO THE CHALLENGE.

Tackle complex cases. Interpret with precision. Answer with clarity.
Advanced CCS and CBS practice to take your preparation further.

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MBChB | MRCS | FACS | EDIC | FEBS

FIRST EDITION

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About Volume 2

Volume 1 gave you the method: the data toolkit, the core syllabus by system and a first bank of stations. Volume 2 is the second lap. Every case, image, data panel and question in this book is new. The topics deliberately reach into the corners of the EDIC blueprint that candidates tend to skip: equipment and monitoring, post-operative and cardiac surgical care, airway and tracheostomy problems, the immunocompromised host, pharmacology, bedside clues, and ICU organisation.

How Volume 2 relates to Volume 1

	Volume 1	Volume 2
Purpose	Learn the method and the core syllabus	Rehearse under pressure with unseen material
Structure	Toolkit, then 13 system chapters, image bank, mock	Monitoring and equipment first, then 7 system chapters, pharmacology and bedside clues, ethics and organisation, an image bank, a second mock exam and an appendix
Core summaries	Full	Focused "what is new" summaries; cross-references to Volume 1 where the core is already covered
Trials	Landmark trials	Trials update (2015–2026) and the trials most often asked as follow-ups

Cross-references appear as [V1 §3.2], meaning Volume 1, section 3.2.

Using the book

1. **Do the stations cold.** Cover the expected answers and time yourself: 12 minutes per CBS station, about 25 minutes per CCS station.
2. **Answer aloud in items.** Each predefined answer is worth one point, so say discrete, prioritised items.
3. **Mark yourself honestly** against the expected answers and add missed points to your gap list.
4. **Use the chapter summaries second.** Read them after attempting the stations, so you learn what you missed rather than what you already know.
5. **Sit Mock Exam 2 last**, under exam conditions, at least a week before the real exam.

WHAT EXAMINERS TOLD US THEY WANT TO HEAR

- The **diagnosis**, stated early and clearly, then the evidence for it.
- The **dangerous alternative** you have excluded.
- The **first action** with a dose or a target.
- The **definitive treatment** and who you would involve.
- The **patient and family**: ceiling of care, communication, safety.

Images and data

The images are real clinical material: radiographs, CT and MRI, ultrasound and echocardiography, ECGs, monitor and ventilator screens, EEG and Doppler studies, laboratory reports, equipment and bedside photographs. Labels and annotations have been removed or avoided so that each works as an unseen station. Laboratory data use SI units, with conventional units where the exam often uses both. Flags **H** and **L** mark abnormal values.

Device	Bedside problem	Interpretation	Action
ECMO	Rising pre-oxygenator pressure with falling post-oxygenator PO ₂ , rising ΔP across the membrane	Oxygenator thrombosis/failure	Check anticoagulation, D-dimer, plasma-free Hb; change oxygenator
ECMO	Haematuria, dark plasma, rising LDH and free haemoglobin	Haemolysis (pump thrombus, excessive negative pressure, high RPM with low flow)	Reduce negative pressure, change pump
VV-ECMO	Low SpO ₂ despite high flow; post-oxygenator and drainage PO ₂ both high	Recirculation	Separate cannula tips, adjust flow, use dual-lumen cannula correctly oriented

ECMO controls. Oxygenation depends mainly on **blood flow** (and FdO₂, membrane function, recirculation); CO₂ removal depends mainly on **sweep gas flow**. Anticoagulation: UFH titrated to anti-Xa 0.2–0.4 IU/mL (or APTT 1.5–2 ×); lower or none during bleeding with heparin-coated circuits.

1.6 Ventilator graphics II

Pattern	Look for	Meaning
High Pplat, high PEEP, small Vt in PCV, I:E 1:1, EtCO ₂ 50–60 mmHg	Stiff lungs, protective strategy	Severe ARDS on high PEEP with permissive hypercapnia
Low rate, long expiratory time, expiratory flow not reaching zero, shark-fin capnogram	Gas trapping	Severe asthma/COPD ; intrinsic PEEP
Pressure falls during the inspiratory pause; expired volume trace does not return to baseline; short capnogram	Large leak	Bronchopleural fistula , cuff leak, circuit leak
Saw-tooth oscillation on flow or flow–volume loop	Fluid in the circuit	Secretions or condensate in a dependent loop: suction, drain the circuit
Flow–volume loop starts below zero; P–V loop shifted to the right of set PEEP		Intrinsic PEEP
High trigger threshold value (e.g. flow trigger 8 L/min)	Insensitive trigger	Increased work of breathing, missed efforts
Inverse I:E ratio with long high-pressure phases and brief releases		APRV (airway pressure release ventilation)

1.7 CBS stations

CBS 1.1 Three pressures, one patient

COMPUTER-BASED STATION · 12 MIN

HISTORY

The day after an elective cervical decompression, a 61-year-old man is comfortable and well perfused. A non-invasive cuff pressure has just been recorded at 122/65 mmHg. These three monitor screens were photographed a few minutes apart while the nurse adjusted the bed and the transducer holder.



Figure 1.1 Screen A.



Figure 1.2 Screen B.



Figure 1.3 Screen C.

Q1 Which screen matches each situation: transducer correctly levelled, transducer too high, transducer too low? Explain.

1 each

EXPECTED ANSWERS

- ✓ **A: correctly levelled** (arterial 125/66, close to the cuff pressure).
- ✓ **B: transducer too high** (85/24): a column of fluid pulls away from the diaphragm, so every pressure reads falsely **low**.
- ✓ **C: transducer too low** (153/91): the extra hydrostatic column adds pressure, so readings are falsely **high**.
- ✓ Error ≈ 7.4 mmHg per 10 cm height difference; all pressures shift by the same amount (MAP, SBP and DBP), unlike damping errors.
- ✓ Re-zero and **re-level to the phlebostatic axis** whenever the bed or patient moves; use a laser or spirit level.
- ✓ Clinical risk: inappropriate vasopressor escalation (B) or under-treatment of hypotension (C).