



CoBaTrICE SYLLABUS List of Updates

(PRESENTED BY COMPETENCE & DOMAIN)

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CoBAFaculty (CoBaTrICE steering committee: 27/07/2021)

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PREFACE

The development of the Competency-based Training Programme in Intensive Care Medicine (ICM) for Europe (CoBaTrICE) had as the main objective to develop an internationally competency-based training programme for Europe and other world regions, using consensus techniques to develop minimum core competencies for specialists in ICM. It was developed as an empirical competency-based approach rooted in everyday practice at the bedside, incorporating the opinions of and feedback from practitioners, patients and relatives, with the competencies acting as the foundation for roles and the syllabus. This initiative was an international partnership of training organisations coordinated by the European Society of Intensive Care Medicine and part-funded by the European Commission, with Professor Julian F Bion as the CoBaTrICE Project leader and was published in 2006 (*Intensive Care Med* 2006 Sep;32(9):1371-83). Essentially, CoBaTrICE harmonized outcomes of training across national borders while remaining congruent with variable national structures. As a result, it was adopted formally by many European countries as national ICM training program (Bion *AJRCCM* 2014;189:256–262).

After 15 years from its publication, the opportunity and need to perform a revision of the entire Syllabus came to adapt to the evolution of Intensive Care Medicine. This has been done by the CoBaFaculty (chair – Ignacio Martin-Loeches) and all this detailed work has been presented as a revised version in the summer of 2021. Since many European countries still have the 2006 version of the CoBaTrICE as the national training program, it was decided to maintain it and provide this document as an additional list of updates that involves a competency-based approach rooted in everyday practice at the bedside, considered essential to be added to the 2006 based training programs for new intensivists.

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CoBATRICE DOMAINS

- 1: Resuscitation and initial management of the acutely ill patient
- 2: Diagnosis: assessment, investigation, monitoring and data interpretation
- 3: Disease management
 - Acute disease
 - Co-morbid disease
 - Organ system failure
- 4: Therapeutic interventions / organ system support in single or multiple organ failure
- 5: Practical procedures
 - Respiratory system
 - Cardiovascular system
 - Central nervous system
 - Gastrointestinal system
 - Genitourinary system
- 6: Peri-operative care
- 7: Comfort and recovery
- 8: End of life care
- 9: Paediatric care
- 10: Transport
- 11: Patient safety and health systems management
- 12: Professionalism
 - Communication skills
 - Professional relationships with patients and relatives
 - Professional relationships with members of the health care team
 - Self-governance

COBATRICE COMPETENCIES

DOMAIN	COMPETENCY STATEMENT	
2. DIAGNOSIS: ASSESSMENT, INVESTIGATION, MONITORING AND DATA INTERPRETATION	2.3	Performs and interprets ultrasonography assessment.
	2.3 ^a	Performs and interprets transthoracic cardiac ultrasound for the recognition and assessment of left ventricular and right systolic failure, contraction pattern and dilation and pericardial tamponade.
	2.3b	Performs and interprets ultrasonographic assessment of the lungs and pleura for the recognition and assessment of consolidation, pleural effusion and pneumothorax.
	2.3c	Performs and interprets ultrasonographic assessment of the abdomen to assess intraperitoneal free fluid, hydronephrosis and bladder volume.
	2.3d	Performs and interprets venous ultrasound examination to assess for deep venous thrombosis and to aid vascular access (arterial and venous).

DOMAIN 1: RESUSCITATION & INITIAL MANAGEMENT OF THE ACUTELY ILL PATIENT

1.1 ADOPTS A STRUCTURED AND TIMELY APPROACH TO THE RECOGNITION, ASSESSMENT AND STABILISATION OF THE ACUTELY ILL PATIENT WITH DISORDERED PHYSIOLOGY

KNOWLEDGE

Recognises the patient critically ill or deteriorating patient:

Knows the clinical signs associated with critical illness, their relative importance and interpretation.

Recognises the early warning signs of impending critical illness and effectively use early warning scoring systems.

Assesses/stratifies clinical severity of illness and recognise when organ dysfunctions or failure are an immediate threat to life.

Recognises life-threatening changes in physiological parameters.

(...)

Causes, recognition and management of:

(...)

- Acute coronary syndrome.

(...)

- Anaphylactic and other hypersensitivity reactions.

(...)

- Acute abdominal pain criteria for admission to, and discharge from ICU - factors influencing intensity and site of care (ward, high dependency unit (HDU), intensive care unit (ICU)).

Triage and management of competing priorities.

(...)

ATTITUDES

(...)

Consults and considers the views of referring clinicians; promotes their participation in decision making where appropriate.

(...)

Appreciates / prioritizes patient safety.

(...)

1.2 MANAGES CARDIOPULMONARY RESUSCITATION

(...)

Cardiopulmonary resuscitation algorithms

- Treatment (algorithm) of patients in ventricular fibrillation (VF) and pulseless ventricular tachycardia (VT).

- Treatment (algorithm) of patients with non-VT/VF rhythms (asystole / PEA) defibrillation: principles of monophasic & biphasic defibrillators; mechanism, indications, complications, modes and methods (manual and automated external defibrillators (AED)).

(...)

Indications for not starting resuscitation or ceasing an initiated attempt.

(...)

Methods for securing vascular access rapidly.

(...)

Mechanical compression devices.

(...)

Multimodal assessment of outcome after cardiac arrest.

Targeted temperature management, indications, theoretical background, risks and benefits.

(...)

Presents a professional and reassuring approach - generates confidence and trust in patients and their relatives.

Recognises and manages emergencies; seeks assistance appropriately.

ATTITUDES

The attitudes required for this competence are the same for all competencies in Domain 1. Please refer to competence 1.1 or the aggregate syllabus at the end of this section.

1.3 MANAGES THE PATIENT POST-RESUSCITATION

KNOWLEDGE

(...)

Causes, recognition, differential diagnostics and management of:

(...)

- Hypoventilation

(...)

- Acute liver failure.

- Massive haemorrhage.

(...)

Principles and application of targeted temperature management.

(...)

Principles of ventilator therapy and use of oxygen administration devices (see 5.1).

Indications for acute dialysis.

1.5 ASSESSES AND PROVIDES INITIAL MANAGEMENT OF THE TRAUMA PATIENT

SKILLS & BEHAVIOURS

(...)

Performs E-FAST (the Extended Focused assessment with Sonography in Trauma).

1.6 ASSESSES AND PROVIDES INITIAL MANAGEMENT OF THE PATIENT WITH BURNS

KNOWLEDGE

(...)

Knowledge of risks to self (chemicals injuries, electrocution).

(...)

Importance of timely securing of airway.

Respiratory complications of burn injuries (smoke inhalation, airway burns) - detection and management.

Management of carbon monoxide intoxication.

Principles of oxygen therapy and use of oxygen administration devices (see 5.1).

Causes and recognition of acute airway obstruction.

Management of difficult or failed airway management (see 5.4).

Indications for and methods of ventilatory support.

Knowledge of antidotes and therapy of chemical burns.

DOMAIN 2: DIAGNOSIS: ASSESSMENT, INVESTIGATION, MONITORING AND DATA INTERPRETATION

2.1 OBTAINS A HISTORY AND PERFORMS AN ACCURATE CLINICAL EXAMINATION

KNOWLEDGE

(..)

Relevance of prior health status and functional ability in determining risk of critical illness and outcomes.

SKILLS & BEHAVIOURS

(...)

Interprets radiological examinations (X-rays, CT, US, Echocardiography).

(...)

Interprets chest x-rays, CT and ultrasound in a variety of clinical contexts.

2.2 UNDERTAKES TIMELY AND APPROPRIATE INVESTIGATIONS

KNOWLEDGE

Indications, limitations and basic interpretation of laboratory investigations of blood and other body fluids (e.g. urine, CSF, pleural and ascitic fluids):

(...)

- Acid-base
- coagulation

2.3 DESCRIBES INDICATIONS FOR ECHOCARDIOGRAPHY (TRANSTHORACIC / TRANSOESOPHAGEAL)

KNOWLEDGE

(...)

Anatomy and physiology of the lungs and respiratory system.

Basic interpretation of lung sliding, A lines and B lines and visualization of diaphragm movement.

Emphasis on respiratory disorders in the hypoxemic patient such as pleural effusion, alveolar interstitial disease, as well as pneumothorax.

Anatomy of the abdomen and organs involved to assess intraperitoneal free fluid, hydronephrosis and bladder volume.

SKILLS & BEHAVIOURS

Performs and interprets transthoracic cardiac ultrasound for the recognition and assessment of left ventricular and right systolic failure, contraction pattern and dilation and pericardial tamponade.

Performs and interprets ultrasonographic assessment of the lungs and pleura for the recognition and assessment of consolidation, pleural effusion and pneumothorax.

Performs and interprets ultrasonographic assessment of the abdomen to assess intraperitoneal free fluid, hydronephrosis and bladder volume.

Performs and interprets venous ultrasound examination to assess for deep venous thrombosis and to aid vascular access (arterial and venous).

ATTITUDES

The attitudes required for this competence are the same for all competencies in Domain 2. Please refer to competence 2.1 or the aggregate syllabus at the end of this section.

2.5 OBTAINS APPROPRIATE MICROBIOLOGICAL SAMPLES AND INTERPRETS RESULTS

KNOWLEDGE

(...)

Antibiotic stewardship

(...)

Indications of infection control in ICU.

2.6 OBTAINS AND INTERPRETS RESULTS FROM BLOOD GAS SAMPLES

KNOWLEDGE

(...)

Indications for and interpretation of peripheral and central venous blood gas samples.

2.7 INTERPRETS CHEST X-RAYS

KNOWLEDGE

(...)

Indications for and basic interpretation of chest radiographs: range of normal features on a chest x-ray; collapse, consolidation, infiltrates (including ALI/ARDS), pneumothorax, pleural effusion, pericardial effusion, position of cannulae, tubes or foreign bodies, airway compression, cardiac silhouette, signs of decompensation/fluid overload mediastinal masses.

2.9 MONITORS AND RESPONDS TO TRENDS IN PHYSIOLOGICAL VARIABLES

KNOWLEDGE

(...)

Methods for assessing pain and sedation and delirium.

SKILLS & BEHAVIOURS

(...)

Sets goals and targets for the monitored parameters.

(...)

Obtains and interprets data from:

(...)

- Pulmonary artery catheters or contour pulse analysis.
- Echocardiography or oesophageal Doppler.

DOMAIN 3: DISEASE MANAGEMENT

ACUTE DISEASE

3.1 MANAGES THE CARE OF THE CRITICALLY ILL PATIENT WITH SPECIFIC ACUTE MEDICAL CONDITIONS

KNOWLEDGE

(...)

CARDIOVASCULAR DISORDERS: (...) shock states (obstructive,); (...) acute myocardial infarction (STEMI, NSTEMI); (...)

endocarditis, vase-occlusive diseases; (...) aortic disease (dissection, rupture AAA).

(...)

INFECTIONS: Sepsis and septic shock.

CHRONIC DISEASE

3.2 IDENTIFIES THE IMPLICATIONS OF CHRONIC AND CO-MORBID DISEASE IN THE ACUTELY ILL PATIENT

KNOWLEDGE

CARDIOVASCULAR DISORDERS: (...) congenital heart disease.

NEUROLOGICAL DISORDERS: (...) MS, myasthenia, Parkinson's disease.

RENAL DISORDERS: (...) transplants.

PSYCHIATRIC DISORDERS: alcohol and illicit drug abuse.

3.3 RECOGNISES AND MANAGES THE PATIENT WITH CIRCULATORY FAILURE

KNOWLEDGE

(...)

Haemodynamic monitoring, indications, treatment targets and interpretation of data

Methods for assessing tissue perfusion.

3.4 RECOGNISES AND MANAGES THE PATIENT WITH, OR AT RISK OF ACUTE KIDNEY INJURY

KNOWLEDGE

(...)

RENAL AND GENITO-URINARY DISORDERS: fluid overload.

3.5 RECOGNISES AND MANAGES THE PATIENT WITH, OR AT RISK OF, ACUTE LIVER FAILURE

KNOWLEDGE

(...)

Indications for transfer to a transplantation center.

GASTROINTESTINAL DISORDERS: (...) viral hepatitis.

(...)

HAEMATOLOGICAL DISORDERS: (...) thrombocytopenia, (...) portal vein thrombosis.

(...)

METABOLIC DISORDERS: (...) glucose metabolism disorders.

Causes, recognition and management of (...) acute fatty liver of pregnancy.

3.7 RECOGNISES AND MANAGES THE PATIENT WITH ACUTE GASTROINTESTINAL FAILURE

KNOWLEDGE

(...)

Abdominal compartment syndrome: Factors and therapies which may influence intra-abdominal pressure; etiology and management and indications for surgical intervention of raised intra-abdominal pressure.

SKILLS & BEHAVIOURS

(...)

Manages abdominal compartment syndrome.

3.8 RECOGNISES AND MANAGES THE PATIENT WITH ARDS)

KNOWLEDGE

Signs and symptoms of acute airway insufficiency and acute respiratory failure, and indications for intervention.

RESPIRATORY DISORDERS: (...) viral pneumonitis.

(...)

Modes of mechanical ventilation – (...) High flow nasal oxygen therapy.

(...)

Prone position and lung recruitment manoeuvres.

Factors increasing / decreasing oxygen demand in critical ARDS.

Interpretation of spirometry and pressure-volume curves (in ventilator).

Complications of mechanical ventilation (barotrauma, volutrauma).

3.9 RECOGNISES AND MANAGES THE SEPTIC PATIENT

KNOWLEDGE

(...)

Early warning signs indicating sepsis in patients with infection.

Initial treatment of sepsis patient (fluids, cultures, timely antimicrobials, initiation of vasoactives).

Septic conditions that require immediate operative source control.

(...)

Most frequent pathogens.

(...)

INFECTIONS: (...) Pyometra / endometritis, (...) Puerperal sepsis, neutropenic sepsis/sepsis in immune compromised patients.

(...)

Long term effects and outcome of sepsis.

3.10 RECOGNISES AND MANAGES THE PATIENT FOLLOWING INTOXICATION WITH DRUGS OR ENVIRONMENTAL TOXINS

KNOWLEDGE

(...)

Specific management of poisoning with (...) alcohols (including methanol and ethylene glycol).

3.11 RECOGNISES LIFE-THREATENING MATERNAL PERIPARTUM COMPLICATIONS AND MANAGES CARE UNDER SUPERVISION

KNOWLEDGE

(...)

TTP and HUS.

(...)

CARDIOVASCULAR DISORDERS: (...) critical hypertension (pre-eclampsia).

(...)

Effect on treatment of concurrent pregnancy in a critically ill woman.

DOMAIN 4: THERAPEUTIC INTERVENTIONS / ORGAN SYSTEM SUPPORT IN SINGLE OR MULTIPLE ORGAN FAILURE

4.4 USES FLUIDS AND VASOACTIVE / INOTROPIC DRUGS TO SUPPORT CIRCULATION

KNOWLEDGE

(...)

Invasive & non-invasive systems available for measuring tissue perfusion.

4.7 INITIATES, MANAGES AND WEANS PATIENTS FROM RENAL REPLACEMENT THERAPY

KNOWLEDGE

(...)

Indications for immediate or early RRT.

(...)

Principles of hemofiltration, haemodialysis, peritoneal dialysis, hemoperfusion and plasmapheresis.

Methods for anticoagulation during CRRT.

Understanding factors determining the settings in RRT and the rate of dialysis.

DOMAIN 5: PRACTICAL PROCEDURES

RESPIRATORY SYSTEM

5.1 ADMINISTERS OXYGEN USING A VARIETY OF ADMINISTRATION DEVICES

KNOWLEDGE

(...)

Indications for (...) high flow nasal oxygen (HFNO).

DOMAIN 6: PERI-OPERATIVE CARE

6.1 MANAGES THE PRE- AND POST-OPERATIVE CARE OF THE HIGH-RISK SURGICAL PATIENT

SKILLS & BEHAVIOURS

(...)

Select & determine adequacy and route of administration of analgesia.

DOMAIN 7: COMFORT AND RECOVERY

7.1 IDENTIFIES AND ATTEMPTS TO MINIMISE THE PHYSICAL AND PSYCHOSOCIAL CONSEQUENCES OF CRITICAL ILLNESS FOR PATIENTS AND FAMILIES

KNOWLEDGE

Post-intensive care syndrome (PICS) in the survivor.

Causes, prevention and management of Intensive Care Unit-acquired weakness.

Consequences of immobilisation and mobilisation techniques (including disuse atrophy, foot-drop, ectopic calcification).

Causes, prevention and management of dysphagia.

Causes, prevention and management of pressure sores.

Causes, prevention and management of sleep disorders.

Causes, prevention and management of mental health consequences of critical care (anxiety, depression, post-traumatic stress disease).

Causes, prevention and management of cognitive impairments of critical care.

Principles of rehabilitation: physical, psychological and cognitive.

Resources available to patients and relatives for education and support (e.g. societies, local groups, publications, referral to allied health care professionals).

Methods to minimise potential psychological trauma to the patient and their family of transfer from the ICU (especially with regard to long term ICU patients).

(...)

Post-intensive care syndrome in the family (PICS-F).

Causes, prevention and management of mental health consequences (anxiety, depression, post-traumatic stress disease).

Methods to minimise potential psychological trauma to the patient and their family of transfer from the ICU (especially with regard to long term ICU patients).

ATTITUDES

Appreciates that physical and psychological and cognitive consequences of critical illness can have a significant and long-lasting effect for both patients and their relatives.

Desires to minimise patient distress.

7.2 MANAGES THE ASSESSMENT, PREVENTION AND TREATMENT OF PAIN AND DELIRIUM

KNOWLEDGE

(...)

Recognition and methods of assessment of delirium.

Principles of delirium pain management.

SKILLS & BEHAVIOURS

Anticipates the development of delirium and adopt strategies for its prevention or minimisation.

7.3 MANAGES SEDATION AND NEUROMUSCULAR BLOCKADE

KNOWLEDGE

(...)

Causes and management of acute confusional state and delirium.

SKILLS & BEHAVIOURS

Anticipates the development of pain and/or anxiety and/or delirium and adopt strategies for its prevention or minimisation.

(...)

Interprets data from scoring or scaling systems to assess pain and sedation and delirium.

7.4 COMMUNICATES THE CONTINUING CARE REQUIREMENTS OF PATIENTS AT ICU DISCHARGE TO HEALTH CARE PROFESSIONALS, PATIENTS AND RELATIVES

KNOWLEDGE

(...)

Post-intensive care syndrome (PICS) in the survivor.

Post-intensive care syndrome in the family (PICS-F).

(...)

Principles of rehabilitation: physical and psychological and cognitive.

SKILLS & BEHAVIOURS

Anticipates the development of pain and/or anxiety and/or delirium and adopt strategies for its prevention or minimisation.

Works with colleagues and relatives to minimise patient and relative distress.

7.5 MANAGES THE SAFE AND TIMELY DISCHARGE OF PATIENTS FROM THE ICU

KNOWLEDGE

Post-intensive care syndrome (PICS) in the survivor.

Post-intensive care syndrome in the family (PICS-F).

(...)

SKILLS & BEHAVIOURS

Anticipates the development of pain and/or anxiety and/or delirium and adopt strategies for its prevention or minimisation.

DOMAIN 10: TRANSPORT

10.1 UNDERTAKES TRANSPORT OF THE MECHANICALLY VENTILATED CRITICALLY ILL PATIENT OUTSIDE THE ICU

KNOWLEDGE

(...)

Ensures continuity of care through effective hand-over of clinical information.

SKILLS & BEHAVIOURS

Ensures continuity of care through effective hand-over of clinical information.

DOMAIN 11: PATIENT SAFETY AND HEALTH SYSTEMS MANAGEMENT

11.2 COMPLIES WITH LOCAL INFECTION CONTROL MEASURES

KNOWLEDGE

(...)

Principals of negative and positive pressure rooms.

SKILLS & BEHAVIOURS

(...)

Demonstrates (...) principals of negative and positive pressure rooms.

11.3 IDENTIFIES ENVIRONMENTAL HAZARDS AND PROMOTES SAFETY FOR PATIENTS AND STAFF

KNOWLEDGE

Principals of negative and positive pressure rooms.

SKILLS & BEHAVIOURS

(...)

Demonstrates (...) principals of negative and positive pressure rooms.

11.4 IDENTIFIES AND MINIMISES THE RISK OF CRITICAL INCIDENTS AND ADVERSE EVENTS, INCLUDING COMPLICATIONS OF CRITICAL ILLNESS

KNOWLEDGE

Principals of negative and positive pressure rooms.

SKILLS & BEHAVIOURS

Applies principals of negative and positive pressure rooms.

DOMAIN 12: PROFESSIONALISM

COMMUNICATION SKILLS

12.1 COMMUNICATES EFFECTIVELY WITH PATIENTS AND RELATIVES

12.2 COMMUNICATES EFFECTIVELY WITH MEMBERS OF THE HEALTH CARE TEAM

12.3 MAINTAINS ACCURATE AND LEGIBLE RECORDS / DOCUMENTATION

KNOWLEDGE

(...)

Methods of effective communication of information ((...) distance communication namely in epidemic/pandemic situations etc).