



EACTA EXCHANGE TRAINING OBSERVERSHIP PROGRAMME IN CRITICAL CARE MEDICINE

Learning Objectives:

1. To demonstrate knowledge of established and evolving biomedical, clinical and social sciences and the application of knowledge to the care of critically ill patients following cardiac, thoracic, and vascular procedures.
2. To demonstrate interpersonal and communication skills to establish and maintain professional relationships with other members of health care teams;
3. To demonstrate behaviours that reflect a commitment to continuous professional development, ethical practice, an understanding and sensitivity to diversity of the patients.
4. To demonstrate an understanding of the contexts and systems in the critical care units.
5. To demonstrate appropriate clinical decision-making skills.
6. To understand the pathophysiology of respiratory failure, various shock states, and cardiac arrest.
7. To learn the principles of hemodynamic monitoring and ventilator management.
8. To learn to coordinate a variety of data from multiple cardiovascular sub-disciplines, e.g. hemodynamic study, laboratory test, imaging, and in combination with their own clinical observation, formulate and implement an effective patient care plan.

Essential and Clinical Learning outcomes

Knowledge

The trainee should gain knowledge of

- Aetiology, pathophysiology, diagnosis and treatment plans / bundles according to international standards of specific critical conditions in cardiothoracic and vascular surgery patients.
- Circulatory failure (heart failure, shock, cardiorespiratory arrest, cardiac arrhythmias, ischaemic heart disease, pulmonary embolism, bleeding complications, vasoplegia).
- Anaphylaxis.
- Respiratory failure (ARDS, pulmonary oedema, pneumothorax, pneumonia).
- Acute renal failure.
- Gastrointestinal failure (peritonitis, pancreatitis, liver failure, nonocclusive mesenteric ischemia (NOMI)).
- Neurological failure (delirium and coma, cerebral ischaemia and bleeding).
- Airway and chest injuries.
- Aortic injuries.
- Infectious diseases (SIRS and sepsis including sepsis bundle strategy).
- Coagulation disorders (disseminated intravascular coagulopathy (DIC), heparin resistance, heparin-induced thrombo-cytopenia, severe bleeding, transfusion reaction).
- Equipment and apparatus (equipment design, physics, standards, limitations; e.g. non-invasive and invasive postoperative ventilation, continuous renal re-placement therapy devices, non-invasive and invasive haemodynamic monitoring).
- Indication, contraindication, drug selection, complications: sedation, anaesthesia, analgesia, neuromuscular relaxation, nutrition in the ICU.
- Multimodal and pre-emptive analgesia concepts.



- Weaning and extubation criteria.
- Transfer and discharge criteria.

Skills

- Performing sedation, general anaesthesia, multimodal analgesia. (Level A)
- Respiratory support including endotracheal suction, bronchoscopy (lavage, sampling), percutaneous tracheotomy, invasive and non-invasive ventilation techniques, ventilation in prone position, weaning. (Level A)
- Haemodynamic management and stabilization including advanced cardio-vascular monitoring, inotropic and vasoactive therapy, basic and advanced life support, defibrillation, cardioversion, pacing. (Level A)
- Fluid substitution, volume management. (Level A)
- Correction of coagulopathy, patient blood management, blood product transfusion. (Level A)
- Acute kidney injury and renal replacement therapy. (Level A)
- Identification and implication of relevant pre-existing co-morbidities. (Level A)
- Responding to trends in physiological variables. (Level A)
- Patient transportation inter- and intra-hospital (Level A)
- Ultrasound-guided central venous line / arterial line placement. (Level A)
- Recognition of severely abnormal ventricular function (e.g. infarction, pulmonary embolism, tamponade, hypovolaemia, right ventricular failure). (Level A)
- Ultrasound measurement of cardiac output. (Level A)
- Measurement of inferior vena cava diameter. (Level A)
- Recognition of large pericardial or pleural effusion. (Level A)

Opportunity for Trainees:

The interested trainees to acquire technical skills in the assessment, interpretation of diagnostic tests, monitoring, and care of critically ill patients following cardiac, thoracic, and vascular surgery could join the EACTA Exchange Training Observership Programme in ICM.

Duration:

All trainees spend a minimum of 3 weeks training in the ICM during their training in the EACTA Exchange Training Observership Programme in ICM **as an observer** at one of the approved host centres which have a high-volume ICU to achieve the learning outcomes.

Requirements:

- Language requirements (as per the preference and local regulations at the host centre).
- Specific legal or other requirements as required by the local authorities.
- Preferred seniority level (anaesthesia residents in Level 5 or certified anaesthetist).
- Number of positions per year: 1 trainee every month in a high-volume CVICU ≥ 40 cases per month.

Financial Statement/I Resources



As a trainee: do you have a scholarship, educational grant, or can you afford the expenses of your travel, transportations, and accommodations?

- **Sources of financial support for the candidate:**

- Host centre (optional: accommodation and transportation/travel might be provided).
- Candidate 's centre.
- Scholarship.
- Educational grant.
- Award.
- Candidate's own expenses

Resources at the Host Centre

- Number of working days per week.
- Total dedicated ICU and PACU beds for cardiac, thoracic, and vascular surgery.
- Post-anaesthesia care unit for cardiac, thoracic, and vascular surgery.
- Monitoring and advanced life support equipment.
- Interventional ICU facility.
- 24-hours ICU service available for patients undergoing cardiac, thoracic, and vascular surgery.
- Meeting Rooms.
- Classrooms with visual and other educational aids.
- Study areas for trainees.
- Office space for faculty members and trainees.
- Diagnostic facilities.
- Therapeutic facilities.
- 24-hour laboratory services available in the hospital.

Academic Education Patient Care

- Duration.
- Number of cases in the CVICU / week ≥ 10 procedures.

Competency Area

Settings/Activities

- Following the standards for patient care and established guidelines and procedures for patient safety, error reduction, and improved patient outcomes.
- Patient evaluation and optimisation of clinical status in the ICM settings.
- Interpretation of cardiovascular, respiratory, coagulation and neuromonitoring data.
- Pharmacological and mechanical circulatory support.
- Pharmacological and respiratory support.
- Renal replacement therapy.
- Peri-operative critical care, including ventilatory support and peri-operative pain management.



Medical Knowledge

- Indicate the teaching activities (e.g. lectures, conferences, journal clubs, clinical teaching rounds, etc.) in which trainees will demonstrate knowledge in each of the following areas. Also indicate the method(s) used to assess competence.

Area of Knowledge

Settings/Activities

- How cardiothoracic diseases affect the administration of life support to adult cardiothoracic patients.
- Pathophysiology, pharmacology, and clinical management of patients with cardiac disease, to include cardiomyopathy, heart failure, cardiac tamponade, ischaemic heart disease, acquired and congenital valvular heart disease, congenital heart disease, electrophysiologic disturbances, and neoplastic and infectious cardiac diseases.
- Pharmacokinetics and pharmacodynamics of medications prescribed for management of haemodynamic instability.
- Pharmacokinetics and pharmacodynamics of inotropic, chronotropic, vasoconstricting, and vasodilating medications.
- Circulatory assist devices, to include intra-aortic balloon pumps, left and right ventricular assist devices, and extracorporeal membrane oxygenation (ECMO).
- Post-anaesthetic critical care of adult cardiothoracic surgical patients.
- Peri-operative ventilator management, to include intra-operative anaesthetic s, and critical care unit ventilators and techniques.
- Quality assurance/ improvement.
- Ethical and legal issues, and practice management (e.g. care of end of life).

Evaluation of Trainees

- The Programme Supervisor will give an appraisal for each fellow following the Observership.
- The host centre will be able to maintain a register of those fellows who have entered and successfully completed a training programme.