

Application for Hosting EACTA Cardiothoracic and Vascular Anaesthesia Fellowship Programme

1. Fellowship Information	Basic Fellowship in Cardiothoracic and Vascular Anaesthesia				
	Year (2)				
2. Institution Name	University Hospitals Leuven				
Address	Herestraat 49, 3000 Leuven				
Website					
Country	Belgium	City	Leuven		
3. Chair Name	First name	Marc	Last name	Van De Velde	
	Email	marc.vandevelde@uzleuven.be			
4. Programme Director	First name	Dieter Van Beersel	Last name	An Schrijvers	
	Board Certification(s)	Anesthesiology, Intensive Care Medicine			
	Title/Affiliation	Dr.			
	Number of original publications	2			
	EACTA membership	Yes	If yes, membership's number	101623 (Van Beersel) and 102181 (Schrijvers)	
	ESA membership	Yes	If yes, membership's number	287639 (Van Beersel) and 189496 (Schrijvers)	
	Societies membership	Yes	If yes, membership's number	Van Beersel: EACVI (968705), SCA (00039157), ESICM; Schrijvers: ESICM	
	Email	dieter.vanbeersel@uzleuven.be	an.schrijvers@uzleuven.be	Phone	3216345231 (Van Beersel) and 3216343281 (Schrijvers)
	Mailing Address	Department of Anesthesiology, University Hospitals Leuven		Fax	3216344245
	Street	Herestraat 49			
	Country	Belgium	Region	Leuven	
	Zip code	3000			

Will the Programme director devote sufficient time to provide substantial leadership to the programme and supervision for the fellows?

Yes

Will the Programme director review the fellows' clinical experience logs at least quarterly and verify completeness and accuracy?

Yes

Does the national/international regulatory authority(s) recognizes the institutional CTVA Fellowship Programme?

No

If yes, please explain

Completion of the programme will be acknowledged by the Department of Anaesthesia and Intensive Care at the host centre in junction with European Association of Cardiothoracic Anaesthesia (EACTA) Candidate's requirements

Yes

5. Candidate's requirements

The candidates must be board certified or board eligible according to European residency programme standards

Yes

Language requirements

B2

Comments

English at a level of B2
Candidates must be board-certified in anesthesiology in their home country and have to apply for a national registration that allows them to work as a medical practitioner in Belgium. This registration and any working visa requirements (if needed) must be obtained by the attendee at own expense before the candidate will be permitted to provide patient care. Furthermore, the fellow has to acquire the required level of English (B2 level). A valid BLS certificate is obligatory for all medical practitioners working at the University Hospitals Leuven, but this can be obtained on-site at the beginning of the fellowship. We expect passionate candidates with a deep interest in cardiothoracic anesthesia who are motivated to study in parallel with their clinical tasks. A bundle of highly relevant articles will be provided by our department prior to the start of the fellowship.

6. General Programme Information

Aims, goals and objectives of the Fellowship Programme

Participants will acquire the basic skills and competencies in anesthesia for cardiac, thoracic and vascular surgery as well as interventional cardiology procedures. The programme will cover different areas of anesthetic care for cardiothoracic and vascular surgery, including preoperative assessment and perioperative management. Additionally, our center has a well-established thoracic organ transplantation programme (heart and lung transplantation). During the fellowship, the fellow will act most frequently in the role of primary anesthesia provider under close supervision of the programme directors and faculty members. The programme includes training in transoesophageal echocardiography which should be concluded by passing the Theoretical EACVI/EACTA TEE certification exam. During the fellowship, the candidate is expected to become involved in the group's research activities and to publish at least one research article or literature review in the field of cardiothoracic anesthesiology and/or a poster presentation at the EACTA Annual Meeting. We expect active participation in local case conferences and journal clubs. After completion the participant will be able to independently provide safe and evidence-based anesthesia for cardiothoracic and vascular surgical cases.

Preferred Duration

* Of note, the training period should not be interrupted by frequent and/or prolonged periods of secondment to other divisions / departments.

Preferred Programme Training	Start	October	1	End	September	30
Number of Positions Per Year	1	Type of fellowship training available		Clinical / Clinical Research		

If clinical, will the fellows be allowed to work with the patients under supervision

Yes

Comments

The candidate will work under close supervision during the first months of the fellowship. Depending on the progression in his/her clinical abilities and communication skills, the fellow can gain permission to work under indirect supervision with the opportunity to guide local trainees during their cardiothoracic anesthesia rotation. The fellow will be asked to be available to participate in interesting cases during nights and at weekends. Involvement in our center's on-call system is optional and will be discussed at the beginning of the fellowship. At all times the fellow will be supervised directly or indirectly by experienced anesthesiologists.

Offered Advanced Training

No

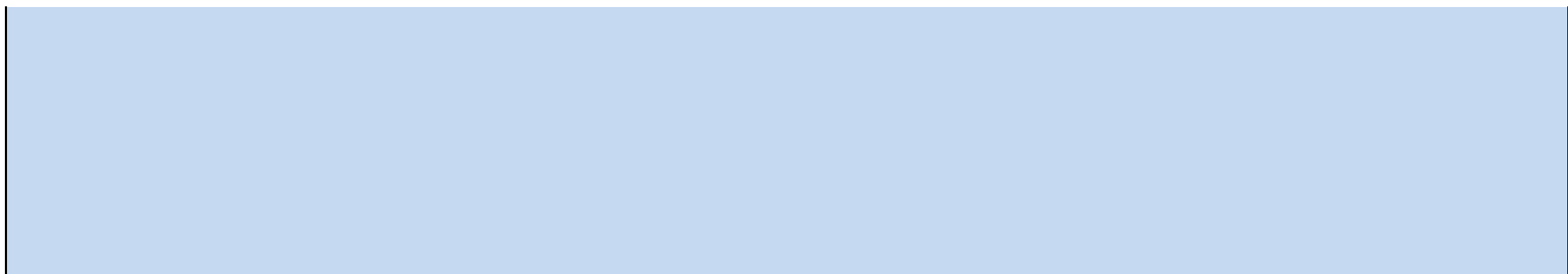
7. Faculty

CTV Anaesthesia Faculty - Research Interest and/or Clinical Expertise. * Please, list at least three names.

Name	EACTA member	Certification in Cardiothoracic and Vascular Anaesthesia	Additional Qualifications	Email address	Contact address
Dieter Van Beersel, MD	Yes	No	Intensive Care	dieter.vanbeersel@uzleuven.be	Department of Anesthesiology, University Hospitals Leuven, Herestraat 49, 3000 Leuven, Belgium
An Schrijvers, MD	Yes	No	Intensive Care	an.schrijvers@uzleuven.be	Department of Anesthesiology, University Hospitals Leuven, Herestraat 49, 3000 Leuven, Belgium
Steffen Rex, MD PhD	Yes	No	Intensive Care	steffen.rex@uzleuven.be	Department of Anesthesiology, University Hospitals Leuven, Herestraat 49, 3000 Leuven, Belgium
Layth Al Tmimi, MD PhD	Yes	No		layth.altmimi@uzleuven.be	Department of Anesthesiology, University Hospitals Leuven, Herestraat 49, 3000 Leuven, Belgium
Danny Hoogma, MD	Yes	No		danny.hoogma@uzleuven.be	Department of Anesthesiology, University Hospitals Leuven, Herestraat 49, 3000 Leuven, Belgium
Raf Van den Eynde, MD	Yes	No		raf.vandenevnde@uzleuven.be	Department of Anesthesiology, University Hospitals Leuven, Herestraat 49, 3000 Leuven, Belgium
Arne Neyrinck, MD PhD	Yes	No	Board Member	arne.neyrinck@uzleuven.be	Department of Anesthesiology, University Hospitals Leuven, Herestraat 49, 3000 Leuven, Belgium
Jens-Uwe Voigt, MD PhD	No	No	Cardiologist, sp	jens-uwe.voigt@uzleuven.be	Department of Cardiology, University Hospitals Leuven, Herestraat 49, 3000 Leuven, Belgium
	Yes / No				
	Yes / No				
	Yes / No				
	Yes / No				
	Yes / No				
	Yes / No				

Publications lists of the faculty's members in PubMed

More than 200 publications.



8. Resources Check if each of the following is available at the host centre.

Resources	Yes / No	Days per week open	Number
Total cardiothoracic and vascular ward beds	Yes	7	80
Number of ICU beds dedicated to CTV patients	Yes	7	20
Is there an emergency department in which cardiothoracic patients are managed 24 hours a day?	Yes	7	
An adequately designed and equipped post-anaesthesia care unit for cardiothoracic patients located near the operating room suite?	Yes	7	
Is there monitoring and advanced life support equipment representative of current levels of technology?	Yes	7	
Hybrid Operating Rooms	Yes	5	1
Cardiac Operating Rooms	Yes	7	4
Thoracic Operating Rooms	Yes	7	3
Vascular Operating Rooms	Yes	7	2
Catheterisation Labs	Yes	7	4
Electrophysiology Labs	Yes	5	2
Pulmonology Labs	Yes	5	2
Interventional Vascular Suits	Yes	7	3
Separate CVICU Facility	Yes	7	
Animal Laboratory for research purposes	Yes	5	
Outpatient Clinic for perioperative evaluation of patients undergoing cardiothoracic and vascular procedures	Yes	5	
24-hours acute pain service available for patients undergoing cardiac, thoracic and vascular procedures	Yes	7	
Meeting Rooms	Yes	5	2
Classrooms with visual and other educational aids	Yes	5	1
Study areas for fellows	Yes	7	1
Office space for faculty members and fellows	Yes	7	1
Diagnostic facilities	Yes	7	
Therapeutic facilities	Yes	7	
24-hour laboratory services available in the hospital	Yes	7	
Cardiac stress testing	Yes	5	
Cardiopulmonary scanning procedures	Yes	5	
Pulmonary function testing	Yes	5	
Computers and IT support	Yes	5	
Appropriate on-call facilities for men and women	Yes	7	

9. Clinical Skills and Responsibilities

Will your Programme offer a 12-24 months of fellowship education in fundamental clinical skills of medicine relevant to the practice of CTVA?

If yes, for each rotation or experience below, specify the duration (in months, four weeks = one month) during the 12-24 months of education in fundamental clinical skills.

Caring for inpatients in	Number of performed produces/year		
Cardiac Surgery using CPB	1200		
Cardiac Surgery without CPB	250		
Minimally-Invasive Cardiac Procedures	76		
Interventional Cardiac Catheterization (e.g. TAVI, Mitraclip, ASD)	106		
Electrophysiology Lab (e.g. mapping, ablation, pacemakers, ICDs)	500		
Robotic Cardiac Surgery	104		
Heart, Lung, and Heart/Lung Transplants	95		
ECLS, ECMO, VAD Procedures	75		
Echocardiography Lab	2000 plus		
Thoracoscopic Surgery	250		
Pulmonary Resection	385		
Oesophageal Surgery	250		
Tracheo-Bronchial Surgery	18		
Interventional Pulmonology Procedures			
Major Vascular Procedures	106 (aortic surgery; open and endovascular) + 72 carotid endarterectomy		
Neurological monitoring during major vascular surgery	150		
Interventional Vascular Procedures			
Acute and Chronic Pain Management for CTV patients			
Basic Research			
Clinical Research			
Rotations in	Number of performed produces/year		
Cardiac anaesthesia	7 months (250-300 cases)		
Thoracic anaesthesia	1,5 months (50-70 cases)		
Anaesthesia for major supra-inguinal vascular procedures	1 month (30 cases)		
Trans-esophageal and trans-thoracic echocardiography	0,5 month (+ 120 intraoperative TEE)		
Medical or surgical Critical Care Rotation	1 month (PACU)		
Inpatient or outpatient cardiology	0,5 month (25 cases)		
Inpatient or outpatient pulmonary medicine			
Extracorporeal perfusion technology (CPB, ECMO, Nova-Lung.)	0,5 month		
Paediatric cardiothoracic anaesthesia	optional		
Basic Research			
Clinical Research	optional		

Will all fellows entering the CTVA Programme complete each of the fundamental clinical skills of requirements?

If no, explain **Yes**

In the clinical anaesthesia setting, including nights and weekends, will faculty members at any time direct perioperative CTVA care, involving fellows, for more than two anaesthetizing locations simultaneously?

If Yes, describe **No**

Clinical Responsibility

We aim for a gradual extension of the fellow's clinical tasks and responsibilities (i.e. working under indirect supervision) depending on his/her individual clinical performances and communicating

List any other rotations (along with their duration, in months) offered in the Programme to augment fellows' learning.

The fellowship will consist of fixed rotations as determined by the EACTA Fellowship Curriculum. Additionally, there will be an opportunity to include a 1 month rotation in pediatric cardiac anesthesia as part of the overall cardiac anesthesia rotation period. In any case, if the learning objectives of any rotation are not achieved throughout a fixed rotation period (due to a lack of interesting cases), ad hoc solutions and minor changes can be made in agreement with the programme directors in order to achieve these goals. There is no fixed rotation defined but the fellow will have the possibility to participate in thoracic organ transplantations.

Will advanced subspecialty rotations reflect increased responsibility and learning opportunities?

Yes

Maximum Time in Non-Clinical Activities

limited (to be discussed)

10. Financial Statement

An employment contract will be signed with the candidate

Yes

Accommodation options are provided

No

Transportation/travel options are provided

No

Monthly Salary

Amount

2500 net on average

Currency

Euro

This opportunity is not funded by the centre

No

Source of financial support for the candidate:

Host centre (monthly salary)

Others

11. Educational and Academic Programme

Didactic Sessions

Will faculty members' attendance be monitored?	Yes
Will fellows' attendance be monitored?	Yes
Will attendance be mandatory for faculty members?	Yes
Will attendance be mandatory for fellows?	Yes
Who of the following will provide content at conferences? Check all that apply.	Yes
Anaesthesiology faculty members from this department	Yes
Anaesthesiology faculty members from other sites	No
Non-anaesthesiologists from the primary clinical site	No
Non-anaesthesiologists from the participating sites	No
Visiting faculty members	No
Drug/industry representatives	No
Fellows	Yes
Others (specify): Click here to enter text.	

What will be the frequency of the following educational topics in the programme's schedule?

	Weekly	Bi-weekly	Monthly	Quarterly	Semi-annually	Annually
Critical care appraisal of the literature (i.e., journal club)	No	No	Yes	No	No	No
Quality improvement (M&M, QA)	No	No	Yes	No	No	No
Board review (e.g., oral exams, keywords)	No	No	No	No	No	No
Grand rounds	Yes	No	No	No	No	No

Other (specify) Click here to enter text.

Formal Course Work Available in

1) The department of cardiology has a dedicated skills lab where the fellow can practice TEE/TTE.
2) The department of anesthesiology organises anesthesia simulation sessions several times a year. OR scenario's are simulated and both anesthesia trainees and fellows as well as OR nurses join these sessions. We aim for participants to become familiar with critical OR scenarios and to learn and apply the principles of Crisis Resource Management.

Extra-Institutional Educational Conference Support:

In the Previous 5 Years, Fellows were 1st or 2nd Author On:

Abstracts

Peer-Reviewed Journal Article

Book Chapters

Other Publications

Dedicated Research Time

In the Previous Year, Fellows present an oral or poster presentation in a national or international meeting

No

The Opportunity for Exchange with other training facilities

No

Patient Care

CanMEDS competency framework

Competency Area / Skills	Settings/ Activities	Assessment Method(s)
1. Basic Training		
1. I. General patient assessment and risk estimation		
Assessment of patients based on physical examination and history with use of appropriate laboratory tests and examinations. Level C	Participation in preoperative screening process; every day assessment of next day patients	Clinical skills evaluation by faculty members
Scores evaluation, e.g., physical status in accordance with American Society of Anesthesiologists (ASA). Level D	Participation in preoperative screening process; every day assessment of next day patients	Clinical skills evaluation by faculty members
Airway evaluation. Level C	Participation in preoperative screening process; every day assessment of next day patients	Clinical skills evaluation by faculty members
Interpretation and limitations of peri-operative monitoring, including invasive and non-invasive cardiac function tests, pulmonary function tests, blood gas analysis, common radiological imaging, coagulation tests, liver and renal function tests, endocrine function tests, and drug monitoring. Level C	Participation in preoperative screening process; every day assessment of next day patients; bedside teaching	Clinical skills evaluation by faculty members
Selection and planning of the individual anesthesia technique. Level C	On-site training and fellowship teaching; making a perioperative plan for next day patients according to surgical procedure and medical history	Clinical skills evaluation by faculty members
Postponement or cancellation of surgery decision making. Level C	Evaluating and performing a discussion of pros and cons.	Clinical skills evaluation by faculty members
Participation in multi-disciplinary (morbidity) conferences. Level C	Involving the fellow in multidisciplinary patient discussions.	Clinical skills evaluation by faculty members
Pre-operative fasting, pre-medication and adaptation of pre-operative drug therapy. Level C	Participation in preoperative screening process; following hospital guidelines.	Clinical skills evaluation by faculty members
1. II. Anesthesia management – cardiac surgery		
Workplace preparation following environmental safety measures and checklists. Level C	On-site training; following hospital checklist and guidelines.	Clinical skills evaluation by faculty members
Use of technical and medical equipment, inclusive advanced hemodynamic monitoring, neuromonitoring, coagulation monitoring and basic peri-operative TEE. Level C	The fellow will learn to perform ROTEM analysis, principles of cell salvage technology as well as the use of NIRS and BIS-monitoring and the use of TEE	Clinical skills evaluation by faculty members
Provision of safe induction, maintenance, and emergence from anesthesia. Level C	On-site training, bedside teaching	Clinical skills evaluation by faculty members

Defibrillation, cardioversion. Level D	On-site training and fellowship teaching	Clinical skills evaluation by faculty members
Transvenous pacemaker insertion and modes of action; use of a temporary pacemaker. Level C	On-site training and fellowship teaching; the fellow will learn to manage the PM during weaning from CPB and in the cathlab, as well as its transvenous insertion in selected cases	Clinical skills evaluation by faculty members
Central and peripheral venous (ultrasound-guided) access and peripheral arterial catheterization, pulmonary artery catheterization, arterial blood gas collection, and gastric tube insertion. Level D	On-site training and fellowship teaching; the fellow will be taught how to insert different vascular accesses and catheters, with and without the use of ultrasound.	Clinical skills evaluation by faculty members
Blood salvage and transfusion. Level D	On-site training and fellowship teaching; the fellow will be introduced to modern patient blood management.	Clinical skills evaluation by faculty members
Organ systems and hemostasis homeostasis maintenance throughout cardiac surgery procedures. Level C	On-site training and fellowship teaching; the fellow will be advised how to decide which therapy is better for each patient. Other options will be discussed on a case-by-case basis at the bedside	Clinical skills evaluation by faculty members
Interpretation of point-of-care coagulation monitoring such as rotational thromboelastometry (ROTEM) and thromboelastography (TEG). Level C	On-site training and fellowship teaching; the fellow will learn how to interpret ROTEM analyses as well as its limitations.	Clinical skills evaluation by faculty members
Management of patients on cardiopulmonary bypass. Level C	On-site training and fellowship teaching; the fellow will learn principles of CPB, how to manage complications and how to wean cardiac surgical patients from CPB.	Clinical skills evaluation by faculty members
Diagnosis and management of intraoperative critical incidents including. Level C - allergic reactions, anaphylaxis, - gas embolism, aspiration pneumonia and pneumothorax, - hypoxia, hypercarbia, hypoventilation, hyperventilation, high ventilator peak inspiratory pressures, - hypertension (systemic / pulmonary), hypotension, arrhythmias, myocardial ischemia, cardiac failure, cardiopulmonary resuscitation, - oliguria, anuria, - intra-operative blood gas and electrolyte disturbances, - intra-operative awareness, - adverse blood products transfusion reaction, - coagulopathy and excessive bleeding, - systemic inflammatory response syndrome (SIRS) / postoperative vasoplegic syndrome (PVS).	On-site training and fellowship teaching; critical incidents will be registered and discussed with the faculty members during M&M rounds.	Clinical skills evaluation by faculty members
Management of patient transport to and from the intensive care unit (ICU). Level C	On-site training and fellowship teaching.	Clinical skills evaluation by faculty members
Consideration of ethical and medico-legal aspects. Level C	On-site training and fellowship teaching.	Clinical skills evaluation by faculty members
1. III. Anesthesia management – thoracic surgery		
Bronchoscopic examination to verify the position of a lung-separation device and to confirm the correctness of the bronchus to be stapled and the patency of the other bronchi. Level C	On-site training and bedside teaching	Clinical skills evaluation by faculty members
Provision of safe induction, maintenance, and emergence from anesthesia in patients undergoing thoracic surgery of varying complexity, including airway management, the decision of which drug to use, one-lung ventilation technique, and management of intraoperative adverse events. Level C	On-site training and bedside teaching.	Clinical skills evaluation by faculty members
Management of most common peri-operative critical incidents and complications including: Level C - bronchospasm, - hypoxemia, hypercapnia, - pneumothorax,	On-site training and fellowship teaching.	Clinical skills evaluation by faculty members
One-lung ventilation with a double-lumen tube. Level C	On-site training and bedside teaching.	Clinical skills evaluation by faculty members
One-lung ventilation with other techniques (e.g., Arndt blocker, EZ blocker). Level B	On-site training and bedside teaching.	Clinical skills evaluation by faculty members
Postoperative pain management, including epidural and paravertebral analgesia. Level C	On-site training and fellowship teaching.	Clinical skills evaluation by faculty members
Additional techniques in pain management (e.g., epidural analgesia, truncal blocks, multimodal analgesic techniques). Level B	On-site training and fellowship teaching	Clinical skills evaluation by faculty members
1. IV. Anesthesia management – major vascular surgery		
Pre-operative assessment, risk stratification and medical management of vascular patients. Level D	Participation in preoperative screening process; every day assessment of next day patients. An anesthesia plan will be conducted in consultation with faculty members.	Clinical skills evaluation by faculty members
Provision of safe induction, maintenance, and emergence from anesthesia in patients undergoing vascular surgery of varying complexity, including airway management, the decision of which drug to use, hemodynamic management, and management of intraoperative adverse events. Level C	On-site training and bedside teaching.	Clinical skills evaluation by faculty members
Management of the most common perioperative critical incidents and complications including Level C - acute kidney injury, - neurological insults, - paraplegia,	On-site training and bedside teaching. The fellow will learn how to place spinal catheters in selected cases and how to use spinal fluid drainage perioperatively.	Clinical skills evaluation by faculty members
Management of elective and emergency open abdominal aortic aneurysms (AAA) and AAA repair. Level D	On-site training and bedside teaching.	Clinical skills evaluation by faculty members
Management of carotid endarterectomy, angioplasty, or stenting. Level D	On-site training and bedside teaching. This includes the use and interpretation of neuromonitoring.	Clinical skills evaluation by faculty members
1.V. Post-operative care/ Critical care		
Physical examinations and patient assessment (e.g., respiratory and peristaltic sounds, temperature gradient capillary refill). Level D	Bedside teaching	Clinical skills evaluation by faculty members
Applying sedation, general anesthesia, multimodal analgesia. Level D	Bedside teaching and application of local hospital protocols.	Clinical skills evaluation by faculty members
Management of the airways, inclusive of emergency intubation. Level D	On-site training and bedside teaching	Clinical skills evaluation by faculty members
Central venous, peripheral venous, arterial catheters, and pleural drains insertion using aseptic techniques. Level D	On-site training and bedside teaching	Clinical skills evaluation by faculty members
Gastrointestinal tube insertion. Level D	On-site training and bedside teaching	Clinical skills evaluation by faculty members
Airway maneuvers inclusive of suction of endotracheal secretions, tracheotomy (percutaneous), bronchoalveolar lavage and sampling. Level D	On-site training and bedside teaching	Clinical skills evaluation by faculty members
Invasive ventilation including prone position ventilation and weaning strategies. Level D	On-site training and bedside teaching	Clinical skills evaluation by faculty members
Delivery of continuous positive pressure ventilation and non-invasive ventilation. Level D	On-site training and bedside teaching	Clinical skills evaluation by faculty members

Hemodynamic stabilization and management, inclusive of pacing, cardioversion, defibrillation, advanced and basic life support, vasoactive and inotropic therapy, advanced cardio-vascular monitoring. Level B	On-site training and bedside teaching, clinical teaching rounds	Clinical skills evaluation by faculty members
Volemia management and fluids administration. Level D	On-site training and bedside teaching; clinical teaching rounds, the fellow will learn how to assess fluid status and fluid responsiveness in awake and	Clinical skills evaluation by faculty members
Management of blood product transfusion and coagulopathies correction. Level D	On-site training and bedside teaching; the fellow will learn how to use and interpret POC coagulation tests to guide transfusion management	Clinical skills evaluation by faculty members
Renal replacement therapy and acute renal failure. Level B	On-site training and bedside teaching	Clinical skills evaluation by faculty members
Identification of relevant pre-existing co-morbidities. Level D	On-site training and bedside teaching	Clinical skills evaluation by faculty members
Responding to trends in physiological variables. Level D	On-site training and bedside teaching	Clinical skills evaluation by faculty members
Patient transportation inter- and intra-hospital. Level B	On-site training and bedside teaching	Clinical skills evaluation by faculty members
Arterial and central venous line cannulation (ultrasound-guided). Level D	On-site training and bedside teaching	Clinical skills evaluation by faculty members
Myocardial infarction, pulmonary embolism, tamponade, hypovolemia. Level D	On-site training and bedside teaching	Clinical skills evaluation by faculty members
Assessment of intravascular volume status. Level C	On-site training and bedside teaching	Clinical skills evaluation by faculty members
Recognition of substantial pericardial or pleural effusion. Level B	On-site training and bedside teaching	Clinical skills evaluation by faculty members
1. VI. Basic peri-operative echocardiography		
Basic levels of peri-operative TEE and lung and vessel ultrasonography as performed in the operating room. Level C	On-site training and fellowship teaching; the fellow will learn basic and advanced principles of TEE.	Clinical skills evaluation by faculty members
Performance of the recommended number of peri-operative echocardiography exam according to EACVI / EACTA certification guidelines. Level D	On-site training and fellowship teaching; the fellow will be advised to perform at least 120 TEE examinations independently.	During the fellowship the candidate will be stimulated to attend the EACTA echo course with the goal to pass the EACTA/EACVI TEE certification exam.
1. VII. Anesthesia management – interventional procedures in cardiology		
Safe induction of, maintenance of, and emergence from anesthesia in patients undergoing interventional cardiac procedures, including the decision of which drug to use, ventilation techniques, management of airways and management of intraoperative adverse events. Level C	On-site training and fellowship teaching	Clinical skills evaluation by faculty members
Sedation for invasive procedures in cardiology. Level D	On-site training and fellowship teaching	Clinical skills evaluation by faculty members
Sedation and anesthesia outside the operating theatre, also considering the local organization and the specific patients and procedures. Level D	On-site training and fellowship teaching	Clinical skills evaluation by faculty members
1. VIII. Extracorporeal perfusion management		
Providing the theoretical background of extracorporeal circulation and associated subject areas, including: Level D - Anticoagulation monitoring and management. - Cardioprotective measures (cardioplegia, hypothermia). - Acid-base management (alpha-stat vs. pH-stat). - Management of complications, e.g., air entry, CPB failure.	On-site training and fellowship teaching; additional self-study	Clinical skills evaluation by faculty members
2. Advanced training		
In cooperation with the local Program Director, after the completion of the basic training, the fellow can design the advanced training to include any or a combination of the following options.		
2. I. Anesthesia management – cardiac surgery		
Clinical management of patients with pericardial diseases. Level D		
Management of cardiomyopathy patients and of those with congenital and acquired valvular heart disease, electrophysiological disturbances, congenital heart disease, heart failure, infectious and neoplastic cardiac diseases. Level D		
2. II. Anesthesia management – thoracic surgery (as described previously, as well as the followings:)		
Alternative ventilation techniques in thoracic surgery (e.g., jet ventilation). Level D		
Principles of postoperative chronic pain management. Level D		
2. III. Anesthesia management – major vascular surgery (as described previously, as well as the followings:)		
The use of rapid ventricular pacing (RVP) during deployment of the stent for TEVAR. Level B		
Pain management for patients undergoing vascular procedures. Level B		
Anesthesia for peripheral vascular procedures. Level C		
Care of patients undergoing limb amputation. Level D		
Pain management, with particular reference to critical limb ischemia. Level B		
2.IV. Post-operative management/ Critical care (as described previously, as well as the followings:)		
Interpretation of invasive and non-invasive cardiovascular monitoring. Level D		
Use of inotropes and vasodilators. Level D		
Management of intra-aortic balloon counter pulsation and other mechanical circulatory support devices. Level C		
Detection of problems occurring with extracorporeal circulation management. Level C		
Anesthesia for procedures in intensive care, including emergency re-sternotomy, re-intubation, tracheostomy or cardioversion. Level D		
Principles and management of chest drains. Level D		
2. V. Advanced perioperative echocardiography (as described previously, as well as the followings:)		
2. VI. Heart and/or lung transplantation		
Central venous pressure invasive arterial monitoring, pulmonary artery catheter insertion and interpretation. Level D		
TEE for monitoring of left and right ventricular function and diagnosis of primary graft dysfunction / failure. Level C		
Insertion and management of thoracic epidurals Level D		

2.VII. Organizational module		
Communicating effectively with patients and their families. Level D		
Communicating effectively with surgical colleagues. Level D		
Communicating with the intubated patient. Level D		
Recognizing the need for senior help. Level D		
Maintaining accurate clinical records. Level D		
Presentations at departmental meetings. Level D		
Participation in multi-disciplinary clinical audits. Level C		
Commitment to continued professional development. Level D		
2.VIII. Research module		
Ability to help design a clinical or basic science research project or part of it as a member of the investigative team. Level D		
Ability to help complete an ethics application. Level C		
Ability to discuss basic statistical approaches. Level C		
Ability to consent, recruit, and follow up research participants according to regulatory frameworks. Level C		
Ability to help analyze data. Level C		
Ability to contribute to disseminating study results in abstracts, presentations and publications. Level C		

Medical Knowledge

Indicate the activity(ies) (lectures, conferences, journal clubs, clinical teaching rounds, etc.) in which residents will demonstrate knowledge in each of the following areas. Also indicate the method(s) used to assess competence.

Area of Knowledge	Settings/ Activities	Assessment Method(s)
1. Basic Training		
1.I. General patient assessment and risk estimation (Level A)		
Physiology of the heart, the circulatory system and the respiratory system. Basic knowledge of embryological development of cardiac, thoracic and vascular structures.	Self-study, bedside teaching, clinical teaching rounds	Clinical skills evaluation and oral bedside discussion with faculty members.
Pre-operative invasive and non-invasive assessment of cardiac diseases and interpretation of results including electrocardiogram (ECG), chest X-ray, echocardiography, cardiac stress testing, coronary angiography, cardiac magnetic resonance imaging (cMRI), and computer tomography (CT).	On-site training, self-study	Clinical skills evaluation and oral bedside discussion with faculty members.
Pre-operative pulmonary evaluation and interpretation of the results, including arterial blood gas and acid-base analysis, pulmonary function tests, oximetry and thoracic	On-site training	Clinical skills evaluation and oral bedside discussion with faculty members.
Patient information and informed consent including medico-legal aspects, appraisal of discernment and consent capacity.	On-site training, following hospital guidelines.	Oral discussion with faculty members.
Principles of risk and outcome assessment and relevant scoring systems (e.g., EuroSCORE).	On-site training	Oral discussion with faculty members.
1. II. Anesthesia management – cardiac surgery (Level A)		
Knowledge of anesthetic agents and their effects on cardiac function and in patients with cardiac diseases.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Principles of intraoperative pharmacology and relevant medication, including positive inotropes, chronotropes, vasoconstrictors, vasodilators, and anti-arrhythmic agents.	Self-study, bedside teaching, clinical teaching rounds	Clinical skills evaluation and oral bedside discussion with faculty members.
Principles of patient blood management, including specific diagnostic tools, application of relevant medication and blood products.	Self-study, bedside teaching, clinical teaching rounds	Clinical skills evaluation and oral bedside discussion with faculty members.
Principles of basic hemodynamic monitoring and relevant techniques, such as arterial pressure measurement, central venous pressure.	Self-study, bedside teaching, clinical teaching rounds	Clinical skills evaluation and oral bedside discussion with faculty members.
Principles of relevant neuromonitoring techniques (e.g., processed electroencephalography (pEEG), near-infrared sonography (NIRS), somato-sensible evoked potentials (SSEP), motor evoked potentials (MEP).	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Principles of conventional cardiopulmonary bypass techniques. Principles of myocardial preservation. Effects of cardiopulmonary bypass on human physiology, organ function, and pharmacology.	Self-study, bedside teaching, clinical teaching rounds	Clinical skills evaluation and oral bedside discussion with faculty members.
Basic principles of common procedures in cardiac surgery, such as coronary artery bypass grafting (CABG).	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
1. III. Anesthesia management – thoracic surgery (Level A)		
Principles of pulmonary evaluation as described previously, and basic knowledge in the interpretation of results from pulmonary function tests, lung perfusion testing and CT.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members
Knowledge of the bronchial anatomy.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members
Knowledge about relevant anesthetic agents and their effects in patients with lung diseases.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members
Principles of intraoperative pharmacology and relevant medication, including bronchodilators and steroids.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members
Basic principles of common procedures in thoracic surgery (mediastinoscopy, video-assisted thoracoscopic surgery (VATS), open lung resection, pneumonectomy).	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members
Basic principles of endoscopic pulmonary procedures, such as bronchial stenting and endoscopic lung volume reduction (ELVR).	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members
1. IV. Anesthesia management – major vascular surgery (Level A)		
Knowledge of peri-operative management for vascular patients undergoing vascular interventions, including anesthetic choices, perioperative monitoring, and risk identification.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members
Basic principles of the peri-operative management of lumbar drainage for aortic interventional procedures.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members
Basic principles of spinal cord protection during surgical and interventional aortic procedures.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members
Basic principles of neuromonitoring.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members

1. V. Post-operative care/ Critical care (Level A)		
Scoring systems in the ICU (e.g. the Sequential Organ Failure Assessment (SOFA), the Simplified Acute Physiology Score (SAPS), the Confusion Assessment Method (CAM)-ICU).	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Etiology, pathophysiology, diagnosis and treatment plans / bundles according to international standards for specific critical conditions in cardiothoracic and vascular surgery patients.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Circulatory failure (heart failure, shock, cardiorespiratory arrest, cardiac arrhythmias, ischemic heart disease, pulmonary embolism, bleeding complications, vasoplegia).	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Anaphylaxis.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Respiratory failure, including adult respiratory distress syndrome (ARDS), pulmonary edema, pneumothorax, pneumonia.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Acute kidney injury and failure.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Gastrointestinal failure, peritonitis, pancreatitis, liver failure, non-occlusive mesenteric ischemia (NOMI).	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Neurological failure (delirium and coma, cerebral ischemia and bleeding).	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Airway and chest injuries.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Aortic injuries.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Infectious diseases (systemic inflammatory response syndrome (SIRS) and sepsis, including sepsis bundle strategy).	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Coagulation disorders (disseminated intravascular coagulopathy (DIC), heparin resistance, heparin-induced thrombocytopenia, severe bleeding, transfusion reaction).	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Equipment and apparatus (equipment design, physics, standards, limitations; e.g. non-invasive and invasive postoperative ventilation, continuous renal replacement therapy devices, non-invasive and invasive hemodynamic monitoring).	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Indication, contraindication, drug selection, complications: sedation, anesthesia, analgesia, neuromuscular relaxation, nutrition.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Multimodal and pre-emptive analgesia concepts.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Weaning and extubation criteria.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Transfer and discharge criteria.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
Indications for and application of extracorporeal circulation in intensive care patients for cardiac and / or respiratory support (e.g., ECMO).	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members.
1. VI. Basic peri-operative echocardiography (Level A)		
Principles of basic theory of peri-operative cardiac echocardiography according to the European Association of Cardiovascular Imaging (EACVI) / EACTA process of certification for TEE.	Self-study, bedside teaching, we aim for the fellow to perform at least 120 intra-operative TEE exams independently	Clinical skills evaluation by faculty members and participation in EACTA/EACVI TEE exam
1. VII. Anesthesia management – interventional procedures in cardiology (Level A)		
Basic principles of common procedures in interventional cardiology, such as coronary angiography, ablation, transcatheter aortic valve replacement (TAVR), and mitral / tricuspid clipping with relevant complications.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members
Procedural sedation guidelines from the European Board of Anaesthesiology (EBA)/ European Society of Anaesthesiology (ESA).	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members
Monitoring and capnography use according to the safety recommendations from EBA.	Self-study, bedside teaching	Clinical skills evaluation and oral bedside discussion with faculty members
1. VIII. Extracorporeal perfusion management (Level A)		
Basic principles of extracorporeal perfusion.	Self-study, bedside teaching, clinical teaching rounds	Clinical skills evaluation by faculty members
Types of extracorporeal circuits, e.g., cardiopulmonary bypass (CPB), extracorporeal membrane oxygenation (ECMO).	Self-study, bedside teaching, clinical teaching rounds	Clinical skills evaluation by faculty members
Types, composition and mechanisms of cardioplegic solutions.	Self-study, bedside teaching, clinical teaching rounds	Clinical skills evaluation by faculty members
Cardioprotective measures.	Self-study, bedside teaching, clinical teaching rounds	Clinical skills evaluation by faculty members
Safety recommendations for extracorporeal circulation from the European Board of Cardiovascular Perfusion (EBCP).	Self-study, bedside teaching, clinical teaching rounds	Clinical skills evaluation by faculty members
2. Advanced training		
2. I. Anesthesia management – cardiac surgery (Level A)		
Principles of advanced hemodynamic monitoring and relevant techniques, such as use of the pulmonary artery catheter, continuous cardiac output monitoring and measurement.		
Principles of modified cardiopulmonary bypass (minimized CPB, left-heart CPB) and the off-pump revascularization technique.		
Principles of advanced procedures in cardiac surgery and clinical management of affected patients (valve surgery and thoracic aortic surgery, including ascending, transverse, and descending aortic surgery with circulatory arrest).		
Principles and state of the art of mechanical support including intra-aortic balloon pumps, and extracorporeal membrane oxygenation.		
Current state of temporary and long-term mechanical circulatory support (ventricular assist devices, total artificial hearts).		
Principles of use of inhaled pulmonary vasodilators (nitric oxide (NO), prostaglandins).		
Principles of fast-track surgery.		
2.II. Anesthesia management – thoracic surgery (Level A)		

Principles of common procedures in thoracic surgery (open and thoracoscopic lung resections, robotic lung resection, lung volume reduction surgery, mediastinoscopy, pneumonectomy).		
Principles of diagnostic and interventional bronchoscopic surgery (lung volume reduction, bronchopulmonary lavage; endoscopic, rigid fiber optic and laser resection; bronchial stenting and sealing).		
Principles of peri-operative management of esophageal surgery for varices, neoplastic, colon interposition, foreign body, stricture, and tracheoesophageal fistula.		
2. III. Anesthesia management – major vascular surgery (Level A)		
Knowledge of perioperative management of TEVAR and EVAR.		
Knowledge of the principles of perioperative management of lumbar drainage for aortic interventional procedures.		
Excellent knowledge of the principles of spinal cord protection during surgical and interventional aortic procedures.		
Excellent knowledge of the principles of cerebral function monitoring.		
2. IV. Post-operative management/ Critical care (Level A)		
Knowledge of cardiac and thoracic physiology.		
Postoperative cardiac critical care, including analgesia, sedation and ventilation.		
Postoperative care and analgesia after thoracic surgery.		
An understanding of the management of cardiac pacing modes.		
An understanding of extracorporeal membrane oxygenation and other devices used for mechanical circulatory support.		
2. VII. Advanced perioperative echocardiography (Level A)		
Advanced level of knowledge in peri-operative cardiac echocardiography according to the EACVI/ EACTA process of certification guidelines.		
2. VIII. Heart and/or lung transplantation (Level A)		
Understanding of the physiology and clinical presentations of end-stage heart and lung disease and surgical options for their management.		
Understanding of the principles of heart transplantation and clinical management of affected patients.		
Knowledge of current limitations of organ transplantation and efforts to increase the suitable donor pool.		
Understanding of the multidisciplinary nature of patient evaluation and listing for transplantation.		
Knowledge of the principles of donor optimization, management and allograft retrieval.		
Knowledge of the principles of ex-vivo heart and lung perfusion.		
Understanding of the physiology of the denervated organ.		
Understanding of the surgical conduct of heart transplantation and knowledge of intra-operative and immediate postoperative care, including stability of induction, ventilation, oxygenation, hemodynamic support, and allograft and noncardiac organ protection.		
Understanding of primary graft dysfunction and indications for mechanical circulatory support.		
Understanding of the surgical options for lung transplantation, including minimally invasive lung transplantation and various intraoperative extracorporeal support mechanisms.		
Knowledge of intra-operative and immediate postoperative care, including protective ventilation, oxygen delivery, hemodynamic support, indications for inhaled NO and other pulmonary vasodilators, allograft and non-pulmonary organ protection.		
Knowledge of the principles of primary lung dysfunction and conservative and extracorporeal treatment options, including indications for and techniques of ECMO.		
Understanding of immunosuppressive regimens and the role of postoperative infections and sepsis.		
2. IX. Research module (Level A)		
Principles of clinical trials, including design, end points, inclusion / exclusion criteria, reporting requirements.		
Understanding of Good Clinical Practice (GCP) requirements for clinical research involving patients.		
Understanding of European and specific national ethics frameworks, including research ethics applications, clinical regulatory frameworks and hospital site-specific assessment.		
Principles of sample size and study power determinations and basic statistical evaluation		
Principles of patient and data confidentiality agreements.		
Understanding tools for data collection, analysis and reporting.		

Principal international basic science priorities in the field of cardiac anesthesia.		
Ethics and practicalities of biological sample collection, storage and biobanking		
Principles and ethics of scientific publishing.		

12. Assessment

The Programme Director will evaluate each fellow every 3 months

Assessment tools		
360-degree evaluations	<input type="text" value="Yes"/>	Clinical skills evaluations <input type="text" value="Yes"/>
Personal reports from the faculty	<input type="text" value="Yes"/>	Self-assessment by Fellow <input type="text" value="Yes"/>
Learning goals for the next three months	<input type="text" value="Yes"/>	Feedback from Fellows <input type="text" value="Yes"/>
A logbook will be available	<input type="text" value="Yes"/>	Reports of Evaluation will be available <input type="text" value="Yes"/>

The Programme Director will give an appraisal for each fellow every 3 months
The faculty and trainee should agree a joint evaluation both fellow's progress and the training programme, and devise a plan for addressing any perceived difficulties or deficiencies.

Training programmes should encourage fellows to provide a written confidential evaluation of the programme.
External evaluation / assessment will be held as per EACTA regulations

The centre will be able to maintain a register of those fellows who have entered and successfully completed a training programme in order to continue its accreditation as a training centre

There will be regular opportunities for Fellows to provide confidential written evaluations of the faculty and program to the EACTA Education Chair
Periodic evaluation of patient care (quality assurance) is mandatory. Subspecialty trainees in cardiac, thoracic, and vascular anesthesia will be involved in continuing quality improvement and risk management.

Trainees in cardiac, thoracic and vascular anesthesia will actively participate in the periodic evaluation and reassessment of the Fellowship training goals and objectives

Should unforeseen circumstances arise such as personal conflict between a Fellows and tutors, this should be reported immediately to the Chair of the Education Committee.

At the end of the training period, the centre would acknowledge in writing successful completion of a fellow training.

13. Practice-based Learning and Improvement

1. Briefly describe one planned learning activity in which fellows engage to: identify strengths, deficiencies, and limits in their knowledge and expertise (self-reflection and self-assessment); set learning and improvement goals; and identify and perform appropriate learning activities to achieve self-identified goals (life-long learning).

We aim for a weekly evaluation round in which we discuss and comment on last weeks cases. Important clinical findings will be highlighted and relevant diagnostics, echocardiography findings and treatment options will be discussed in team. All these elements will be reviewed and clinical implications will be adressed in order to strive for a continuous quality improvement. This process involves time for self-assessment and self-reflection for both the fellow as well as the faculty members and create an opportunity to set future learning and improvement goals.

2. Briefly describe one planned quality improvement activity or project that will allow the fellows to demonstrate an ability to analyse, improve and change practice or patient care. Describe planning, implementation, evaluation and provisions of faculty support and supervision that will guide this process.

The fellow will be invited to actively participate in weekly evaluation rounds and monthly M & M meetings in which we discuss cases and critical incidents that happened in the OR. He will also be stimulated to join the evaluation of our fast-track cardiac surgery program in which our local database will be analyzed and different outcome parameters compared with the ones from previous years and with the overall results of fast-track programs in other centers. This analysis can result in daily practice changes in our center.

3. Briefly describe how fellows will receive and incorporate formative evaluation feedback into daily practice

We aim for a daily bedside case-discussion with a member of the faculty. As needed, the faculty will provide personal feedback at the end of the day. A formal 360 degrees feedback will take place every 3 months in which the clinical and communicating skills, medical knowledge and the functioning of the fellow in the OR team will be discussed. This evaluation interview will be done by the program directors.

4. Briefly describe one example of a learning activity in which fellows engage to develop the skills needed to use information technology to locate, appraise, and assimilate evidence from scientific studies and apply it to their patients' health problems. The description should include:

The fellow will be asked to actively participate in educational sessions given and organized by the anesthesia department. These sessions include M & M meetings and clinical teaching rounds in which we discuss cases, critical incidents that happened in the OR and hot topics in the field of cardiothoracic anesthesia. He/she will be assigned to review evidence on relevant topics for these meetings with close help from the faculty.

5. Briefly describe how fellows will participate in the education of patients, families, students, fellows, and other health professionals.

Depending on his/her communication skills, the fellow will be involved in the preoperative evaluation of next day cardiovascular and thoracic patients. As the fellowship progresses, he/she will get the opportunity to work under indirect supervision where he/she can accompany local trainees in their cardiac, vascular and thoracic anesthesia rotation.

14. Interpersonal and Communication Skills

1. Briefly describe one learning activity in which fellows demonstrate competence in communicating effectively with patients and families across a broad range of socioeconomic and cultural backgrounds, and with physicians, other health professionals, and health-related agencies.

Depending on his/her communicating skills, the fellow will participate in the preoperative patient preparation of next day cases and will be involved in the information process toward patients and families. He/she will stepwise become responsible for the whole process in accompanying patients through the perioperative period. At all times, the fellow will be supervised directly or indirectly by the faculty members.

2. Briefly describe one learning activity in which fellows demonstrate their skills and habits to work effectively as members or leaders of a health care team or other professional group. In the example, identify the members of the team, responsibilities of the team members, and how team members communicate to accomplish responsibilities.

With increasing skills and experience, the fellow can get the opportunity to work under indirect supervision where he will lead a team of OR nurses and anesthesia trainees. He will also actively interact with members of the cardiovascular and thoracic surgical team throughout the perioperative period. Furthermore, the fellow will be asked to identify next-day fast-track candidates where he takes into account patient selection criteria, PACU capacity and the availability of medical expertise during the night.

3. Briefly describe how fellows will be provided with opportunities to act in a consultative role to other physicians and health professionals related to clinical information systems.

During the management of every day cases the fellow will have to interact with other consultants to adress patient-specific issues.

4. Briefly describe how fellows will be provided with opportunities to maintain comprehensive, timely, and legible medical records, if applicable

As his clinical skills progress, the fellow will be asked to perform the written TEE-report of every day cases. At any time, he/she will get full access to patients perioperative medical records.

5. Briefly describe how fellows will maintain a comprehensive anaesthesia record for each patient, including evidence of pre- and post-operative anaesthesia assessment, an ongoing reflection of the drugs administered, the monitoring employed, the techniques used, the physiologic variations observed, the therapy provided as required, and the fluids administered.

The fellow will be asked to follow the routine in-hospital procedure for the quality and comprehensiveness of anesthesia records. In our institution, we use KWS, which is an electronic patient data system that records every aspect of patient care from preoperative medical records to intraoperative and postoperative vital parameters and registrations.

6. Briefly describe how fellows will create and sustain a therapeutic relationship with patients, engage in active listening, provide information using appropriate language, ask clear questions, provide an opportunity for comments and questions, and demonstrate sensitivity and responsiveness to cultural differences, including awareness of their own and their patients' cultural perspectives.

Depending on his/her communication skills, the fellow will actively participate in preoperative patient evaluation of next day cases. He will visit next day patients on the ward and will be involved in the information process towards patients and families. In addition we routinely care for patients with different cultural background and sometimes different nationalities.

15. Professionalism

Briefly describe the learning activity(ies), other than lecture, by which fellows demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles, including: compassion, integrity, and respect for others; responsiveness to patient needs that supersedes self-interest; respect for patient privacy and autonomy; accountability to patients, society, and the profession; and sensitivity and responsiveness to a diverse patient population, including to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation

The fellow will progressively gain responsibility for the whole process in accompanying patients through the perioperative phase. His/her professionalism will be reflected as his/her involvement in this whole perioperative care process. At any time, the fellow will work under direct or indirect supervision from the faculty members.

15. Systems-based Practice

1. Describe the learning activity(ies) through which fellows achieve competence in the elements of systems-based practice: working effectively in various health care delivery settings and systems, coordinating patient care within the health care system; incorporating considerations of cost-containment and risk-benefit analysis in patient care; advocating for quality patient care and optimal patient care systems; and working in inter-professional teams to enhance patient safety and care quality

The candidate will regularly be informed of and encouraged to follow changes in practice when recommended by departmental groups. This recommendations will incorporate the principles of evidence-based medicine as well as cost-effectiveness in a way to improve patient outcomes.

2. Describe an activity that fulfils the requirement for experiential learning in identifying system errors and implementing potential systems solutions.

The fellow will be asked to actively participate in M & M meetings held by the department in which critical incidents will be discussed. As such, system errors and potential solutions can be discovered.

16. EACTA Site Visit (for 1-day)

Dates proposed for the visit (at least 3) or or

I hereby accept the regulations of the Hospital Visiting especially to take in charge the travel costs and the hotel accommodation of the 2 reviewers on the most reasonable base

Other comments

To be completed by the Head of department or the authorised deputy.

Please fill in all required fields and send to eacta@aimgroup.eu

Fellowship Cardiothoracic and Vascular anesthesia

University Hospitals Leuven, Belgium

List of publications by faculty members

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Additionally, 200+ publications by Jens-Uwe Voigt, our Head Division Echocardiography Lab.

Checklist for Hosting the EACTA Cardiothoracic and Vascular Anaesthesia Fellowship Programme

Institution Name

Address

Preferred Duration 12 months 24 months

Type of fellowship training available:

- Clinical only
- Clinical / Basic Research
- Clinical / Clinical Research
- Basic Research only
- Clinical Research only

Legal statement

**** The fellow will have signed authorisation from the hospital or the national authorities to provide direct patient care during his/her training programme, under supervision from the legal representative of the hosting institute. "i.e. hands-on practice"**

Yes No

**** The applying trainee should be either a licensed anaesthesiologist or have a completed certificate of training in anaesthesia.**

Yes No

**** The programme is approved by the head of department of the hosting centre.**

Yes No

Declaration of financial sources

**** The financial support of the EACTA Fellowship will be regulated by an individual agreement between the hosting centre and the fellow.**

Yes No

**** The financial sources policy should be declared by the hosting centre.**

Yes No

EACTA will divide the hosting centres into two categories as follows; **Category (A):** The hosting centres which can offer monthly salary payments and **Category (B):** The hosting centres which cannot offer salary payments, instead, the candidates may be supported by an educational grant, scholarship, or are self-sponsoring, etc.

**** Preferred Fellowship Category:** Category A Category B

**** The candidates are free to choose between the hosting centres in the two categories.** Yes No

**** A signed consensus between the hosting centre and trainee regarding the financial arrangement and responsibilities for both parties will be delivered to EACTA.**

Yes No

**** Accommodation options will be provided** Yes No

**** Transportation/travel options will be provided** Yes No

**** Source of financial support for the candidate:**

- Hosting centre (monthly salary), if yes; Amount Currency
- Candidate 's centre/country
- Scholarship
- Educational grant
- Award
- Candidate's own expenses
- Others

Please, describe

Programme Training and facilities of the hosting centre

The University Hospitals Leuven, the largest hospital in Belgium, is a high-volume specialized institution providing all areas of modern medical care. We have a highly-equipped operating theatre in which a team of dedicated and high-qualified anesthesiologists performs anesthesia for all types of cardiothoracic and vascular surgery. Additionally, our centre hosts a well-established thoracic organ transplantation programme.

During the fellowship, the fellow will act most frequently as primary anesthesia provider under close supervision of the programme directors and the faculty members. The programme includes training in transesophageal echocardiography which should be concluded by passing the Theoretical EACVI/EACTA TEE certification exam. During the fellowship, the candidate is expected to become involved in the group's research activities and to publish at least one research article or literature review in the field of cardiothoracic anaesthesiology and/or a poster presentation at the EACTA Annual Meeting. We expect active participation in local case conferences and journal clubs. After completion, the participant will be able to independently provide safe and evidence-based anesthesia for cardiothoracic and vascular surgical cases.

1. The training will be continuous for a minimum of 12 to a maximum of 24 months.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2. The <i>programme director</i> and a <i>minimum of two faculty members</i> declare in writing that they will dedicate sufficient time (i.e. minimum 10% of working time) to attend to his or her responsibilities. 8 hours per week	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
3. At least one of the faculty needs to be transesophageal echocardiography (TOE) certified (e.g. EACVI-EACTA joint accreditation, Association of Cardiothoracic Anaesthesia and Critical Care (ACTACC) or National Board of Echocardiography (NBE)).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
4. A documentary evaluation process will be undertaken at least once every 6 months.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5. The candidate will keep records of all Clinical and Educational activities in a monthly portfolio or logbook.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6. The hosting centres should have an:	
6.1 Available intensive care unit (ICU) for cardiothoracic and vascular patients.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6.2 Available emergency room (ER) 24 hrs. a day (7/24).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6.3 Operating rooms (ORs) to be adequately equipped for cardiothoracic and vascular procedures (advanced haemodynamic monitoring, TOE, neuromonitoring, coagulation monitoring, blood saving (salvage) devices).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6.4 Designed and equipped post-anaesthesia care unit (PACU), high-dependency unit (HDU), or an ICU incorporating a PACU.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6.5 Volume of cases.	
6.5.1 Minimum of 150 cardiac cases using cardiopulmonary bypass (CPB) will be available per fellow per year.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 250
6.5.2 30% of the cases are non-coronary artery bypass grafts (CABG).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 180
6.5.3 A programme director should perform a minimum of 100 cardiac anesthesia cases per annum personally.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6.5.4 Training in the management of patients who have mechanical support in situ e.g. intra-aortic balloon pump (IABP), extracorporeal membrane oxygenation (ECMO) and ventricular assist device (VAD).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6.5.5 Training in anaesthesia for interventional catheterisation laboratory procedures.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6.5.6 Basic training in TOE will be available.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6.5.7 Advanced training in TOE will be available.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
6.5.8 Training in electrophysiology study (EPS) procedures (pacemakers, implanted cardioverter/defibrillator (ICDs), mapping, ablations, etc.).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6.5.9 Training in any of the following:	
6.5.9.1 Cardiothoracic and vascular surgical critical care in the ICU/PACU (minimum 1 months per year).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6.5.9.2 Extracorporeal perfusion technology (e.g. CPB, VAD) with a perfusionist (minimum 2 weeks).	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6.6 Training in thoracic anaesthesia.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6.7 Training in supra-inguinal vascular anaesthesia.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6.8 Training in interventional vascular (TEVAR, EVAR) and neuromonitoring.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
6.9 These requirements will be applied for all new fellows	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

7. The applying hosting centres outside Europe:	
7.1 The country of the applying centre will have <i>at least five full active EACTA members</i> throughout the accreditation period to host the EACTA CTVA Fellowship Programme.	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.2 The applying centre has <i>at least 3 peer reviewed publications</i> related to the field of cardiothoracic or vascular anesthesia or intensive care <i>within the last 5 years</i> .	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.3 The programme director or at least one of the faculty members should be either the elected RC member for their country or an active EACTA officer (director, subspecialty committee chair, delegate at one of the three permanent committees, or member of the subspecialty committees).	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.4 For countries that have no accredited centers yet, EACTA reserves the right to initially limit accreditation to only one centre per applying country for a period of one-to-two years. (I agree on behalf of the applying centre).	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.5 The department that has applied for accreditation of the EACTA CTVA Fellowship Programme will be subject to a peer review visit organized by EACTA. ** ** The visiting committee will screen the centre's compliance with the published criteria (10.7) and provide an extensive evaluation report to EACTA's board of directors.	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.6 For reaccreditation procedures, fellows' evaluation reports will be reviewed.	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.7 Here, I/we agree about all of the EACTA Guidelines for Site Visits as shown in 10.7 in the White Paper of the Board of Directors [click here]	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.7.1 International travel expenses, costs incurred within the country for the two visitors and the cost of an independent interpreter will be covered by the visited institution.	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.7.2 Alternatively, the visited institution would pay the fees as shown in 10.7.5 in the White Paper of the Board of Directors [click here]	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.7.3 The Role of the programme director at the applying centre:	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.7.3.1 Facilitates the visiting process.	
7.7.3.2 Translates the interviews with staff members and the residents during the visit, if necessary.	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.7.3.3 If required for the interviews a professional interpreter will be provided by the host centre.	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.7.3.4 Participates in the final debriefing meeting and facilitates all communication between parties.	<input type="checkbox"/> Yes <input type="checkbox"/> No

Decision Approve Reject

Conditions Yes No

If yes, please define

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	Monday	Tuesday	Wednesday	Thursday	Friday
MORNING	MIDCABG or OPCABG	Valve surgery	OPCABG	Valve surgery (port access)	Valve surgery (port access)
AFTERNOON	MIDCABG or OPCABG	Valve surgery	OPCABG / valve surgery	Valve surgery (port access)	Valve surgery

This is an example of a weekly schedule during the fellow's cardiac anesthesia rotation period at the University Hospitals Leuven.

Each day our department provides anesthesia for 3 or 4 cardiac surgery operating rooms.

CABG-surgery consists mainly of off-pump procedures and minimally invasive CABG (left mini-thoracotomy). Cardiopulmonary bypass is only used in a minority of CABG-procedures.

Our centre performs a lot of cardiac valve surgery too. A significant proportion of these procedures is being done by port-access (right mini-thoracotomy) using the Heartport-system.

	Monday	Tuesday	Wednesday	Thursday	Friday
MORNING	MitraClip	Vascular surgery	Vascular surgery	Thoracic surgery	TAVI
	Thoracic surgery				
AFTERNOON	Thoracic surgery	Vascular surgery	Vascular surgery	Thoracic surgery	TAVI
			Thoracic surgery		

Weekly schedule during the fellow's non-cardiac and non-ICU rotation period at the University Hospitals Leuven.

At hoc variation on this schedule is possible depending on the daily case load for each surgical discipline. These changes will be evaluated permanently by the programme directors in order to expose the fellow to as many interesting cases as possible during his/her rotation.

	Monday	Tuesday	Wednesday	Thursday	Friday
MORNING	Echocardiography Lab	PACU / ICU	PACU / ICU	PACU / ICU	PACU / ICU
AFTERNOON	PACU / ICU	PACU / ICU	PACU / ICU	PACU / ICU	Echocardiography Lab

This is an example of a weekly schedule during the fellow's ICU/PACU-rotation period at the University Hospitals Leuven.

Most often the fellow will provide postoperative care for cardiothoracic and vascular surgical patients at the PACU.

We have a well-developed fast-track cardiac surgery program, where patients are extubated early or even on-table. Postoperatively these patients stay overnight and are managed at the PACU and not in the ICU.

The echocardiography lab is being supervised by the cardiologists.