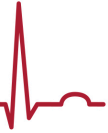


**UNIVERSITÄTSMEDIZIN DRESDEN**

**Universitätsklinikum  
Carl Gustav Carus**



**Herzzentrum  
Dresden**



***Cardiothoracic and Vascular Anaesthesia Fellowship  
Programme Dresden***

PD Dr. med. habil. Jens Fassl, FASE

Heart Center Dresden

Institute of Cardiac Anesthesiology

Fetscherstrasse 76

01307 Dresden

Germany

Fon: +49 – 351 – 450 -1 603

Fax: +49 – 351 – 450 - 1604

Jens.fassl@herzzentrum-dresden.com

## **Period and Aims of the Fellowship**

The Cardiothoracic and Vascular Anaesthesia Fellowship at the Institute of Cardiac Anaesthesiology of the Heart Center Dresden is offered for a duration of one year. Aim of the Fellowship Programme is to train anaesthesiologists who have finished their residency training to become proficient in cardiothoracic and vascular anaesthesia. The fellows will have the opportunity to gain profound experience in the fields of cardiac, thoracic and vascular anaesthesia. After completion of the programme, they will be able to work independently as consultants in cardiac, thoracic and vascular anaesthesia.

The fellowship programme in Dresden is organised and directed by the chair of the Institute of Cardiac Anesthesiology, PD Dr. Jens Fassl and programme director Torsten Schmidt. Completion of the programme will be acknowledged by a joint certificate of the European Association of Echocardiography (EACTA) and the Heart Center Dresden, Institute of Cardiac Anaesthesiology. One person per year can start the fellowship programme every year.

## **Obligation of the Fellow**

The Programme includes pre-, intra- and postoperative care of patients undergoing a cardiac, vascular or thoracic operation. The Fellow takes part in the clinical routine as well as in clinical conferences with the Department of Cardiology and the Department of Cardiac Surgery. The fellow is trained in transesophageal echocardiography by formal courses and teaching in the operating room. The fellow takes part in preparation and presentation of case conferences. The didactic curriculum, provided through lectures and conferences and allows the fellow to acquire the knowledge to care for the patients. In addition, academic projects including preparation and publication of review articles, book chapters, manuals for teaching or clinical practice, clinical research or other academic activities are offered. The fellow is responsible for the documentation of the cases and TEE examinations done during the fellowship.

### *Evaluation*

The fellow's progress will be evaluated and discussed with the fellow every 3 months by the chair and the programme director. The fellow's professional attitude, fund of knowledge, clinical judgment will be assessed as well his/her practical skills, social competence and efficiency for patient management and critical analysis of any relevant clinical situations. The fellow is involved in programmes of quality assurance and risk management. At the end of the training period, the fellow will receive a testimonial.

### **Faculty**

The chair and the programme director have a large experience in cardiothoracic and vascular anaesthesia. Both devotes sufficient time to provide substantial leadership to the programme and supervision for the trainees. PD Dr. Fassel and Torsten Schmidt are the primary coaches of the fellow; further senior members of the anaesthesia team serve as clinical teachers and coaches for the fellows in daily clinical practice. The Faculty of the Institute of Cardiac Anaesthesiologists consists of 5 consultants and 6 specialists, who are specially trained in cardiothoracic and vascular anaesthesia as well as in perioperative transesophageal echocardiography.

### **Resources**

The Heart Center Dresden is the exclusive cardiac surgical centre in Dresden and one of two centers in Saxony, a region with a population of approximately 4.1 million people. There exists a high level of medical care with an twenty-four-seven emergency department, operating rooms, cath labs, Cardio-CT and Cardio MRI which are all adequately designed and equipped for the management of cardiothoracic and vascular surgery patients and intensive care units for surgical (22 beds) and cardiology patients (19 beds). Staff physicians are all board certified in their medical specialty and have profound experience in cardiovascular and pulmonary disease, echocardiography including transesophageal echo, clinical cardiac

electrophysiology and cardiac, thoracic and major vascular surgery. The monitoring and advanced life support equipment is representative of current levels of technology. There are facilities which are readily available at all times to provide prompt laboratory measurement pertinent to the care of cardiothoracic and vascular surgical patients as well as prompt non-invasive and invasive diagnostic and therapeutic cardiothoracic procedures. These include but are not limited to echocardiography, cardiac stress testing, cardiac catheterization, electrophysiological testing and therapeutic intervention, cardiopulmonary scanning procedures and pulmonary function testing.

### *Cardiac Surgery*

The Department of Cardiac Surgery at the Heart Center of the Technical University of Dresden performed 2252 adult cardiac procedures in 2018. Details are provided in table 1.

Table 1

<b>Leistungsbereich 2018</b>	<b>Jan</b>	<b>Feb</b>	<b>Mrz</b>	<b>Apr</b>	<b>Mai</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Okt</b>	<b>Nov</b>	<b>Dez</b>
Bypass	72	49	53	45	60	58	62	62	42	54	62	52
Klappenchirurgie	62	85	68	79	62	66	65	66	66	68	66	36
Kombinationseingriff	32	32	26	28	27	32	32	28	30	27	35	15
Plastische Rekonstruktion des Herzseptums			2		2		1	2				
Resektion und Ersatz an der Aorta	4	5	3	4	4	2	3	2	3	8	4	3
HSM/ Defi- Eingriff	28	19	22	16	21	32	15	29	28	21	29	21
Transplantation					1		1					
Herzunterstützungssystem	2		4		2	1				1	1	2
sonstiges	2	6	7	4	3	2	3	4	4	5	1	
Fremd-OP	3	2	4	4	5	3	3	1		3	7	
Neurostimulator (BaroStim)	3	3	3	4		2	3	2	3		1	
<b>Zwischensumme</b>	<b>208</b>	<b>201</b>	<b>192</b>	<b>184</b>	<b>187</b>	<b>198</b>	<b>188</b>	<b>196</b>	<b>176</b>	<b>187</b>	<b>206</b>	<b>129</b>
Rethorakotomie	3	11	7	8	11	9	10	14	14	9	20	5
Behandlung von WHST	14	22	25	15	13	23	18	41	23	29	33	30

### *Interventional Cardiology*

The Department of Cardiology at the Heart Center Dresden is an academic part of the University Hospital also covers the interventional cardiology theatre. The fellow is involved and trained in these procedures. . Details are provided in table 2.

Table 2.

	<b>2017</b>	<b>2018</b>
PTCA / Stents	825	1149
Invasive Diagnostic	515	805
Misc	131	215
Heart Valve Procedures	6	5
Vascular Interventions	42	55
Conservative Treatment	1391	1405
Intensive Care medicine	248	264
Pacemaker / AICD	548	722
Minimal invasive Treatments (TAVI, MitraClip, Aortic Prosthesis)	237	346
Ablation	777	640
Misc. Procedures	171	167

## **Anaesthesia**

### *Cardiac Anaesthesia*

Fellows are trained to provide perioperative anaesthetic management for patients with severe cardiopulmonary pathology. The cardiac surgeries are the following: coronary artery bypass surgery (CABG) both on cardiopulmonary bypass as well as on a beating heart, heart valve surgery, aortic reconstruction requiring deep hypothermic arrest, thoracic aortic aneurysm repair, aortic dissection repair and heart transplants. (Table 1).

Adequate exposure and experience is provided in the management of adult patients for cardiac pacemaker and automatic implantable cardiac defibrillator placement and surgical treatment of cardiac arrhythmias. There is exposure also to techniques such as percutaneous aortic valve replacement, mitral valve intervention and aortic valve bypass.

Fellows also gain experience in perioperative medical (anaesthetic) management of the cardiac patient, including management of intra-aortic balloon pumps (IABP) and ventricular assist devices (VAD), post-operative ICU care, point-of-care coagulation testing, blood transfusion medicine, electrophysiology, and transthoracic echocardiography.

Fellows will receive proper theoretical and practical training both for basic and advanced TEE. Each patient undergoing cardiac surgery will have a pre- as well as a postsurgical transesophageal examination. The fellow will perform and document the TEE examinations with increasing independence and review each examination with a senior echocardiographer.

The TEE training will be based on the understanding of the basic principles of ultrasound and learning of basic skills of TEE (physics, standard views for examination, Doppler principles and quantification etc). As soon as the fellows master the basic skills, TEE training will continue with advanced applications of intraoperative TEE including assessment of valvular function, 3D, AQ for assessment of ventricular function, Stress and Strain, Tissue Doppler). The fellowship will give fellows an ideal training to qualify for accreditation in TEE by the European Association of Echocardiography (EAE) and the European Association of Cardiothoracic Anaesthesiologists (EACTA). Mentors of the fellows are trained and

accredited experts in TEE and have a large experience in teaching TEE and performing clinical echocardiographic research projects.

### *Thoracic and Vascular Anaesthesia*

Clinical work of fellows includes anaesthetic management of adult patients undergoing thoracic and vascular surgery. Fellows are trained to manage different types of thoracic surgeries. Fellows achieve expertise in different techniques of lung isolation and ventilation, including the use of double-lumen endotracheal tubes, bronchial blockers, fiberoptic bronchoscopy, and jet ventilation.

### *Advanced Monitoring and Invasive Techniques*

The complex nature of cardiothoracic surgery necessitates extra training to acquire the skills needed to be a cardiothoracic and vascular anaesthesia consultant. Fellows are trained to achieve expertise in the advanced monitoring techniques including invasive blood pressure measurement, arterial blood gas analysis, cardiac output monitoring, central venous oxygen saturation, jugular venous oxygen saturation, Bispectral Index (BIS) and near infrared spectroscopy (NIRS).

Finally, invasive procedures completed by the cardiothoracic anaesthesiology fellows include arterial line placement (femoral, axillary, brachial, radial), central venous cannulation (internal jugular, subclavian, femoral), pulmonary artery catheter placement, transvenous pacemaker placement, thoracic epidural analgesia, fiberoptic endotracheal tube placement, 2D/3D transesophageal echocardiography and ultrasound guidance of vascular access.

## **Structure of the Fellowship Programme**

### **1st Month**

- Familiarisation in cardiothoracic and vascular anesthesia, coached mainly by the programme director or chair
- Anaesthesia management for standard cardiac procedures

- Daily participation intensive care ward rounds and preop anaesthesia clinic

### **2nd - 4th Month**

- Clinical duties as a member of the cardiac team for standard cardiac procedures (isolated CABG, aortic and mitral valve replacement), under supervision
- Daily participation intensive care ward rounds and preop anaesthesia clinic - Acquisition of basic echocardiographic knowledge (books, media, course, teaching in the operating theatre)
- On – call duties, under supervision
- Evaluation of the educational progress of the fellow by programme director and the chair. Meeting with the fellow, discussion of the evaluation, mutual feedback
- Planning of participation in a national or international conferences. Participation in the Annual Meeting of EACTA with an oral presentation or abstract.

### **5th – 7th Month**

- Clinical duties as a member of the cardiac team for standard and advanced cardiac procedures, including transcatheter aortic valve implantation (transapical / transfemoral), , anterolateral mitral valve repairs / replacements), under supervision
- Daily participation intensive care ward rounds and preop anaesthesia clinic
- Acquisition of basic TEE skills. The fellow learns to obtain the 20 standard views
- Planning and presentation of clinical case conference
- On – call duties, under supervision

### **8th – 10th Month**

- Clinical duties as a member of the cardiac team for standard and advanced cardiac procedures, including transcatheter aortic valve implantation (transapical / transfemoral), aortic valve bypass and anterolaterale mitral valve repairs / replacements, under supervision
- Daily participation intensive care ward rounds and preop anaesthesia clinic
- Self consistent TEE examination (Pre - and postoperatively) under bedside Supervision
- On – call duties, under supervision



**Starting 11th to 12th Month**

- Self-consistent clinical duties as junior cardiac specialist in elective cardiac, thoracic and vascular surgical patients
- Self consistent TEE examination
- On – call duties as a junior consultant, together with a backup senior consultant
- European accreditation in TEE by EACTA / EAE (or shortly after the end of the fellowship)
- Continuous medical education in the field of cardiac, thoracic and vascular anaesthesia