



Anesthesia and Perioperative Medicine
Western University

Cardiac Anesthesia
Program Director – Dr. Anita Cave

Please visit the Cardiac Anesthesia Fellowship site for most up-to-date information:

http://www.schulich.uwo.ca/anesthesia/education/fellowship/fellowships_offered/cardiac_anesthesia.html

Clinical Fellowship: Cardiac Anesthesia

The Department of Anesthesia and Perioperative Medicine at Western University offers a one-year, Clinical Cardiac Anesthesia Fellowship based at London Health Sciences Centre in London Ontario Canada.

We offer 5 cardiac anesthesia fellowship positions each year.

Our Cardiac Anesthesia Fellowship prepares fellows for independent practice by providing an opportunity to develop skills in clinical care, judgment, teaching, and research. The strength of our educational program results from a highly motivated team of cardiac anesthesiologists, a comprehensive didactic teaching program, and a very busy cardiac surgery service.

Each year, we perform approximately 1,400 cardiac surgical procedures utilizing cardiopulmonary bypass.

Our center is a national leader in minimally invasive/robotic coronary artery bypass grafting and mitral valve repair surgery. We were the 1st center in North America to have a hybrid operating room. Our list of minimally invasive procedures includes:

- Robotic mitral valve repair
- Mitral clip insertions

- Robotic coronary artery bypass grafting
- Robotic hybrid procedures (CABG and PCI)
- Transcatheter aortic valve

We also offer a broad based clinical experience including:

- Coronary artery bypass grafting
 - Including off-pump CABG
- Valve repair and replacement
- Major aortic reconstructive surgery
- Left and right ventricular assist devices, extra-corporal membrane oxygenation
- Heart transplant
- Additionally, we provide care to patients undergoing percutaneous electrophysiologic studies and therapeutic interventional cardiology procedures such as device closure of interatrial septal defects and left atrial appendages

Our division performs transesophageal echocardiograms (TEE) for almost all cardiac cases performed, and our training program emphasizes training of fellows in this procedure. All of our cardiac anesthesia attending staff are certified by the National Board of Echocardiography to perform perioperative TEE. All of our previous fellows who have completed our cardiac anesthesia fellowship program have passed the perioperative TEE exam on the first attempt.

Our goal for the fellowship is to train and mentor future cardiac anesthesiologists to excel clinically, and in the fields of education and research. We are committed to providing the highest quality experience and education for each of our fellows.

FELLOWSHIP STRUCTURE

- **Duration:** the fellowship training program will be undertaken over twelve consecutive months and includes four weeks of vacation time.
- **Number of fellowship positions:** 5
- **Location:** Fellowship training will take place at University Hospital.
- **Service commitment:** 100 days per year (subject to change according to department fellowship policies). This service commitment may be in subspecialties unrelated to cardiac anesthesia. The remainder of the weekdays is subspecialty time. Fellows spend approximately three days per week in cardiac anesthesia clinical activities. Academic time may be granted depending on the academic productivity of the fellow.
- **Call commitment:** Fellows will be expected to be available out of hours (evenings, nights and weekends) for a week at a time. Coverage will vary dependent on number of fellows. A pager will be provided by the department.
- **Fellowship eligibility:**
 - ✓ Candidates must possess a medical degree from a recognized University equivalent and have passed anesthesia specialty specific exams.
 - ✓ International Medical Graduates must be approved by the PGE Office at Western University
 - ✓ English Language Requirement: TOEFL-iBT required, achieving an overall score of no less than 100 with a minimum score of 24 in speaking or listening (**IMG only**).
 - ✓ All non-Canadian trained anesthesiologists will be required to pass an assessment period taking place over the first 4 - 8 weeks in order to continue with the fellowship ('PEAP' – Pre-entry assessment period).
 - ✓ **Link to Application Requirements:**
www.schulich.uwo.ca/anesthesia/education/fellowship/application_requirements.html

Educational Activities

The fellow will be required to attend and participate in the following formal educational events:

- Weekly didactic lectures. Lectures include education related to: cardiac anesthesia, pediatric cardiac anesthesia, transesophageal echocardiography, cardiology related topics, and a heart dissection in the wet lab.
- Morning Cardiac Anesthesia Teaching Rounds. These rounds take place three times per week. They comprise topics ranging from TEE to interesting cases and the management of complex cardiac cases.
- Cardiac Surgery Recovery Unit (CSRU) teaching rounds while on the CSRU one month rotation.
- CAE transesophageal/transthoracic echocardiography simulator

Teaching

The fellow will be required to participate in the following teaching activities:

- One Anesthesia Grand Rounds
- One anesthesia resident seminar
- Presentation of interesting cases at Morning Cardiac Anesthesia Teaching Rounds
- Clinical teaching of residents and students in the OR

GOALS AND OBJECTIVES

MEDICAL EXPERT

- The Cardiac Anesthesiologist must have developed an appreciation of all aspects of perioperative medical management for cardiac surgery patients. This includes an understanding of cardiac physiology, influence of anesthetic agents and techniques on the cardiac and vascular systems, and the impact of cardiac pathology on physiology and pharmacology.
- By the end of the fellowship the fellow will be able to:
 - Describe and independently manage the physiologic changes occurring during cardiac surgery and cardiopulmonary bypass.
 - Interpret
 - Invasive and non-invasive cardiac diagnostic tests
 - Cardiac catheterization studies
 - Arterial and venous blood gases
 - Data from intravascular monitoring devices
 - Perform and interpret TEE in accordance with the guidelines of the National Board of Echocardiography
 - Perform preoperative patient assessments and develop management strategies with a view to risk stratification and management, medical optimization, anesthetic and postoperative planning.
 - Manage high-risk surgical patients in the intraoperative and immediate postoperative period.
 - Provide in-hospital anesthetic consultation for high risk patients.
 - Describe the options available for postoperative analgesia, their advantages and disadvantages, including multimodal analgesia and select appropriate therapies for individual patients.
 - Identify, investigate and manage important postoperative complications occurring in the cardiac ICU or step-down.
 - Provide pharmacologic and non-pharmacologic support of the circulation
 - Provide mechanical support of ventilation in the OR and in the ICU.

- Achieve and manage lung isolation using a variety of techniques, including fibre optic bronchoscopy.
- Manage patients and populations with the following specific conditions, taking into account the epidemiology, clinical presentation and physiology:
 - Ischemic heart disease
 - Cardiomyopathies
 - Cardiac masses
 - Pericardial disease
 - Tamponade
 - Heart transplantation
 - Thoracic aortic disease
- Independently manage patients with the following devices and procedures for initiation and for ongoing care
 - Cardiac pacing and cardioversion and defibrillators
 - Cardiac assist devices
 - Minimally invasive cardiac procedures
 - Transcatheter aortic valve
 - Intraortic balloon counterpulsation
 - ECMO
 - Deep Hypothermic circulatory arrest

COLLABORATOR

- The cardiac anesthesiologist must work in a team environment, communicating and cooperating with surgeons, nurses, perfusionists, pharmacists, and others
- By the end of the fellowship the fellow will be able to:
 - Appreciate the roles of other members of the care team.
 - Communicate clearly in a collegial manner that facilitates the achievement of care goals.
 - Promote the sharing of important perioperative information with the medical team to enhance the care of, and identify high-risk patients at various stages of the perioperative course.
 - Hand over the care of a patient to other health care professionals to ensure the continuity of safe patient care

LEADER

- The cardiac anesthesiologist must possess an awareness of the logistical constraints of delivery of health care and be able to propose useful and creative solutions to optimize care. The financial impact of perioperative management strategies must be understood.
- By the end of the fellowship the fellow will be able to:
 - Contribute to the improvement of health care delivery within the team and organization
 - Outline the structure of perioperative medical care, and how it fits in the administrative structure of the care setting
 - Discuss the advantages and disadvantages of alternative models of care
 - Explain the costs incurred by perioperative management strategies
 - Discuss the potential savings in health care expenditure offered by perioperative medical interventions

HEALTH ADVOCATE

- The Cardiac anesthesiologist must respond to an individual patient's health needs by advocating with the patient within and beyond the clinical environment. They must also understand both the benefits and deficiencies of care at the system level such that they can contribute maximally to patient care.
- By the end of the fellowship the fellow will be able to:
 - Identify the potential costs and benefits of new and existing strategies
 - Delineate the obstacles to delivery of perioperative medical care
 - Contribute to the development of solutions to the obstacles, and to the expansion of the perioperative options in the care setting
 - Discuss the societal impact of the medical intervention and the perioperative period

SCHOLAR

- The Cardiac anesthesiologist must engage in the continuous learning regarding ongoing developments in the literature on perioperative cardiac care, and be able to appropriately incorporate them into practice. The conduct of perioperative medical research, and in particular outcomes based research, must be understood. They must also engage in teaching of students, residents, other health care professionals and the public.
- By the end of the fellowship the fellow will be able to:
 - Read and critique publications about perioperative medicine.
 - Integrate best available evidence into practice

- Contribute to the creation and dissemination of knowledge and practices applicable to perioperative care
- Contribute to the design of studies on perioperative outcomes and management.

PROFESSIONAL

- The Cardiac anesthesiologist must continuously conduct the practice of medicine with integrity, honesty, and accountability
- Demonstrate a commitment to patients by applying best practices and adhering to high ethical standards
- Demonstrate a commitment to ethical principles in providing care, obtaining informed consent, and maintaining patient confidentiality
- Demonstrate a commitment to society by recognizing and responding to societal expectations in health care
- Demonstrate a commitment to the profession by adhering to standards and participating in physician-based regulation

Assessment

The Fellowship Director for Cardiac Anesthesia will provide face-to-face feedback to fellows at 3 month intervals.

The feedback will be based on:

- Daily and weekly assessments of performance by the supervising consultant while on cardiac anesthesia assignments
- 360 degree appraisal from staff anesthesiologists, residents, surgeons, perfusionists and nurses twice yearly
- Quarterly written examinations on both cardiac anesthesia and TEE topics based on material presented in lectures and rounds
- Fellows are required to keep two up to date logbooks of:
 1. Cardiac anesthesia cases performed
 2. TEEs performed and interpreted

The fellow in Cardiac Anesthesia is expected to successfully complete the National Board of Echocardiography Advanced PTeXAM and acquire certification at the end of their fellowship year.