Department of Anesthesiology

Anesthesiology is a medical specialty encompassing a broad range of medical and scientific activities. The clinical practice of anesthesiology includes the following:

1. Assessment of, consultation for and preparation of patients for anesthesia and surgery;
2. Provision of insensibility to pain during surgical, obstetric, therapeutic and diagnostic procedures;
3. Monitoring and restoration of physiologic homeostasis during the perioperative period as well as homeostasis in the critically ill or seriously injured patient;
4. Diagnosis and treatment of painful syndromes; and
5. Clinical management and teaching of cardiopulmonary resuscitation (CPR).

The realm of scientific investigation in anesthesiology also spans a broad range. Scientific efforts at the cellular and molecular levels are directed toward understanding the molecular mechanisms of anesthesia and analgesia. Clinical research in anesthesiology includes broad epidemiological approaches to identifying indicators of outcome as well as prospective clinical studies examining new technologies, anesthetic agents and methods.

The Department of Anesthesiology presents the student with the opportunity to do the following:

1. Acquire and apply pharmacologic knowledge related to anesthetic, narcotic, paralytic and sedative drugs and to drugs affecting the autonomic nervous system;
2. Understand and apply the basic principles of airway management and mechanical ventilation;
3. Understand and apply the principles of cardiopulmonary resuscitation;
4. Understand and apply the technical skills and anatomic and pharmacologic knowledge used in performing regional nerve blocks;
5. Learn and apply the fundamental principles of acute and chronic pain management; and
6. Learn and apply the basic principles of critical care medicine.

Anesthesiology bridges the gap between basic science and clinical medicine. It provides experience with the clinical evaluation and management of patients as well as with applied physiology and pharmacology. The Department of Anesthesiology offers student experiences in the operating room, the intensive care unit, the pain clinic and the laboratory.

Website: http://anest.wustl.edu

Degrees & Requirements

While the Department of Anesthesiology does not offer its own degree, some of the department’s courses are open to students in the MD and MSTP (MD/PhD) programs. Further information about the MD and MSTP degrees can be found in the Degrees & Programs Offered section of this Bulletin.

Research

Research Electives in Anesthesiology

Special electives in basic science research as it applies to anesthesiology can be arranged with the principal investigators in the Department of Anesthesiology; in the Anesthesiology Research Unit and the Washington University Pain Center under the direction of Rob Gereau, PhD; and in the Division of Clinical and Translational Research under the direction of Michael Avidan, MBBCh.

These laboratories focus on various aspects of molecular neurobiology, including ion channel structure and function; G-protein molecular biology; molecular mechanisms of anesthetic action; genetics of anesthetic responsiveness; and the molecular, cellular and genetic basis of acute and chronic pain and itch. Arrangements for these special electives are made through the specific investigators: Walter A. Boyle III, MD; Zhou-Feng Chen, PhD; Alex S. Evers, MD; Narasimhan Gautam, PhD; Richard S. Hotchkiss, MD; Christopher J. Lingle, PhD; Gustav Akk, PhD; Michael Bruchas, PhD; Yu-Qing Cao, PhD; Robert W. Gereau, PhD; DP Mohapatra, PhD; or Jose Moron-Concepcion, PhD. In addition, opportunities exist for clinical research under the direction of Michael Avidan, MBBCh, or Ben Palanca, MD, PhD.

Faculty

Department Chair
Michael Avidan, MBBCh, FCA SA

Department Vice Chair
Ellen M. Lockhart, MD

Department Associate Vice Chair
Courtney Hardy, MD

Visit our website for more information about our faculty (http://anest.wustl.edu/about/faculty) and their appointments.

A

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MBBS Liaquat Medical College 1969

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PHD State Univ of NY Buffalo 1997
BS Moscow State University 1991

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PHD University of Surrey 2009

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MD Ankara University 1993
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BA University of MO Kansas City 2005
MD University of MO Kansas City 2008

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Head of the Department of Anesthesia
Professor of Surgery (Cardiothoracic Surgery)
MBBCH University of the Witwatersra 1991

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MD All-India Inst of Medical Sci 1998
BS Tirunelveli Medical College 1992
PHD College of Anesthesiology 2008

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MBBS Nepal Medical College 2013

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MD Texas A&M University 2013
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MD All-India Inst of Medical Sci 2012
MBBS GMC Miraj 2007

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Assistant Professor of Developmental Biology
Professor of Surgery (General Surgery)
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BS University of CA San Francisco 1974

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BS1 University of Houston 2009
MD1 Univ Texas Health Science Ctr 2014

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BS Fudan University 1989

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PHD Washington Univ in St. Louis 2012
MD Washington Univ in St. Louis 2012
BS Wheaton College 2005

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MD University of MO St Louis 1999

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Associate Professor of Medicine
MD Washington Univ in St. Louis 1984
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Albert Murray Cohen, MD
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PHD Northwestern University 2012

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MD New York Medical College 2012
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BA Johns Hopkins University 1981
MD University of Virginia 1985

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Assistant Professor of Psychiatry
BS University of Toronto 2008
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D

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BS School Not Listed 1977  
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BS Southwest Missouri State University 1991  
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BS University of North Carolina 2003  
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MD Southern Illinois University 2006  
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BS Hofstra University 1984  
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PHD University of Valparaiso 2009

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MD Saint Louis University 2005

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MA Hebrew University 2005  
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BS University of Ibadan 1984  
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MS Emory University 1993  
MD Taipei Medical University 1983  
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MD Athens University Med School 1988
MD1 School Not Listed 1998

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MD Saint Louis University 2010
BA Tulane University 2006

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Associate Professor of Emergency Medicine in Medicine
MD Loyola University Chicago 2006

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MD University of MO Columbia 1982  
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BS University of Iowa 1998  
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Assistant Professor of Anesthesiology (Pending Executive Faculty Approval) (primary appointment)  
MS Pennsylvania State University 2010  
MD University of Nigeria 1998  
Folasade Oladapo, MD  
Assistant Professor of Anesthesiology (primary appointment)  
MD U Medical-Dental Of New Jersey 2008  
Lawrence Osei, MS, MD  
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BS Universty of Science & Techn 1994  
MS Universty of Science & Techn 1996  
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MD Washington Univ in St. Louis 2005  
BS University of Washington 1997  
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Assistant Professor of Emergency Medicine in Medicine  
MD SUNY - Empire State College 2008  
BS Virginia Tech 2004  
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PHD University of MO Columbia 2013  
Patricia A. Penkoske, MD  
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MD Washington Univ in St. Louis 1974  
BS Lindenwood University 1969  
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MD Kent St University 1987  
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MD Madurai Kamaraj University 1979  
MD1 Northrhein Westfalen Medical 1985  
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Associate Professor of Psychiatry  
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BA University of Minnesota 1981  
MA University of Pennsylvania 1983  
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MD University of Cincinnati 2010  
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MD Loyola University Chicago 2014  
Adnan Sadiq, MD  
Assistant Professor of Anesthesiology (primary appointment)  
Assistant Professor of Surgery (Cardiothoracic Surgery)  
BS State Univ of NY Buffalo 1996  
MD Royal College of Surgeons 2001  
Angela K Saettele, MD  
Assistant Professor of Anesthesiology (primary appointment)  
BS Simpson College 2004  
MD University of MO Columbia 2008
Monica Sala-Rabanal, PHD  
Instructor in Anesthesiology (primary appointment)  
Instructor in Cell Biology and Physiology  
BS University of Barcelona 1997  
PHD University of Barcelona 2003

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PHD Southern Illinois University 2013

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MD University of MO Columbia 1991

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Professor of Genetics  
Professor of Pathology and Immunology  
PHD Vanderbilt University 1987  
BS Northwestern University 1981  
MA University of Toledo 1983

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Assistant Professor of Anesthesiology (primary appointment)  
MD University of Rochester 2010

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Instructor in Anesthesiology (primary appointment)  
MD Natal Medical School 1997

Preet Mohinder Singh, MBBS, MD  
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MBBS Dayanand Medical College 2007  
MD All-India Inst of Medical Sci 2010

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BS University of Kansas 2004  
MD University of Kansas Medical 2013  
PHD University of Kansas Medical 2011

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MD University of MO Columbia 2003  
BS University of MO Columbia 1998

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MD Washington Univ in St. Louis 2008

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Associate Professor of Medicine  
MD Christian Medical College 1994

Robert A Swarm, MD  
Professor of Anesthesiology (primary appointment)  
MD Washington Univ in St. Louis 1983  
BA Oberlin College 1978

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Professor of Neurological Surgery  
MD University of Lyon 1974

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BS University of MO Columbia 1983  
MD University of MO Columbia 1987

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BS University of CA San Diego 1998  
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MBBS Andhra University 1989

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MD St. Lukes 2007  
MBBS Sriramachandra Medical College 2000

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MD Tel-Aviv University 1979

Cordalia Wald Chen, MD  
Instructor in Anesthesiology (primary appointment)  
MD University of Panama 2006

Ashley Brooke Weinhold, MD  
Assistant Professor of Anesthesiology (primary appointment)  
MD University of Arkansas 2011

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Assistant Professor of Pediatrics  
MD University of Cincinnati 2004

Brian T Wessman, MD  
Associate Professor of Anesthesiology (primary appointment)  
Associate Professor of Emergency Medicine in Medicine  
BS College of William and Mary 2000  
MD Commonwealth College 2005
anesthesia/acute pain management, cardiothoracic intensive areas, which include our pain management clinic, regional perioperative care, the student will be exposed to other clinical patient management, and postoperative care. In addition to of surgical patients, the use of intraoperative monitoring in student will learn the basics of the preoperative evaluation method is patient care in a clinical setting (one-on-one). The basic aspects of anesthesiology practice. The primary teaching This clinical elective is designed to familiarize the student with M10 Anesth 805 Anesthesiology


Visit online course listings to view offerings for M10 Anesth

Brett D Wolff, MD
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PHD Vollum Institute OHSU 1998

Y

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Assistant Professor of Anesthesiology (primary appointment)
BS Tufts University 2004
MD Tufts University 2008

Xiaobin Yi, MD
Associate Professor of Anesthesiology (primary appointment)
MD Hunan Medical University 1985

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Assistant Professor of Anesthesiology (primary appointment)
BA University of Mississippi 1986
MD University of Arkansas 1990

Anna Rebecca Young, MD
Assistant Professor of Anesthesiology (primary appointment)
MD University of Kentucky 2008
BS Asbury College 2004

Z

Yu Zhou, PHD, MS
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BS Wuhan University 1996
PHD State Univ of NY Buffalo 2005
MS Zhejiang Medical University 1999

Jonathan Kramer Zoller, MD
Assistant Professor of Anesthesiology (primary appointment)
MD Tulane University 2009

Courses

M10 Anesth 805 Anesthesiology
This clinical elective is designed to familiarize the student with basic aspects of anesthesiology practice. The primary teaching method is patient care in a clinical setting (one-on-one). The student will learn the basics of the preoperative evaluation of surgical patients, the use of intraoperative monitoring in patient management, and postoperative care. In addition to perioperative care, the student will be exposed to other clinical areas, which include our pain management clinic, regional anesthesia/acute pain management, cardiothoracic intensive care unit, labor and delivery, pediatric anesthesia, and the Center for Preoperative Assessment and Planning. During the four-week rotation, the student will learn airway management skills, practical perioperative fluid, and electrolyte therapy, along with general and regional anesthetic techniques. As an integral part of the anesthesia care team, the student will participate actively in the anesthetic management of surgical patients. The student's specific requests to be assigned to certain types of cases will be honored as time and availability dictate. The rotation will include three clinical simulator sessions using a simulator mannequin for the practical management of airway problems, resuscitation, and trauma emergencies. By the end of the rotation, the student should be able to independently (under supervision) provide anesthesia for uncomplicated surgical procedures.

M10 Anesth 811 Cardiothoracic Anesthesiology Subinternship
This clinical elective offers practical experience in the perioperative assessment and management of surgical patients undergoing cardiothoracic procedures. The student, as an integral part of the cardiothoracic anesthesia team that is composed of faculty members, fellows and residents, will learn basic principles of airway management and lung ventilation, essential aspects of pharmacologic treatment of hemodynamic abnormalities and cardiac dysrhythmias, and management of intraoperative coagulation disturbances. Emphasis will be placed on the interpretation of hemodynamic data, echocardiographic finding (TEE), and laboratory results. During this rotation, the student will also gain practical experience in endotracheal intubation as well as the placement of intravenous lines and invasive monitoring lines, including radial artery and pulmonary artery catheters. Students will learn how to use these parameters in clinical decision making during anesthesia. At the conclusion of the rotation, the student will have a better understanding of invasive monitoring and data interpretation, as well as a more systematic approach to the management of intra- and postoperative hemodynamic, pulmonary and coagulation abnormalities. The students are expected to attend the didactic sessions of CTA and the Department of Anesthesiology. A presentation will be assigned.

M10 Anesth 812 Pediatric Anesthesiology
This clinical elective is designed to teach the theory and practice of pediatric anesthesiology and pain management. It features individualized instruction with faculty who specialize in the perioperative care of pediatric patients. The elective consists of active participation with pediatric anesthesiologists at St. Louis Children's Hospital and St. Louis Shriners Hospital learning pre-anesthetic assessment, the performance of routine anesthetics (which includes instruction and practice in pediatric anesthetic skills), learning other technical skills such as intravenous line placement and the management of post-anesthesia care and pain therapies. The final week may be tailored to meet the student's individual interests, needs and career goals. Possibilities include exposure to sedation and anesthesia for procedures outside of the operating rooms, and to subspecialties including cardiovascular anesthesia, neurosurgical anesthesia, and acute and chronic pediatric pain management. Students also will have an opportunity to learn the management of some common medical emergencies in the Clinical Simulation Center.

M10 Anesth 819 Cardiothoracic Critical Care Subinternship
This clinical elective offers practical experience in the postoperative management of cardiothoracic patients. The
students will be fully integrated into one of the intensive care teams and have the opportunity to contribute to the management of critically ill patients. Students will have the opportunity to follow specific patients over the course of their stay in the ICU, during which time they will gain insight into the holistic management of patients with multi-organ dysfunction. The CTICU environment is both challenging and exciting. Students will gain unique insight into cardiorespiratory physiology and pharmacology, which will be demonstrated at the patients' bedside, an invaluable and unforgettable learning experience. Students will have opportunities to learn and sometimes assist with procedures, such as central lines, chest tubes, bronchoscopy, and pulmonary artery catheter insertion as well as bedside ultrasound, including TTE and TEE. Principles of management and resuscitation of hemodynamically unstable patients following surgery will be emphasized, as will ventilator management. Students will also see and help manage patients with unique physiology, such as patients on ventricular assist devices and patients on ECMO. We also have a very busy and heart and lung transplantation program at the hospital, and all of these patients are cared for in the CTICU. At the conclusion of the rotation, the student will have a better understanding of shock, sepsis, multi-organ failure, organ system support, and the compassionate withdrawal of life support. In addition to bedside teaching, there will be informal teaching sessions on a wide variety of topics as well as teaching on interpreting hemodynamic data and waveform and cardiac echo exams. Students will be encouraged to present on their patient at morning rounds, during which constructive feedback and interactive teaching will occur. Medical students will be asked to present a short discussion on a topic of their choice. This should be a 20- to 30-minute presentation followed by a discussion of the topic, which will be moderated by the attending. The time and topic of choice will be discussed with the attending of service.

**M10 Anesth 822 Anesthesiology for Neurosurgery Subinternship**

Students will help care for patients having challenging neurosurgical procedures. Students will become familiar with complex procedures, brain monitoring, cardiovascular support and airway management and will be exposed to all kinds of neurosurgical pathology. Student must be prepared to participate in the intricate anesthetic management of patients undergoing surgery in our novel intraoperative MRI rooms. For those interested, clinical research projects are ongoing and student participation is encouraged.

**M10 Anesth 823 Obstetrical Anesthesiology Subinternship**

The medical students will learn the different analgesia/anesthetic options for the labor patient. They will also learn how the physiological adaptations of pregnancy influence anesthetic management. They will be actively involved in the parturient's management, i.e., starting an IV, placement of spinal, epidural or CSE (combined spinal epidural) anesthesics. They will also attend the OB anesthesia conferences and interview patients in labor (with an OB anesthesia attending).

**M10 Anesth 900 Research Elective — Anesthesiology**

Research opportunities may be available. If interested, please contact the Department of Anesthesiology.