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 (http://anest.wustl.edu) 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 (http://bulletin.wustl.edu/medicine/degrees) 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 (http://anest.wustl.edu); 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, MBBCb.

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, MBBCb, or Ben Palanca, MD, PhD.

Faculty

Department Chair
Michael Avidan, MBBCb, 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

Joanna Abraham, PHD
Assistant Professor of Anesthesiology (primary appointment)
Assistant Professor of Medicine
PHD Pennsylvania State University 2010
BS SRM Easwari Engineering Colleg 2001
Sirajuddin Agha, MBBS  
Assistant Professor of Anesthesiology (primary appointment)  
MBBS Liaquat Medical College 1969

Gustav Akk, PHD  
Associate Professor of Anesthesiology (primary appointment)  
BS Moscow State University 1991  
PHD State Univ of NY Buffalo 1997

Ream Al-Hasani, PHD  
Adjunct Assistant Professor of Anesthesiology (primary appointment)  
PHD University of Surrey 2009

Zekeriyya Alanoglu, MD, MED  
Instructor in Anesthesiology (primary appointment)  
MD Ankara University 1993  
MED Ankara University 2000

Jacob D AuBuchon, MD  
Assistant Professor of Anesthesiology (primary appointment)  
MD University of MO Kansas City 2008  
BA University of MO Kansas City 2005

Michael Simon Avidan, MBBCH  
Dr. Seymour and Rose T Brown Professor of Anesthesiology (primary appointment)  
Head of the Department of Anesthesiology  
Professor of Surgery (Cardiothoracic Surgery)  
MBBCH University of the Witwatersra 1991

Sennaraj Balasubramanian, PhD, MD  
Instructor in Anesthesiology (primary appointment)  
PHD College of Anesthesiology 2008  
MD All-India Inst of Medical Sci 1998  
BS Tirunelveli Medical College 1992

Suresh Basnet, MBBS  
Instructor in Medicine (Pending Executive Faculty Approval) (primary appointment)  
MBBS Nepal Medical College 2013

Amber Christine Benhardt, MD  
Instructor in Anesthesiology (Pending Dean's Approval) (primary appointment)  
BA Texas A&M University 2009  
MD Texas A&M University 2013

George Richard Benzinger III, PHD, MD  
Associate Professor of Anesthesiology (primary appointment)  
BS California Institute Technolo 1993  
PHD University of Chicago 1998  
MD University of Chicago 2000

Adithya Devadas Bhat, MD  
Instructor in Anesthesiology (primary appointment)  
MD Case Western Reserve Univ 2014  
BS Washington Univ in St. Louis 2010

Anna Maria Bombardieri, PHD, MD  
Instructor in Anesthesiology (primary appointment)  
PHD University of Florence 2013  
MD La Sapienza University 2005

Anuradha Purushottam Borle, MD, MBBS  
Instructor in Anesthesiology (primary appointment)  
MD All-India Inst of Medical Sci 2012  
MBBS GMC Miraj 2007

Michael M Bottros, MD  
Associate Professor of Anesthesiology (primary appointment)  
MD Washington Univ in St. Louis 2006

Walter A Boyle III, MD  
Professor of Anesthesiology (primary appointment)  
Assistant Professor of Developmental Biology  
Professor of Surgery (General Surgery)  
MD University of CA San Francisco 1977  
BS University of CA San Francisco 1974

Jamie Cao Brown-Shipgel, BS1, MD1  
Instructor in Anesthesiology (Pending Dean's Approval) (primary appointment)  
BS1 University of Houston 2009  
MD1 Univ Texas Health Science Ctr 2014

Sarah Buday, PHD  
Assistant Professor of Anesthesiology (primary appointment)  
PHD University of MO St Louis 2013  
BS Washington Univ in St. Louis 2002

Broc Allen Burke, MD, PHD  
Instructor in Anesthesiology (primary appointment)  
MD Dartmouth College 2013  
PHD Dartmouth College 2011

Thomas Patrick Burris, BAS, PHD1  
Adjunct Professor of Anesthesiology (primary appointment)  
Adjunct Professor of Genetics  
BAS Southern Illinois University 1989  
PHD1 Florida State University 1993

Yuqing Cao, PHD  
Associate Professor of Anesthesiology (primary appointment)  
PHD University of CA San Francisco 1999  
BS Fudan University 1989

Laura Francesca Cavallone, MD  
Associate Professor of Anesthesiology (primary appointment)  
MD University of Milan 1993

Samuel Chandra, MD  
Instructor in Clinical Anesthesiology (primary appointment)  
MD Patna Medical College 1990

Zhoufeng Chen, PHD, MS  
Russell D and Mary B Shelden Professor of Anesthesiology (primary appointment)
Professor of Developmental Biology
Professor of Psychiatry
PHD University of Texas Austin 1994
BS Wuhan University 1983
MS School Not Listed 1987

Ziwei Chen, PHD, MS, MBBS
Assistant Professor of Anesthesiology (primary appointment)
PHD Peking University 2001
MS Dalian Medical University 1998
MBBS Dalian Medical University 1995

Wayland W. Cheng, PHD, MD
Assistant Professor of Anesthesiology (primary appointment)
PHD Washington Univ in St. Louis 2012
MD Washington Univ in St. Louis 2012
BS Wheaton College 2005

Kelly Lynne Chilson, MD
Associate Professor of Anesthesiology (primary appointment)
MD University of MO St Louis 1999

James Close, MD
Associate Professor of Anesthesiology (primary appointment)
Associate Professor of Medicine
MD Washington Univ in St. Louis 1984
BA Washington Univ in St. Louis 1980

Albert Murray Cohen, MD
Assistant Professor of Anesthesiology (primary appointment)
MD Baylor University 1977

Bryan A Copits, PHD
Instructor in Anesthesiology (primary appointment)
PHD Northwestern University 2012

Susan Carlin Cosgrove, MD
Instructor in Anesthesiology (primary appointment)
BA New York University 2008
MD New York Medical College 2012

Thomas E Cox, MD
Professor of Anesthesiology (primary appointment)
BA Johns Hopkins University 1981
MD University of Virginia 1985

Meaghan Claire Creed, PHD
Assistant Professor of Anesthesiology (primary appointment)
Assistant Professor of Neuroscience
Assistant Professor of Psychiatry
PHD University of Toronto 2012
BS University of Toronto 2008

Michael John Cuipa, MD
Instructor in Clinical Anesthesiology (primary appointment)
MD University of Massachusetts 1994
BS Tufts University 1988

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MD University of Washington 2012

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MD University of Tenn Memphis 1969

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Professor of Surgery (Cardiothoracic Surgery)
MBCHB University of Pretoria 1990

David Brenden DeCresce, MD
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BS Carleton College 2007
MD Rush University 2012

Julie Kosto Drobish, MD
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BS Pennsylvania State University 2006
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Nicole Marie Durko, DOST
Assistant Professor of Anesthesiology (primary appointment)
DOST Midwestern University 2001
BS St Xavier University 1995

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Assistant Professor of Surgery (Cardiothoracic Surgery)
MD Saint Louis University 2005

Alex S Evers, MD
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Professor of Developmental Biology
Professor of Medicine
BS Yale University 1974
MD New York University 1978

Steven Edward Feit, MD
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MD University of MO Columbia 1982
BA Indiana State University 1978

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Instructor in Anesthesiology (primary appointment)
PHD Wuhan University 2014

Mitchell Evan Fingerman, MD
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MD University of Connecticut 2004

Rosemary Foster, MD
Assistant Professor of Anesthesiology (primary appointment)
MD Saint Louis University 2013

David Alan Friedman, MD
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Narasimhan Gautam, MS, PHD  
Professor of Anesthesiology (primary appointment)  
Professor of Genetics  
MS School Not Listed 1979  
BS School Not Listed 1977  
PHD University of Bombay 1985

Preeta George, MBBS  
Assistant Professor of Anesthesiology (primary appointment)  
MBBS Bangalore University 1998

Robert W Gereau, PHD  
Dr Seymour and Rose T Brown Professor of Anesthesiology (primary appointment)  
Professor of Neuroscience  
PHD Emory University 1995  
BS Southwest Missouri State University 1991

Erin A Gibbons, MD  
Assistant Professor of Anesthesiology (primary appointment)  
MD University of North Carolina 2008  
BS University of North Carolina 2003

Jason R Gillihan, MD  
Assistant Professor of Anesthesiology (primary appointment)  
MD Southern Illinois University 2006  
BS University of Southern Indiana 2002

Thomas James Goblirsch, MD  
Assistant Professor of Anesthesiology (primary appointment)  
BS University of Notre Dame 1980  
MD Loyola University Chicago 1985

Judith P Golden, PHD, MA  
Assistant Professor of Anesthesiology (primary appointment)  
BS Hofstra University 1984  
PHD Saint Louis University 1994  
MA Hofstra University 1986

Vivian Maria Gonzalez-Perez, PHD  
Instructor in Anesthesiology (primary appointment)  
PHD University of Valparaiso 2009

Thomas J Graetz, MD  
Associate Professor of Anesthesiology (primary appointment)  
Associate Professor of Surgery (Cardiothoracic Surgery)  
MD Saint Louis University 2005

Stephen H Gregory, MD  
Assistant Professor of Anesthesiology (primary appointment)  
MD Saint Louis University 2012

Russell J.L. Groener, MBCHB  
Associate Professor of Anesthesiology (primary appointment)  
MBCHB University of Cape Town 1983

Ryan C Guffey, MD  
Assistant Professor of Anesthesiology (primary appointment)  
MD Wayne State University 2007

Katharine Nicole Gurba, PHD  
Instructor in Anesthesiology (primary appointment)  
PHD Vanderbilt University 2013

Charles B Hantler, MA, MD  
Professor of Anesthesiology (primary appointment)  
MA Davenport University 1973  
BS Davenport University 1971  
MD Davenport University 1977

Courtney Alan Hardy, MD  
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MD Loyola University Chicago 2000

Simon Haroutounian, MA, PHD  
Associate Professor of Anesthesiology (primary appointment)  
MA Hebrew University 2005  
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Associate Professor of Anesthesiology (primary appointment)  
MBBS University of Ilorin 1990  
BS University of Ibadan 1984

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BS Truman State University 2004  
MD A.T. Still University 2007

Gary E Hirshberg, MD  
Professor Emeritus of Anesthesiology (primary appointment)  
BA Princeton University 1968  
MD Hahnemann University 1972

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Professor of Developmental Biology  
Professor of Medicine  
Professor of Surgery (General Surgery)  
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MD Taipei Medical University 1983

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MD Martin-Luther-University 1996
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BS California Institute Technolo 1985
MD Washington Univ in St. Louis 1997
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BS University of Miami 2009
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MD University of Khartoum 1987
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MD American Univ of the Caribbean 2012
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MD1 School Not Listed 1998

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MD1 University of Kansas 1997

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MD Case Western Reserve Univ 2009

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BS Loyola University Chicago 1977
MD Hahnemann University 1991
DDENT Loyola University Chicago 1982

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MD U Medical-Dental Of New Jersey 1986
BA Rutgers University 1982

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MBBS Bangalore University 1994

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MD Huabei Medical University 1985  
PHD Beijing Medical University 1991

Christopher J Lingle, PHD  
Professor of Anesthesiology (primary appointment)  
Professor of Neuroscience  
PHD University of Oregon 1979  
BS University of Oregon 1972

Qianjin Liu, MD, PHD  
Associate Professor of Anesthesiology (primary appointment)  
MD Nanjing Medical University 1983  
PHD Saint Louis University 1997

Qin Liu, PHD  
Associate Professor of Anesthesiology (primary appointment)  
Associate Professor of Neuroscience  
Associate Professor of Ophthalmology and Visual Sciences  
PHD Chinese Academy of Sciences 2004  
BS Wuhan University 1998

Salvador Lo Bianco, MD  
Instructor in Clinical Anesthesiology (primary appointment)  
MD Univ Autonoma de Guadalajara 1987

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Instructor in Clinical Anesthesiology (primary appointment)  
BS Saint Louis University 1980  
MD Saint Louis University 1984

Thomas Lynch V, MD  
Assistant Professor of Anesthesiology (primary appointment)  
Assistant Professor of Emergency Medicine in Medicine  
MD St. George's University 2011

Susruta Majumdar, MS, PHD  
Adjunct Associate Professor of Anesthesiology (primary appointment)  
BS Delhi University 1998  
MS Delhi University 2000  
PHD University of Florida 2006

Jackie Lee Martin, MBA, MD, MA  
Adjunct Professor of Anesthesiology (primary appointment)  
BA Howard University 1976  
MBA John Hopkins University 2010  
MD Meharry Med College 1984  
MA Meharry Med College 1980

Paolo Masetti, MD  
Instructor in Clinical Anesthesiology (primary appointment)  
MD University of Bologna 1985

Nicolas Massaly, PHD  
Instructor in Anesthesiology (primary appointment)  
PHD Universite Paul Sabatier 2012

John D McAllister, MD  
Professor of Anesthesiology (primary appointment)  
Professor of Pediatrics  
BS University of Manitoba 1982  
MD University of Manitoba 1980

Jordan Gary McCall, PHD  
Assistant Professor of Anesthesiology (primary appointment)  
PHD Washington Univ in St. Louis 2014

Molly Ann McCormick, MD  
Assistant Professor of Anesthesiology (primary appointment)  
MD University of MO Columbia 1987

Maura Livengood McKinney, MD  
Instructor in Anesthesiology (primary appointment)  
MD Univ of Texas Med Sch Houston 2014  
BS Rhodes College 2010

Kathleen Williams Meacham, PHD, MD  
Assistant Professor of Anesthesiology (primary appointment)  
BS Carnegie Mellon University 2001  
PHD Georgia Tech 2008  
MD Emory University 2008

Jesse L Mecham, MD  
Assistant Professor of Anesthesiology (PEFA) (primary appointment)  
Assistant Professor of Emergency Medicine in Medicine (PEFA)  
MD University of Cincinnati 2010

Allison Denise Mitchell, MD  
Instructor in Anesthesiology (primary appointment)  
MD Univ Texas Health Sci San Anto 2012  
BS Howard University 2008

David Thomas Monks, MD  
Assistant Professor of Anesthesiology (primary appointment)  
MD Birmingham Medical School 2018

Michael C. Montana, MD  
Assistant Professor of Anesthesiology (primary appointment)  
BA University of Virginia 2003  
MD Washington Univ in St. Louis 2012

Robert Paul Moore, MD  
Associate Professor of Anesthesiology (primary appointment)  
MD Washington Univ in St. Louis 2004

Jose Moron-Concepcion, PHD  
Professor of Anesthesiology (primary appointment)  
Professor of Neuroscience  
Professor of Psychiatry  
PHD University of Barcelona 1998

Jeremiah J Morrissey, PHD  
Professor of Anesthesiology (primary appointment)  
BA Macmurray College 1969  
PHD Saint Louis University 1974

Jimmy Lewis Moss, MD
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Institution/Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amjad Issam Musleh, MD</td>
<td>Assistant Professor of Anesthesiology</td>
<td>BS University of New Mexico 2008</td>
</tr>
<tr>
<td></td>
<td>(Pending Executive Faculty Approval)</td>
<td>MD University of New Mexico 2013</td>
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<tr>
<td>N</td>
<td>Jessica Lauren Nelson, MD</td>
<td>MD University of Michigan 2012</td>
</tr>
<tr>
<td></td>
<td>Assistant Professor of Anesthesiology (primary appointment)</td>
<td>BS University of Wisconsin 2018</td>
</tr>
<tr>
<td>N</td>
<td>Joan M Niehoff, MD</td>
<td>MD University of MO Columbia 1982</td>
</tr>
<tr>
<td></td>
<td>Associate Professor of Anesthesiology (primary appointment)</td>
<td>BA University of MO Kansas City 1982</td>
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<tr>
<td>N</td>
<td>Daniel C Nieva, MD</td>
<td>MD University of Iowa 2003</td>
</tr>
<tr>
<td></td>
<td>Associate Professor of Anesthesiology (primary appointment)</td>
<td>BS University of Iowa 1998</td>
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<tr>
<td>N</td>
<td>Sydney Marie Nykiel-Bailey, MD</td>
<td>MD University of MO Columbia 2005</td>
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<td></td>
<td>Assistant Professor of Anesthesiology (primary appointment)</td>
<td>BS Saint Louis University 2001</td>
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<td>O</td>
<td>Uchenna Ofoma, MS, MD</td>
<td>MD SUNY - Empire State College 2008</td>
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<td></td>
<td>Assistant Professor of Anesthesiology (Pending Executive Faculty Approval)</td>
<td>MD Kent St University 1987</td>
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<tr>
<td>R</td>
<td>Lesley Kathryn Rao, MD</td>
<td>MD Saint Louis University 2006</td>
</tr>
<tr>
<td></td>
<td>Assistant Professor of Anesthesiology (primary appointment)</td>
<td>MD University of Illinois 2007</td>
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<tr>
<td>R</td>
<td>Rashmi R Rathor, MD</td>
<td>MD Assistant Professor of Anesthesiology (primary appointment)</td>
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<td></td>
<td>Folasade Oladapo, MD</td>
<td>MD Assistant Professor of Anesthesiology (primary appointment)</td>
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<td></td>
<td>MS Pennslyvania State University 2010</td>
<td>MD Madison Medical Center 1998</td>
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<td></td>
<td>MD University of Nigeria 1998</td>
<td>MD Saint Louis University 2006</td>
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<td></td>
<td>Lawrence Osei, MD, MS</td>
<td>MD University of Science &amp; Techn 1996</td>
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<tr>
<td></td>
<td>Instructor in Clinical Anesthesiology</td>
<td>BS University of Science &amp; Techn 1994</td>
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<tr>
<td></td>
<td>(primary appointment)</td>
<td>MS University of Science &amp; Techn 1994</td>
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<td>P</td>
<td>Ben Julian Palanca, MD</td>
<td>MD SUNY - Empire State College 2008</td>
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<td></td>
<td>Assistant Professor of Anesthesiology (primary appointment)</td>
<td>MD University of Cincinnati 2010</td>
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<td></td>
<td>BS University of Washington 1997</td>
<td>MD Washington Univ in St. Louis 2005</td>
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<td></td>
<td>Chris M Palmer, MD</td>
<td>MD SUNY - Empire State College 2008</td>
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<tr>
<td></td>
<td>Assistant Professor of Anesthesiology (primary appointment)</td>
<td>MD Loyola University Chicago 2014</td>
</tr>
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<td></td>
<td>Assistant Professor of Emergency Medicine in Medicine</td>
<td>MD SUNY - Empire State College 2008</td>
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</tbody>
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For complete information, please refer to the Bulletin 2019-20 Department of Anesthesiology.
<table>
<thead>
<tr>
<th>Name</th>
<th>Title and Appointment</th>
<th>Details</th>
</tr>
</thead>
</table>
| Adnan Sadiq, MD               | Assistant Professor of Anesthesiology (primary appointment) | BS State Univ of NY Buffalo 1996  
|                               |                                | MD Royal College of Surgeons 2001                                       |
| Angela K Saettele, MD         | Assistant Professor of Anesthesiology (primary appointment) | MD University of MO Columbia 2008                                     |
| Monica Sala-Rabanal, PHD      | Instructor in Anesthesiology (primary appointment) | PHD University of Barcelona 2003                                      |
| Vijaya K Samineni, PHD        | Instructor in Anesthesiology (primary appointment) | BS University of Barcelona 1997                                       |
| Charles R Schrock, MD         | Associate Professor of Anesthesiology (primary appointment) | BS University of Notre Dame 1986                                      |
| Karen Seibert, PHD, MA        | Professor of Anesthesiology (primary appointment) | MD University of MO Columbia 1991                                      |
| Rajiv K Shah, MD              | Assistant Professor of Anesthesiology (primary appointment) | MD University of Rochester 2010                                       |
| Ravitha Sheolal, MD           | Instructor in Anesthesiology (primary appointment) | MD Natal Medical School 1997                                           |
| Preet Mohinder Singh, MBBS, MD| Assistant Professor of Anesthesiology (primary appointment) | MBBS Dayanand Medical College 2007                                    |
| Sarah Kendall Smith, PHD, MD  | Assistant Professor of Anesthesiology (primary appointment) | BS University of Kansas 2004                                          |
| John Charles Spitter, MD      | Assistant Professor of Anesthesiology (primary appointment) | BS University of MO Columbia 1998                                     |
| Tracey Wagner Stevens, MD     |                                | MD University of MO Columbia 2003                                     |
| Assistant Professor of Anesthesiology (primary appointment) | MD Washington Univ in St. Louis 2008                                 |
| Sanjay Subramanian, MD        | Associate Professor of Anesthesiology (primary appointment) | MD University of MO Columbia 1994                                     |
| Robert A Swarm, MD            | Professor of Anesthesiology (primary appointment) | MD University of MO Columbia 1983                                    |
| Angela K Saettele, MD         | Assistant Professor of Anesthesiology (primary appointment) | MD University of MO Columbia 2008                                     |
| Angela K Saettele, MD         | Assistant Professor of Anesthesiology (primary appointment) | MD University of MO Columbia 2008                                     |
| Monica Sala-Rabanal, PHD      | Instructor in Anesthesiology (primary appointment) | PHD University of Barcelona 2003                                      |
| Vijaya K Samineni, PHD        | Instructor in Anesthesiology (primary appointment) | BS University of Barcelona 1997                                       |
| Charles R Schrock, MD         | Associate Professor of Anesthesiology (primary appointment) | BS University of Notre Dame 1986                                      |
| Karen Seibert, PHD, MA        | Professor of Anesthesiology (primary appointment) | MD University of MO Columbia 1991                                      |
| Rajiv K Shah, MD              | Assistant Professor of Anesthesiology (primary appointment) | MD University of Rochester 2010                                       |
| Ravitha Sheolal, MD           | Instructor in Anesthesiology (primary appointment) | MD Natal Medical School 1997                                           |
| Preet Mohinder Singh, MBBS, MD| Assistant Professor of Anesthesiology (primary appointment) | MBBS Dayanand Medical College 2007                                    |
| Sarah Kendall Smith, PHD, MD  | Assistant Professor of Anesthesiology (primary appointment) | BS University of Kansas 2004                                          |
| John Charles Spitter, MD      | Assistant Professor of Anesthesiology (primary appointment) | BS University of MO Columbia 1998                                     |
| Tracey Wagner Stevens, MD     |                                | MD University of MO Columbia 2003                                     |
| Assistant Professor of Anesthesiology (primary appointment) | MD Washington Univ in St. Louis 2008                                 |
| Sanjay Subramanian, MD        | Associate Professor of Anesthesiology (primary appointment) | MD University of MO Columbia 1994                                     |
| Robert A Swarm, MD            | Professor of Anesthesiology (primary appointment) | MD University of MO Columbia 1983                                    |
| Angela K Saettele, MD         | Assistant Professor of Anesthesiology (primary appointment) | MD University of MO Columbia 2008                                     |
| Monica Sala-Rabanal, PHD      | Instructor in Anesthesiology (primary appointment) | PHD University of Barcelona 2003                                      |
| Vijaya K Samineni, PHD        | Instructor in Anesthesiology (primary appointment) | BS University of Barcelona 1997                                       |
| Charles R Schrock, MD         | Associate Professor of Anesthesiology (primary appointment) | BS University of Notre Dame 1986                                      |
| Karen Seibert, PHD, MA        | Professor of Anesthesiology (primary appointment) | MD University of MO Columbia 1991                                      |
| Raghu P Terkonda, MD          | Assistant Professor of Anesthesiology (primary appointment) | MD University of MO Columbia 1987                                    |
| Douglas Royce Thompson, MD    | Associate Professor of Anesthesiology (primary appointment) | MD University of MO Columbia 1987                                    |
| Marko Slobodan Todorovic, MD  | Instructor in Anesthesiology (primary appointment) | MD University of Virginia 2015                                       |
| Swarup Varaday, MBBS          | Associate Professor of Anesthesiology (primary appointment) | MBBS Andhra University 1989                                           |
| Anandhalakshmi Varadhatarajan, MD, MBBS | Instructor in Clinical Anesthesiology (primary appointment) | MD St. Lukes 2007  
|                               |                                | MBBS Sirramachandra Medical College 2000                              |
| Gershon Ram Volotzky, MD      | Associate Professor of Anesthesiology (primary appointment) | MD Tel-Aviv University 1979                                           |
| Coridalia 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 MO Columbia 1998                                     |
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 intraoperative 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 airway 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.

Courses

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 student 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 waveforms 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 820 Critical Care Subinternship
Students on this rotation are integral members of the multidisciplinary intensivist-led critical care team in the Surgical Intensive Care Unit (SICU). Students learn an organ systems-based approach for evaluation and management of critically ill and injured patients, and application of evidence-based principles in delivery of state-of-the-art critical care. Emphasis is placed on critical care knowledge and techniques used at the bedside in the clinical management of serious traumatic and surgical conditions. Students become familiar with resuscitation and cardiopulmonary support, including methods for non-invasive and invasive hemodynamic monitoring, and techniques for airway management and pulmonary support in respiratory failure. Basic knowledge and skills in the management of blunt and penetrating trauma, neurologic injuries, multi-system organ failure, and life-threatening infections in the surgical patient are also taught, as is the importance of treatments to alleviate anxiety and pain, maintain fluid and electrolyte balance, and providing adequate nutrition. Practical experience is gained in placement of vascular access devices, airway equipment, ultrasonography and its applications, interpretation of imaging and laboratory data, and use of guidelines, protocols and quality assurance tools in the management of critically ill patients.

M10 Anesth 821 Pain Management
Acute pain is the most common symptom of medical illness and is ubiquitous after major surgery. Chronic pain is the leading cause of worker disability. Severe pain afflicts most people with advanced cancer. Learning the fundamentals of pharmacologic, interventional, and multidisciplinary pain management is important for all areas of clinical medicine. Rotation is based at Barnes-Jewish Hospital with focus adjusted to meet student’s interest and career plans.

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) anesthetics. 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.