Anesthesiology

Division Data Summary

Research and Training Details

<table>
<thead>
<tr>
<th>Detail</th>
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<tr>
<td>Number of Faculty</td>
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<td>Number of Joint Appointment Faculty</td>
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<tr>
<td>Number of Research Fellows</td>
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<td>Number of Research Students</td>
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<tr>
<td>Number of Support Personnel</td>
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<tr>
<td>Direct Annual Grant Support</td>
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<tr>
<td>Direct Annual Industry Support</td>
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<td>Peer Reviewed Publications</td>
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Clinical Activities and Training

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<tr>
<td>Number of Clinical Staff</td>
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<td>Number of Clinical Fellows</td>
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<td>Number of Clinical Students</td>
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<td>Number of Other Students</td>
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<tr>
<td>Inpatient Encounters</td>
<td>16,931</td>
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<td>Outpatient Encounters</td>
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Significant Publications


The study objective was to lower the incidence and severity of fetal cardiovascular depression during maternal fetal surgery under general anesthesia. The hypothesis states that SIVA technique would minimize prolonged fetal exposure to deep inhalational anesthetics and significant intraoperative fetal cardiovascular depression. It was discovered that adequate uterine relaxation was achieved with about 1.5 MAC of desflurane in the SIVA group compared to about 2.5 MAC in the desflurane only anesthesia group. More fetuses in the high-dose desflurane group compared to the SIVA group developed moderate-severe left ventricular systolic dysfunction over time intraoperatively. Furthermore, 61% of fetuses in the high-dose desflurane group received fetal resuscitative interventions compared to 26% of fetuses in the SIVA group. In conclusion, SIVA as described provides adequate maternal anesthesia and uterine relaxation, and it allows for decreased use of desflurane during open fetal surgery. Thus a decreased use of desflurane may better preserve fetal cardiac function.


Neuronal cell death after prolonged exposure to isoflurane in developing animals has raised serious concerns regarding its safe use in children. Using newborn mice, the study established the respective potencies of
desflurane, isoflurane, and sevoflurane and then compared equipotent doses of these anesthetics regarding their effects on cortical neuroapoptosis. Experiments indicate that, in neonatal mice, equipotent doses of the three commonly used inhaled anesthetics demonstrated similar neurotoxic profiles, suggesting that developmental neurotoxicity is a common feature of all three drugs and cannot be avoided by switching to newer agents.


A fundamental question in neuroimmunology is the extent to which CD8 T cells actively engage virus-infected neurons. In the Theiler's murine encephalomyelitis virus (TMEV) model of multiple sclerosis, an effective central nervous system (CNS)-infiltrating antiviral CD8 T cell response offers protection from this demyelinating disease. However, the specific CNS cell types engaged by these protective CD8 T cells in TMEV-resistant strains remains unknown. Using live tissue imaging, it was determined that these T cell-extended processes (TCEPs) could be rapidly formed and were associated with migratory behavior through CNS tissues. These studies provide evidence that antiviral CD8 T cells have the capacity to engage virus-infected neurons in vivo and are the first to document and measure the rapid formation of TCEPs on these brain-infiltrating lymphocytes using live tissue imaging.

Faculty Members

**C. Dean Kurth, MD**, Professor

*Anesthesiologist-in-Chief and Chair, Department of Anesthesia*

*Research Interests*

**Elena Adler, MD**, Adjunct

*Medical Director, Anesthesia Supply Chain, Division of Anesthesia*

*Research Interests*

**Nancy Andersen, MD**, Adjunct

*Research Interests*

**Lori Aronson, MD**, Adjunct

*Research Interests*

**Anne Boat, MD**, Assistant Professor

*Director, Fetal Surgery Team, Division of Anesthesia*

*Research Interests*

**Vidya Chidambaran, MD**, Assistant Professor

*Research Interests*

**Smokey Clay, MD**, Assistant Professor

*Research Interests*

**Steve Danzer, PhD**, Assistant Professor

*Research Interests*

**Charles Eastwood, MD**, Assistant Professor

*Research Interests*

**Hilary Flint, DO**, Assistant Professor

*Research Interests*

**Lisa Francis, DO**, Assistant Professor

*Research Interests*
Research Interests

Kenneth Goldschneider, MD, Associate Professor
  Director, Medical Pain Service and Chronic Pain Clinic
Research Interests

Joel Gunter, MD, Professor
Research Interests

Nancy Hagerman, MD, Adjunct
  Co-Medical Director, Same Day Surgery and Pre-Anesthesia Consultation Clinic, Division of Anesthesia
Research Interests

Elizabeth Hein, MD, Adjunct
Research Interests

Liana Hosu, MD, Adjunct
Research Interests

George Istaphanous, MD, Assistant Professor
Research Interests

Fay Jou, MD, Assistant Professor
Research Interests

Thomas Kabalin, MD, Associate Professor
Research Interests

Michael "Jack" Kibelbek, MD, Associate Professor
Research Interests

Matthias Konig, MD, Assistant Professor
Research Interests

Renee Kreeger, MD, Adjunct
Research Interests

Ik Lee, MD, Associate Professor
  Director, Division of Anesthesia
Research Interests

Erica Lin, MD, Assistant Professor
Research Interests

Andreas Loepke, MD, PhD, Associate Professor
Research Interests

Mohamed Mahmoud, MD, Assistant Professor
Research Interests

Judy Margolis, MD, Adjunct
Research Interests

Alexander Matveevskii, MD, PhD, Associate Professor
Research Interests

John McAuliffe, MD, MBA, Associate Professor
  Director, Research; Interim Director, Division of Neurobiology
Research Interests
Mark Meyer, MD, Assistant Professor
   Director, Procedure Management, Division of Pain Management
   Research Interests

David Moore, MD, Associate Professor
   Clinical Coordinator, Anesthesia Fellow Pain Management Education, Division of Pain Management
   Research Interests

Jacquelyn Morillo-Delerme, MD, Associate Professor
   Director of Anesthesia, Liberty Campus, Division of Anesthesia
   Research Interests

Mario Patino, MD, Assistant Professor
   Research Interests

Jayant "Nick" Pratap, MD, Assistant Professor
   Research Interests

Joseph Previte, MD, FAAP, Associate Professor
   Director, Information Technology Services, Division of Anesthesia
   Research Interests

David Richards, PhD, Assistant Professor
   Research Interests

Senthilkumar Sadhasivam, MD, Associate Professor
   Director, Perioperative Pain Management
   Research Interests

Nancy Samol, MD, Adjunct
   Research Interests

Paul Samuels, MD, Associate Professor
   Director, Education, Department of Anesthesia
   Research Interests

Ximena Soler, MD, Adjunct
   Director, Liver Transplant Surgery Team, Division of Anesthesia
   Research Interests

James Spaeth, MD, Associate Professor
   Associate Chief, Division of Anesthesia; Director, Cardiac Anesthesia Team, Division of Anesthesia
   Research Interests

Theodore Striker, MD, Adjunct
   Research Interests

Alexandra Szabova, MD, Adjunct
   Research Interests

Jon Tomasson, MD, Assistant Professor
   Medical Director, Post Anesthesia Care Unit, Division of Anesthesia
   Research Interests

Anna Varughese, MD, MPH, Associate Professor
   Associate Chief, Division of Anesthesia; Director, Quality, Division of Anesthesia; Medical Director, Same Day Surgery and Pre-Anesthesia Consultation Clinic, Division of Anesthesia
   Research Interests
Christopher Ward, MD, Assistant Professor

Research Interests

Norbert Weidner, MD, Associate Professor

Director, Palliative Care and Comfort Team

Research Interests

Eric Wittkugel, MD, Associate Professor

Research Interests

Junzheng Wu, MD, Assistant Professor

Research Interests

Joint Appointment Faculty Members

Susmita Kashikar-Zuck, PhD, Associate Professor

Behavioral Medicine & Clinical Psychology

Anne Lynch-Jordan, PhD, Assistant Professor

Behavioral Medicine & Clinical Psychology

Clinical Staff Members

- Jasleen Goel, MD, Sedation Pediatrician
- Clifford Hoffmann, MD, Staff Anesthesiologist

Trainees

- Diane Gordon, MD, PGY-IV, University of UTah, SLC
- Yul Kim, MD, PGY-IV, University of Minnesota
- Ania Linkiewicz-Gawel, MD, PGY-IV, University of Texas Southwestern
- David Martin, MD, PGY-IV, Duke University
- Sharif Mohamed, MD, PGY-IV, Cairo, University, Egypt
- Pornswan Ngamprasertwong, MD, PGY-IV, Chulalongkorn University
- Michael Pettei, MD, PGY-IV, Mount Sinai HospitAL
- Ryan Rowberry, MD, PGY-IV, Mayo in Rochester, NY
- Caroline Ryan, MD, PGY-IV, Illinois Masonic Medical Center, Chicago
- Da Wang, MD, PGY-IV, UMDN-New Jersey Medical School

Significant Accomplishments

Exceptional Year for Education

Our education program had an exceptional year. Our pediatric anesthesia fellowship program, led by Paul Samuels, MD, received RRC-ACGME re-accreditation for five years, the maximum time possible. Kenneth Goldschneider, MD, FAAP, and Eric Wittkugel, MD, edited a book on pediatric anesthesia with a faculty in the pediatric anesthesia department in Melbourne, Australia; 32 faculty in our department were authors.

Twenty four faculty in our department presented 74 national and international lectures on pediatric anesthesia, pain management, and developmental neurobiology, an all-time high. John McAuliffe III, MD, MBA, initiated a monthly teleconference on intraoperative neurophysiological monitoring with the University of
Florida, the first such type of conference in the world.

**Chronic Medical Pain Center**

We launched a Chronic Medical Pain Center this year to expand a multidisciplinary clinic that had involved more than five divisions. The new center, led by Goldschneider and Alexandra Szabova, MD, also creates a basic science and clinical research program. The new center is better positioned to develop new therapies and offer improved in-patient service to children from throughout the Midwest with complex pain conditions.

**Noteworthy Leadership**

C. Dean Kurth, MD, was elected to the Board of the Society of Pediatric Anesthesia and to chair the Pediatric Anesthesia Leadership Council, the national body for our specialty. Paul Samuels, James Spaeth, MD, and Anna Varughese, MD, MPH, are members of the Pediatric Anesthesia Program Directors, Wake-up Safe Collaborative, and Quality Council, respectively, for the Society of Pediatric Anesthesia. John McAuliffe was elected to the Board of the American Board Neurophysiological Monitoring, the national body for this specialty. Meanwhile, Steve Danzer, PhD, and Andreas Loepke, MD, PhD, served on research study sections for the National Institute for Health and Society of Pediatric Anesthesia.

**Division Publications**


**Grants, Contracts, and Industry Agreements**

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<th>Grant and Contract Awards</th>
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<td><strong>DANZER, S</strong></td>
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<td>Contributions of Aberrant Granule Cells Integration to the Development of Epilepsy</td>
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<td>R01 NS 065020</td>
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<td><strong>NGAMPRASERTWONG, P</strong></td>
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<td>Effects of Maternal Anesthesia on Fetal Outcomes</td>
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<td>Fdn for Anesthesia Education &amp; Research</td>
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<td><strong>RICHARDS, D</strong></td>
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<td>Regulation and Mechanisms of Synaptic Vesicle Exocytosis</td>
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**Current Year Direct** $765,735

**Industry Contracts**
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