

A close-up photograph of an anesthesiologist in a blue surgical cap and mask, focused on adjusting a clear plastic breathing circuit. The background is blurred, showing the sterile environment of an operating room. A yellow diagonal line and a green diagonal line cross the lower right portion of the image.

Department of Anesthesiology

BIENNIAL REPORT

CLINICAL



The mission of the Department of Anesthesiology is to deliver "Medicine of the Highest Order" through excellence in peri-operative medicine, pain management and critical care, outstanding education, and innovations in research.

EDUCATION

RESEARCH





I marvel that 2016 will be my fifth year as Chair of the Department of Anesthesiology. While I think we have accomplished many great things together, we need to continue to focus our energy on what still needs to be done. What will the future bring us, what must we do to be successful, and how can we shape our own future and positively impact the specialty of Anesthesiology and Medicine in general and improve outcomes for patients in the decades to come? Our mission statement remains the same: to deliver "Medicine of the Highest Order" through excellence in perioperative medicine, pain management and critical care, outstanding education, and innovations in research.

While all three legs of the academic stool are captured in this statement, I believe it is education that is most central to our existence, and most fundamental to our direction. At the simplest level, we all work for the University of Rochester. Universities are the most long-lived institutions in the world. Governments come and go, buildings and empires rise and fall, and the fundamental nature of medical care changes completely with the years, but Universities survive. The University of Karueein, in Fez, Morocco, was founded in 859 AD and is still teaching students today. Harvard University is much older than the United States, now approaching 400 years of education. Teaching is the most effective way to shape the future of medicine and improve outcomes for the largest number of patients. Teaching with excellence also mandates that the other legs of the stool are as strong as the first.

To properly educate, whether the learners are medical students, residents, fellows, or ourselves and our colleagues, we must provide excellent patient and family centered medical care that gives every person under our care the best possible chance to not just survive, but thrive. We must model every behavior required to provide that care, and ask our trainees nothing that we would not gladly give of ourselves.

To properly educate, we also cannot be satisfied with the current state of knowledge. We need to continuously improve the state of our knowledge through performing and publishing high-quality basic science and clinical research.

Healthcare is undergoing tremendous change, and the uncertainty of change understandably produces anxiety for those of us in healthcare. I believe, however, that this is a time of tremendous opportunity. Society is demanding a change, not just for the sake of change, but to improve care: improved access, improved outcomes, and better value. It is up to us to take control and define how this will happen in the years to come. At the University of Rochester Department of Anesthesiology, we will continue to look forward and strive to train and to become the physicians who will lead medicine in this change. This biennial report details how, by using education as the foundation and through performing groundbreaking research, we will transform healthcare for generations to come.

Meliora!

Message From the Chair	1
Table of Contents	2
Department History	3
Department Leadership	4
Clinical Overview	6
Pediatric Cardiac Anesthesiology	6
Cardiac Anesthesiology	7
Critical Care Medicine Division	8
Neuroanesthesiology	10
Obstetric Anesthesiology Service	11
General Anesthesiology Division	12
Pediatric Anesthesiology	13
Post-Anesthesia Care Unit	14
Out-of-OR Anesthesiology	14
Center for Perioperative Medicine	15
Thoracic Anesthesiology	16
Transplant Anesthesiology Division	17
Clinical Coordinators	17
Vascular Anesthesiology Division	18
Pain Treatment Division	19
Regional Anesthesiology/Acute Pain Service	20
Pain Management Fellows	20
Ambulatory Anesthesiology Division	21
Highland Hospital	22
Quality Improvement / Patient Safety Program	23
Nurse Anesthetists	24
Education Overview	25
Residency Program	26
Fellowship Program	32
Medical Student Education	33
Center for Medical Simulation	34
Faculty Development Program	35
Visiting Professors	36
Research Overview	37
Basic Science Research	39
Outcomes Research	47
Clinical Research	48
Publications	51
Grants	57
International Outreach	60
Academic Faculty	62
Administrative and Support Staff	63
Faculty and Staff	66



TABLE OF CONTENTS

DEPARTMENT HISTORY

The specialty of Anesthesiology at Strong Memorial Hospital of the University of Rochester Medical Center has a long history of excellence. From the time the first anesthetic was administered until the present day, our Department has grown to be one of the finest academic departments in the nation. The following are some milestones of Anesthesiology at URMC:

- 1926 First anesthetic was administered at Strong Memorial Hospital
- 1950 Division of Anesthesiology was formed under the Department of Surgery
- 1953 Anesthesiology Residency Program was established
- 1969 Department of Anesthesiology was established

Alastair J. Gillies, MD, served as our first Department Chair from 1969 through 1983. During his tenure, he recruited a number of excellent faculty members and encouraged the development of an excellent clinical department and residency program, providing anesthesia for a wide variety of cases. He established a research program with several faculty members participating in both basic science and clinical research.

In 1983, **Ronald A. Gabel, MD**, was recruited from Peter Bent Brigham and Women's Hospital in Boston to become the Department's second Chair. A few highlights during Dr. Gabel's tenure include:

- Purchased the Department's first personal computers and established a department-wide Local Area Network
- Developed the first computerized Operating Room Database, and established an Information Systems Group
- Formed subspecialty groups in cardiac anesthesia, critical care medicine, obstetric anesthesia, pediatric anesthesia, and neuroanesthesia
- Established a multidisciplinary Pain Treatment Center
- Developed an Operating Room Management Committee with representatives from Anesthesiology, Surgery, Nursing, and Hospital Administration
- Expanded clinical services to the nearby Lattimore Community Surgicenter
- Built and dedicated the Alastair J. Gillies, MD Anesthesiology Library in honor of our first Chair

In 1992, **Denham S. Ward, MD, PhD**, was recruited from UCLA as the Department's third Chair. The following are a few achievements during Dr. Ward's tenure as Chair:

- Purchased one of the first Anesthesia Human Patient Simulators in the country
- Hosted the first international conference on medical simulation
- Implemented innovative education programs such as the TAPS Program (Training Anesthesiologists as Physician Scientists), the Anesthesiology MBA Program, and various faculty development programs

- Expanded clinical services to include the development of the Liver Transplant Program and the Preadmission Evaluation Clinic
- Assumed leadership role in managing the operating rooms at Strong Memorial Hospital
- Merged with Highland Hospital Anesthesiology Group, forming a clinical practice track
- Expanded basic science and clinical research programs
- Hosted the Annual Meeting of the Association of University Anesthesiologists
- Established the Ronald A. Gabel, MD Award for Teaching Excellence

In 2001, **James L. Robotham, MD, FRCA**, succeeded Dr. Ward as the Department's fourth Chair. A few highlights from Dr. Robotham's tenure as Chair include:

- Established the Mitochondrial Research & Innovation Group
- Directed operating room expansion project
- Implemented novel faculty recruitment strategies including contracting with CGF Anesthesiology Associates during national shortage of anesthesiologists
- Established the Robert M. Lawrence, MD First Resident In Anesthesiology Award

In 2008, **Dr. Ward**, who was then the Associate Dean for Faculty Development-Medical Education, returned as our Chair. During his second tenure, Dr. Ward:

- Expanded the residency program
- Oversaw the opening of the Medical Center's Ambulatory Surgical Center at Sawgrass and new facilities for the Pain Treatment Center
- Worked with faculty to develop a major five-year strategic plan encompassing the Department's three missions: clinical care, education, and research

In 2011, **Michael P. Eaton, MD**, became the Department's fifth Chair. Highlights of his time as Chair (so far) include:

- Transforming the Pre-operative Evaluation Clinic to the Center for Perioperative Medicine, establishing a new vision for improving outcomes through optimization.
- Expanding CBY training spots so all residents can have four-year continuous curriculum leading to excellence in perioperative medicine.
- Supporting the institution's Strategic Plan by directing and providing anesthesia and pain management services in affiliated community hospitals in the western New York region.
- Overseeing an extremely successful implementation of our electronic anesthesia record and an integrated OR management system.
- Overhauled an outdated financial system by implementing robust internal controls, review and oversight.
- Establishing a fair and transparent compensation plan directly connecting effort and pay in support of all missions of the Department and raising compensation to be in line with national benchmarks.

DEPARTMENT LEADERSHIP

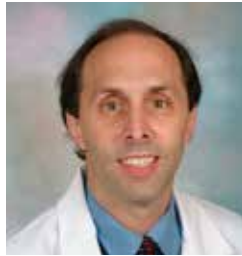
Michael P. Eaton, MD
*Denham S. Ward Professor
and Chair*



Excellence in clinical care, whether in the operating room, intensive care units, or managing acute or chronic pain is fundamental to the Department. This clinical care is delivered in diverse settings across multiple campuses and in a system with increasing complexity and constraint. The Department will work continuously to help the institution become a high-reliability provider of healthcare through teamwork with surgeons, nurses, and other providers. Provision of “Medicine of the Highest Order” is essential to successful research and educational efforts.

The Department’s vision for clinical care is to provide error-free, state-of-the-art healthcare in an efficient, patient-centered manner that will provide excellent outcomes for patients, value for the community and a high degree of professional satisfaction.

Stewart J. Lustik, MD, MBA
Vice Chair for Clinical Affairs



As a university academic department, education is at the core of our mission. Our vision is to develop and inspire highly qualified and professional clinicians who will advance the specialty and provide leadership in both academic and private practice. Excellence in education requires excellence in clinical care and research and thus requires coordination with all aspects of the Department. The Anesthesiology Residency Program is currently recognized for its excellence, having achieved its third consecutive five year accreditation – the most allotted from the ACGME. This base of excellence allows us to be innovative in adapting all of the Department’s education offerings to our residents and fellows as well as to medical students, and residents rotating from other departments.

Suzanne B. Karan, MD
Vice Chair for Education

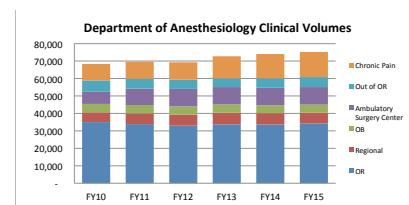


The Department’s vision for education is to develop and inspire highly qualified and professional clinicians who will advance the specialty and provide leadership in both academic and private practice. The vision for research in the Department is to create a research environment and research infrastructure which will advance the Department of Anesthesiology to the next tier of academic anesthesiology departments. Building on our current clinical, outcomes, and basic science research strengths, we will create an environment that facilitates the research careers of our current faculty and residents by creating a research infrastructure. This infrastructure will be attractive to the recruitment of new basic, translational and clinical research faculty.

Laurent G. Glance, MD
Vice Chair for Research



Oren Harary, MBA, MPH
Program Administrator



*"Leadership is the capacity to
translate vision into reality."*

Warren G. Bennis



CLINICAL OVERVIEW

The clinical operations of the Department of Anesthesiology at the University of Rochester Medical Center encompasses multiple different campuses, including Strong Memorial Hospital, Highland Hospital, Sawgrass Surgery Center, Strong West Surgical Center, Red Creek Infertility Center, Center for Perioperative Medicine, Jones Memorial Hospital, and the URMC Pain Treatment Center. There are a total of over 80 anesthetizing locations, 34 clinic treatment and exam rooms, and 42 intensive care beds. We now provide direct patient care for over 75,000 anesthetics, clinic and inpatient visits annually. The Department is organized into multiple clinical divisions, with fellowship-trained specialists in critical care, pediatric anesthesia, cardiac anesthesia, neuro-anesthesia, regional anesthesia, and pain management delivering state-of-the-art, patient-centered care. Peri-procedural care, pain medicine and critical care are integral to the function of the URMC as a multispecialty, tertiary- and quaternary-care medical center recognized throughout the region for clinical excellence.

PEDIATRIC CARDIAC ANESTHESIOLOGY



Our Team:

Michael P. Eaton, MD, Dawn Sweeney, MD, Chief, and Konstantine Tzimas, MD

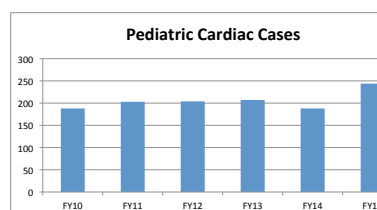
The Pediatric Cardiac Anesthesiology service provides care for approximately 200 congenital cardiac cases annually. URMC is the sole center performing congenital heart surgery in western New York, ensuring a steady referral of patients with all types of congenital heart disease.

Pediatric cases are covered by three anesthesiologists: Michael P. Eaton, MD and Konstantine Tzimas, MD, who are members of the adult cardiac anesthesiology group, and Dawn M. Sweeney, MD, a member of the pediatric anesthesiology group. The Pediatric Cardiac Anesthesiology service is also available to provide anesthesia for infants and children with complex congenital heart defects who are undergoing diagnostic procedures or non-cardiac surgery.

The Pediatric Cardiac Anesthesiology service is responsible for the education of residents and fellows in pediatric cardiac anesthesiology. Currently, the service provides training for the Cardiac and Pediatric Anesthesiology fellows training at

URMC and Pediatric Anesthesiology fellows training at the Buffalo Children's Hospital.

Research efforts are ongoing and often multidisciplinary. The Congenital Heart Surgery Research Interest Group (CHeSRIG) meets regularly to discuss proposed research protocols. Members of the group include pediatric cardiothoracic surgeons, pediatric cardiac anesthesiologists, pediatric intensivists, neonatologists, and pediatric perfusionists. Research interests include coagulation and blood conservation.



CARDIAC ANESTHESIOLOGY

Our Team:

Ellen Dailor, MD, Chief; Michael Eaton, MD; Laurent Glance, MD; Ahmed Khan, MD; Brandon Lebow, MD; Janine Shapiro, MD; David Stern, MD; Konstantine Tzimas, MD

The Division of Cardiac Anesthesiology provides anesthesia for approximately 1000 cardiac surgical procedures annually. Of these, about 800 are adults. Given the status of URM as a tertiary and quaternary referral center, we see a very high level of acuity. The case mix includes a broad distribution of coronary revascularization, open valve surgery, aortic surgery, and combined procedures. URM is also one of the busiest centers of its size in the country for implantation of ventricular assist devices (VADs), and there are growing programs in transcatheter based aortic valve implantation (TAVI), minimally invasive aortic valve replacement, and minimally invasive mitral valve replacement. Twelve to fifteen orthotopic cardiac transplants are completed each year. Approximately 20% of coronary procedures are performed without cardiopulmonary bypass, providing unique challenges in anesthetic management. URM is the sole center performing congenital heart surgery in western upstate New York.

Anesthetic care for adult cardiac cases is provided by the eight members of the cardiac anesthesia faculty, seven of whom are fellowship trained. All members of the team are proficient in transesophageal echocardiography (TEE), and six are certified by the National Board of Echocardiography. The congenital cardiac anesthesiology group consists of two cardiac anesthesiologists, and Dr. Dawn Sweeney, a member of the pediatric anesthesiology group.



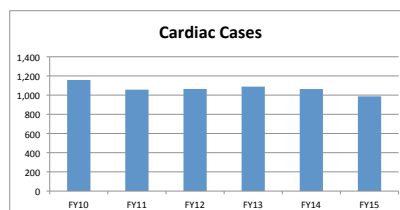
Tracy Sisk, DO (2015 Fellow); Michael Eaton, MD; Janine Shapiro, MD; Laurent Glance, MD; David Stern, MD; and Konstantine Tzimas, MD
Not Available - Ellen Dailor, MD, Chief; Ahmed Khan, MD; and Brandon Lebow, MD

The Cardiac Division is responsible for the education and training of residents in anesthesiology. All residents are required to complete two one-month rotations in cardiac anesthesiology, and many do senior electives in cardiac anesthesia and/or TEE. We also have the privilege of having medical students rotate in the cardiac ORs, both during their general anesthesia experience, and for a specific rotation in Hemodynamic Monitoring. Our adult cardiac anesthesia fellowship is accredited by the ACGME, and we offer two fellow positions each year. Our fellows have a dedicated educational curriculum, and are given graded responsibility in the care of complex cardiac surgical patients, such that they finish their training as fully qualified consultants in cardiac anesthesiology meeting requirements for board certification in TEE.

Research efforts are a constant feature of the cardiac anesthesia group, led by Dr. Laurent Glance, who is also the Department Vice-Chair for Research. Dr. Glance is a nationally recognized expert in outcomes research, with an outstanding record of publications. There are also a number of ongoing clinical studies, many in the area of coagulation issues in pediatric cardiopulmonary bypass. Three of our recent residents have completed studies in the Cardiac Division, and scholarship is a required part of every fellowship year.



Desiree Ekundayo, MD and Nigam Sheth, MD 2016 Fellows

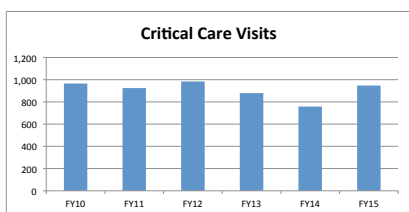


CRITICAL CARE MEDICINE DIVISION



Our Team

*Joseph Dooley, MD; Peter Papadakos, MD, Chief; Laura McElroy, MD
Not Available - Naveen Kukreja, MD*



The Division of Critical Care Medicine (CCM) is the oldest division of the Department that leads to subspecialty boards. It was founded by Niels Lund, MD, PhD, FCCM in 1987, and has been instrumental in the introduction and development of Critical Care Medicine in the University and the city of Rochester. The Division is part of the multidisciplinary program in Critical Care Medicine. Its faculty and educational programs actively participate in the education and supervision of fellows leading to subspecialty boards in CCM in the Departments of Anesthesiology, Surgery, Medicine and Pulmonary CCM.

Faculty:

Peter J. Papadakos, MD, FCCP, FCCM, FAARC,

Chief of the Division of Critical Care Medicine

Dr. Papadakos is Professor of Anesthesiology, Surgery, Neurology and Neurosurgery and has been with the program since 1988. He serves as a primary leader in the education of residents and fellows in CCM at the University of Rochester Medical Center. He is a well-respected leader in the field of CCM and has served on the faculty of many national and international meetings and conferences. He has participated on a number of consensus conferences in the field; he also is an active reviewer and serves on the editorial board of a number of journals and newsletters. He has been visiting professor at a number of national and overseas universities. He has held or holds leadership roles in many national and international societies, including the PGA, ASA, SCCM, ATS and ACCP. He has acted as a consultant for a number of government agencies including the NIH, FDA and the Swiss National Science Foundation. He has been appointed by the Board of Regents of the State of New York to the Department of Education Board of Professions.

The academic contributions of Dr. Papadakos include an extensive list of book chapters, peer-review papers, reviews and editorials. He has five textbooks: "Intensive Care Manual", co-edited by Dr. Michael Apostolakos, a former fellow; "Requisites of Critical Care", with Dr. James Szalados, also a former fellow; "Mechanical Ventilation Critical Care Clinics of North America" with former fellow, Dr. Joseph Dooley; and "Mechanical Ventilation Principles and Pathophysiology". Released in 2016 his two-volume textbook, "Encyclopedia of Trauma Care" by Springer and co-edited by Dr. Mark Gestrung of the Department of Surgery, contains chapters written by several faculty and residents from the University of Rochester.

Research interests include ARDS, mechanical ventilation, systemic inflammatory response and the sedation of critically ill patients. He has ongoing industry support of a number of clinical and basic science studies. Since 2011 Dr. Papadakos has become the leading expert on "Electronic Distraction and Professional Etiquette" and has been quoted in both national and international media and has served as a consultant for a vast number of professional societies.

Joseph W. Dooley, MD

Dr. Dooley joined the Division after completing his fellowship and holds the rank of Associate Professor of Anesthesiology and Neurosurgery. He actively participates in the education of residents and fellows in CCM. He helped develop the core basic science program in CCM of the Department of Neurosurgery.

Dr. Dooley's academic interests are in coagulation and neurocritical care. He has written several book chapters and reviews. He co-edited "Mechanical Ventilation Critical Care Clinics of North America" with Dr. Papadakos. He has participated in clinical research in the Surgical ICU, which has been industry supported. He has also given presentations and lectures at national meetings. He is responsible for the visiting professor and Grand Rounds programs and also serves on the Department Quality Assurance Committee.

Naveen Kukreja, MD

Dr. Kukreja is also a former fellow and joined the Division in 2013 and holds the rank of Assistant Professor of Anesthesiology. His interests are in Trauma and Neurocritical care. He is also an attending at Highland Hospital.

Laura McElroy, MD

Dr. McElroy joined the faculty after completion of her fellowship in 2014 and holds the rank of Assistant Professor of Anesthesiology. She is interested in Neurocritical care and has also authored a number of book chapters on transfusion medicine in trauma.

Resident Education

The faculty actively participate in the education of Anesthesiology residents. They have an active role in didactic lectures and bedside teaching. We also have a CD based program on the Department web site and the Burn Trauma and Neuroscience ICU's as their base patient units. Our residents ranked in the 89th percentile in CCM knowledge on their exam this year.

Research

The work of the Department in the field of CCM is widely published in the literature. The Division has participated in over forty funded studies. We have mentored several generations of fellows and residents in CCM research. We are actively increasing our ability to do basic science research through collaboration with the University of Berlin in Berlin, Germany.

Goals

The goals of the Division are to continue to provide excellent critical care medicine education to our residents, students and fellows, continue to stimulate our residents to go onto Anesthesiology CCM training at the University of Rochester or other programs, continue our leadership role in CCM education on the national and international level, and expand research in the Division and the Department.

NEUROANESTHESIOLOGY

The patient undergoing a neurosurgical procedure presents a unique challenge in the management of anesthesia. We provide care for patients of all age ranges as they undergo complex and routine intracranial and spine surgeries. UR Medicine Strong Memorial Hospital is the area's only comprehensive stroke center and also has the only dedicated neuromedicine intensive care unit. As SMH is the region's trauma center, residents gain experience in the anesthetic management of head trauma and in airway management of cervical spine injuries. The hospital is also the leader in performing "awake" craniotomies for the surgical treatment of intractable epileptic seizures.

A neurosurgical anesthesia rotation is offered to residents at each level of training. The neuro1 rotation is an 8-week rotation that starts with 2 weeks on the acute stroke service followed by 2 weeks with the neurophysiology team. This is then followed by 4 weeks in the operating room providing neurosurgical anesthesia. The neuro2 rotation has a focus on interventional neuroanesthesia. The CA-3 rotation is a

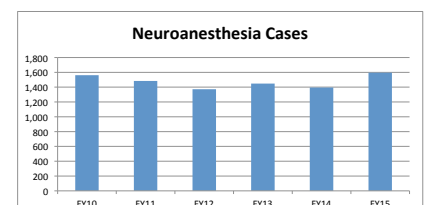
senior resident rotation with emphasis on more advanced skills and more autonomy. During these rotations, residents provide anesthetic care for a wide array of neurosurgical cases, including functional neurosurgery with deep brain stimulation, complex spine surgery, minimally invasive spine surgery, carotid endarterectomies, endovascular aneurysm treatment, and craniotomies (tumor, AVM, aneurysm) to name a few.

Additional focus is placed on airway management of the unstable cervical spine. Techniques include the use of the flexible fiberoptic laryngoscope, video laryngoscopy and lightwand stylet. Residents learn through hands-on operating room experience, a resident taught lecture series, and faculty taught didactics. There is an electronic iBook available that covers relevant board material and common cases done at URMC. This approach provides a comprehensive experience allowing the graduate to provide quality anesthetic care to a wide variety of neurosurgical patients.



Our Team

Amie Hoefnagel, MD; Laura McElroy, MD; Jeffrey Kolano, MD; and Jacob Nadler, MD, PhD, Chief



OBSTETRIC ANESTHESIOLOGY SERVICE

Our Team

Richard N. Wissler, MD, PhD, Chief
Melissa A. Kreso, MD; Zana C. Borovcanin, MD;
Keith M. Franklin, MD; Jennifer A. Macpherson, MD
David D. Grimes DO; Suzanne B. Karan, MD;
Andrew Burr, DO

The Division of Obstetric Anesthesiology is dedicated to excellence in patient care, education and research for pregnant women and their babies. The members of this Division see these tasks as inter-related and inseparable, within the overall missions of the Anesthesiology Department and the University of Rochester Medical Center. Over 3,000 babies are born at Strong Memorial Hospital each year. During the past two years, 32 percent of deliveries were performed through C-section. The majority of parturients select neuraxial analgesia during labor.

Strong Memorial Hospital is the designated Regional Perinatal Center for the New York State Finger Lakes Region, providing specialized perinatal care for high-risk pregnancies. Therefore, residents gain extensive experience with both healthy and critically ill parturients. The core curriculum in OB Anesthesiology consists of weekday academic sessions provided by faculty, based on daily reading assignments. This curriculum functions in parallel with the many educational opportunities on this busy clinical service. Residents gain a thorough understanding of maternal/fetal physiology and pharmacology, management of high-risk parturients, including the proper utilization of invasive monitoring and perioperative care of coexisting diseases that may occur during pregnancy. Senior residents electing additional experience in OB Anesthesiology participate in an advanced curriculum. Many opportunities exist for resident participation in ongoing research, if desired. Residents enjoy many educational opportunities in OB Anesthesiology.

The OB Anesthesiology Division participates in several formal medical student educational programs, as well as clinical teaching of medical students on other OB and Anesthesiology assignments. The School of Medicine and Dentistry (SMD) has a formal elective in "Obstetric Anesthesiology", ANS-603. Dr. Wissler designed and implemented this medical student elective in 1994, and has directed it since. The annual enrollment for ANS 603 has varied from 8 to 16 medical students in recent years.

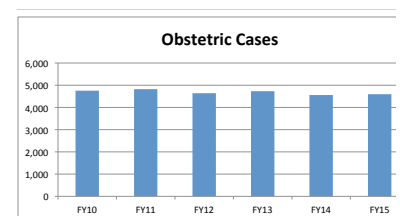
*Melissa Kreso, MD,
Associate Chief*



Zana Borovcanin, MD and Richard Wissler, MD, PhD, Chief

In the "Double Helix Curriculum" of the SMD, the third-year medical students have a two-week period of "advanced basic science" following each ten-week clinical core clerkship. The basic science course that follows the Women's and Children's Health Clerkship is entitled "Genes to Generations". In 2001, Dr. Wissler designed a one-day course on "Obstetrical Anesthesia" for the "Genes to Generations" course, and he has taught it four times per year since then. This course uses the student's recent clinical observations of labor pain and cesarean sections as a springboard to discussions of the underlying anatomy, physiology and pharmacology. The format includes multi-station demonstrations and case discussions. In addition, the medical students enrolled in the Department of Anesthesiology summer fellowship program rotate on several subspecialty services, including OB Anesthesiology.

The OB Anesthesiology Division continues to be an active participant in interdisciplinary OB patient safety initiatives at SMH.





Jeffrey Kolano, MD; Lata Sabnis, MD; Zana Borovcanin, MD, Chief; Albert Yu, DO; David Stern, MD; Daryl Smith, MD; Jacob Nadler, MD, PhD; and Joseph Dooley, MD

GENERAL ANESTHESIOLOGY DIVISION

Division Chief: **Zana Borovcanin, MD**

The Division of General Anesthesiology is the largest and most diverse division within the Department of Anesthesiology. This Division provides a wide range of services, including high quality anesthesia care for abdominal, gastrointestinal and colorectal surgeries, urologic procedures, gynecologic surgeries, laparoscopic, robotic and minimally invasive surgeries, orthopedic and plastic surgery cases, ENT procedures, ophthalmologic surgeries as well as dental and maxillofacial procedures.

The urology caseload includes simple and radical prostatectomies, nephrectomies for tumor and congenital abnormalities, as well as surgery for incontinence and cystectomies for bladder tumors and reconstructive surgeries. Robotic surgery is being used for radical prostate surgery, nephrectomies, and cystectomies. Cystoscopy suite has a large caseload of cystoscopies as well as lithotripsies, percutaneous nephrolithotomies, transurethral prostatectomies and bladder tumor resections. Residents on this rotation gain experience in sedation techniques, and in the administration of spinal and general anesthesia.

The gynecological anesthesia service provides perioperative care to women having gynecologic or infertility surgeries and gynecologic oncology procedures. We strive to provide excellent anesthetic care that is individualized to each woman's unique requirements.

The rotation in otolaryngology and head and neck surgery offers experience in the anesthetic management of procedures in head and neck oncology, facial plastics and reconstructive surgery, laryngology, otology, and sinus procedures. Open communication between the anesthesiologist and the surgeon is emphasized in preoperative airway assessment and shared access to the airway intraoperatively. The Division of General Anesthesiology also provides expertise in airway management for complex oral-maxillofacial patients and teaches difficult airway management techniques to our residents.

A variety of orthopedic cases is performed in the main operating room including simple and complex arthroplasties, spine procedures, musculoskeletal tumor resection and reconstruction, hand and upper extremities procedures and foot and ankle surgeries. The anesthetic techniques vary from general anesthetics to complex regional blocks and total intravenous techniques for complex spine procedures.

The Division of General Anesthesiology provides care for those patients undergoing same-day surgeries, including ophthalmologic surgeries and dental procedures. These procedures are usually performed on the second floor, which is a six-room operating suite. Our anesthesia care ranges from monitored anesthesia care to regional block and general anesthetic.

A General Surgery Anesthesia Rotation is offered at each level of training. For most residents, this will be the first time they are exposed to the advanced airway management techniques, invasive monitoring and fluid or vasopressor management. During CA-1 year the residents are introduced to many of those general surgery procedures, while during CA-2 year they are offered greater autonomy in anesthetic management of more advanced cases. During the Advanced Clinical Track rotation, CA-3 residents are assigned to the cases judged to be the most complex, either the patients have a high level of comorbidity or the surgery is highly complex.

Residents on this rotation are mentored by outstanding faculty members of the Division of General Anesthesiology. Our faculty members are experienced in advanced airway management techniques, liver and kidney transplant, thoracic and neuroanesthesia, critical care and regional ultrasound-guided blocks. They share their expertise and enthusiasm with the Anesthesiology residents while providing the highest quality and safest level of care for our patients.

PEDIATRIC ANESTHESIOLOGY



Kenneth Cheng, MD; David Grimes, DO; Dawn Sweeney, MD; Yakov Reytblat, DO, 2015 Fellow; and Nobuyuki-Hai Tran, MD

Our Team

Ashwani Chhibber, MD, Chief; Sarah Cano, MD; Kenneth Cheng, MD; David Grimes, DO; Alexander Hirschfeld, MD; John Schroeder, MD; Dawn Sweeney, MD; Nobuyuki-Hai Tran, MD; Audra Webber, MD; and Susan Wittman, MD

The Division of Pediatric Anesthesiology at UPMC and Golisano Children's Hospital is well recognized for the delivery of outstanding anesthesia services to more than 7,500 children each year. Golisano Children's Hospital provides tertiary care in the neonatal and pediatric intensive care units and recover some of the most critical neonates and children in upstate New York and the Tri-State region. We are also recognized for providing a high standard of care to children with congenital cardiac defects in our catchment area. Faculties, residents, and fellows are tasked with providing preoperative, intraoperative, and postoperative anesthetic care and pain management for elective and emergency surgery on neonatal and pediatric patients. We perform a wide range of pediatric cases on a daily basis, including general surgery, otolaryngology, urology, gastrointestinal, ophthalmology, neurosurgery, orthopedics, plastic surgery, and cardiac cases.

We have very vibrant residency and fellowship programs which emphasize teamwork with the surgical and nursing teams, and that has been a focus for us during the pediatric anesthesiology elective. Other than the main operating rooms, sedation for children undergoing complex diagnostic procedures is provided in the MRI

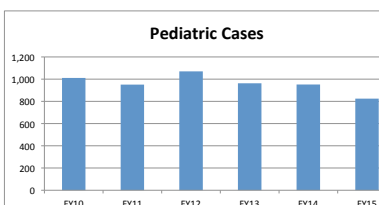
suite, the gastroenterology-endoscopy suite, the cardiac catheterization and EP labs, as well as in the interventional radiology suite. Our staff is also involved in the management of difficult airways throughout the main hospital and at Golisano Children's Hospital. Our division has an ACGME accredited fellowship program. Presently, we have one pediatric anesthesia fellow per year. The fellow is exposed to a broad range of cases with varying levels of complexities. Requirements include rotation through the PICU, the NICU, and 1 month of pediatric pain management. Fellows are encouraged to participate in research, grand rounds presentations, and are expected to be active teachers to residents.

The new Golisano Children's Hospital tower was opened in the fall of 2015. The tower is eight floors and approximately 245,000 square feet of space dedicated to children and their families, providing 52 private rooms and a greatly expanded NICU. During the second phase of the project, we anticipate six new operating rooms, a GI endoscopy suite, cardiac catheterization lab, pre- and post-anesthesia care units, and the pediatric intensive care unit to be fully operational by July 2017. The new pediatric surgical suite will allow residents and fellows to focus on clinical skills in a standalone environment.

The Division is committed to advancing the delivery of pediatric anesthetic care and education of the next generation of anesthesiologists. All team members are specialty trained in pediatric anesthesiology. Numerous faculty members participate in national and international societies and are active in clinical research for the advancement of pediatric anesthesiology.



Ashwani Chhibber, MD, Chief





POST-ANESTHESIA CARE UNIT (PACU)

Faculty:

Jacob Nadler, MD, PhD (Medical Director),
Daniel Sokac, RN, MBA (Interim Nurse Manager)

Overview:

The Post-Anesthesia Care Unit (PACU) receives patients recovering from the immediate effects of anesthesia and surgery. Highly trained nurses care for patients during this critical period of time with anesthesiologists responsible for managing the acute medical and surgical needs of the patients. Potential problems during recovery from anesthesia and surgery include post-operative pain, hemodynamic instability, and post-operative complications. The anesthesiologist will address these challenges and determine the suitability of the patient for discharge from the PACU to other patient care units.

Resident Education:

The goal of the PACU rotation is to provide the resident with educational and clinical experience to manage the problems that are commonly encountered and unique to the PACU. The rotation is a required two week rotation focused on care of the patient in the immediate post-anesthetic period. The resident will demonstrate proficiency in managing clinical challenges during the post-anesthetic period and display recognition of normal and abnormal patterns of recovery from anesthesia.



OUT-OF-OR ANESTHESIOLOGY



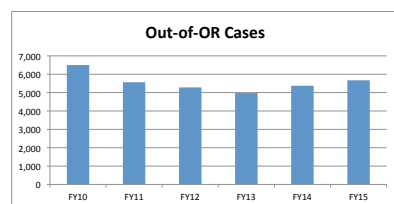
Left to right

Ashwani Chhibber, MD, Chief and Elizabeth Brokaw, RN, BSN

The demand for anesthesia services outside of the operating room has increased dramatically during the past decade. The Out-of-OR Anesthesiology Service currently provides anesthesia care at 14 different off-site locations including MRI (adult and pediatric), Interventional Radiology, and CT Imaging Rooms in the Imaging Science Suite; Cardiac Catheterization Lab; Radiation Oncology Unit; Pediatric Hematology/Oncology Clinic; Pediatric Endoscopy Clinic; Adult Gastrointestinal and Bronchoscopy Units; Extracorporeal and Shock Wave Lithotripsy Room; Ophthalmology Clinic; Electrophysiology Lab, and Infertility Clinic.

CA-3 residents are offered a two-week elective, in which they gain more experience in the delivery of safe anesthesia to both children and adults in out-of-OR locations for procedures in magnetic resonance and computed tomography imaging, interventional radiology, cardiac catheterization, electrophysiology, gastrointestinal endoscopy, and other procedures. Anesthesia in these locations is increasing as a proportion of anesthesia practice, and development of the skill set and knowledge base to practice safely in such environments is important in residency training. Furthermore, these unintubated patients are often the sickest in the hospital, requiring a wide range of skills to manage.

Beth Brokaw, RN, BSN, is the non-OR Anesthesiology Coordinator responsible for managing the flow and case load of the non-OR areas to meet the goals of minimizing delays, improving outcomes and increasing satisfaction of patients, departments and staff. She also serves as the liaison between all out-of-OR departments, the Clinical Coordinator, anesthesia providers and anesthesia technical staff.



CENTER FOR PERIOPERATIVE MEDICINE



Alan Curle, MD (Director)
Marjorie Gloff, MD (Assistant Director)

Vision:

Every patient will have the correct procedure performed at the most appropriate location at the optimal time with patient safety paramount and patient-centered care at the core.



Mission:

To ascertain, organize, analyze, and document in an electronic fashion all of the pertinent information, including patient history and physical exam, which will make possible an evaluation of risk and

formulation of a plan that will result in the proposed procedure proceeding as safely as possible.

Guiding Principles:

- The more we know about a patient and the earlier we know it, especially if intervention is needed, the better the outcome for the patient
- Evaluation must begin by talking with the patient
- Will pair the information that is sought and the person receiving that information to make analysis and any necessary intervention based upon what is ascertained most effective
- Every opportunity will be taken to educate the patient about their medical condition and their procedure in order to enable them to be partners in their care to the best of their ability
- In order to partner for the patient's benefit, respectful communication between all members of the perioperative team including primary care, consultants, surgeons and anesthesia team is essential

Center for Perioperative Medicine

Row 1 - Dianne Smith, NP; Renee Robinson, NP; Barbara Tubbs; Janis Yovanovich, RN; Therese Cottrell, RN; and Mardell Brabant, RN
Row 2 - Kathleen Reid; Lisa Velasquez; Jan Filsinger, RN; Chris Keough; Alan Curle, MD; Jane Vesling, RN; Kathleen Pringle, RN; Jennifer Timm, NP; Mary Kincannon; and Christine Northrup, NP
Not Available - Barbara Best, RN; Lisa Brewer; Lisa Carey; Elaine Delarionda, RN; Chassidy Foushee; Mary Jo Pires, RN; Joanne Reitter, RN; and Wendy Ricci; Kathleen Walther, RN

The Center for Perioperative Medicine is proud to be a center of clinical excellence and innovation at UR Medicine. Our team, from the RN's who utilize our carefully crafted screening tools, their administrative support team that gathers critical information, the RN's who educate the patients at the time of their on-site visit, the APP's who review and analyze the data utilizing the most up-to-date clinical practice guidelines and see patients in our office if it is deemed of benefit to the patient, to our physician leadership, is committed to launching patients onto a trajectory that is both safe and efficient. We firmly believe that this work is not only of benefit to the patient, but also to the entire enterprise, for example, by decreasing delays on the day of surgery, and minimizing complications that, if they occur, greatly increase the risk of readmission and increased costs. We currently screen approximately 2/3 of all patients who present to the operating rooms at UR Medicine Strong with the goal of increasing that percentage, and adding pediatrics and out-of-operating room procedures. We also screen very close to 100% of patients who present to the operating rooms at UR Medicine Sawgrass and have just added UR Medicine Strong West to our portfolio.

THORACIC ANESTHESIOLOGY

The scope of practice of the Division of Thoracic Anesthesiology at the University of Rochester Medical Center includes anesthetic care of pulmonary and foregut surgical patients. Commonly managed thoracic surgical procedures include:

- Bronchoscopy, EGD, EBUS (endobronchial ultrasound)
- Airway and esophageal stent placement
- Esophageal myotomy, esophageal fundoplication
- Esophagectomy
- Pleural biopsy, blebectomy, pleural decortication
- Wedge resection, lobectomy, pneumonectomy
- Thymectomy

The Division of Thoracic Anesthesiology uses state-of-the-art digital video and fiberoptic equipment for lung isolation techniques. Minimally invasive techniques are frequently managed, such as VATS (video-assisted thoracic surgery) and robotic VATS.

Resident Education:

A formal 2-week Thoracic Anesthesiology rotation is offered to residents at each level of training (CA-1, CA-2, and CA-3). The CA-3 Thoracic Anesthesiology rotation is a senior resident rotation with emphasis on more advanced skills and more autonomy.

The goals of the Thoracic Anesthesiology rotation are to provide residents with the basic science foundation in respiratory physiology and the skills and clinical experience to care for patients requiring thoracic (non-cardiac) surgical procedures. Integral to this goal is for the resident to become competent as a consultant in Anesthesiology in pre-anesthetic evaluation of

pulmonary function, formulation and safe conduct of the anesthetic plan including control of postoperative pain, management of one-lung anesthesia and lung isolation, and skills in fiberoptic bronchoscopy. The didactic teaching includes 1-1 teaching by the thoracic anesthesia faculty in the operating room and a reference "Thoracic Anesthesia Manual" which consists of applied respiratory physiology of one-lung anesthesia, technical aspects of lung isolation, as well as up to date reviews in thoracic anesthesia. We provide a program called the "Difficult Airway Workshop" for the rotating residents during which they master fiberoptic bronchoscopy skills required in positioning and trouble-shooting double-lumen tubes. They also benefit from hands-on training with lung isolation equipment. This allows the residents to learn the concepts and reinforce their airway skills in a more relaxed environment than the operating room.

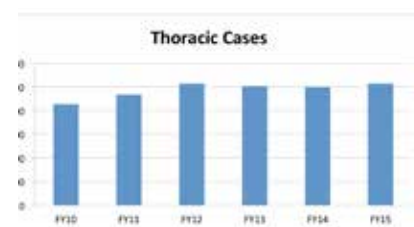
Thoracic Anesthesiology rotations include pre- and post-testing as part of the evaluation process, reading assignments, and OR experience. Residents have consistently rated the rotations high for their teaching quality and utility.

Faculty:

Jennifer A. Macpherson, MD (Chief), Pamela Becks, MD, Andrew Burr, DO, Ellen Dailor, MD, Joseph Dooley, MD, Anna Kaminski, DO, Suzanne Karan, MD, David Lyons, MD, Laura McElroy, MD, and David Stern, MD



*Seated - Jennifer Macpherson, MD, Chief and Ellen Dailor, MD
Standing - Laura McElroy, MD; In Tae Kim, MD; Andrew Burr, DO; and David Stern, MD*



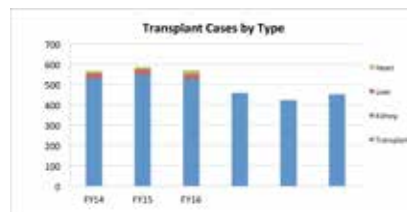
TRANSPLANT ANESTHESIOLOGY DIVISION

Faculty:

Joseph W. Dooley, MD (Chief), Keith M. Franklin, MD,
Jeffrey W. Kolano, MD, Stewart J. Lustik, MD, MBA

The University of Rochester is a national leader in solid organ transplantation. Due to the complexity of these procedures and the severity of illness of the patients, the Department of Anesthesiology has a division dedicated to delivering anesthesia for all liver transplants and for a majority of the kidney transplants, kidney-pancreas transplants, and hepatobiliary surgery performed by the transplant surgery service. There is a close collaboration between the transplant anesthesiologists and transplant surgeons. All patient candidates for liver transplant are cleared for surgery by the Anesthesiology team prior to being scheduled for transplant. The liver team provided anesthesia services for 28 liver transplant cases in academic year 2013-2014 and 25 in 2014-2015.

Anesthesiology residents are assigned to week-long liver transplant rotations. During a liver transplant, there is one-on-one attending supervision of the resident. Teaching opportunities are broad, focusing on the pathophysiology of liver disease, hemodynamic monitoring, coagulopathy, liver-failure comorbidities (hepatorenal syndrome, hepatopulmonary syndrome, etc.), and the anesthetic management of these cases.



Seated - Keith Franklin, MD
Standing - Joseph Dooley, MD, Chief; Stewart Lustik, MD;
and Jeffrey Kolano, MD



CLINICAL COORDINATORS

The Anesthesiology Clinical Coordinators play a vital role in ensuring the smooth and efficient day-to-day operation of the surgical operating rooms. Each morning, they prepare assignments for the next day's schedule, ensuring that all cases and procedures requiring anesthesia services in both the operating rooms and out-of-OR locations are covered by the appropriate anesthesia care team based on factors such as clinical service, resident rotation, and complexity of case. Throughout the day, they track the status of all elective and add-on cases along with the location of Anesthesiology providers, dispatching providers to areas where they are needed. The Clinical Coordinators also supervise cases, ensure coverage during meal breaks, discharge patients from the PACU, respond to emergencies in the operating room and PACU, and consult with and advise members of the surgical and anesthesia care teams. Their compassion, attention to detail, and hard work are appreciated by all members of the Department.

Clinical Coordinators

Seated - Joseph Dooley, MD
Standing - Jeffrey Kolano, MD and Lata Sabnis, MD

VASCULAR ANESTHESIOLOGY DIVISION

Faculty:

Anna K. Kaminski, DO (Chief), Pamela Becks, MD, Zana Borovcanin, MD, Ellen Dailor, MD, Joseph Dooley, MD, Keith Franklin, MD, David Grimes, DO, Stewart Lustik, MD, MBA, David Lyons, MD, Laura McElroy, MD

The Division of Vascular Anesthesiology at the University of Rochester Medical Center provides anesthetic care to the most medically challenging surgical patients in the hospital. In so doing, our faculty demonstrate expertise in the full spectrum of anesthetic care, including multimodal anesthesia with an emphasis on minimization of hemodynamic instability, vasoactive pharmacological therapeutics, blood product and fluid optimization, transesophageal echocardiography, regional anesthesia and catastrophic resuscitation. Annually, the Division provides anesthesia for nearly 150 carotid endarterectomies, 25 to 50 open aortic cases, and over 150 lower extremity bypass operations.

Our surgical facilities include a dedicated endovascular suite and nursing team, allowing the vascular surgeons to perform about 50 endovascular carotid stent operations and over 100 endovascular thoracic and abdominal aortic stent procedures annually. Our faculty are proficient in both endovascular as well as open procedures, aware of the benefits and potential pitfalls of each. Managing approximately 1,400 cases per year, the Vascular Anesthesiology Division provides a wealth of clinical experience for our residents, allowing them to perfect their skill in caring for patients with cardiac disease who are undergoing noncardiac surgery. Residents learn to manage significant blood loss and its complications in these highly complex patients, using invasive monitoring and potent vasoactive and cardiac drugs. In addition to general anesthesia, regional anesthesia is routinely used, including cervical plexus blocks for awake carotid surgery, upper extremity blocks for AV access, lower extremity blocks (femoral and sciatic) for peripheral surgery, and thoracic epidural catheters for postoperative pain management for abdominal and thoracic aortic surgery patients.

Our educational programs are aimed at both residents and faculty. Our residents spend a focused and concentrated two-week introduction to vascular anesthesia as a junior resident and then an additional two-week advanced rotation as a senior resident. Initially, residents learn the pathophysiologic changes associated with vascular surgical procedures and the appropriate anesthetic management of vascular patients. Appropriate perioperative evaluation of vascular patients is emphasized, and there is an introduction to intraoperative and postoperative care for various



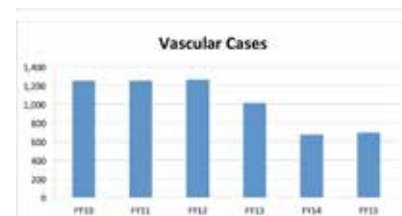
Zana Borovcanin, MD; Joseph Dooley, MD; Anna Kaminski, DO, Chief; David Lyons, MD; and Laura McElroy, MD

vascular surgical procedures. More independence and detailed intraoperative and postoperative care are the emphasis of the advanced rotation. Teamwork with surgeons and nurses is emphasized during both rotations. All cases for the week are reviewed with the entire team – surgery, anesthesia, and nursing.

The Division has produced numerous references for residents and faculty regarding the care of vascular patients. Readily available via the intranet on an electronic course organizational system, the “Vascular Anesthesia Manual” reviews aortic, carotid, and peripheral vascular surgical procedures and anesthetic management including pertinent pathophysiology. Additionally, care plans for endovascular procedures are presented as well as reviews on pacemakers, hemostasis and arrhythmias. Best Practice Perioperative Care Plans have been developed by the Division using evidence-based approach for anesthetic management for:

- Radio-Frequency Ablation of GSV Procedures
- Bicarbonate Infusions to Prevent Contrast Induced Nephropathy
- Spinal Drains for Thoracic Aortic Procedures

The Vascular Anesthesiology Division also provides highly-regarded educational seminars on cross-clamp physiology, acid-base balance, preoperative cardiac evaluation, and carotid procedures. The Vascular Education Day is a full-day vascular interactive mini-conference with invited vascular surgery residents and fellows utilizing case discussions, team-based learning and simulation to teach preoperative evaluation, issues with carotid surgeries including complications and the intricacies of open aortic procedures. Teamwork and communication skills among surgery, anesthesia and nursing is also emphasized during the learning sessions.





Pain Treatment Center Clinical Faculty and Staff
 Row 1 - Annie Philip, MBBS; Rajbala Thakur, MBBS
 Row 2 - Cynthia Taylor, RN; Maria Aponte; Cathy Beal, RN; Teresa Jech; Maria Griffo; Nicole Brown, RN; Julie Simmons, NP
 Row 3 - Laura Volkmar, RN; Adam Gentile; Jennifer Coccia-Manuel; Joel Kent, MD, Chief; Daryl Smith, MD
 Not Available - Megan Arnold; Joseph Poli, MD; Albert Koh, DO; Stephen Basler, PsyD; and Bruce Xu, MS

PAIN TREATMENT CENTER / PAIN MANAGEMENT DIVISION

The Pain Treatment Center is an outpatient facility that offers comprehensive pain management services. Our practice is comprised of a multidisciplinary team of specialists dedicated to the care of chronic pain patients. Our team consists of anesthesiologists, physiatrists, psychologists, nurse practitioners, and a clinical acupuncturist. Combined, our practice has decades worth of clinical experience in the care of these patients.

Our practice provides the full range of therapies available to treat patients with chronic pain. We offer medication management, behavioral therapy and the entire range of interventional treatments to treat chronic pain patients; beginning with simple peripheral nerve blocks and progressing through the most advanced injections and implantable therapies.

The practice is located in a new, state-of-the-art, patient-centered facility comprised of over 7,000 square feet of patient care and administrative space, that maximizes our ability to treat our patients in an integrated and optimal fashion. The site is equipped with two fluoroscopy suites, eight bays for preparation and recovery of patients undergoing procedures and 8 exam rooms for patient evaluations. Our practice is fully integrated into the campus-wide electronic medical record system.

We have experienced substantial growth over the past several years. In the last year alone, our visits have increased by 13% and ongoing growth is anticipated. In the past year we provided 1,290 new patient consultations, saw 5,123 patients in follow-up visits, performed 3,043 procedural interventions and provided 1,069 behavioral medicine visits.

Our practice has a strong educational mission. We are an ACGME accredited program for Pain Medicine. In this capacity, we train three fellows each year and have been successful in attracting high quality applicants and have consistently filled our available training positions. In addition to the

pain medicine fellows, we provide educational rotations to multiple other post-graduate healthcare professionals including residents from Anesthesiology, Physiatry, Neurology, and Palliative Care fellows, as well as medical students.

We also have a strong research component in our practice. Our faculty members generate multiple publications and professional presentations each year. We have ongoing clinical research projects as well. Currently, members of our group are in the third year of a five-year study sponsored by National Institutes of Health/National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIH/NIAMS), comparing efficacy of medication management in combination with behavioral therapies for management of fibromyalgia symptoms. A single cohort retrospective study comparing lumbar plexus injections versus femoral nerve block for arthroscopic hip surgery was recently completed. Other faculty are comparing efficacy data on use of outpatient ketamine infusions for refractory neuropathic pain conditions. Also, in collaboration with industry sponsors, we become involved with select research projects. In the fourth quarter of 2014, we initiated a Phase IIb trial with a new kappa opioid in our respiratory research lab. Within the Pain Division of the Anesthesiology Department, research opportunities are available for faculty, pain fellows and residents to pursue inpatient and outpatient issues related to pain management for our patients.

Our pain program strives to achieve excellence in the realms of patient care, education and clinical research. We provide the most integrated pain management care available in the City of Rochester and the surrounding region.



REGIONAL ANESTHESIOLOGY / ACUTE PAIN SERVICE

The Regional Anesthesia/Acute Pain Service (APS) demonstrates the focus and expertise of this faculty group, all of whom have extensive experience in performing peripheral blocks and neuraxial anesthesia. We have three main locations: URMC Ambulatory Surgery Centers at Sawgrass and Strong West and Strong Memorial Hospital (SMH). The majority of peripheral nerve blocks are performed at Sawgrass where we perform approximately 3,000 blocks per year. All blocks are performed using physicians working with residents using the most advanced techniques including using ultrasound guidance for all blocks. As a result, we achieve a very high success rate and an excellent safety profile. This leads to shorter PACU stays, decreased opioid-related side-effects such as nausea and vomiting, and improved patient satisfaction scores.

ACUTE PAIN SERVICE

The Acute Pain Service is based at SMH where thoracic epidurals comprise the majority of blocks performed. The remaining procedures are evenly distributed among continuous intrathecal techniques, thoracic paravertebral blocks, and the full range of peripheral nerve blocks which may be used as the primary anesthetic technique or as the main method of post-operative pain control. Approximately 1,000 blocks are performed annually. The service is provided for both the adult and the pediatric populations. Patients who receive a catheter or continuous neural blockade technique are followed daily by the resident who performed the block. This helps ensure continuity of care and provides the optimal learning experience.



*Daryl Smith, MD, Director
Acute Pain Service*



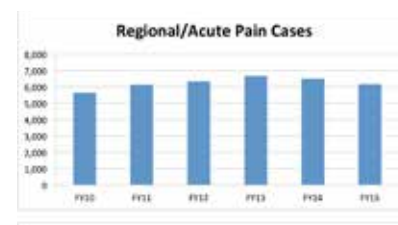
*Krystof Neumann, MD,
Director Regional
Anesthesiology*

While the primary focus of the APS is on perioperative pain, the service is also very active on a consultative basis throughout the hospital. There the service addresses acute exacerbations of chronic pain of both cancer-related and non-cancer-related origin. It provides consultative assistance for the pharmacologic management of all pain syndromes, as well as a variety of interventional options for patients suffering from trauma-related or acute, painful medical disorders in both the Critical Care and the Emergency Department settings. Examples of these are: the placement of thoracic epidurals for multiple rib fractures; multiple, peripheral catheter techniques for patients suffering from polytrauma; and continuous peripheral nerve blocks for patients suffering from neuropathic pain syndromes. The Perioperative Pain Service at Strong regularly rounds on 10 to 20 patients a day; receives 2-3 consultation requests each day; and performs 7-8 peripheral and/or neuraxial procedures per day. Upon completion of their rotations at both Sawgrass Ambulatory Surgical Center and SMH, residents are comfortable developing regimens for providing regional anesthesia/analgesia and managing these patients in all clinical settings.

PAIN MANAGEMENT FELLOWS



*Pain Management Fellows
Left to right - Kenessa Edwards, MD;
Afzaal Iqbal, MD; Maya Modzelewski, MD*



AMBULATORY ANESTHESIOLOGY DIVISION

Sonia G. Pyne, MD (Chief of Anesthesiology, Sawgrass Surgery Center), Camberly I. Spring, MD (Associate Chief of Anesthesiology, Sawgrass Surgery Center), Krystof J. Neumann, MD (Chief of Anesthesiology, Strong West)

On August 10, 2009, the University of Rochester Medical Center undertook an expansion in outpatient surgery capabilities in a new surgery center. This state-of-the-art center located on Sawgrass Drive in nearby Brighton, is an 82,000 square foot off-campus facility which also houses the URMC Pain Treatment Center. Annually, the surgery center cares for over 11,000 patients, predominately focusing on Orthopedics and Otorhinolaryngology, with forays into both Plastic and General Surgery. This multispecialty center at Sawgrass houses 10 operating rooms and 3 procedure rooms. Currently, approximately 17% of cases are on pediatric patients under 18 years of age. URMC has a strong and growing presence in ultrasound-guided regional anesthesia, which has helped improve the care and pain control of ambulatory patients. Last year the regional anesthesia team at Sawgrass Surgical Center performed over 3000 peripheral nerve blocks, which has proven to be a huge element contributing to patient satisfaction after ambulatory surgery.

The Ambulatory Division recently extended to the west with the opening of Strong West Ambulatory Medical Center in Brockport. The facilities in this new location have been renovated to match our state-of-the-art technology at Sawgrass Surgical Center and URMC. With 3 operating rooms, 1 procedure room, and a dedicated GI endoscopy suite, the Strong West Ambulatory Surgery Center is able to serve a wide variety of patient surgical needs. Currently patient care focuses on orthopedic, ophthalmologic, and general surgery as well as upper and lower endoscopies. Reflecting the overall trend toward performing procedures in an ambulatory setting, Strong West procedure volumes are increasing at a rate exceeding 30% per year.

URMC also performs ambulatory surgeries at Highland Hospital and Strong Memorial Hospital (particularly in the 5 operating rooms on the 2nd floor). The University of Rochester Anesthesiology Group has limited office-based anesthesia services at Red Creek, primarily focusing on fertility procedures.

Mirroring national trends, much of the growth in cases seen by the Department of Anesthesiology at URMC has been in outpatient surgeries. The capable team of anesthesiologists, nurse anesthetists, and rotating anesthesiology residents that care for patients within the ambulatory setting in the Division of Ambulatory Anesthesiology look forward to this continued expansion of outpatient surgery.



Ambulatory Surgical Center at Sawgrass Faculty, Residents & CRNA's

Row 1 - Albert Yu, DO; Pamela Becks, MD; Jay Cody, CRNA; Sonia Pyne, MD, Chief; and Jacek Wojtczak, MD, PhD

Row 2 - Debbie Metzger, CRNA; Brent Sharp, CRNA; Cynthia Chinn, MD; Caroline Zawilski, MD; Mary Huether, CRNA; Virginia Signorelli, CRNA; Marjorie Gloff, MD; Kurtis Goltermann, CRNA; and Nikolay Manuylov, DO

Row 3 - Allison McIntyre, CRNA; Laurie Dennstedt, CRNA; Cindy Babcock, CRNA; Krystof Neumann, MD; Ryan Anderson, DO; and Whitney Booth, CRNA

HIGHLAND HOSPITAL



Highland Faculty

Seated - Alan Curle, MD; Gregory Previte, MD, Chief; Steven Finkelstein, MD; Stuart Hanau, MD; Susan Wong, MD

Standing - Matthew Bresler, MD; Nicholas Peterson, MD; Pamela Becks, MD; Alexander VanDamme, MD; Gary Kawczynski, MD;

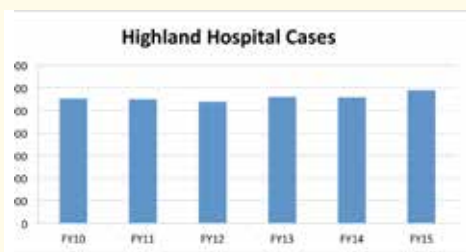
Kenneth Dean, MD; and George Turinsky, MD

Not Available - Nathan Clark, MD; Thomas Fugate, MD; Robert Johnson, MD; Fred McCrumb, MD; Brian Thomas, DO; Alison Vogt, MD; and Christopher Werth, MD

Highland Hospital is an affiliate of the University of Rochester Medical Center with 261 patient beds. More than 11,000 surgical cases are performed at the hospital each year in a wide range of specialties. Highland Hospital is recognized for its comprehensive women's services, bariatric surgery program, the Evert's Joint Center, and nationally ranked geriatric services. It is also renowned for the outstanding Family Maternity Center with approximately 3,000 babies delivered annually. In 2014, there were nearly 16,000 adult discharges at Highland Hospital. The Highland Hospital motto is "Compassion Heals," and is exemplified by the Highland Promise: our promise to commit to excellence for our patients and our overall operations. And not just excellence, but excellence the "community hospital" way, with the emphasis on genuine compassion as well as top-notch treatment.

The clinical track anesthesiologists at Highland Hospital provide anesthesia services for inpatient and outpatient surgery as well as for non-surgical diagnostic and therapeutic procedures using the latest technology and proven techniques to maximize patient comfort and safety. A specialized Joint Specialty Team cares for the large number of total joint replacement patients using multi-modal techniques. The anesthesia group also provides obstetric pain relief and treatment of acute surgical pain, as well as anesthesia for Highland's internationally known geriatric fracture program.

In January of 2014, Dr. Gregory JH Previte was appointed Chief of Anesthesiology at Highland Hospital and Director of the Anesthesiology Clinical Practice Track of the University of Rochester School of Medicine and Dentistry. This position was formerly held by Dr. Alison Vogt, who currently serves as the Division Chief of Obstetric Anesthesiology at Highland Hospital and Director, Anesthesiology Regional Outreach Program. Dr. Alan Curle, another former Chief, currently serves as Medical Director for Perioperative Services at Highland, and as the Director for the Center for Perioperative Medicine for UR Medicine.



QUALITY IMPROVEMENT / PATIENT SAFETY PROGRAM



Quality Improvement Committee

Row 1 - Amie Hoefnagel, MD; Lata Sabnis, MD; Daniel Rothstein, MD; Colleen Bedford, CRNA; Dawn Sweeney, MD; Joseph Dooley, MD; Ellen Dailor, MD, Co-Chair; Marjorie Gloff, MD; Kenneth Cheng, MD; and Suzanne Karan, MD

Row 2 - John Schroeder, MD; Daryl Smith, MD; Mark Moore, RN; Denham Ward, MD, PhD; and Jagroop Saran, MD

Not Available - Sarah Cano, MD; Dierdre Cavan, MD; Desiree Ekundayo, MD; Laurent Glance, MD; Matthew Lopez, MD; Garret Morris, MD; Sonia Pyne, MD; Nigam Sheth, MD; Konstantine Tzimas, MD; Audra Webber, MD; and Raymond Zollo, MD, Co-Chair

Quality improvement is a vital part of every anesthesiologist's day-to-day practice. Assuring that our patients receive the highest quality and safest care is a core mission of our Department, and the highest calling of professional practice.

The past year has been one of great change for the quality improvement/patient safety program. The quality improvement process is now led by 2 co-directors with experience in the areas of quality improvement, public health, preoperative evaluation, perioperative medicine, education and research. The goals of the new quality Improvement program are to build on the substantial improvements made by our predecessors, to increase education in patient safety specific to the practice of Anesthesiology, and to conduct research that will allow meaningful practice improvement across the perioperative system.

The full implementation of the electronic medical record system has provided many opportunities for new areas of research, as well as challenges in increasing the amount of clinical quality information that must be processed in a timely manner. We intend to take advantage of these opportunities and meet these challenges.

Specific initiatives of the Quality Improvement/Patient Safety Program include:

- **Continued expansion of the Quality Improvement Committee:** This allows for greater representation and range of experience from across our hospitals, preoperative evaluation centers, and ambulatory surgery practices.

- **Resident Participation:** Increased participation of Anesthesiology Residents at all levels, including membership on the QI committee, participation in QI grand rounds as presenters, and involvement in QI research projects.
- **Provider-specific QI data:** QI and specific PACU data is reviewed by providers on a quarterly basis to allow continual practice improvement and provide assistance with MOCA requirements.
- **Anesthesiology and Perioperative-specific Patient Safety Course:** This course is being developed to satisfy the need for continuous education in patient safety as it relates to the practice of Anesthesiology and Perioperative Medicine. The course will provide emphasis in the fundamentals and science of patient safety, the history of patient safety and ethics in Anesthesiology, effective communication, 360-degree leadership, mindful practice, crisis management, and wellness. The course will be updated regularly to make all Anesthesiology providers aware of new practice improvements and important clinical guidelines.
- **Research in practice improvement:** This is designed to look at key areas in a systematic way to allow for the development and testing of practice improvement initiatives.
- **Research in Anesthesiology Resident Education:** A QI co-director has initiated a multi-year research project to improve education in Anesthesia Non-Technical Skills in Anesthesiology residents. This is a key area necessary for resident success and patient safety.

NURSE ANESTHETISTS

At the University of Rochester Medical Center, CRNAs are an integral part of the anesthesia care team, participating in all clinical activities of the Department. They provide anesthesia care for ENT, Plastics, Ophthalmology, Urology, Orthopedics, GI, OB/GYN, Transplant, Cardiac, Pediatric, Dental, Thoracic, Vascular, Trauma and Burns, and general surgery patients at Strong Memorial Hospital, Ambulatory Surgical Center at Sawgrass, and Strong West.

In addition, we train and mentor student nurse anesthetists rotating from the University at Buffalo School of Nursing. Nurse anesthetist students are given an extensive experience caring for patients with significant comorbidities undergoing

a large variety of types of surgery. The nurse anesthetist students work in a care team model, initially with a CRNA under the direction of an anesthesiologist and then some students progress to working directly with an anesthesiologist.

CRNAs have a unique role in the overall achievement of the goals of the Department. They have formed an Executive Committee with elected leadership who actively participate in creating the best environment for professional advancement, learning, and addressing family/lifestyle needs of the group through interactions with their Medical Director and the Chair of the Department.



Nurse Anesthetists

Row 1 - Allison McIntyre, CRNA; Mary Huether, CRNA; Jay Cody, CRNA; Kurtis Goltermann, CRNA
Row 2 - Debbie Metzger, CRNA; Laurie Dennstedt, CRNA; Brent Sharp, CRNA; Cindy Babcock, CRNA; Whitney Booth, CRNA; Virginia Signorelli, CRNA



Ronald Blum, CRNA, Co-Chief



Jay Cody, CRNA, Co-Chief



CRNA's -

Row 1 - Andrew LaPlaca, CRNA, Kurtis Goltermann, CRNA, Whitney Booth, CRNA
Row 2 - Debbie Metzger, CRNA, John Palmeri, CRNA, Mark Kucharski, CRNA, Colleen Bedford, CRNA, Charles Hatlestad, CRNA
Row 3 - Cheryl Johnson, CRNA, Allison McIntyre, CRNA, Phillip Ruffo, CRNA, Julie Jones, CRNA
Not Available - Julie Burke, CRNA, John Clark, CRNA, Cathy Cleveland, CRNA, Amy Cox, CRNA, Beth Guffey, CRNA, Margaret Hanna, CRNA, Geneva Modrak, CRNA, Kevin Neary, CRNA, Michael Rutledge, CRNA, Cathy Vaughan, CRNA, Nicole Tripoli, CRNA, Lisa Wahlers, CRNA, Corrin Whitney, CRNA



EDUCATION OVERVIEW



EDUCATION OVERVIEW

The education mission of the Department of Anesthesiology is to develop and inspire highly qualified and professional clinicians who will also advance the specialty in the areas of research, education, and leadership. We educate residents (our own primarily but also those from Surgery, Emergency Medicine, Internal Medicine, Pediatrics, and Family Practice), medical students, fellows, nurses and clinicians from other specialties (i.e., for the practice of safe sedation). We have a strong track record of providing a well-run program, state-of-the-art resources, a variety of educational activities, and a diverse and robust clinical case load. Our consistent five-year accreditation across three cycles has given us a credibility that permits development of new and creative avenues in programming.



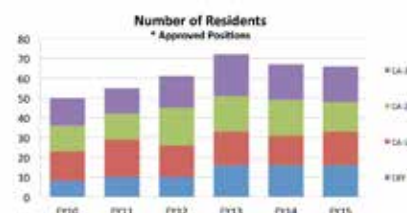
RESIDENCY PROGRAM

The primary mission of the Department of Anesthesiology at the University of Rochester is education. At the core of this mission is our belief that each resident is an individual; we thus offer a personalized level of increasing responsibility in order to develop fully.

We have created a dynamic learning environment to produce graduates who are not only outstanding clinicians, but also creative thinkers with the tools to continue their development into the finest educators and researchers. A significant number of our research and educational faculty take the lead in providing this mentorship by encouraging participation in many ongoing research projects and scholarly activities.

In 2013, we hired a non-clinical education specialist for our residency program. MaryTherese Biltucci, MA will work with students, residents, fellows and faculty to ensure the classroom and clinical education experience is as effective and productive. With an expertise in RSRB navigation, MaryTherese is also poised to enhance the overall educational scholarly activity of the program.

Our residency program has had three consecutive cycles of the fullest five-year ACGME accreditation. Fewer than 10% of anesthesia programs nationally have obtained this consistent accreditation. As of 2014, our program is approved for 16 CBY positions and an additional one CA-1 position for each ranking cycle. We currently have 67 residents in total over our four-year training program. In 2012, we introduced a novel approach to training our residents which involves integrating the clinical base year and the clinical anesthesia core rotations. In addition, it entails exposing our residents to the operating room environment earlier than most anesthesiology training programs, and allowing them the opportunity to log more cases than what the average anesthesiology resident logs annually. Finally, the juxtaposition of this rotation allows for the natural learning progression of our trainees, exposing them to the "surgical side of things".





The new integrated program juxtaposes Clinical Anesthesia Core Rotations with CBY rotations in the following manner:

- Pediatric Surgery (4 weeks) followed by Pediatric Anesthesia (4 weeks)
- Cardiology Consultation Service (4 weeks) followed by Cardiac Anesthesia (4 weeks)
- Neurology (2 weeks) and EEG Monitoring (2 weeks) followed by Neuroanesthesia
- OB-Gyn (4 weeks) followed by Obstetric Anesthesia

The remaining CBY rotations include:

- Internal Medicine (4 weeks)
- Ear, Nose, and Throat (2 weeks)
- Critical Care Medicine (4-8 weeks)
- Emergency Medicine (4 weeks)
- Pulmonary Consultation Service (2 weeks)
- Nephrology Consultation Service (2 weeks)

The additional Clinical Anesthesiology rotations include the ACGME-required rotations in:

- General Anesthesia (with focused assignments across the subspecialties of ENT, Orthopedics, Ophthalmology, Urology, Gynecology, Gastrointestinal Diseases, and Dental)
- Neuroanesthesia (4 more weeks)
- Obstetric Anesthesia (4 more weeks)
- Cardiac Anesthesia (4 more weeks)
- Pediatric Anesthesia (4 more weeks)
- Intensive Care Unit (4-12 more weeks)
- Pain Medicine (acute, chronic, and regional anesthesia) (12 weeks minimum)
- Center for Perioperative Medicine (both outpatient and inpatient consults) (4 weeks)
- Post-Anesthesia Care Unit (2 weeks minimum)
- Thoracic Anesthesia
- Vascular Anesthesia

- Transplant Anesthesia
- Non-OR Anesthesia (IR, CT, MRI, EP, Cath Lab, ECT, Reproductive)
- Pediatric Cardiac Anesthesia
- Trauma

Electives include:

- Transesophageal Echocardiogram
- Clinical Coordinator in Training
- Private Practice Anesthesia
- Ambulatory Anesthesia
- "Fellow" ICU or OB
- Advanced Airway Techniques
- Palliative Care
- Health Care Policy
- Advanced OR
- Advanced electives in any anesthesia subspecialty

Our academic activities employ a variety of modalities to teach our students, residents and fellows. These include:

Morning Conferences – Half hour conferences focus on a different topic each week guided by the ABA ITE content outline and scheduled according to a web-based curriculum called STARTprep, which is a collaborative project organized by the Stanford Anesthesia Informatics and Media Lab under the direction of Larry Chu, MD. The topic of this lecture is then advertised as "the topic of the week" and is posted in the OR suite and on our website, helping to facilitate ongoing discussion over the course of the week between the faculty and residents in the OR (and in the lounges!). This year, we assigned the morning conference presentations to be delivered by our more senior residents, each one being assigned one topic. Three faculty members (Drs. Breneman, Karan and Zollo) and our non-clinical Education Specialist make up the

conference-mentorship and evaluation committee and work individually with each resident to promote an effective work product (the conference) and constructive criticism to help the resident build educational skills and his/her portfolio.

Afternoon Conferences are offered by faculty content experts in the particular weekly topic. Topics are chosen to be amenable to group discussion in a 1.5-hour session as opposed to the shorter 30-minute morning conference. These conferences typically take the form of case method discussions, journal clubs, problem-based learning and/or workshops.

All Day “Mini” Conferences. In an effort to provide an even more robust educational session for small groups at a time, we have designated two days a month for an entire day of learning (8am – 4pm). Topics we have covered over the past year include:

- Practice Management (CA-3)
- Inotropes and Vasopressors (CA-1)
- Alternative Medicine Day (CA-2)
- Valvular Heart Disease (CA-3)
- Machine and Physics and Equipment – Oh My! (CA-1)
- Medical Malpractice Day (CA-3)
- Vascular Anesthesia Crisis Session (CA-2)

Weekly Subspecialty Conferences are for residents rotating on Pediatric Anesthesia, OB Anesthesia, and Pain Medicine.

Comprehensive Workshops are offered several times each year in Airway Management and in Regional Anesthesia for the residents.

Journal Club is held monthly on weeknights, with topics and articles selected by the residents. The discussions are led by residents with facilitation by our faculty.

Grand Rounds weekly on Thursday mornings allow the Department to come together and participate in conferences given by our own faculty and residents as well as visiting professors from within and outside our institution.

Acute Crisis Resource Management is a simulator-based educational initiative that is offered twice a month to resident and medical students. This session exposes participants to critical events in the safe environment of the simulator suites. Teamwork and error alleviation are stressed and an extensive debriefing follows each session.

Annual Robert Lawrence Educational Symposium is our opportunity each Spring to invite a keynote speaker and/or panel to speak at our institution on a widely relevant topic that also bridges our Department to other clinical departments. This symposium also offers an opportunity for abstract/poster presentations regarding the topic at hand. Three years of programs have established that this evening provides a fun and educational atmosphere to share scholarly and clinical pursuit and network across different specialties.

New in 2014:

- **Post-Op Rounds** – Organized by our Chairman, Dr. Eaton, a small group of residents and faculty convene one morning a week to round on a cohort of post-surgical patients. This provides the residents a more intimate learning opportunity with our Chair, and increases our visibility in the wards with the patients, families, and with health care providers from other departments. We don’t just live in the OR!
- **Quarterly Departmental Scholarly Workshops/Retreats** – Organized by Drs. Karan and Breneman, these half-day CME-accredited seminars will be offered quarterly and across all anesthesia providers (physicians and nurses) to ensure that we accommodate the educational needs of our community. Topics to be covered at these workshops include: debriefing, OR teaching, simulation, maximizing your presentation skills, navigating the IRB, crisis and team training, to name a few. By inviting all clinical members of our department, we aim to foster a culture of educational collaboration.

Journal Club





Resident Class of 2015 -

Row 1 - Cynthia Chinn, MD, Jennifer Chiem, MD, Afzaal Iqbal, MD, Olga Vornovitsky, MD, Daniel Rothstein, MD

Row 2 - Christopher DeAngelis, MD, Tegan Palma, MD, Michael Davis, MD, Wade Otruba, MD, Ari Balofsky, MD

Not Available - Shuyan Huang, MD, Christopher Galton, MD, Jonathan Siskind, DO, Michael Nayshtut, DO, Anthony Pereira, MD, Oluwafemi, Awolala, MD, Kenessa Edwards, MD, Caroline Zawilski, MD



Resident Class of 2016 -

Row 1 - Jacqueline Lozano, MD, Kim Hoang, MD, Sarah Kralovic, MD, Chief Resident

Row 2 - Mehran Ebadi-Tehrani, MD, Chief Resident, Matthew Sabo, MD, Stephen Little, DO, Shawn Dhesi, MD, Alexander Hawson, MD

Not Available - Ryan Anderson, DO, Chief Resident, Spencer Burk, MD, Thomas Fugate, MD, Scott Kagie, MD, Derek Mitchell, MD, Kiritpaul Nandra, MD, Yaser Rad, MD

RESIDENCY PROGRAM

We congratulate the Residency Class of 2015.

<i>Resident</i>	<i>Medical School</i>	<i>Post Residency Position</i>
<i>Oluwafemi Awolola, MD</i>	<i>Albany Medical College</i>	<i>Laurel Anesthesia Associates, Johnstown, PA</i>
<i>Ari Balofsky, MD</i>	<i>Sackler School of Medicine</i>	<i>Critical Care Fellowship, University of Rochester Medical Center</i>
<i>Jennifer Chiem, MD</i>	<i>New York Medical College</i>	<i>Pediatric Anesthesia Fellowship, Seattle Children's Hospital</i>
<i>Cynthia Chinn, MD</i>	<i>Keck School of Medicine of University of Southern California</i>	<i>Private Practice, Arcadia, CA</i>
<i>Michael Davis, MD</i>	<i>Tulane University School of Medicine</i>	<i>Pediatric Anesthesiology Fellowship, Cincinnati Children's Hospital</i>
<i>Christopher DeAngelis, MD</i>	<i>Jefferson Medical College</i>	<i>University of VT Health Network – CVPH Medical Center, Plattsburgh, NY</i>
<i>Kenessa Edwards, MD</i>	<i>SUNY Downstate Medical Center College of Medicine</i>	<i>Pain Management Fellowship, University of Rochester Medical Center</i>
<i>Christopher Galton, MD</i>	<i>University of Colorado Denver</i>	<i>Critical Care Fellowship, University of Rochester Medical Center</i>
<i>Shuyan Huang, MD</i>	<i>New York University School of Medicine</i>	<i>Cardiothoracic Anesthesia and Critical Care Fellowship – University of Florida, Gainesville</i>
<i>Afzaal Iqbal, MD</i>	<i>The School of Medicine at Stony Brook University Medical Center</i>	<i>Pain Management Fellowship, University of Rochester Medical Center</i>
<i>Michael Nayshtut, DO</i>	<i>New York College of Osteopathic Medicine</i>	<i>Pediatric Anesthesia Fellowship Children's National Medical Center, Washington, DC</i>
<i>Wade Otruba, MD</i>	<i>SUNY Upstate Medical University</i>	<i>Kingman Regional Medical Center, Kingman, AZ</i>
<i>Tegan Palma, MD</i>	<i>University of Rochester School of Medicine & Dentistry</i>	<i>Faculty Position, University of Rochester Medical Center</i>
<i>Anthony Pereira, MD</i>	<i>Georgetown University School of Medicine</i>	<i>Abbott Anesthesia, PC, Buffalo, NY</i>
<i>Daniel Rothstein, MD</i>	<i>Sackler School of Medicine Osteopathic Medicine</i>	<i>Pain Fellowship - MD Anderson Cancer Center, Houston, TX</i>
<i>Jonathan Siskind, MD</i>	<i>New York College of</i>	<i>Private Practice, Edison, NJ</i>
<i>Olga Vornovitsky, MD</i>	<i>University of Buffalo School of Medicine & Biomedical Sciences</i>	<i>Faculty Position, University of Rochester Medical Center</i>
<i>Caroline Zawilski, MD</i>	<i>RW Johnson Medical School - University of Medicine and Dentistry of New Jersey</i>	<i>Southern Anesthesia Associates, Tucson, AZ</i>



Resident Class of 2017

Row 1 - Kaitlyn Mitchell, MD, Niruja Sathiyadevan, MD, Lynnie Correll, MD

Row 2 - Jason Kanel, MD, Jayanth Dasika, MD, Nikolay Manuylov, DO, Britton Kreiner, MD, Ryan McConn, MD

Row 3 - Mark Williams, MBBS, Jagroop Saran, MD, Colin Sheehan, MD, George Lefkowitz, DO

Not Available - Dierdre Cavan, MD, David Cowles, MD, Matthew Lopez, MD, Joseph Pawlowski, MD, Susan Yin, MD



Resident Class of 2018

Row 1 - Tuan Tran, DO, Yang Gu, MD, Rafeek Hegazy, MBBCh, Carmen Cellura, MD, Sean Philippo, MD

Row 2 - Max Schober, MD, Carlos Fernandez-Ortega, MD, Roberto Neisa, MD, Cyrus Kellermier, MD, Duncan McLean, MBChB

Row 3 - Courtney Kime, MD, Eric Faden, MD

Not Available - Jennifer Fichter, MD, Tichaendepi Mundangepfufu, MD, Katsiaryna Pleshankova, MD, Joseph Poku, MD, JD, Jonathan Schwartz, MD



Resident Class of 2019

Left to right - Andrew Fisher, DO; Hunar Kainth, MD; Christopher Allphin, DO; Ming-Yun Tang, MD; and Jonathan Johnson, DO

Not available - Albert Duah, MD; Jonathan Ellis, MD; Charles Hammer, MD; Chelsea Jin, MD; Kerriann Parchment, MD Konstantinos Pilidis, MD; Vijay Ramaieh, MBBS; Samuel Satler, MD; Darya Schevchenko, MD; Nam Tran, MD; and Gregory Yanez, MD

FELLOWSHIP PROGRAM

The Department of Anesthesiology offers ACGME-accredited fellowship training in Critical Care Medicine, Pain Management, Pediatric Anesthesiology, and Adult Cardiothoracic Anesthesiology. Additionally, the Division of Obstetric Anesthesiology offers an Obstetric Anesthesiology Fellowship.

Fellow	Medical School	Residency Program	Post Fellowship Position
Pain Management Fellows			
Rafael Acevedo, MD 7/1/14 – 6/30/15	Universidad Autonoma de Guadalajara School of Medicine	University of Puerto Rico	University of Puerto Rico San Juan, PR
Vikram Saini, MD 7/1/14 – 6/30/15	American University of the Caribbean	Medstar Georgetown University	Phoenix Neurological & Pain Institute Chandler, AZ
Simerpreet Singh, DO 7/1/14 – 6/30/15	Grant Medical College Mumbai, India	University of Rochester	Dayton Pain Center Dayton, OH
Ngano Takawira, MD 7/1/14 – 6/30/15	University of Zimbabwe Zimbabwe, Africa	Mercy Catholic Medical Center	Private Practice Stockbridge, GA
Kenessa Edwards, MD 7/1/15 – 6/30/16	York College of Medicine	University of Rochester Medical Center	Rochester Regional Health
Afzaal Iqbal, MD 7/1/15 – 6/30/16	Stony Brook University School of Medicine	University of Rochester Medical Center	Pain Medicine Associates, Fountain Valley, CA
Maya Modzelewski, MD 1/1/16 – 12/31/16	Medical University of Lodz Lodz, Poland	University of Rochester Medical Center	
Tammy Mai, DO 7/1/14 – 6/30/15	University of North Texas College of Osteopathic Medicine	University of Missouri Columbia	Good Samaritan Regional Medical Center Corvallis, OR
Tracy Sisk, DO 7/1/14 – 6/30/15	Kansas City University of Medicine	University of Florida Gainesville	Private Practice Anchorage, AK
Desiree Ekundayo, MD 7/1/15 – 6/30/16	Universitaet Des Saarlandes Germany	University of Illinois at Chicago	Mayo Clinic, Rochester, MN
Nigam Sheth, MD 7/1/15 – 6/30/16	University of Oklahoma College of Medicine	Western PA Alleghany Health System	Anesthesia Scheduling Services, Oklahoma City, OK
Yakov Reytblat, DO 7/1/14 – 6/30/15	New York College of Osteopathic Medicine	University of Rochester Medical Center	Lowell General Hospital Lowell, MA
Sarah Cano, MD 7/1/15 – 6/30/16	University of Utah Medical School	Loma Linda University Hospital	Faculty, University of Rochester Medical Center
Laura McElroy, MD 7/1/14 – 6/30/15	University of Toledo College of Medicine	University of Rochester Medical Center	University of Rochester Rochester, NY
Ari Balofsky, MD 7/1/15 – 6/30/16	Sackler School of Medicine, Israel	University of Rochester Medical Center	Toronto General Hospital, Toronto, Ontario
Christopher Galton, MD 7/1/15 – 6/30/16	University of Colorado School of Medicine	University of Rochester Medical Center	Faculty, University of Rochester Medical Center

MEDICAL STUDENT EDUCATION

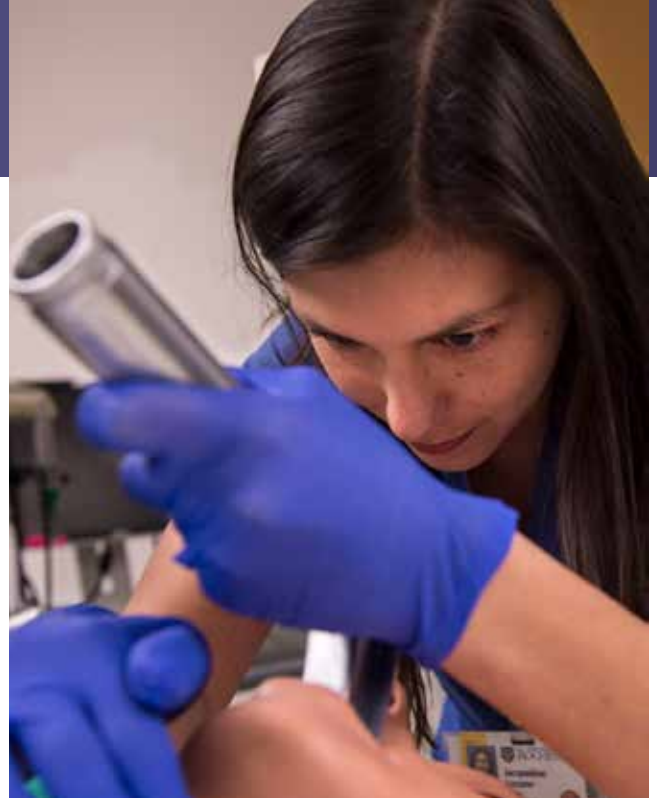
Our Department interacts with students beginning in their first year of medical school. Many of our faculty teach and facilitate a variety of educational offerings in pharmacology and physiology. By establishing relationships with medical students early in their graduate training, we have been able to foster many successful mentorships and provide career guidance. These positive interactions annually yield many outstanding applicants into our specialty.

The Department also sponsors a summer externship program to a select group of post-first-year medical students. This eight-week experience gives junior students a robust exposure to our field and some early first-hand experience in bringing pharmacology and physiology classroom experience to life in the clinical setting of the operating room.

In 2009, the Department partnered with the Department of Surgery and developed an Anesthesiology curriculum within the core surgical rotation. Directed by Jennifer A. Macpherson, MD, and Joseph W. Dooley, MD, all students participate in an afternoon Airway Lab, where they learn about the anatomy of the airway and the various tools used to aid patients in ventilation and oxygenation, and about the indications for such intervention. Also, a separate lecture series focuses on teaching students the various ways that anesthesiologists care for patients.

The five elective courses offered to medical students include:

- Anesthesiology Clerkship – Introduction to Anesthesiology
 - o Under the supervision of our Director of Medical Student Education, Anna Kaminski, DO, this two-week basic elective is quite popular among 3rd and 4th year medical students. Students are paired with senior residents one-on-one and exposed to the entire perioperative experience. The first week includes a day in the Preadmission Evaluation Center and another day in the Post-Anesthesia Care Unit. In addition, there is a workshop in airway management and a simulator session covering crisis management. The student is encouraged to be an active member of the anesthesia team, learning to do pre-ops, and developing a general anesthetic plan. They are given a variety of reading assignments and opportunities for procedures.
- Advanced Anesthesiology Clerkship
 - o The Department offers an advanced anesthesia course under Suzanne B. Karan, MD, our Residency Program Director. This course is specialized for medical students who are considering Anesthesiology as their career path and is personally tailored to their individual needs. This clerkship includes time scheduled in regional anesthesia, in research, and in our simulator.
- OB Anesthesia
 - o Under the supervision of Richard N. Wissler, MD, PhD, students have an opportunity to spend two weeks on the OB floor gaining exposure to analgesia for labor and anesthesia for cesarean sections. Daily conferences allow students to participate in discussions with faculty and residents about the anesthetic implications of the parturient.
- Pain Management
 - o This elective, supervised by Rajbala Thakur, MD, is a two-week course in pain management, situated at Sawgrass, our off-site Pain Treatment Center.
- Hemodynamic Monitoring
 - o The Hemodynamic Monitoring elective, supervised by Konstantine Tzimas, MD, is a one-week elective that focuses on teaching the student about the monitors used to assess the dynamic cardiovascular pathophysiologic changes during cardiac anesthesia.



CENTER FOR MEDICAL SIMULATION

The Department of Anesthesiology has been a pioneer in the field of medical simulation, owning and operating one of the first anesthesia simulators in the United States. The Department hosted the first International Conference on Simulators in Medical Education in 1995.

The patient simulator, currently under the direction of Stephen M. Breneman, MD, PhD, Director, uses computer-driven models of human physiology, patho-physiology and pharmacokinetics, combined with lifelike hardware, to approximate a living patient. It not only “breathes” (consumes oxygen and produces carbon dioxide) and “circulates” (has a measurable pulse, blood pressure and cardiac output), but is also capable of responding to a variety of drugs and other interventions in a very realistic manner. The center also recently purchased an echocardiography simulator which allows training of both transesophageal and transthoracic imaging. In addition, we have computer simulation software for inhaled agent pharmacokinetics and intravenous anesthetics that can be used remotely.

The Simulation Center can be configured as a realistic and functional operating room, intensive care unit, emergency department, or patient room. Instructors can operate the simulator and video equipment from the control room, behind a one-way window. The simulator serves as a training and research facility for residents, medical students, nurses, faculty, visiting physicians, and other health care professionals throughout the Medical Center complex and also for various groups in the community. The Simulator Center provides training for the following applications:

Multidisciplinary Applications:

- Blue 100 Team Crisis Training (Medicine and Anesthesiology Residents, Nurses, and Respiratory Therapists). This group training for medical and cardiopulmonary resuscitation (CPR) teams has become a standard part of the educational curriculum for medical residents.
- Operating Room Crisis Training (Anesthesiology and Surgery Residents, Nurses, Technicians). Anesthesiology residents participate in at least one intensive half-day course per year.
- Advanced Cardiac Life Support (ACLS) using the full simulator.
- Conscious Sedation Credentialing (Nurses and Physicians from Gastroenterology, Radiology, Gynecology, and Reproductive Endocrinology).

Anesthesiology Department Applications:

- Management of complex or uncommon cases
- Difficult-airway workshops
- Credentialing of first-year residents for overnight call
- Physiology and Pharmacology demonstrations
- Anesthesia subspecialty case training (obstetrics, pediatrics)
- Supplementary training for residents from other specialties (Dental and Surgical specialties, Emergency Medicine) taking anesthesia rotations
- Sessions for medical students in the Anesthesiology Interest Group (AIG)

Applications in Other Departments, URM Groups, and the Community

- Emergency Medicine resident training and research projects
- Internal Medicine
- Medical Students:
 - o MS1: Human Structure and Function demonstrations
 - o MS2: Integrated Systems, Comprehensive Assessment
 - o MS3: Medicine/Surgery and Emergency Medicine Clerkships, Comprehensive Assessment
 - o MS4: Seminar on Diagnosis and Treatment of Shock, Anesthesiology Rotation (Introduction to Airway Management and General Anesthesia)
- School of Nursing students
- Hospital Staff: Respiratory Therapists, Registered Nurses (OR, PACU)
- Industry: Training Sessions (Siemens, Arrow, pharmaceutical firms)
- Public and Community Projects (Congressional Staffers, Friends of Strong, Public School Students, College Students, Medical Center Board of Governors)
- Recruitment of Medical Students and Residents
- Legal Affairs: familiarization training in airway management
- URM Board of Trustees: familiarization with the benefits associated with having the Simulation Center active and available for improving patient care and safety



SIMULATION

William Voter and Stephen Breneman, MD, PhD

FACULTY DEVELOPMENT PROGRAM

Faculty development can be a very important component of individual career development in academic medicine. It has the potential to enhance faculty academic productivity and professional satisfaction, help faculty achieve their professional potential, while contributing to the overall health, vitality and reputation of the department and institution.

The University of Rochester School of Medicine and Dentistry offers a multi-faceted faculty development program that offers a framework and educational support for faculty professional development and promotion in a supportive environment, and assists individual faculty members in developing and enhancing their clinical, teaching, research, and administrative skills commensurate with their individual career plans.

Departmental specific initiatives include:

- A **Faculty Orientation Program** for new faculty members. This orientation has several components: a guided orientation schedule, an initial clinical work schedule, and a Faculty Orientation Handbook. In addition, to support new faculty during this transition time, he/she is assigned a Faculty Orientation Mentor for the first three to six months. The mentor can provide a supportive role during that time and can address concerns the new faculty member may have, offer assistance as needed, provide guidance, and serve as a resource for operational and clinical questions.
- **Academic Development Plan** to assist the personal growth and career development of academic faculty at the junior and mid-level, and to serve as a developmental blueprint for academic careers. It involves careful consideration of personal interests and aspirations and is intended to encapsulate an interactive process involving the faculty member, senior faculty mentors within and/or outside the Department, and Department leadership.



VISITING PROFESSORS

January 1, 2014 – December 31, 2015

John Mitchell, MD

Assistant Professor, Harvard Medical School
Residency Program Director, Beth Israel Deaconess Medical Center
Topics on Difficult Feedback: Providing Feedback on Professionalism

Marek Mirski, MD, PhD

Associate Professor of Anesthesiology and Critical Care Medicine, Neurology & Neurosurgery, Johns Hopkins Medical Center; Vice-Chair, Department of Anesthesiology & Critical Care Medicine; Director, Johns Hopkins Neuroscience Critical Care Unit
The Anesthetic Management of Complex Spine Products

Satya Ramachandran, MD, FRCA

Assistant Professor of Anesthesiology, University of Michigan
Obstructive Sleep Apnea: Perioperative Implications – From Mechanisms to Risk Modification

Ala Nozari, MD, PhD

Assistant Professor of Anesthesiology, Harvard Medical School, Massachusetts General Hospital
Perioperative Cardiac Arrest and the Post-Resuscitation Syndrome

Marin Mannix, MD

Assistant Professor of Anesthesiology, Case Western Reserve University School of Medicine
Predicting Residency Performance

Franklyn Cladis, MD, FAAP

Assistant Professor of Anesthesiology, The Children's Hospital of Pittsburgh, University of Pittsburgh School of Medicine
Pediatric Perioperative Pain Medicine

Karthik Raghunathan, MD, MBBS, MPH

Assistant Professor of Anesthesiology, Duke University School of Medicine
Fluid Choice

James Philip, MD, ME

Professor of Anesthesiology, Harvard Medical School, Director of Bioengineering, Brigham & Women's Hospital
Kinetics and Monitoring of Inhaled Anesthetics

Andrew Heard, MBChB

Specialist in Anesthesia, Senior Clinical Lecturer, University of Western Australia
Peri-Induction Oxygenation for Anesthesia

Nikhil Bhatnager, MD

Clinical Instructor, Case Western Reserve University School of Medicine
Anesthesia & Cancer: Does what we do make a difference?

Thomas Mark, MD

Department Chairman and Medical Director, Surgical Services Administration, Summa Health System
Clarity of Purpose – Summa Anesthesiology Coverage Model

Arthur Boudreaux, MD

Professor of Anesthesiology, University of Alabama at Birmingham School of Medicine
Implementing the Perioperative Surgical Home in an Academic Medical Center

Ethan Bryson, MD

Associate Professor of Anesthesiology and Psychiatry, Mount Sinai School of Medicine
Addiction in Anesthesia Care Providers

William Roberts, MD, PhD

Medical Director, Comprehensive Pain Management, Northwestern Medical Center, Vermont
When Your Patient Has a History – Considerations regarding patients subject to Opioid Misuse

Rachel Clopton, MD

Anesthesiologist, Pikes Peak Anesthesia, Colorado Springs
Pediatric Pulmonary Hypertension – Diagnosis to Surgical Treatment

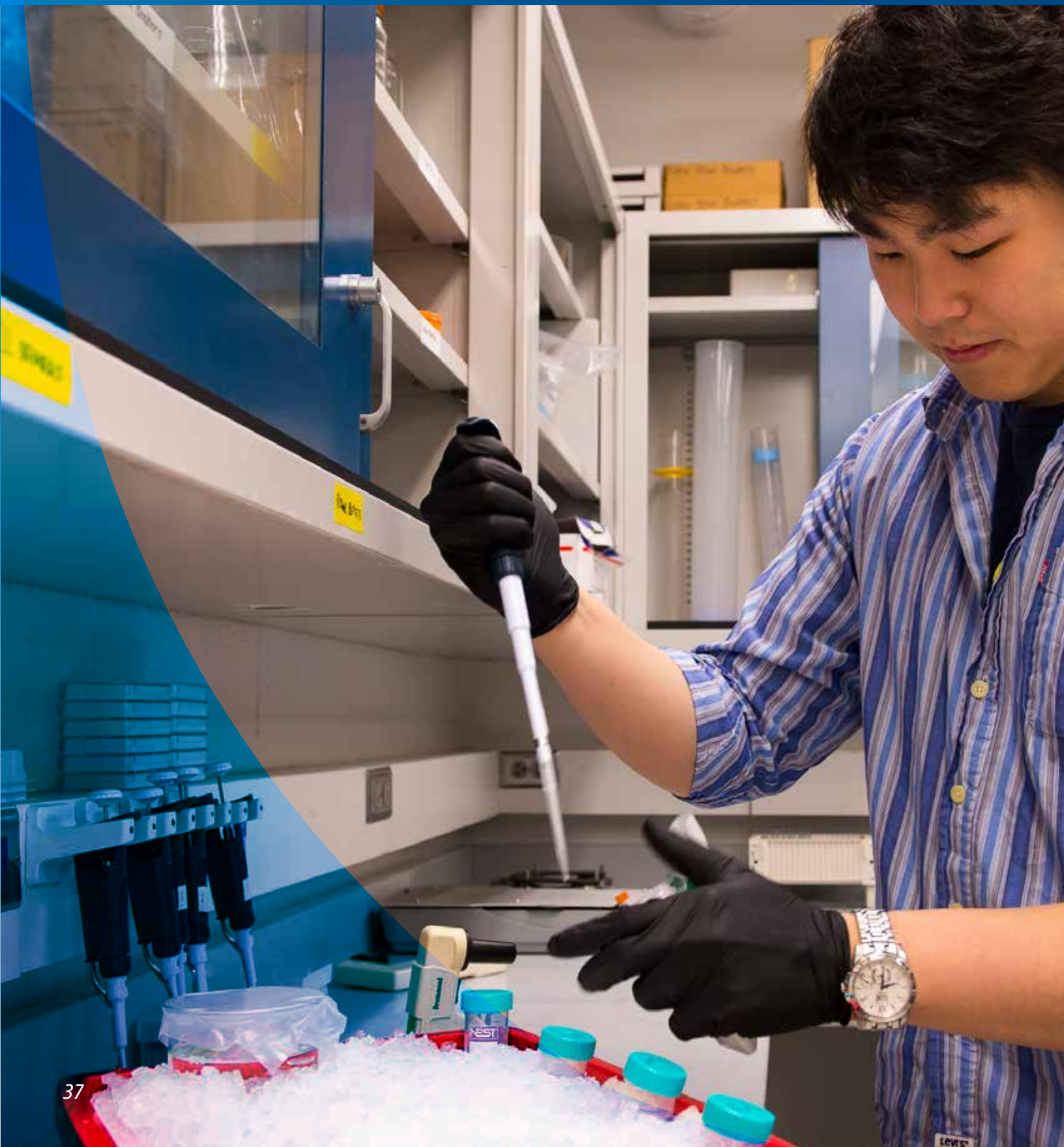
Jeremi Mountjoy, MD

Senior Instructor, Massachusetts General Hospital, Harvard Medical School
What's in My Patient's Airway – Management of several different common and exotic airway devices

Christine Zanghi, MD, PhD

Assistant Professor of Anesthesiology, University of Virginia School of Medicine
Neuroscience Investigations – Medical Crisis: A review of existing literature concerning anesthesia induced pediatric neurotoxicity and its clinical implications

RESEARCH OVERVIEW

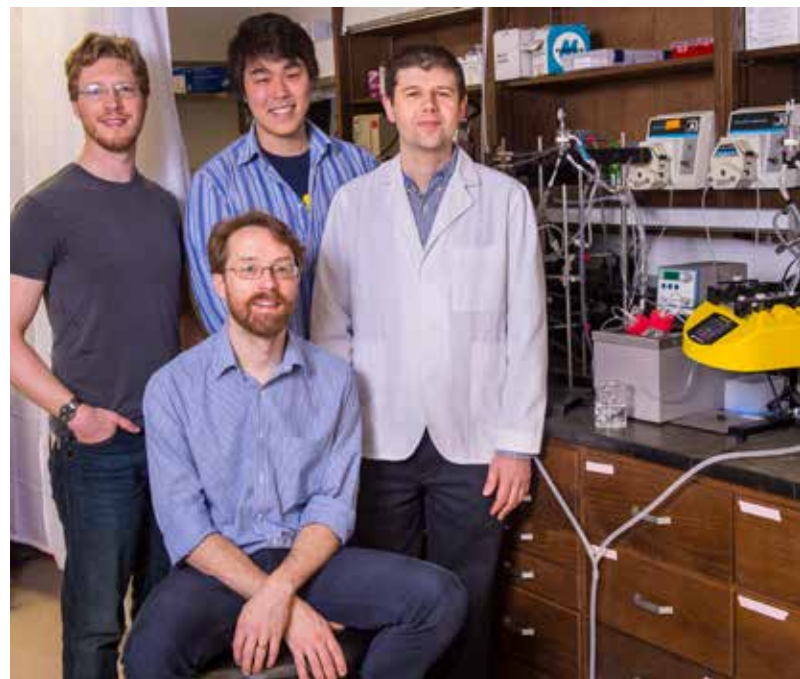




Our Mission Statement for Research is "To improve Patient Care through Basic Science and Clinical Research, and to train future leaders in Academic Anesthesiology and Pain Medicine."

The Department of Anesthesiology is dedicated to the study of critical scientific questions that impact on patient outcomes. The research faculty is composed of basic scientists, clinician-scientists, and clinicians. Areas of research excellence within the Department include mitochondrial disease, neurodegenerative disease, ischemia-reperfusion, the treatment and prevention of chronic pain, quality measurement and the impact of report cards on quality of care, coagulation disorders, and respiratory physiology. The Department is dedicated to the education of future basic and clinical scientists, and welcomes inquiries regarding potential research opportunities.

Although the Department recognizes that NIH ranking is only one of many metrics that can be used to assess the quality of a research program, it remains the gold standard. In 2014, the Department of Anesthesiology ranked 34th. In addition to funding from the NIH, the Department has received extensive funding from the Agency for Healthcare Research and Quality (AHRQ) and the Food and Drug Administration. Over the last 24 months, members of the Department have published 86 peer-reviewed papers, case reports, and editorials.



Seated - Paul Brookes, PhD

Standing - Owen Smith; Jimmy Zhang; and Sergiy Nadtochiy, PhD

BROOKES LAB

Paul S. Brookes, PhD

The Brookes' lab group focuses on cardiac ischemia-reperfusion (IR) injury and cardioprotection. They are particularly interested in the protective mechanisms of ischemic preconditioning (IPC), and volatile anesthetic preconditioning (APC), and the roles of mitochondria in these processes. They employ a variety of model systems including: isolated mitochondria, perfused mouse hearts, isolated adult cardiomyocytes, in vivo mouse open-heart surgery, cultured heart cell lines, and transgenic mice. Many biochemical techniques are also used to investigate mitochondrial function. Currently (spring 2015) the lab consists of the PI, a research assistant professor, 2 graduate students (one in the MD/PhD program), a research resident, and a technician. Undergraduates and other trainees are also routinely hosted. Research is funded by grants from NIH (R01 HL071158, R01 GM087483, R01 HL127669, and is divided into several broad project areas as follows (in no particular order):

Mitochondrial uncoupling, nitroalkenes & cardioprotection.

In IPC, the coupling efficiency of mitochondrial ATP synthesis is slightly reduced, and this may serve as a safety valve to prevent excess generation of free radicals in settings such as IR injury. The lab identified nitro-alkenes (a novel class of nitric oxide derived lipids) as important mediators of this process. Specifically, nitro-linoleic acid induces mitochondrial uncoupling, is potentially cardioprotective, and is formed endogenously in mitochondria during IPC. Since nitro-alkenes can modify proteins, targets within mitochondria are being identified using proteomics methods. Furthermore, downstream mechanisms by which nitro-lipids and mild uncoupling can afford protection against IR injury are being investigated. One such mechanism is the activation of mitophagy, a pathway to dispose of damaged mitochondria. In addition to synthesizing mitochondria-targeted nitro-lipids, high-throughput screening has yielded other molecules that induce mitophagy, to develop as potential therapeutics.

Cardioprotection by Sirtuins

The sirtuins (SIRT6) are a family of NAD⁺ dependent lysine deacetylases. Consensus holds that lysine acetylation is an important post-translational modification that regulates metabolism. Using pharmacologic agents, SIRT1 knockouts and overexpressing mice, a critical role for cytosolic SIRT1 in IPC was demonstrated. More recently, in collaboration with Josh Munger (URMC Biochemistry Dept), metabolomics methods (rapid simultaneous quantitation of hundreds of metabolites in a single sample) have been applied to identify the precise role of SIRT1 metabolic regulation in IPC. Furthermore, the role of SIRT3, a mitochondrially-localized sirtuin, is being investigated as a potential mediator for the loss of IPC efficacy seen in the aging heart.

Mitochondrial K⁺ channels & Anesthetic Preconditioning

Volatile anesthetics (isoflurane, desflurane, sevoflurane etc.) can protect the heart against IR injury in a process termed anesthetic preconditioning (APC). A large conductance (BK) K⁺ channel in the mitochondrion is proposed to mediate APC, and to date the field has focused on the Slo1 isoform. However, it was demonstrated that Slo1 knockout mice can still be preconditioned by isoflurane, and their mitochondria still contain a K⁺ channel activity. Thus, focus has shifted to splice variants of the Slo2 channel, with recent molecular identification of the channel underlying APC, using patch-clamping of mitochondrial membranes. Furthermore, clearly these channels did not evolve for the express purpose of APC. Thus, the normal physiologic role of these channels in regulating various aspects of mitochondrial function, is under investigation.

The mitochondrial unfolded protein response

The unfolded protein response in the endoplasmic reticulum (ER-UPR) is an important stress response pathway. Recently, a similar pathway has been identified in mitochondria (termed the UPRmt), in which a bi-functional transcription factor ATF51 is normally imported into mitochondria and degraded. Under conditions of mitochondrial stress, ATF51 is targeted to the nucleus where it upregulates transcription of chaperones, antioxidants and important metabolic pathways. The main players in the UPRmt have been identified in model organisms, but are unknown in mammals. The lab is investigating the identity of UPRmt signaling molecules in mice, as well as the potential for activation of this pathway to protect the heart from IR injury.



BASIC SCIENCE RESEARCH

JOHNSON LAB

Gail V.W. Johnson, PhD

The primary focus of Dr. Johnson's research group is on understanding the molecular mechanisms of neurological diseases. The lab has a longstanding interest in the pathogenic processes in Alzheimer disease, and more recently, in stroke and glioblastomas. For their studies, they use many different approaches, from in vitro enzyme assays with purified proteins, to studies in whole animals. This broad-based approach allows them to translate what they learn about a process or signaling pathway at the molecular level to the in vivo situation. Each of the three ongoing areas of research is discussed briefly below.

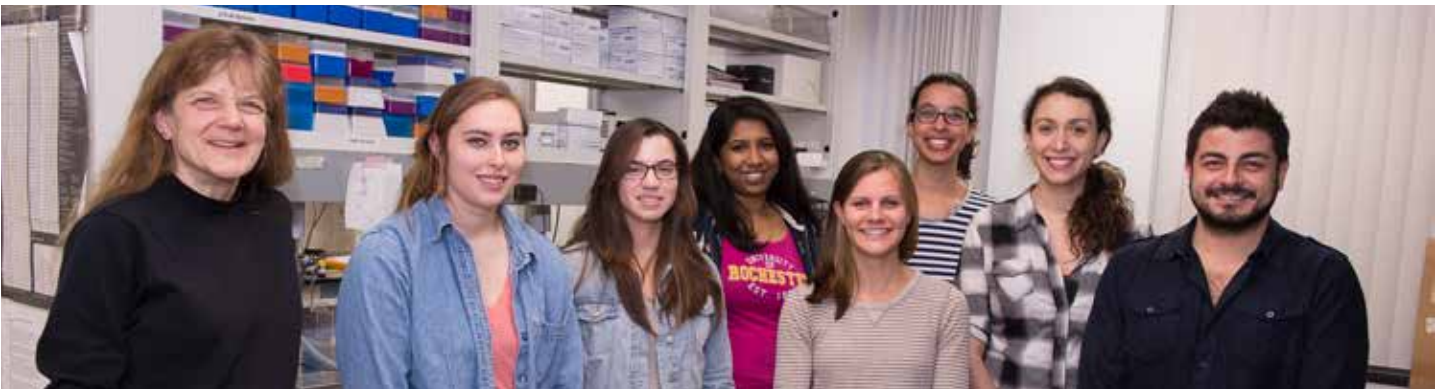
A hallmark of the Alzheimer disease brain is the presence of intracellular neurofibrillary tangles composed primarily of the protein tau in a pathologically modified state. There is compelling evidence that aberrant posttranslational modifications of tau are central to the disease process and that abnormally modified tau is toxic to neurons. In addition, it is becoming apparent that the neurofibrillary tangles are not the toxic species, but rather soluble forms of the tau protein cause toxicity. It has been suggested that in Alzheimer disease, and perhaps other tauopathies, the clearance mechanisms that are responsible for removing tau from neurons may not be functioning properly. If tau is not cleared efficiently, this may contribute to pathogenesis. Therefore, there is a growing interest in understanding the processes involved in tau degeneration, and how these processes could be upregulated to facilitate tau clearance. Studies in the Johnson lab are focused on dissecting the pathways that are involved in clearing tau and how the productivity and efficiency of these pathways can be increased. In particular, they are interested in selective



autophagy and the components of this pathway that are involved in tau turnover. They are studying the role of autophagy receptors and co-chaperones, their specific roles in the tau clearance pathways and how these proteins can be upregulated to improve the efficiency of tau degradation.

The Johnson lab also has a well-established interest in understanding the regulation and function of transglutaminase 2 (TG2) in neuronal cell death and survival. They have found that TG2 facilitates neuronal survival and when overexpressed in neurons in a mouse model, stroke damage is attenuated. Interestingly, in astrocytes, TG2 does just the opposite, in that it increases ischemic cell death. Studies are currently ongoing to understand the different molecular events in neurons and astrocytes that are regulated by TG2 to differentially affect cell survival after an ischemic episode.

A final area of investigation in the Johnson lab involves the role of TG2 in the proliferation of glioblastomas (GBMs). TG2 facilitates the proliferation of GBMs and the use of specific irreversible TG2 inhibitors results in a significant inhibition of proliferation. Interestingly, the inhibition of proliferation in response to the TG2 inhibitors appears to result from a toxic gain of function of the TG2-inhibitor complex. The mechanisms involved are currently being explored, as well as the development of more selective and potent inhibitors.



Left to right - Gail Johnson, PhD; Annah Moore; Alina Monteagudo; Veena Ganeshan, PhD; Susanne Pallo, PhD; Laura Yunes-Medina; Julianne Feola; and Soner Gundemir, PhD

BASIC SCIENCE RESEARCH

WOJTOVICH LAB

Andrew P Wojtovich, PhD

The Wojtovich lab focuses on the roles of Reactive Oxygen Species (ROS) in mitochondrial physiology and stress signaling.

Mitochondria are central mediators of cell death and are a main site of ROS production. ROS contribute to cellular damage in many pathologic processes, such as neurodegenerative diseases and stroke. However, antioxidant treatments have been ineffective in clinical trials for diseases associated with increased oxidative damage. These clinical trials may have failed since mild levels of ROS are required to maintain cellular homeostasis. Moreover, ROS are emerging as signaling molecules that are required for the efficacy of several types of protective interventions. Thus, like many other physiological challenges, specific details such as dose, timing, and local environment contribute to ROS outcomes.

The Wojtovich lab uses model organisms and optogenetic tools to control the site and timing of ROS production. With these tools, they investigate complex ROS biology in order to gain a better understanding ROS on a nano-scale. The lab uses a wide variety of approaches and translates findings from *C. elegans* to mammals. The expected outcome is a framework for developing targeted antioxidant therapies to overcome the obstacles that have led to so many clinical trial failures for existing antioxidant drugs.

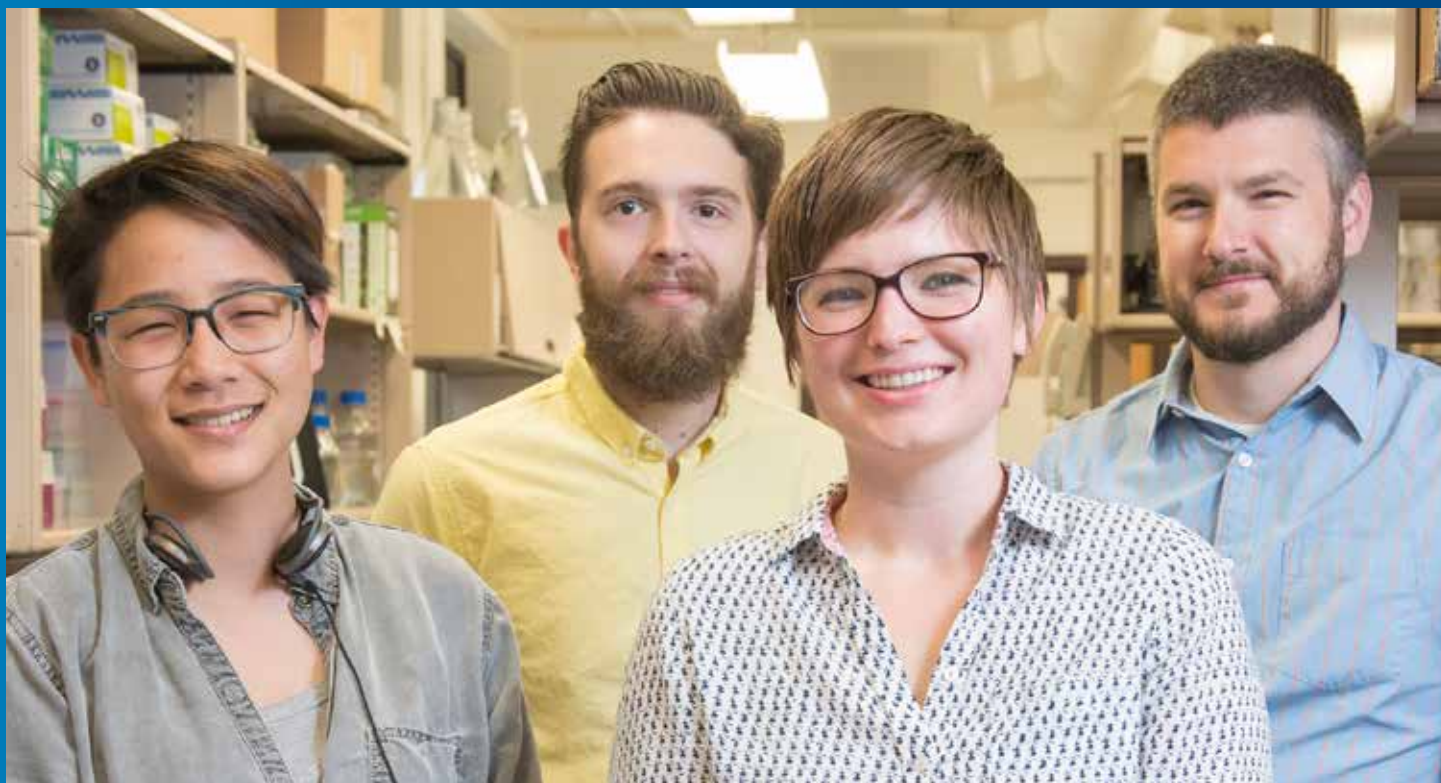
Currently (Spring 2016), the lab consists of the PI, a graduate student, a technician and an undergraduate student.

Research is funded by a grant from NIH (R01 NS092558) entitled "Mitochondrial ROS microdomains and neuronal ischemia." This project melds the *C. elegans* genetic model system with novel optogenetic reagents to give us the ability to control ROS production with unprecedented precision. We aim to determine what factors make some ROS beneficial and other ROS toxic in the context of neuronal ischemic sensitivity and stress resistance. We will integrate our results with conserved stress response pathways, facilitating translation into a mammalian model system.





Left to right: Alicia Wei, Brandon Berry, Laura Bahr, Andrew Wojtovich, PhD



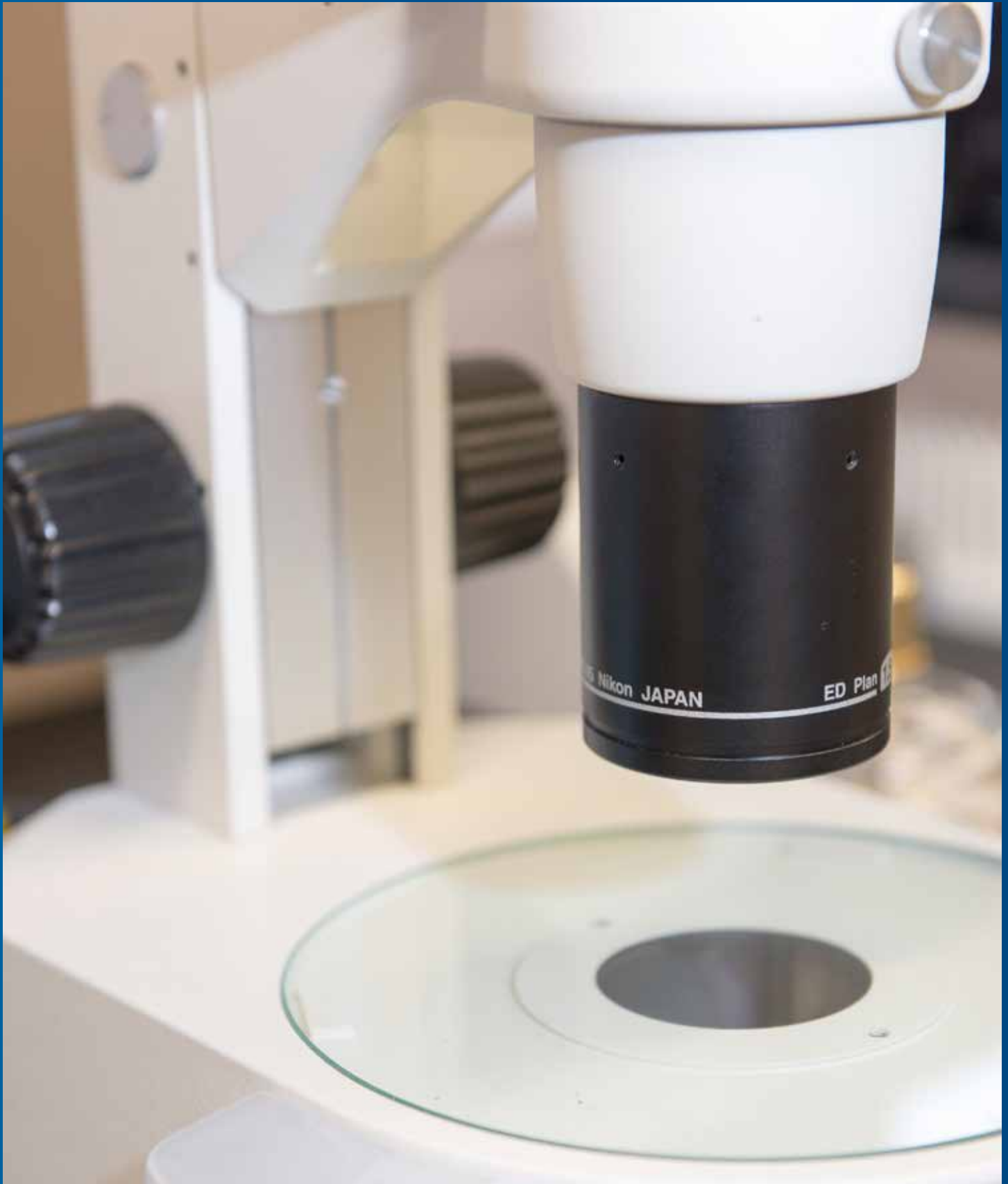
EDUCATIONAL RESEARCH

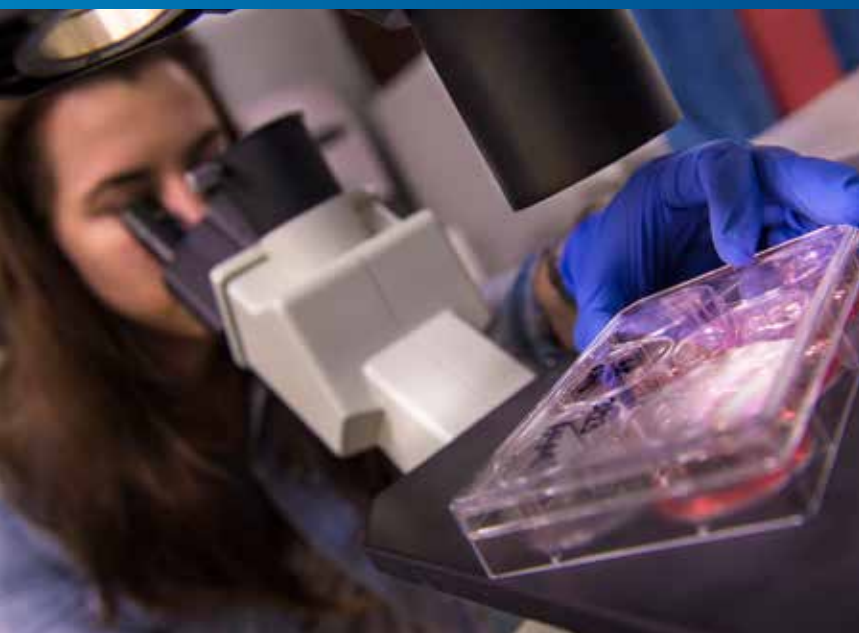
The residency program engages in a continuous quality improvement effort to enhance and optimize our training program. In 2014, the Department hired an Educational Specialist, Mary Therese Biltucci, in order to expand our residency's non-clinical training pathways. Specifically, she is focusing on the development of our Clinical Educators Track. To this end, and along with the program directorship and core faculty, we are applying qualitative and quantitative methods to study our educational methods, including specific curricula such as advocacy training during residency, sedation training of medical students, and developing residents as teachers.

Dr. Karan expanded her scope of research into pregnancy related OSA in 2015 while undertaking a research sabbatical at Hadassah Medical Center in Jerusalem, Israel.

Dr. Jacob Nadler joined the research group in 2015, and together with colleagues in high risk OB, neurophysiology, and sleep medicine, the ARPL team continues to expand investigation into risk factors for respiratory depression during the interaction of sleep and sedation, and the impact of certain high risk patient population







OUTCOMES RESEARCH

Laurent Glance, MD

Dr. Laurent Glance's primary research interests are focused on understanding the opportunities and limitations of health care quality reporting. His work has focused on the implications of using the Present-on-Admission Indicator (POA) in administrative data (data fields that indicate whether a secondary diagnosis was present on admission) to differentiate preexisting conditions from complications. This work led to publications showing that the addition of the POA indicator enhances the ability of existing comorbidity algorithms (Charlson Index and Elixhauser algorithm) to map ICD-9-CM codes to diagnostic categories accurately, and that the use of routine administrative data without POA indicators to construct hospital quality report cards may result in the misidentification of hospital quality outliers. Dr. Glance's work has also focused on exploring the impact of non-public outcomes reporting on hospitals caring for injured patients. His group used the National Trauma Databank to construct the Trauma Mortality Probability Model (TMPM), and conducted an AHRQ-funded study to prospectively investigate the impact of providing benchmarking information on trauma outcomes. He is now helping to spearhead the development of a collaborative effort between the American Society of Anesthesiologists (ASA) and the American Congress of Obstetricians and Gynecologists (ACOG) to create a national benchmarking platform to measure and improve obstetrical outcomes in the United States: the ACOG-ASA Maternal Quality Improvement Program (ACOG-ASA MQIP). These data will be used to improve the quality of maternal care at the local level, establish national performance metrics for obstetrics and obstetrical anesthesia, and facilitate comparative effectiveness research.



Raymond Zollo, MD

Dr. Raymond Zollo's general area of interest as the founding Director of the Center for Perioperative Medicine is how factors in the perioperative system (patient, provider, clinic, operating room, medical center, and perioperative home) can influence patient outcomes. This has profound implications for patient safety and operating room management, particularly as our patient population ages, and their co-morbidities increase. To this end, Dr. Zollo has studied patient education and doctor-patient communication, as well as sophisticated statistical methods that may be used to improve patient outcomes as well as the efficiency of the perioperative process.

Dr. Zollo also has interests in medical and research ethics and the role of true informed consent in allowing patients to make informed decisions regarding their therapeutic care, and allowing research subjects to make informed decisions regarding their willingness to participate in research while avoiding therapeutic misconception.

RESPIRATORY PHYSIOLOGY LAB

Suzanne B. Karan, MD
Denham S. Ward, MD, PhD

The Anesthesiology Respiratory Research Laboratory was established by J. Weldon Bellville, MD, at Stanford in the 1960s and has been studying the effects of sleep, exercise and drugs on the control of breathing ever since. In 1972, Dr. Bellville moved the laboratory to UCLA and Denham S. Ward, MD, PhD, became affiliated with it. In 1981, Dr. Ward became the director of the laboratory and in 1992 the laboratory was moved to the University of Rochester.

The laboratory is equipped with state-of-the-art respiratory and EEG monitoring equipment. Breath-by-breath control of all inspired gases allows for precise respiratory experiments. Airway pressure can also be controlled, both positive and negative, on a breath-by-breath basis, permitting sophisticated experiments on upper airway patency. Drug infusions can be controlled with a pharmacokinetic-model-coupled, computer-controlled infusion pump. Experimental pain can be carefully controlled through either pressure or a thermador. Data analysis is carried out through a dedicated laboratory computer network using LINUX and with STATA and MATLAB software.



Suzanne B. Karan, MD, was appointed laboratory director in 2010 and continues the traditions of the laboratory. She is currently studying sleep apnea and the reversal of sedative-induced respiratory arrhythmias. The focus of this research is to evaluate how sedation/anesthesia and sleep affect respiratory function and the extent to which both states confer vulnerability for adverse outcomes (e.g., upper airway collapse). The overarching goals for this research are:

1. The delineation of the common risk that is conferred by sleep and sedation for untoward respiratory events;
2. The determination of the extent to which sleep and sedation can co-exist and thereby increase risk (in an additive or multiplicative way) for adverse respiratory outcomes;
3. An assessment of whether sleep-disordered breathing exists as a risk factor for sedation-related adverse respiratory events, and
4. An assessment of whether sedation-related adverse respiratory events are predictive of the incidence and/or severity of sleep-disordered breathing.

The clinical utility of this information is to broaden the evidence base that guides care of OSA patients (and at-risk patients) in the perioperative period (and specifically while under the care of a non-anesthesiologist sedation provider).

CLINICAL RESEARCHERS

Robert Dworkin, PhD

The primary focus of the research being conducted by Drs. Dworkin, Gewandter, and Smith involves methodological aspects of analgesic clinical trials, especially identifying factors that might increase the assay sensitivity of a trial to detect differences between an active and a control or comparison treatment. With research funding from the FDA and industry, they are currently examining in acute and chronic pain trials the relationships between study methodological features and study outcomes, as well as comparing the responsiveness to treatment effects of different outcome measures. The overall objective of these efforts -- which are being conducted under the auspices of the Analgesic, Anesthetic, and Addiction Clinical Trial Translations, Innovations, Opportunities, and Networks (ACTTION) public-private partnership with the FDA -- is to identify approaches to improving the efficiency and informativeness of clinical trials of pain treatments and provide the foundation for an evidence-based approach to analgesic clinical trial design.

Michael Eaton, MD

Dr. Michael Eaton's general area of interest is the interaction of cardiopulmonary bypass with human blood, and the minimization of the adverse effects of this interaction. This is of particular importance in pediatric and neonatal cardiac surgery, where available knowledge is significantly less and patients are at higher risk due to an immature hemostatic system and the greater degree of hemodilution involved. Currently Dr. Eaton is investigating exploring a novel combination anticoagulant strategy for cardiopulmonary bypass without heparin using closed loop cardiopulmonary bypass models. He has a clinical trial underway randomizing infants undergoing cardiac surgery with cardiopulmonary bypass to supplementation with antithrombin III or placebo. He is also completing a study investigating the ability of traditional tube-based ACT testing compared with cartridge-based ACT devices to measure thrombin generation during bypass.

Suzanne Karan, MD

Please see page 48 for a summary of Dr. Karan's research interests.

Peter Papadakos, MD

The Division of Critical Care Medicine has a 20 year history of research on Mechanical Ventilation, ARDS, and Lung Physiology Research. Dr. Peter Papadakos has been actively collaborating with investigators throughout the US and Europe on a number of multicenter funded projects. Over the last 2 years he and his colleagues have been investigating how mechanical ventilation impacts on atelectasis and Surfactant dysfunction. Basic science collaboration with Professor Dr. Burkhard Lachmann at the Charite of the University of Berlin is currently looking at Surfactant dysfunction in an animal model. The group is also looking at cytokine modulation in the lung and how it is affected by sedative agents. Dr. Papadakos is also working on several research projects with several national organizations such as the ASA and the AORN to improve human to technology interfacing and prevent electronic distraction.

Jacek Wojtczak, MD, PhD

Dr. Jacek Wojtczak's research interests are focused on craniofacial phenotyping/upper airway imaging and biophysical mechanisms of lung B-lines. He is using new ultrasonic imaging techniques including compression elastography and acoustic radiation force imaging and he has also developed a new imaging technique - nanoparticle imaging. This technique allows quantification and monitoring of local anesthetic spread in tissues. He is collaborating with Dr. David Cattano (UT Houston) on the ultrasonic imaging of airway devices in situ and with Dr. Pavel Andruszkiewicz (University of Warsaw) on the prediction of unanticipated difficult airway and emergency airway procedures including ultrasound-guided cricothyrotomy.



Joel Kent, MD

Dr. Joel Kent's general area of research interest is in promoting symptom relief and functional restoration of patients with chronic nonmalignant pain. Within this realm, he has two focused areas of clinical interest. The first is in the critical assessment of outcomes associated with the use of chronic opioid therapy for the treatment of non-malignant pain. Opioid therapy is potentially helpful, but also carries significant potential liabilities. Despite the widespread use of opioids in this patient population, clinicians have relatively little objective medical evidence to guide their use of these agents in chronic pain patients. Thus, some of Dr. Kent's research efforts are geared to identifying strategies to optimize this therapy and to ensure optimal outcomes when opioids are used to treat patients with chronic nonmalignant pain. He also has an interest in the treatment of neuropathic pain and has participated in studies evaluating treatments for this common condition.

Rajbala Thakur, MD

Dr. Rajbala Thakur has been the principal investigator in numerous clinical studies to investigate new medications for the management of malignant and non-malignant pain conditions. These studies have included new and novel formulations of opioid medications as well as adjuvant medications for patients with neuropathic and visceral pain conditions. In addition she currently is a sub investigator in a 'combined behavioral and analgesic trial for fibromyalgia'. More recent research work has been focused on developing clinical protocol for the use of Ketamine therapy in the treatment of intractable chronic pain conditions.

Chouchani ET, Methner C, **Nadtochiy SM**, Logan A, Pell VR, Ding S, James AM, Cocheme HM, Reinhold J, Lilley KS, Partridge L, Fearnley IM, Robinson AJ, Hartley RC, Smith RA, Krieg T, **Brookes PS**, Murphy MP. Cardioprotection by S-nitrosation of a cysteine switch on mitochondrial complex I. *Nat Med*. 2013; 19:753-9.

Wojtovich AP, Nadtochiy SM, Urciuoli WR, Smith CO, Grunnet M, Nehrke K, **Brookes PS**. A non-cardiomyocyte autonomous mechanism of cardioprotection involving the SLO1 BK channel. *Peer J*. 2013; 1:e48.

Wojtovich AP, Urciuoli WR, Chatterjee S, Fisher AB, Nehrke K, **Brookes PS**. Kir6.2 is not the mitochondrial KATP channel but is required for cardioprotection by ischemic preconditioning. *Am J Physiol Heart Circ Physiol*. 2013;304: H1439-45.

Redman EK, **Brookes PS, Karcz MK**. Role of p90(RSK) in regulating the Crabtree effect: implications for cancer. *Biochem Soc Trans*. 2013;41: 124-6.

Lagadinou ED, Sach A, Callahan K, Rossi RM, Neering SJ, Minhajuddin M, Ashton JM, Pei S, Grose V, O'Dwyer KM, Liesveld JL, **Brookes PS**, Becker MW, Jordan CT. BCL-2 inhibition targets oxidative phosphorylation and selectively eradicates quiescent human leukemia stem cells. *Cell Stem Cell*. 2013; 12:329-41.

Wojtovich AP, Smith CO, Haynes CM, Nehrke KW, **Brookes PS**. Physiological consequences of complex II inhibition for aging, disease, and the mKATP channel. *Biochim Biophys Acta*. 2013; 1827:598-611.

Queliconi BB, Marazzi TB, Vaz SM, **Brookes PS**, Nehrke K, Augusto O, Kowaltowski AJ. Bicarbonate modulates oxidative and functional damage in ischemia-reperfusion. *Free Radic Biol Med*. 2013; 55:46-53.

Dworkin RH, Turk DC, Peirce-Sandner S, He H, McDermott MP, Farrar JT, Katz NP, Lin AH, Rappaport BA, Rowbotham MC. Assay sensitivity and study features in neuropathic pain trials: An ACTION meta-analysis. *Neurology*. 2013 Jul 2;81(1):67-75.

Smith SM, Wang AT, Katz NP, McDermott MP, Burke LB, Coplan P, Gilron I, Hertz SH, Lin AH, Rappaport BA, Rowbotham MC, Sampaio C, Sweeney M, Turk DC, **Dworkin RH**. Adverse event assessment, analysis, and reporting in recent published analgesic clinical trials: ACTION systematic review and recommendations. *Pain*. 2013 Jul; 154(7):997-1008.

Dworkin RH, O'Connor A, **Kent J**, Mackey S, Raja S, Stacey B, Levy R, Backonja M, Baron R, Harke H, Loeser J, Treede RD, Durk D, Wells C. Interventional management of neuropathic pain: NeuPSIG recommendations. *J of Pain*. 2013. ID: PAIN 154 (2013) 2249-2261.

Yee BE, **Wissler RN**, Zanghi CN, **Feng C, Eaton MP**. Effective Concentration of Tranexamic Acid for Inhibition of Fibrinolysis in Neonatal Plasma in Vitro. *Anesth Analg*. 2013 Oct;117(4):767-72.

Gewandter JS, Fan L, Magnuson A, Mustian K, Peppone L, Heckler C, Hopkins J, Tejani M, Morrow GR, Mohile SG. Falls and functional impairments in cancer survivors with chemotherapy-induced peripheral neuropathy (CIPN): A University of Rochester CCOP study. *Supportive Care in Cancer*. 2013 Jul;21(7):2059-66.

Gewandter JS, Walker J, Heckler CE, Morrow GR, Ryan JL. Characterization of skin reactions and pain reported by patients receiving radiation therapy for cancer at different sites. *Journal of Supportive Oncology*. 2013 Dec;11(4):183-9.

Li Y, Cai X, Ye Z, **Glance LG**, Harrington C, Mukamel DB. Satisfaction with Massachusetts Nursing Home Care was Generally High During 2005-2009, with some Variability Across Facilities. *Health Affairs*. 2013 Aug;32(8):1416-25.

Glance LG, Osler TM, Mukamel DB, Meredith JW, Li Y, Qian F, Dick AW. Trends in racial disparities for injured patients admitted to trauma centers. *Health Serv Res*. 2013 Oct;48(5):1684-703.

Chesser A, Pritchard S, **Johnson GVV**. Tau clearance mechanisms and their possible role in the pathogenesis of Alzheimer disease. *Frontiers in Neurodegeneration*. 2013 Sep 3; 4:122. Doi: 10.3389/fneur.2013.00122

Quintanilla RA, Jin YN, von Bernhardt R, **Johnson GVV**. Mitochondrial permeability transition pore induces mitochondrial injury in Huntington disease. *Molecular Neurodegeneration*. 2013 Dec 11;8:45. Doi:10.1186/1750-1326-8-45.

Jin YN, Gundermir S, Yu YV, Jo C, Cui M, Tieu K, **Johnson GVV**. Impaired mitochondrial dynamics and Nrf2 signaling contribute to compromised responses to oxidative stress in Huntington disease. *PLoS One*. 2013;8(3):e57932. doi: 10.1371/journal.pone.0057932.

Eckert RL, Kaartinen MT, Nurminkaya M, Belkin AM, Colak G, **Johnson GVV**, Mehta K. Transglutaminase regulation of cell function. *Physiol Reviews*. 2014 Apr;94(2):383-417.

Efimenko E, Padua MB, **Manuylov NL**, Fox SC, Morse DA, Tevosian SG. The transcription factor GATA4 is required for follicular development and normal ovarian function. *Dev Biol*. 2013 Sep 1;381(1):144-58. doi: 10.1016/j.ydbio.2013.06.004.

Papadakos PJ. Training Health Care Professionals to deal with an Explosion of Electronic Distraction. *Neurocritical Care* 2013; 18 #1:115-117 PMID 23283599.

Tzimas KN, Papadakos PJ. An updated review of sepsis for the anesthesiologist. *Semin Cardiothorac Vasc Anesth*. 2013 Dec;17(4):262-8. doi: 10.1177/1089253213504141. Review.

Esquinas AM, Koch R, **Papadakos PJ**. High-frequency chest wall oscillation in postoperative pulmonary complications after lobectomy: a relationship far too complex? *Crit Care Med*. 2013 Jul;41(7):e142-3. doi: 10.1097/CCM.0b013e31828ced12.

Esquinas AM, BaHamman A, Scala A, Arie S, Nasilowski J, Siekmier R, Koksai M, Celikel T, Shah PS, Mukhopadhyay, Cosentini R and **Papadakos PJ**. Aerosol Therapy during Non-Invasive Mechanical Ventilation: Review of Key Technical Factors and Clinical Implications. *Can J Resp Ther*. 2013;49#1:11-18.

Porhomayon J, **Papadakos P**, Nader ND, El-Solth AA. Weaning Failure: My Heart is not up to it. *Chron Respir Dis*. 2013 Aug;10(3):165-74.

Esquinas A, **Papadakos PJ**, Koch R. High Frequency Chest Wall Oscillation (HFCWO) in postoperative pulmonary complications after lobectomy. *Crit Care Med*. 2013 Jul;41(7):e142-3.

Papadakos PJ. Electronic Distraction a Growing Problem in Medical Education. *J Hosp Med*. 2013;8(2):114

Smith SM, Wang AT, Pereira A, Chang RD, McKeown A, Greene K, Rowbotham MC, Coplan P, Gilron I, Hertz SH, Katz NP, Lin AH, McDermott MP, Rappaport BA, Sweeney M, Turk, DC, **Dworkin RH**. Discrepancies between published and registered primary outcomes in analgesic trials: ACTION systematic review. *Pain*. 2013;154:2769-74.

O'Connor AB, Turk DC, **Dworkin RH**, Katz NP, Colucci R, Haythornthwaite JA, Klein M, O'Brien C, Posner K, Rappaport BA, Reisfield G, Adams EH, Balster RL, Bigelow GE, Burke LB, Comer SD, Cone E, Cowan P, Denisco RA, Farrar JT, Foltin RW, Haddox JD, Hertz S, Jay GW, Junor R, Kopecky EA, Leiderman DB, McDermott MP, Palmer PP, Raja SN, Rauschkolb C, Rowbotham MC, Sampaio C, Setnick B, **Smith SM**, Sokolowska M, Stauffer JW, Walsh SL, Zacny JP. Abuse liability measures for use in analgesic clinical trials in patients with pain: IMMPACT recommendations. *Pain*. 2013;154:2324-34.

Smith SM, Dart RC, Katz NP, Paillard F, Adams EH, Comer SD, Degroot A, Edwards RR, Grant S, Haddox JD, Jaffe JH, Jones CM, Kleber HD, Kopecky EA, Markman JD, Montoya ID, O'Brien C, Roland CL, Savage S, Stanton M, Strain EC, Vorsanger G, Wasan A, Weiss R, Turk DC, **Dworkin RH**. Classification and definition of misuse, abuse, and related events in clinical trials: ACTION systematic review and recommendations. *Pain*. 2013;154:2287-96.

Bredlau A, **Thakur R**, Korones D, **Dworkin R**. Ketamine for Pain in Adults and Children with Cancer: A Systematic Review and Synthesis of Literature. *Pain Medicine*. 2013; 14(10).

Wojtczak J, Bonadonna P. Pocket mobile smartphone system for the point-of-care submandibular ultrasonography. *Am J Emerg Med*. 2013; 31:573-577.

Chouchani ET, Pell VR, Gaude E, Aksentijevic D, Sundier SY, Robb EL, Logan A, **Nadtochiy SM**, Ord EN, Smith AC, Eyassu F, Shirley R, Hu CH, Dare AJ, James AM, Rogatti S, Hartley RC, Eaton S, Costa AS, **Brookes PS**, Davidson SM, Duchon MR, Saeb-Parsy K, Shattock MJ, Robinson AJ, Work LM, Frezza C, Krieg T, Murphy MP. Ischaemic accumulation of succinate controls reperfusion injury through mitochondrial ROS. *Nature*. 2014 Nov 20;515(7527):431-5.

Galloway CA, Lee H, **Brookes PS**, Yoon Y. Decreasing mitochondrial fission alleviates hepatic steatosis in a murine model of nonalcoholic fatty liver disease. *Am J Physiol Gastrointest Liver Physiol*. 2014 Sep 15;307(6):G632-41.

Kalifa L, **Gewandter JS**, Staversky RJ, Sia EA, **Brookes PS**, O'Reilly MA. DNA double-strand breaks activate ATM independent of mitochondrial dysfunction in A549 cells. *Free Radic Biol Med*. 2014 Oct; 75:30-9.

Nadtochiy SM, **Brookes PS**, Porter GA. SIRT3 deficiency exacerbates ischemia-reperfusion injury: implication for aged hearts. *Am J Physiol Heart Circ Physiol*. 306:H1602-9.

Nadtochiy SM, Madukwe J, Hagen F, **Brookes PS**. Mitochondrial targeted nitro-linoleate, a tool compound for studying cardioprotection. *Br J Pharmacol*. 171:2091-8.

Brookes PS. Internet publicity of data problems in the bioscience literature correlates with enhanced corrective action. *Peer J*. 2:e313.

Qian F, **Eaton MP**, **Lustik SJ**, Hohmann SF, Diachun CB, Pasternak R, **Wissler RN**, **Glance LG**. Racial disparities in the use of blood transfusion in major surgery. *BMC Health Serv Res*. 2014 Mar;14:121.

Fillingim RB, **Dworkin RH**, Turk DC. The ACTION-APS Pain Taxonomy initiative: response to Henriques et al. *J Pain*. 2014 Nov;15(11):1201-2.

Gewandter JS, McDermott MP, McKeown A, **Smith SM**, Pawlowski JR, Poli JJ, Rothstein D, **Williams MR**, Bujanover S, Farrar JT, Gilron I, Katz NP, Rowbotham MC, Turk DC, **Dworkin RH**. Reporting of intention-to-treat analyses in recent analgesic clinical trials: ACTION systematic review and recommendations. *Pain*. 2014 Dec;155(12):2714-9.

Dufka FL, **Dworkin RH**, Rowbotham MC. How transparent are migraine clinical trials? Repository of Registered Migraine Trials (RReMiT). *Neurology*. 2014 Oct 7;83(15):1372-81.

Dworkin RH, Turk DC, Peirce-Sandner S, He H, McDermott MP, Hochberg MC, Jordan JM, Katz NP, Lin AH, Neogi T, Rappaport BA, Simon LS, Strand V. Meta-analysis of assay sensitivity and study features in clinical trials of pharmacologic treatments for osteoarthritis pain. *Arthritis Rheumatol*. 2014 Dec;66(12):3327-36.

Pereira A, Conwell Y, Gitlin MJ, **Dworkin RH**. Suicidal ideation and behavior associated with antidepressant medications: Implications for the treatment of chronic pain. *Pain*. 2014 Dec;155(12):2471-5.

Hunsinger M, **Smith SM**, Rothstein D, McKeown A, Parkhurst M, Hertz S, Katz NP, Lin AH, McDermott MP, Rappaport BA, Turk DC, **Dworkin RH**. Adverse event reporting in nonpharmacologic, noninterventional pain clinical trials: ACTION systematic review. *Pain*. 2014 Nov;155(11):2253-62.

Dworkin RH, McDermott MP. Back to the future: the need to resolve analgesic efficacy in human immunodeficiency virus neuropathy. *Pain*. 2014 Oct;155(10):1913-5.

Gewandter JS, McDermott MP, McKeown A, **Smith SM**, **Williams MR**, Hunsinger M, Farrar J, Turk DC, **Dworkin RH**. Reporting of missing data and methods used to accommodate them in recent analgesic clinical trials: ACTION systematic review and recommendations. *Pain*. 2014 Sep;155(9):1871-7.

Gewandter JS, **Dworkin RH**, Turk DC, McDermott MP, Baron R, Gastonguay MR, Gilron I, Katz NP, Mehta C, Raja SN, Senn S, Taylor C, Cowan P, Desjardins P, Dimitrova R, Dionne R, Farrar JT, Hewitt DJ, Iyengar S, Jay GW, Kalso E, Kerns RD, Leff R, Leong M, Petersen KL, Ravina BM, Rauschkolb C, Rice AS, Rowbotham MC, Sampaio C, Sindrup SH, Stauffer JW, Steigerwald I, Stewart J, Tobias J, Treede RD, Wallace M, White RE. Research designs for proof-of-concept chronic pain clinical trials: IMMPACT recommendations. *Pain*. 2014 Sep;155(9):1683-95.

Farrar JT, Troxel AB, Haynes K, Gilron I, Kerns RD, Katz NP, Rappaport BA, Rowbotham MC, Tierney AM, Turk DC, **Dworkin RH**. Effect of variability in the 7-day baseline pain diary on the assay sensitivity of neuropathic pain randomized clinical trials: an ACTION study. *Pain*. 2014 Aug;155(8):1622-31.

Gauthier LR, Young A, **Dworkin RH**, Rodin G, Zimmermann C, Warr D, Librach SL, Moore M, Shepherd FA, Pillai Riddell R, Macpherson A, Melzack R, Gagliese L. Validation of the short-form McGill pain questionnaire-2 in younger and older people with cancer pain. *J Pain*. 2014 Jul;15(7):756-70.

Zimering JH, **Williams MR**, Eiras ME, Fallon BA, Logigian EL, **Dworkin RH**. Acute and chronic pain associated with Lyme borreliosis: clinical characteristics and pathophysiologic mechanisms. *Pain*. 2014 Aug;155(8):1435-8.

Munch T, Dufka FL, Greene K, **Smith SM**, **Dworkin RH**, Rowbotham MC. RReACT goes global: perils and pitfalls of constructing a global open-access database of registered analgesic clinical trials and trial results. *Pain*. 2014 Jul;155(7):1313-7.

Kaminski A, **Eaton MP**, Knight P, Stern D, Sifain A. Mitral valve repair failure diagnosed with a sudden change in jet direction from posterior to anterior: inconsistent with systolic anterior motion. *Anesth Analg*. 2014 Dec;119(6):1271-4.

Yee BE, **Eaton MP**. In response. *Anesth Analg*. 2014 Aug;119(2):499.

Glance LG, Kellermann AL, Osler TM, Li Y, Mukamel DB, **Lustik SJ**, **Eaton MP**, Dick AW. Hospital Readmission After Noncardiac Surgery: The Role of Major Complications. *JAMA Surgery*. 2014;149(5):439-45.

Glance LG, Blumberg N, **Eaton MP**, **Lustik SJ**, Osler TM, **Wissler RN**, **Zollo R**, Karcz M, Feng C, Dick AW. Preoperative Thrombocytopenia and Postoperative Outcomes after Noncardiac Surgery. *Anesthesiology*. 2014 Jan;120(1):62-75.

Gewandter JS, Mohile SG, Heckler CE, Ryan JL, Kirshner JJ, Flynn PJ, Hopkins JO, Morrow GR. A phase III randomized, placebo-controlled study of topical amitriptyline and ketamine for chemotherapy-induced peripheral neuropathy (CIPN): a University of Rochester CCOP study of 462 cancer survivors. *Support Care Cancer*. 2014 Jul;22(7):1807-14.

Peppone LJ, Janelins MC, Kamen C, Mohile SG, Sprod LK, **Gewandter JS**, Kirshner JJ, Gaur R, Ruzich J, Esparaz BT, Mustian KM. The effect of YOCAS®@yoga for musculoskeletal symptoms among breast cancer survivors on hormonal therapy. *Breast Cancer Res Treat*. 2015 Apr;150(3):597-604.

Markman JD, Barbosa WA, **Gewandter JS**, Frazer M, Rast S, Dugan M, Nandigam K, Villareal A, Kwong TC. Interpretation of urine drug testing results in patients using transdermal buprenorphine preparations for the treatment of chronic noncancer pain. *Pain Med*. 2015 Jun;16(6):1132-6.

Kalifa L, **Gewandter JS**, Staversky RJ, Sia, EA, Brookes PA, O'Reilly MA. DNA double-strand breaks activate ATM independent of mitochondrial dysfunction in A549 cells. *FRBM*. 2014;75:30-9.

Fillingim RB, Bruehl S, **Dworkin RH**, Dworkin SF, Loeser JD, Turk DC, Widerstrom-Noga E, Arnold L, Bennett R, Edwards RR, Freeman R, **Gewandter J**, Hertz S, Hochberg M, Krane E, Mantyh PW, Markman J, Neogi T, Ohrbach R, Paice J, Porreca F, Rappaport BA, **Smith SM**, **Smith TJ**, Sullivan MD, Verne GN, Wasan AD, Wesselmann U. The ACTION-American Pain Society Pain Taxonomy (AAPT): An evidence-based and multi-dimensional approach to classifying chronic pain conditions. *Journal of Pain*. 2014;15:241-9.

Gewandter JS, Smith SM, McKeown A, Burke LB, Hertz SH, Hunsinger M, Katz NP, Lin AH, McDermott MP, Rappaport BA, **Williams MR,** Turk DC, **Dworkin RH.** Reporting of primary analyses and multiplicity adjustment in recent analgesic clinical trials: ACTION systematic review and recommendations. *Pain* 2014;155:461-6.

Glance LG, Dick AW, Glantz JC, **Wissler RN,** Qian F, Marroquin BM, Mukamel DB, Kellermann AL. Rates of major obstetrical complications vary almost fivefold among US hospitals. *Health Aff (Millwood)*. 2014 Aug;33(8):1330-6.

Li Y, Ye Z, **Glance LG,** Temkin-Greener H. Trends in family ratings of experience with care and racial disparities among Maryland nursing homes. *Med Care*. 2014 Jul;52(8):e641-8.

Glance LG, Osler TM, Neuman MD. Redesigning surgical decision making for high-risk patients. *N Engl J Med*. 2014 Apr 10;370(15):1379-81.

Glance LG, Dick AW, Osler TM. ICU scoring systems: after 30 years of reinventing the wheel, isn't it time to build the cart? *Crit Care Med*. 2014 Mar;42(3):732-4.

Glance LG, Lustik SJ, Hannan EL, Osler TM, Mukamel DB, Qian F, Dick AW. Reply to Letter: "The Surgical Mortality Probability Model (S-MPM): Derivation and Validation of a Simple Risk Prediction Rule for Noncardiac Surgery". *Ann Surg*. 2014 Jan 16.

Glance LG, Mukamel DB, Osler TM, Dick AW. Ranking trauma center quality: can past performance predict future performance? *Ann Surg*. 2014 Apr;259(4):682-6.

Cook A, Weddle J, Baker S, Hosmer D, **Glance L,** Friedman L, Osler T. A comparison of the Injury Severity Score and the Trauma Mortality Prediction Model. *J Trauma Acute Care Surg*. 2014 Jan;76(1):47-52.

Glance LG, Osler TM, Mukamel DB, Meredith JW, Dick AW. Effectiveness of nonpublic report cards for reducing trauma mortality. *JAMA Surg*. 2014 Feb;149(2):137-43.

Glance LG, Fleisher LA. Anesthesiologists and the transformation of the healthcare system: a call to action. *Anesthesiology*. 2014 Feb;120(2):257-9.

Glance LG, Li Y, Osler TM, Mukamel DB, Dick AW. Impact of obesity on mortality and complications in trauma patients. *Ann Surg*. 2014 Mar;259(3):576-81.

Glance LG, Mukamel DB, Blumberg N, Fleming FJ, Hohmann SF, Dick AW. Association between surgical resident involvement and blood use in noncardiac surgery. *Transfusion*. 2014 Mar;54(3):691-700.

Kim S, Lee D, Song JC, Cho SJ, Yun SM, Koh YH, Song J, **Johnson GV,** Jo C. NDP52 associates with phosphorylated tau in brains of an Alzheimer disease mouse model. *Biochem Biophys Res Commun*. 2014 Nov 7;454(1):196-201.

Quintanilla RA, von Bernhardt R, Godoy JA, Inestrosa NC, **Johnson GV.** Phosphorylated tau potentiates A β -induced mitochondrial damage in mature neurons. *Neurobiol Dis*. 2014 Nov;71:260-9.

Jo C, Kim S, Cho SJ, Choi KJ, Yun SM, Koh YH, **Johnson GV,** Park SI. Sulforaphane induces autophagy through ERK activation in neuronal cells. *FEBS Lett*. 2014 Aug 25;588(17):3081-8.

Olsen KC, Epa AP, Kulkarni AA, Kottmann RM, McCarthy CE, **Johnson GVW,** Thatcher TH, Phipps RP, Sime PJ. Inhibition of transglutaminase 2, a novel target for pulmonary fibrosis, by two small electrophilic molecules. *Am J Resp Cell Mol Biol*. 2014.

Jo C, Gundemir S, Pritchard S, Jin YN, Rahman I, **Johnson GVW.** Nrf2 reduces levels of phosphorylated tau protein by inducing autophagy adaptor protein NDP52. *Nature Commun*. 2014;5:3496.

Karan S. Respiratory System: Physiology: Control of Ventilation, Respiratory Center, Central and Peripheral Chemoreceptors; Prospective Receptors, Respiratory Muscles and Reflexes; Innervation, CO₂ and O₂ Response Curves, in START Prep Online Board Review Program. Stanford AIM Lab, Stanford, CA, 2014.

Karcz M, **Papadakos PJ.** Respiratory Complications in the Post Anesthesia Care Unit: A review of the Pathophysiological Mechanisms. *Can J Respir Ther*. 2014;49(4):21-29.

Esquinas AM, Egbert Pravinkumar S, Scala R, Gay P, Soroksky A, Girault C, Han F, Hui DS, **Papadakos PJ,** Ambrosino N. Noninvasive mechanical ventilation in high-risk pulmonary infections: a clinical review. International NIV Network. *Eur Respir Rev*. 2014 Dec;23(134):427-38.

Wojtczak J, Pyne S. Teaching ultrasound procedural skills – low cost phantoms and animal models. *Middle East J of Anesthesiology*. 2014;22(6):449-457.

Wojtczak J, Cattano D. Laryngo-tracheal ultrasonography to confirm correct endotracheal tube and laryngeal mask airway placement. *J Ultrasonography*. 2014;14:362-366.

Wojtczak J. Models to teach lung sonopathology and ultrasound-guided thoracentesis. *J Ultrasonography*. 2014;14:367-370.

Cattano D, **Wojtczak J,** Callender R, Cai C, Tezino T, Zundert T, Hagberg C. External neck landmark identification and measurement correlation in a normal weight cohort. *J Anesth Clin Sci*. 2014;13(7):1-6. Papadakos PJ. Board of medical advisors supports HR2619. *Chest*. 2014 Aug;146(2):e61-2.

Papadakos PJ. Electronic distractions of the respiratory therapist and their impact on patient safety. *Respir Care.* 2014 Aug;59(8):1306-9.

Karcz M, **Papadakos PJ.** Respiratory Complications in the Post Anesthesia Care Unit: A review of the Pathophysiological Mechanisms. *Can J Respir Ther.* 2014;49(4):21-29.

Stone JJ, Childs S, Smith LE, Battin M, **Papadakos PJ,** Huang JH. Hourly Neurologic Assessments for Traumatic Brain Injury in the ICU. *Neurol Res.* 2014;36(2):164-169.

Smith DI, Hoang K, Gelbard W. Treatment of acute flares of chronic pancreatitis pain with ultrasound guided transversus abdominis plane block: a novel application of a pain management technique in the acute care setting. *Case Respir Emerg Med.* 2014;2014:759508. PubMed PMID: 25328723.

Adler AC, **Smith DI,** Parikh PM. Chronic Pain localized to the Iliohypogastric Nerve. Treatment using an ultrasound-guided technique of hydrodissection for catheter placement as a guide for surgical Iliohypogastric nerve resection. *Plastic Reconstr Surg.* 2014;134(1):182e-183e.

Hunsinger M, **Smith SM,** McKeown A, Parkhurst M, Gross RA, Lin AH, McDermott MP, Rappaport BA, Turk DC, **Dworkin RH.** Disclosure of authorship contributions in analgesic clinical trials and related publications: ACTTION systematic review and recommendations. *Pain.* 2014;155(6):1059-63.

Eaton MP, Alfieri GM, **Sweeney DM,** Angona RE, Cholette JM, Venuto C, Anderson B. Pharmacokinetics of γ -Aminocaproic Acid in Neonates Undergoing Cardiac Surgery with Cardiopulmonary Bypass. *Anesthesiology.* 2015 May;122(5):1002-9.

Cholette JM, Pietropaoli AP, Henrichs KF, Alfieri GM, Powers KS, Phipps R, Spinelli SL, Swartz M, Gensini F, Daugherty LE, Nazarian E, Rubenstein JS, **Sweeney D,** **Eaton M,** Blumberg N. Longer RBC storage duration is associated with increased postoperative infections in pediatric cardiac surgery. *Pediatr Crit Care Med.* 2015 Mar;16(3):227-35.

Shi X, O'Neill MM, MacDonnell S, **Brookes PS,** Yan C, Berk BC. The RSK Inhibitor BIX02565 Limits Cardiac Ischemia/Reperfusion Injury. *J Cardiovasc Pharmacol Ther.* 2015 Jun 30, PubMed PMID: 26130615.

Resseguie EA, Staversky RJ, **Brookes PS,** O'Reilly MA. Hyperoxia activates ATM independent from mitochondrial ROS and dysfunction. *Redox Biol.* 2015 May 2;5:176-185.

Kiebal M, Skalska J, Casulo C, Brookes PS, **Peterson DR,** **Hilchey SP,** **Dai Y,** **Grant S,** **Maggirwar SB,** Bernstein SH. Dual targeting of the thioredoxin and glutathione antioxidant systems in malignant B cells: a novel synergistic therapeutic approach. *Exp Hematol.* 2015 Feb; 43(2):89-99.

Nadtochiy SM, Schafer X, Munger J, Zhang J, **Brookes PS.** Metabolomics analysis reveals a critical role for SIRT1 in cardioprotective metabolic remodeling. *J Mol Cell Cardiol.* 88:64-72.

Singla N, Hunsinger M, Chang PD, McDermott MP, Chowdhry AK, Desjardins PJ, Turk DC, **Dworkin RH.** Assay Sensitivity of Pain Intensity Versus Pain Relief in Acute Pain Clinical Trials: ACTTION Systematic Review and Meta-Analysis. *J Pain.* 2015 Aug;16(8):683-91.

Thakur S, **Dworkin RH,** Haroun OM, Lockwood DN, Rice AS. Acute and chronic pain associated with leprosy. *Pain.* 2015 Jun;156(6):998-1002.

Markman JD, **Gewandter JS,** Frazer ME, Murray NM, Rast SA, McDermott MP, Chowdhry AK, Tomkinson EJ, Pilcher WH, Walter KA, **Dworkin RH.** A Randomized, Double-blind, Placebo-Controlled Crossover Trial of Oxymorphone Hydrochloride and Propoxyphene/Acetaminophen Combination for the Treatment of Neurogenic Claudication Associated with Lumbar Spinal Stenosis. *Spine (Phila Pa 1976).* 2015 May 15;40(10):684-91.

Gewandter JS, **Smith SM,** McKeown A, Edwards K, Narula A, Pawlowski JR, Rothstein D, Desjardins PJ, Dworkin SF, Gross RA, Ohrbach R, Rappaport BA, Sessle BJ, Turk DC, **Dworkin RH.** Reporting of adverse events and statistical details of efficacy estimates in randomized clinical trials of pain in temporomandibular disorders: Analgesic, Anesthetic, and Addiction Clinical Trial Translations, Innovations, Opportunities, and Networks systematic review. *Am Dent Assoc.* 2015 Apr;146(4):246-54.

O'Connor AB, Turk DC, **Dworkin RH.** Abuse liability-study the intended patient populations. *Nat Rev Neurol.* 2015 Mar;11(3):182.

Smith SM, Paillard F, McKeown A, Burke LB, Edwards RR, Katz NP, Papadopoulos EJ, Rappaport BA, Slagle A, Strain EC, Wasan AD, Turk DC, **Dworkin RH.** Instruments to Identify Prescription Medication Misuse, Abuse, and Related Events in Clinical Trials: An ACTTION Systematic Review. *J Pain.* 2015 May;16(5):389-411.



Dworkin RH, Turk DC, Trudeau JJ, Benson C, Biondi DM, Katz NP, Kim M. Validation of the Short-form McGill Pain Questionnaire-2 (SF-MPQ-2) in acute low back pain. *J Pain*. 2015 Apr;16(4):357-66.

Smith SM, Hunsinger M, McKeown A, Parkhurst M, Allen R, Kopko S, Lu Y, Wilson HD, Burke LB, Desjardins P, McDermott MP, Rappaport BA, Turk DC, **Dworkin RH**. Quality of pain intensity assessment reporting: ACTION systematic review and recommendations. *J Pain*. 2015 Apr;16(4):299-305.

Dufka FL, Munch T, **Dworkin RH**, Rowbotham MC. Results availability for analgesic device, complex regional pain syndrome, and post-stroke pain trials: comparing the RReADS, RReACT, and RReMiT databases. *Pain*. 2015 Jan;156(1):72-80.

Finnerup NB, Attal N, Haroutounian S, McNicol E, Baron R, **Dworkin RH**, Gilron I, Haanpaa M, Hansson P, Jensen TS, Kamerman PR, Lund K, Moore A, Raja SN, Rice AS, Rowbotham M, Sena E, Siddall P, Smith BH, Wallace M. Pharmacotherapy for neuropathic pain in adults: a systematic review and meta-analysis. *Lancet Neurol*. 2015 Feb;14(2):162-73.

Markman JD, Frazer ME, Rast SA, McDermott MP, **Gewandter JS**, Chowdhry AK, Czerniecka K, Pilcher WH, Simon LS, **Dworkin RH**. Double-blind, randomized-controlled, crossover trial of pregabalin for neurogenic claudication. *Neurology*. 2015 Jan 20;84(3):265-72.

McKeown A, **Gewandter JS**, McDermott MP, Pawlowski JR, **Poli JJ**, Rothstein D, Fearar JT, Gilron I, Katz NP, Lin AH, Rappaport BA, Rowbotham MC, Turk DC, **Dworkin RH**, **Smith SM**. Reporting of sample size calculations in analgesic clinical trials: ACTION systematic review. *J Pain*. 2015 Mar;16(3):199-206.

Gewandter JS, McKeown A, McDermott MP, Dworkin JD, **Smith SM**, Gross RA, Hunsinger M, Lin AH, Rappaport BA, Rice AS, Rowbotham MC, Williams MR, Turk DC, **Dworkin RH**. Data interpretation in analgesic clinical trials with statistically nonsignificant primary analyses: an ACTION systematic review. *J Pain*. 2015 Jan;16(1):3-10.

Glance LG, Kellermann AL, Hannan EL, Fleisher LA, **Eaton MP**, Dutton RP, **Lustik SJ**, Li Y, Dick AW. The impact of anesthesiologists on coronary artery bypass graft surgery outcomes. *Anesth Analg*. 2015 Mar;120(3):526-33.

Eaton MP, Alfieri GM, **Sweeney DM**, Angona RE, Cholette JM, Venuto C, Anderson B. Pharmacokinetics of γ -Aminocaproic Acid in Neonates Undergoing Cardiac Surgery with Cardiopulmonary Bypass. *Anesthesiology*. 2015 May;122(5):1002-9.

Cholette JM, Pietropaoli AP, Henrichs KF, Alfieri GM, Powers KS, Phipps R, Spinelli SL, Swartz M, Gensini F, Daugherty LE, Nazarian E, Rubenstein JS, **Sweeney D**, **Eaton M**, Blumberg N. Longer RBC storage duration is associated with increased postoperative infections in pediatric cardiac surgery. *Pediatr Crit Care Med*. 2015 Mar;16(3):227-35.

Osler T, **Glance LG**, Li W, Buzas JS, Wetzel ML, Hosmer DW. Trauma care does not discriminate: The association of race and health insurance with mortality following traumatic injury. *J Trauma Acute Care Surg*. 2015 May;78(5):1026-33.

Hyder JA, Niconchuk J, **Glance LG**, Neuman MD, Cima RR, Dutton RP, Nguyen LL, Fleisher LA, Bader AM. What can the national quality forum tell us about performance measurement in anesthesiology. *Anesth Analg*. 2015 Feb;120(2):440-8.

Glance LG, **Lustik SJ**, Hannan EL, Osler TM, Mukamel DB, Qian F, Dick AW. Reply to letter: "the Surgical Mortality Probability Model (S-MPM): derivation and validation of a simple risk prediction rule for noncardiac surgery". *Ann Surg*. 2015 Feb;261(2):e40-1.

Pallo SP, **Johnson GV**. Tau facilitates A β -induced loss of mitochondrial membrane potential independent of cytosolic calcium fluxes in mouse cortical neurons. *Neurosci Lett*. 2015 Jun 15;597:32-7.

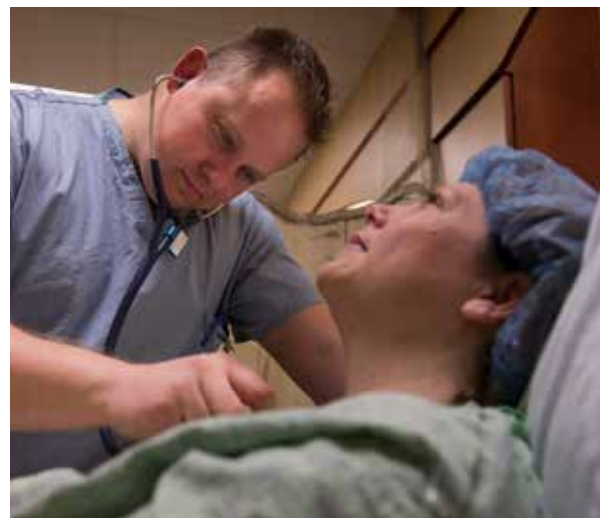
Zare-Shahabadi A, Masliah E, **Johnson GV**, Rezaei N. Autophagy in Alzheimer's disease. *Rev Neurosci*. 2015;26(4):385-95.

Lei Z, Brizzee C, **Johnson GV**. BAG3 facilitates the clearance of endogenous tau in primary neurons. *Neurobiol Aging*. 2015 Jan;36(1):241-8.

Karcz MK, **Papadakos PJ**. Noninvasive ventilation in trauma. *World J Crit Care Med*. 2015 Feb 4;4(1):47-54.

Carpenter V, LaRicca B, **Papadakos PJ**. Malignant hyperthermia in a trauma patient. *JAAPA*. 2015 Jan;28(1):45-7.

Karan, SB, Rackovsky E, **Voter WA**, **Kanel JA**, Farris N, Jensen J, Liu L, **Ward DS**. A Randomized, Prospective, Double-Blinded Study of Physostigmine to Prevent Sedation-Induced Ventilatory Arrhythmias. *Anesth Analg*. Epub Ahead of Print July 21, 2015.



GRANTS

July 1, 2013 to June 30, 2015

BASIC SCIENCE RESEARCH

Investigator	Title	Activity Type	Sponsor	Total Award
Brookes, Paul	SIRT1, Nitro-Lipids and Cardioprotection	Sponsored	NIH	\$1,119,398
Brookes, Paul	Mitochondrial K+ Channels & Cardioprotection	Sponsored	NIH	\$ 506,621
Brookes, Paul	C. Elegans & Mitochondrial K+ Channels	Sponsored	NIH	\$ 295,203
Brookes, Paul	C. Elegans & Mitochondrial K+ Channels – Diversity Supplement	Sponsored	NIH	\$ 51,344
Brookes, Paul	The Role of the Mitochondrial UPR in Ischemic Protection	Sponsored	NIH	\$ 670,838
Chesser, Adrienne	Mitochondrial Dynamics Underlie Gene-Environment Interactions in Parkinson's	Sponsored	NIH / NRSA	\$ 94,908
Diachun, Carol	Development and Evaluation of Academic Electronic Portfolio for Anesthesia Faculty	Sponsored	Foundation for Anesthesia Education & Research	\$ 50,000
Dworkin, Robert	Combined Behavioral and Analgesic Trial for Fibromyalgia (COMBAT-FM)	Sponsored	University of Washington, NIH (Sub)	\$ 645,183
Dworkin, Robert	Analgesic Clinical Trial Innovations, Opportunities, and Networks (ACTION)	Sponsored	Food & Drug Administration	\$ 809,270
Dworkin, Robert	Analysis of FDA Clinical Trial Data to Improve the Assay Sensitivity of Analgesic Clinical Trials	Sponsored	Food & Drug Administration	\$ 63,485
Feola, Julianne	The Role of Astrocytic Transglutaminase 2 in Mediating Ischemic Stroke Damage	Sponsored	NIH / NRSA	\$ 94,908
Galloway, Chad	Mitochondrial Morphology and Function in Diabetic Cardiomyopathy	Fellowship	AHA Founders Postdoc Fellowship	\$ 45,000
Johnson, Gail	The Attenuation of Ischemic Injury by Transglutaminase 2	Sponsored	NIH	\$ 800,310
Johnson, Gail	Autophagy, p62 and the Nrf2 Intersect to Protect Against Tau Toxicity	Sponsored	NIH	\$ 372,732
Johnson, Gail	Nrf2 Regulates Tau Clearance: An AD Treatment Strategy	Sponsored	Bright Focus Foundation	\$ 100,000
Karcz, Marcin	The Role of Antihistamines and Nicotine Metabolites in Cardioprotection	Sponsored	Foundation for Anesthesia Education & Research	\$ 75,000
Yunes-Medina, Laura	Defining CHOP-10 Depending Adaptive ER Stress Pathways in Neurons	Sponsored	NIH / NRSA	\$ 94,908

GRANTS

CLINICAL RESEARCH

Investigator	Title	Activity Type	Sponsor
Dworkin, Robert	Combined Behavioral & Analgesic Trial for Fibromyalgia (COMBAT-FM)	Clinical Trial	NIH
Dworkin, Robert	Analysis of FDA clinical trial data to improve assay sensitivity and informativeness of analgesic clinical trials	Clinical Trial	Investigator-Initiated
Eaton, Michael	Antithrombin III supplementation for infants undergoing Cardiac surgery with Cardiopulmonary bypass	Clinical Trial	Investigator-Initiated
Eaton, Michael	A comparison of Activated Clotting Time Devices as Measures of the Prevention of Thrombin Activation During Cardiopulmonary Bypass	Clinical Trial	Investigator-Initiated
Eaton, Michael	Administration of Antithrombin III in Heparin Resistant Pediatric Patients Undergoing Cardiopulmonary Bypass	Clinical Trial	Investigator-Initiated
Eaton, Michael	Association of Changes in the Three Dimensional Anatomy of the Heart as Measured by TEE with Hemodynamic Instability During Off-Pump Coronary Artery Bypass Surgery	Clinical Trial	Investigator-Initiated
Eaton, Michael	In Vitro Cardiopulmonary Bypass Stimulation	Clinical Trial	Investigator-Initiated
Eaton, Michael	The Utility of Routine Preoperative Coagulation Testing in Cardiac Surgery Patients	Clinical Trial I	Investigator-Initiated
Eaton, Michael	Blood Samples for Coagulation Research Program	Clinical Trial	Investigator-Initiated
Karan, Suzanne	Prospective Observational Characterization of Mechanical Ventilation practices and postoperative Pulmonary outcomes in patients undergoing surgery in American academic centers	Clinical Trial	Investigator-Initiated
Karan, Suzanne	Sedation vs. General Anesthesia for Stapes Surgery: A single center's experience	Clinical Trial	Investigator-Initiated
Karan, Suzanne and Nadler, Jacob	The use of CPAP in pregnant patients with OSA who are diagnosed with fetal growth restriction	Clinical Trial	Investigator-Initiated
Karan, Suzanne and Nadler, Jacob	Monitoring sleep related breathing disturbance in post-c/section parturients at risk for OSA	Clinical Trial	Investigator-Initiated
Kent, Joel	Open-Label Trial comparing Oxycodone medications for effectiveness and satisfaction (OUTCOMES)	Clinical Trial	Investigator-Initiated
Neumann, Krystof	Lumbar Plexus Block versus Femoral Nerve Block for Hip Arthroscopy: A retrospective single-center cohort study	Clinical Trial	Investigator-Initiated
Saran, Jagroop, Karan, Suzanne, Kreso, Melissa	The anesthetic management of patients undergoing bronchial thermoplasty: a case series	Clinical Trial	Investigator-Initiated
Smith, Daryl	Thoracic Paravertebral Blockade: An institutional experience	Clinical Trial	Investigator-Initiated

Thakur, Rajbala	A retrospective review of the anterior approach to superior hypogastric plexus block and associated adverse events	Clinical Trial	Investigator-Initiated
Vaughan, Janet	Postoperative analgesia for cesarean delivery: Neuraxial hydromorphone compared to neuraxial morphine	Clinical Trial	Investigator-Initiated
Wojtczak, Jacek	Ultrasound measurements of tongue and laryngeal size in healthy volunteers	Clinical Trial	Investigator-Initiated
Wojtczak, Jacek	Three dimensional craniofacial phenotyping of patients with difficult airway	Clinical Trial	Investigator-Initiated

MEDICAL EDUCATION RESEARCH

Karan, Suzanne	Improving feedback for residents via faculty evaluations	Medical Education	Investigator-Initiated
Karan, Suzanne	Start Prep study online curriculum	Medical Education	Investigator-Initiated
Karan, Suzanne and Biltucci, MaryTherese	Advocacy Education in Anesthesiology Residency Training	Medical Education	Investigator-Initiated
Karan, Suzanne and Biltucci, MaryTherese	Survey of post-residency fellowship experience	Medical Education	Investigator-Initiated
Karan, Suzanne, Biltucci, MaryTherese and Lopez, Matthew	Survey of sedation knowledge in a single institution among different sedation-providers	Medical Education	Investigator-Initiated
Karan, Suzanne and Arekapudi, Anil	Survey of knowledge regarding the use of the bag-valve-mask apparatus	Clinical Trial	Investigator-Initiated



INTERNATIONAL OUTREACH

HONDURAS

In February 2016, Dr. Dawn Sweeney made her 6th trip to Honduras as part of an ongoing spinal deformity project which is headed up by Dr. Jim Sanders of the URMC Pediatric Orthopedic Department. Dr. Ryan Anderson, PGY4 resident, accompanied Dr. Sweeney on this mission. The goals of the project are to build a sustainable program of comprehensive preoperative, intraoperative and postoperative care for children with spinal deformities, to educate healthcare personnel in Honduras on the care and treatment of these children, and to determine a process whereby instrumentation needed for these surgeries could be manufactured in Honduras.

URMC is currently affiliated with the Ruth Paz Foundation Children's Hospital, and we are looking forward to working with them in the years to come. We have made considerable progress in training personnel in Honduras. Dr. Tomas Minueza is our orthopedic surgeon in Honduras and Dr. Edin Rapalo is our Honduran anesthesiologist. We use neuromonitoring in Honduras as well. While Dr. Karen Chang is able to provide this service, we have not been able to persuade the Honduran medical system that this is important work. This makes it difficult for Karen to join us when our team is in Honduras. We are currently looking at other options for this service. We also work closely with the pediatricians, pediatric intensivists, and nursing personnel at Ruth Paz.

Ultimately, we would like for the Honduran team to be able to perform spinal fusions on routine patients year round, with visiting teams assisting with more complex cases throughout the year. We were able to provide spinal fusions for 6 children on our trip this year, and another team from St. Louis will be there in April, but there are many more children needing surgery.

We would like to be able to provide surgery earlier to decrease the number of children who progress to severe deformity while on the waiting list. We are still operating on a lot of children with curves > 100 degrees.

This year, Dr. Wakenda Tyler joined us on the mission, and we were able to provide resection of bony tumors for 4 children. There is a huge need in this area also, and Wakenda is planning to return in April to operate on a few more children. We are hoping that this program will grow as well.

LIFEBOX CHALLENGE

Announced in October 2013, the first Annual Resident Lifebox Challenge was an initiative of the American Society of Anesthesiologists Resident Component to engage U.S. anesthesiology residents in support of the global safe surgery program through the Lifebox Foundation. ASA's Charitable Foundation served as the platform for the resident fundraising activities.

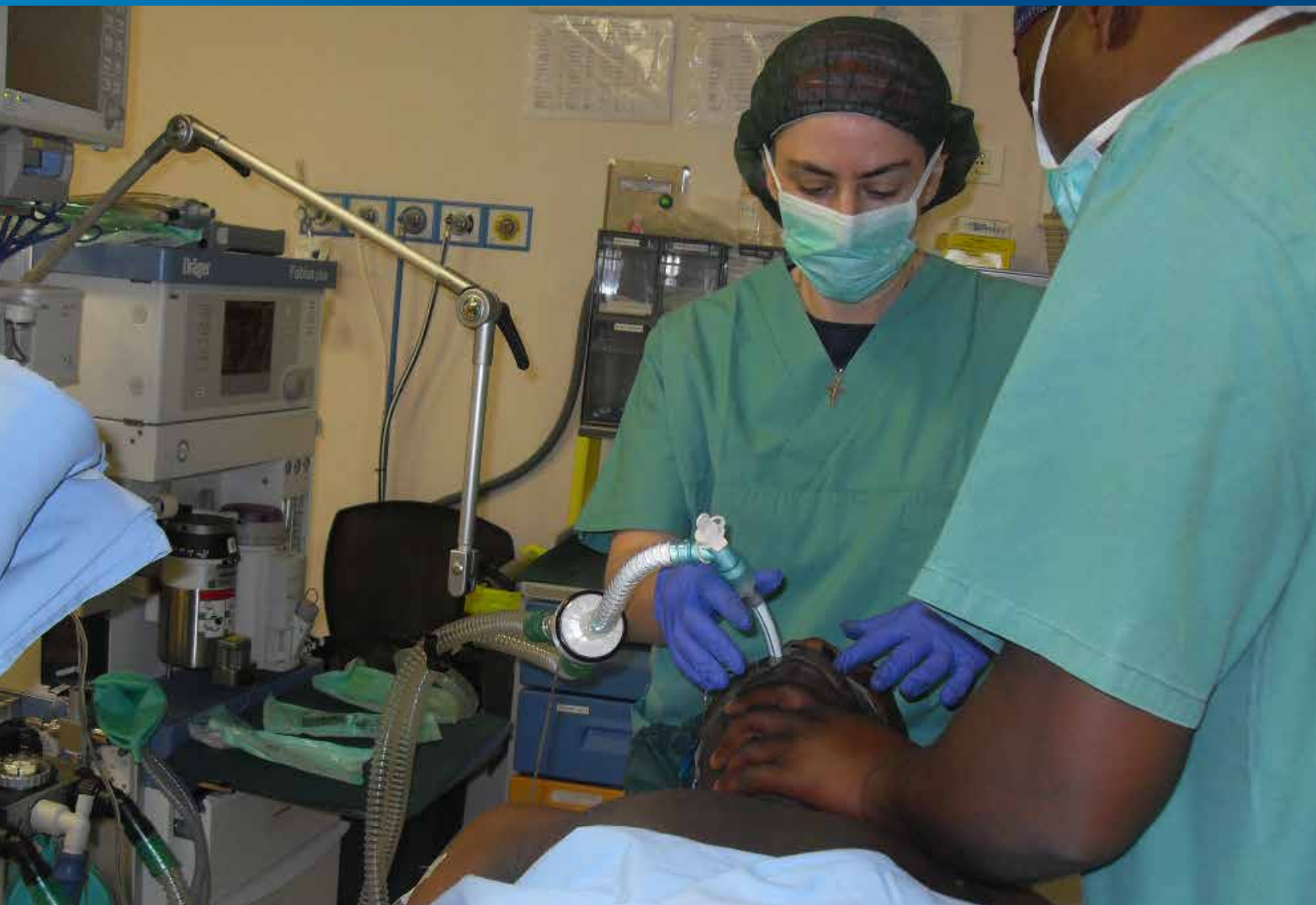
Lifebox is a charitable organization in association with the American Society of Anesthesiologists. Its mission is to make surgery safer and save the lives of thousands of people undergoing surgery in under-resourced countries through the donation of pulse oximeters. It was initially founded secondary to a global initiative to make surgery safer worldwide by the WHO (World Health Organization).

Lifebox is working to ensure that no patient dies during surgery due to lack of a pulse oximeter. After much collaboration, Lifebox has developed the world's foremost low-cost, high quality pulse oximeter, compliant with all international standards. Each oximeter package costs just \$250, including delivery. Clinicians also receive an education CD with training materials for self-learning, and classroom programs to teach others about pulse oximetry and the WHO Safe Surgery Checklist. One oximeter makes a difference to hundreds of lives.

At the 2014 ASA Annual Meeting in New Orleans, it was announced that the University of Rochester Residency Program swept the competition (11 other academic programs participated) in both total contributions and per resident giving! In addition, by raising the largest absolute dollar contribution, our program was eligible for a matching gift to increase our gift to Lifebox.

In 2016 we will once again be participating with other residency programs to help raise funds for this initiative.





CAMEROON

Dr. Ellen Dailor recently made her 7th trip to Cameroon where she worked with the local surgical team to perform desperately needed heart surgeries. During her travels, which occurred from late January to mid-March, Dr. Dailor provided anesthesia for patients at the Cardiac Centre at St. Elizabeth Catholic General Hospital Shisong, located in the Cameroonian city of Kumbo. She worked in conjunction with the Cameroon Tertiary Sisters of St. Francis, the Mission Doctors Association and the Franciscan Mission Outreach.

A large percentage of her patients are young people with rheumatic heart disease caused by strep throat. She said this condition is uncommon in Western countries, where strep is treated with antibiotics before it worsens, yet such diagnosis and treatment is not yet readily available in

Cameroon. There residents live largely on subsistence farming and have a median income of just over \$1,000 per year. Due to inadequate healthcare coverage, 80 percent of her patients require financial sponsorships in order to obtain surgeries. Most of the patients operated on are at the point that they require surgery in order to survive.

Dr. Dailor has been performing missionary service since 2001 and has intensified her efforts in recent years, particularly the Cameroon trips that began in 2010 and included a six-month stay from late 2013 to early 2014, as well as two visits in 2015 and her most recent tour. She has initiated a resident rotation in Cameroon, which hosted 2 residents in 2013 and 2014; this rotation is currently on hold due to a US State Department travel warning, but the department hopes to re-establish an international rotation in the near future.

ACADEMIC FACULTY



Academic Faculty -

Row 1 - Janine Shapiro, MD, Jacek Wojtczak, MD, PhD, Laurent Glance, MD, Stewart Lustik, MD, Michael Eaton, MD, Chair, Suzanne Karan, MD, Peter Papadakos, MD

Row 2 - Lata Sabnis, MD, Maksim Fedarau, MD, Laura McElroy, MD, In Tae Kim, MD, Jacob Nadler, MD, PhD, David Stern, MD, Kenneth Cheng, MD

Row 3 - Marcin Karcz, MD, Zana Borovcanin, MD, Joel Kent, MD, Rajbala Thakur, MBBS, Stephen Breneman, MD, PhD

Missing from photo -

*Ashwani Chhibber, MD
Richard Wissler, MD, PhD
Robert Dworkin, PhD
Gail Johnson, PhD
Paul Brookes, PhD
Peter Bailey, MD
Ellen Dailor, MD
Joseph Dooley, MD
Jeffrey Kolano, MD
Krystof Neumann, MD
Annie Philip, MBBS
Sonia Pyne, MD
John Schroeder, MD*

*Dawn Sweeney, MD
Raymond Zollo, MD
Stephen Basler, PsyD
Naveen Kukreja, MD
Anil Pisharoty, MD
Daryl Smith, MD
Anil Arekapudi, MBBS
Pamela Becks, MD
Keith Franklin, MD
Jennifer Gewandter, PhD
Marjorie Gloff, MD
David Grimes, DO
Anna Kaminski, DO
Albert Koh, DO*

*Melissa Kreso, MD
Ahmed Khan, MD
Matthew Hirschfeld, MD
Brandon Lebow, MD
Audra Webber, MD
Andrew Wojtovich, PhD
Andrew Burr, DO
David Lyons, MD
Jennifer Macpherson, MD
Garret Morris, MD
Joseph Poli, MD
Shannon Smith, PhD
Camberly Spring, MD
Nobuyuki-Hai Tran, MD*

*Konstantine Tzimas, MD
Albert Yu, DO
Susan Wittman, MD
Sergiy Nadtochiy, PhD
Bruce Xu, MS
Charlie Lu, MD
Tegan Palma, MD
Olga Vornovitsky, MD
Sarah Cano, MD
John-Paul Cardoso, MD
Michael Davis, MD
Christopher Galton, MD
Kiritpaul Nandra, MD
Arvid Yung, MD*

ADMINISTRATIVE AND SUPPORT STAFF



Administrative Staff

Row 1 - Nancy Bentley, Kathy Natkin, Cathy Ercolamento

Row 2 - Ann Mishia, Teresa Rios, Mark Richards, Susan Catalano, Shari Champagne, Oren Harary

Not Available - Joyce Dioguardi, Barbara Fagan, Tara Shea, Brian Rogers



Billing Staff

Geeta Pai; Melissa Horton; Ruth Perea; Corinne Tobias; Linda Ruffle; Tamika White; Nora Bush; Alicia King, Billing Manager

Not Available - Sharon Barber; Gerri Nevis

ADMINISTRATIVE AND SUPPORT STAFF



Anesthesia Technicians

Eric Franklin, Chief Tech; Shaun Nesbitt; Stephanie Weinman; Juleen Andrews; Anne Louima; Doug Knox; Devon Miranda; Tanjarnea McCowen, LPN; and Kevin Reich, Operations Manager



Anesthesia Technicians

Row 1 - Cheryl Ellenwood, LPN; Michele Anthony; and Glen Nicolosi, LPN

Row 2 - Andrew Lanos; Holly Lee; Mike Pastorelli; Thanos Hristodoulou; Eric Franklin, Chief Tech; Steve Mowers; Kevin Reich, Operations Manager; Stephen VanKeuren; and Vone Panyasith



Education Staff
Left to right: Sue Diesel, MaryTherese Biltucci,
Zahraa Majeed, Cathy Ercolamento



Research Staff
Tammy Ortiz; Bryan Dooley; Shannon Smith, PhD;
Rachel Kitt; and Eunyoung Wong, RN



Information Technology
Seated - Douglas Nicholson
Standing - Jack Dyke

FACULTY AND STAFF

ACADEMIC AND CLINICAL FACULTY

Arekapudi, Anil, MBBS
Assistant Professor

Bailey, Peter, MD
Professor of Clinical
Anesthesiology

Basler, Stephen, PsyD
Associate Professor of Clinical
Anesthesiology

Becks, Pamela, MD
Assistant Professor

Borovcanin, Zana, MD
Associate Professor

Breneman, Stephen, MD, PhD
Associate Professor

Bresler, Matthew, MD, MBA
Assistant Professor of Clinical
Anesthesiology

Burr, Andrew, MS, DO
Senior Instructor

Cano, Sarah J., MD
Assistant Professor

Cardoso, John-Paul, MD
Senior Instructor

Cheng, Kenneth, MD
Associate Professor

Chhibber, Ashwani, MD
Professor

Clark, Nathan, MD
Assistant Professor of Clinical
Anesthesiology

Curle, Alan, MD
Associate Professor of Clinical
Anesthesiology

Dailor, Ellen, MD
Associate Professor

Davis, Michael, MD
Senior Instructor

Dean, Kenneth, MD
Assistant Professor of Clinical
Anesthesiology

Dooley, Joseph, MD
Associate Professor

Eaton, Michael, MD
Professor and Chair

Finkelstein, Steven, MD
Associate Professor of Clinical
Anesthesiology

Franklin, Keith, MD
Assistant Professor

Fugate, Thomas C., MD
Senior Instructor

Galton, Christopher F., MD
Senior Instructor

Glance, Laurent, MD
Professor

Gloff, Marjorie, MD
Assistant Professor

Grimes, David, DO
Assistant Professor of
Clinical Anesthesiology

Hanau, Stewart, MD
Assistant Professor of Clinical
Anesthesiology

Hirschfeld, Matthew, MD
Assistant Professor

Johnson, Robert, MD
Assistant Professor of Clinical
Anesthesiology

Kaminski, Anna, DO
Assistant Professor

Karan, Suzanne, MD
Associate Professor

Kawczynski, Gary, MD
Assistant Professor of Clinical
Anesthesiology

Kent, Joel, MD
Associate Professor

Khan, Ahmed, MD
Professor of Clinical
Anesthesiology

Kim, In Tae, MD
Senior Instructor

Koh, Albert, DO
Assistant Professor

Kolano, Jeffrey, MD
Associate Professor

Kreso, Melissa, MD
Assistant Professor

Kukreja, Naveen, MD
Assistant Professor

Kuttner, Michael, PhD
Clinical Assistant Professor

Lebow, Brandon, MD
Assistant Professor

Lu, Charlie, MD
Senior Instructor

Lustik, Stewart, MD, MBA
Professor

Lyons, David, MD
Assistant Professor

Macpherson, Jennifer, MD
Assistant Professor

McCrum, Fred, MD
Associate Professor of Clinical
Anesthesiology

McElroy, Laura, MD
Assistant Professor

Morris, Garret, MD
Assistant Professor

Nadler, Jacob, MD, PhD
Assistant Professor

Nandra, Kiritpaul, MD
Senior Instructor

Neumann, Krystof, MD
Associate Professor

Palma, Tegan, MD
Senior Instructor

Papadakis, Peter, MD, FAARC
Professor

Peterson, Nicholas, MD
Assistant Professor of Clinical
Anesthesiology

Philip, Annie, MBBS
Associate Professor

Pisharoty, Anil, MD, MBA
Associate Professor of Clinical
Anesthesiology

Poli, Joseph, MD
Assistant Professor

Previte, Gregory, MD
Assistant Professor of Clinical
Anesthesiology

Pyne, Sonia, MD
Associate Professor

Sabnis, Lata, MD
Professor

Schroeder, John, MD, FAAP
Associate Professor

Shapiro, Janine, MD
Professor

Smith, Daryl, MD
Associate Professor of Clinical
Anesthesiology

Spring, Camberly, MD
Assistant Professor

Stern, David, MD
Associate Professor

Sweeney, Dawn, MD
Associate Professor

Thakur, Rajbala, MBBS
Professor

Thomas, Brian, DO
Assistant Professor of Clinical
Anesthesiology

Tran, Nobuyuki-Hai, MD
Assistant Professor

Turinsky, George, MD
Assistant Professor of Clinical
Anesthesiology

Tzimas, Konstantine, MD
Assistant Professor

VanDamme, Alexander, MD
Assistant Professor of Clinical
Anesthesiology

Vogt, Alison, MD
Associate Professor of Clinical
Anesthesiology

Vornovitsky, Olga, MD
Senior Instructor

Webber, Audra, MD
Assistant Professor

Werth, Christopher, MD
Assistant Professor of Clinical
Anesthesiology

Wissler, Richard, MD, PhD
Professor

Wittman, Susan, MD
Assistant Professor of Clinical
Anesthesiology

Wojtczak, Jacek, MD, PhD
Professor

Wong, Susan, MD
Assistant Professor of Clinical
Anesthesiology

Xu, Bruce, MS
Clinical Associate,
Acupuncturist

Yu, Albert, DO
Assistant Professor

Yung, Arvid, MD
Senior Instructor

Zollo, Raymond, MD
Associate Professor
Secondary Faculty

Kaufman, David, MD
Professor

Schwarz, Karl, MD
Professor

Emeritus

Gabel, Ronald, MD
Professor Emeritus

Lund, Niels, MD, PhD
Professor Emeritus

Ward, Denham, MD, PhD
Professor Emeritus

Residents

CBY Class of 2019

Allphin, Christopher, DO

Duah, Albert, MD

Ellis, Jonathan, MD

Fisher, Andrew, DO

Hammer, Charles, MD

Jin, Chelsea, MD

Johnson, Jonathan, DO

Kainth, Hunar, MD

Parchment, Kerriann, MD

Pilidis, Konstantinos, MD

Ramaiah, Vijay, MBBS

Satler, Samuel, MD

Shevchenko, Darya, MD

Tang, Ming-Yun, MD

Tran, Nam, MD

Yanez, Gregory, MD

CA-1 Class of 2018

Cellura, Carmen, MD

Faden, Eric, MD

Fernandez-Ortega, Carlos, MD

Fichter, Jennifer, MD

Gu, Yang, MD

Hegazy, Rafeek, MBBCh

Kellermier, Cyrus, MD

Kime, Courtney, MD

McLean, Duncan, MBChB

Mundangepfufu, Tichaendepi, MD

Neisa, Roberto, MD

Philippo, Sean, MD

Pleshankova, Katsiaryna, MD

Poku, Joseph, MD, JD

Schober, Max, MD

Schwartz, Jonathan, MD

Tran, Tuan, DO

Yang, Ximeng, MD

CA-2 Class of 2017

Cavan, Dierdre, MD

Correll, Linnie, MD

Cowles, David, MD

Dasika, Jayanth, MD

Kanel, Jason, MD

Kreiner, Britton, MD

Lefkowitz, George, DO

Lopez, Matthew, MD

Manuylov, Nikolay, DO

McConn, Ryan, MD

Mitchell, Kaitlyn, MD

Pawlowski, Joseph, MD

Saran, Jagroop, MD

Sathiyadevan, Niruja, MD

Sheehan, Colin, MD

Williams, Mark, MBBS

Yin, Susan, MD

CA-3 Class of 2016

Anderson, Ryan, DO

Burk, Spencer, MD

Dhesi, Shawn, MD

Ebadi-Tehrani, Mehran, MD

Fugate, Thomas, MD

FACULTY AND STAFF

Hawson, Alexander, MD
Hoang, Kim, MD
Kagie, Scott, MD
Kralovic, Sarah, MD
Little, Stephen, DO
Lozano, Jacqueline, MD
Mitchell, Derek, MD
Nandra, Kiritpaul, MD
Rad, Yaser, MD
Sabo, Matthew, MD

Fellows

Balofsky, Ari, MD
Critical Care
Cano, Sarah, MD
Pediatric
Edwards, Kenessa, MD
Pain
Ekundayo, Desiree, MD
Cardiothoracic
Galton, Christopher, MD
Critical Care
Iqbal, Afzaal, MD
Pain
Modzelewski, Maya, MD
Pain
Sheth, Nigam, MD
Cardiothoracic

CRNAs

Babcock, Cindy, CRNA
Bedford, Colleen, CRNA
Blum, Ronald, CRNA
Booth, Whitney, CRNA
Burke, Julie, CRNA
Clark, John, CRNA
Cleveland, Cathleen, CRNA
Cody, James, CRNA
Cox, Amy, CRNA
Dennstedt, Laurie, CRNA
Goltermann, Kurtis, CRNA
Guffey, Beth, CRNA
MacRae, Meghan, CRNA
Hanna, Margaret, CRNA
Hatlestad, Charles, CRNA

Hedman, Kara, CRNA
Huether, Mary, CRNA
Johnson, Cheryl, CRNA
Jones, Julie, CRNA
Kucharski, Mark, CRNA
LaPlaca, Andrew, CRNA
Mann, Carrie, CRNA
McIntyre, Allison, CRNA
Metzger, Debbie, CRNA
Modrak, Geneva, CRNA
Neary, Kevin, CRNA
Palmeri, John, CRNA
Rutledge, Michael, CRNA
Sharp, Brent, CRNA
Signorelli, Virginia, CRNA
Tripoli, Nicole, CRNA
Vaughan, Catherine, CRNA
Wahlers, Lisa, CRNA
Whitney, Corrin, CRNA

Anesthesia Technicians

Anthony, Michele
Brugge, Jeffrey, LPN
Ellenwood, Cheryl, LPN
Franklin, Eric
Chief Technician
Harvey, Rick
Hristodoulou, Thanos
King, Lauren
Knox, Doug
Lee, Holly
Louima, Anne
Mathews, Juleen
McCowen, Tanjarnea, LPN
Miranda, Devon
Mowers, Steven
Nesbitt, Shaun
Nicolosi, Glen, LPN
Panyasith, Vone
Reich, Kevin
Operations Manager
Van Keuren, Stephen
Walker, Reid
Weinman, Stephanie

Assistant Anesthesia Technicians

Hagins, Brianna
Jackson, Paige
Lanos, Andrew
Thomas, Mary

Administrative Staff

Bentley, Nancy
Administrative Support
Biltucci, MaryTherese
Assistant Director of
Education
Brokaw, Elizabeth
Out-of-OR Coordinator
Catalano, Susan
Enrollment Specialist
Diesel, Sue
Residency Coordinator
Dioguardi, Joyce
Scheduling Coordinator
Ercolamento, Catherine
Education Coordinator
Harary, Oren
Program Administrator
Mackay, Karen
Finance Administrator
Majeed, Zahraa
Administrative Support
Mishia, Ann
HR and Credentialing Manager
Moore, Joseph, RN
QI Coordinator
Natkin, Kathleen
Information Analyst
Rogers, Brian
Financial Analyst
Rios, Teresa
Administrative Support
Runion, Sharon
Administrative Support
Shea, Tara
Staff Accountant
Thompson, Kathleen
Assistant to Chair

Billing Office

Barber, Sharon
Bush, Nora
Horton, Melissa
King, Alicia
Billing Manager
Nevis, Geraldine
Pai, Geeta
Ruffle, Linda, CPC
Sliker, Sandy
Tobias, Corinne, CPC
Assistant Billing Manager
White, Tamika

Information Technology

Dyke, Jack
Nicholson, Douglas

Pain Treatment Center**Administrative Staff**

Ackley, Colton
Aponte, Maria
Arnold, Megan
Griffo, Maria
Jech, Teresa
Office Manager
Sanchez, Alana
Office Manager
White, Cherelle

Pain Treatment Center**Clinical Staff**

Beal, Cathy, RN
Douglas, Elizabeth, RN
Findley, Audra
Clinical Technician
Gentile, Adam
Clinical Technician
McDermott, Jennifer
Clinical Technician
Prince, Debra, RN
Ramos, Mary, RN
Simmons, Julie, NP
Taylor, Cynthia, RN, BSN
Vaughan, Janet, NP

Volkmar, Laura
Clinical Technician
Waite, Julie, RN

**Center for Perioperative Medicine –
Clinical Staff**

Brabant, Mardell, RN
Nurse Manager
Cottrell, Therese, NP
Johnson, Mary, NP
Kunz, Mary Ellen, NP
McCollum, Lisa, NP
Northrup, Christine, NP
Robinson, Renee, NP
Ruetz, Phyllis, NP
Smith, Dianne, NP
Timm, Jennifer, NP
Wharton, Mitchell, NP

Research Personnel

Brookes, Paul, PhD
Professor
Miller, James
Laboratory Technician
Nadtochiy, Sergiy, PhD
Research Assistant Professor
Wang, Yves, PhD
Postdoctoral Research Associate
Dworkin, Robert, PhD
Professor
Gewandter, Jennifer, PhD
Assistant Professor
Kitt, Rachel
Information Analyst
Koch, James
Information Analyst
Smith, Shannon, PhD
Assistant Professor
Johnson, Gail, PhD
Professor
Pallo, Susanne, PhD
Postdoctoral Research
Associate
Tang, Maoping, PhD
Postdoctoral Research
Associate



Wojtovich, Andrew, PhD
Assistant Professor
Berry, Brandon
Graduate Student
Bahr, Laura
Lab Technician
Wei, Alicia
Undergraduate Student

Outcomes Research Support

Feng, Changyong, PhD
Associate Professor

Clinical Research Support

Baldizhar, Aksana
Lee, Hannah
Ortiz, Tammy
Research Administrator
Voter, William
Senior Technical Associate
Wong, Eunyoung, RN, MS

Strong West – Clinical Staff

Weezorak, Diane, NP



University of Rochester
Department of Anesthesiology
601 Elmwood Avenue, Box 604
Rochester, New York 14642

