MISSION STATEMENT

The mission of the Wayne State University Department of Anesthesiology Division of Research is to search for new knowledge and understanding in order to advance excellence in anesthesia clinical practice and patient care. Through collaborative efforts with the other branches of the university, the Division of Research endeavors to enhance the educational experience for both medical students and residents thereby developing future physician scientists with the necessary background to meet the national mandate of translational research.

Research Areas

Mechanisms of Anesthesia/Pain: A range of techniques and methods ranging from cell culture studies to whole animal and human physiological and behavioral assessment. Analysis techniques include magnetic resonance and spectroscopy analysis, physiological signal acquisition (16-channel), processing and analysis, particularly EEG (electroencephalograph) and cardio-respiratory parameters, leading to understanding basic physiological mechanisms and drug actions on the neural substrates underlying consciousness and pain perception.

Specific Facilities

- Magnetic Resonance Imaging and Spectroscopy research utilizing human whole-body systems at 1.5, 4T and 7T (Tesla)
- Small Animal System at 4.7T
- Vertical bore 11.7T research magnet
- Diagnostic imaging including CT, x-ray, bone density, ultrasound and diagnostic injection for pain management
- Basic lab services including -70°C freezer, refrigerated centrifuge and fume hoods
- Dedicated investigational pharmacy
- Full-service, in-house core laboratories including rapid-response capabilities and running of PK studies
- Access to various inpatient and outpatient specialized services

Practice Environment

Our current clinical practice is comprehensive utilizing physician-directed anesthesia and perioperative care teams/groups representing a multidisciplinary approach. The department provides anesthesia services covering perioperative care for inpatient and outpatient surgery, labor and delivery, and intensive care and pain management throughout the metropolitan area of Detroit, Michigan, and performs more than 95,000 anesthesia services per annum. The Greater Detroit population base of more than 4,000,000 residents is very diverse and encompasses a wide range of cultural and socioeconomic backgrounds with many community attributes.
## Physician Staff

### Dr. Douglas R. Bacon, MD, MA

Dr. Bacon is a board-certified anesthesiologist who completed his residency in anesthesiology at the Millard Fillmore Hospital and State University of New York at Buffalo, respectively. He completed a cardiothoracic anesthesiology specialty year at State University of New York at Buffalo. Currently, he is professor and chairman of the Department of Anesthesiology at Wayne State University School of Medicine.

Dr. Bacon’s research interest is in the history of anesthesia. He was recently named the sixth laureate in the History of Anesthesiology by the American Society of Anesthesiologists. He serves on the society’s Scientific Advisory Committee and Educational Track Subcommittee on Professional Issues. He also is secretary of the Academy of Anesthesiology.

### Dr. H. Michael Marsh, MB, BS

Dr. H. Michael Marsh is a board-certified anesthesiologist who completed his residency in anesthesia at the Mayo Graduate School of Medicine in Minnesota. He served as professor and chairman of the Department of Anesthesiology at Wayne State University School of Medicine from 1998 to 2012 and currently serves as the Vice-Chairman of Academic Affairs for the Department of Anesthesiology.

Dr. Marsh’s research interests include general anesthesia and the lung, acute lung injury and metabolism and epidemiology in critical care. He has numerous publications in these areas.

### Dr. Elie J. Chidiac, MD

Dr. Elie Chidiac is a board-certified anesthesiologist who completed his residency in anesthesiology at the University of Michigan Medical Center in Ann Arbor, Michigan. He is an assistant professor of Anesthesiology at Wayne State University School of Medicine and serves as the program director of the joint Wayne State University/Detroit Medical Center Anesthesiology Residency Program.

Dr. Chidiac’s major research interests are in regional anesthesia procedures, which include peripheral nerve blocks for upper- and lower-extremity surgeries and continuous peripheral nerve blocks with indwelling catheters and disposable pumps.

### Dr. Samuel Perov, MD

Dr. Samuel Perov is a board-certified anesthesiologist who completed his anesthesia residency program at the Medical College of Ohio at Toledo. He is a clinical associate professor of anesthesiology at Wayne State University School of Medicine and currently serves as chief of anesthesiology at Detroit Receiving Hospital.

Dr. Perov’s major areas of interest are in anesthesia in trauma patients including acute trauma airway management, massive resuscitation trauma and peripheral nerve blocks including continuous nerve blocks for patients undergoing orthopaedic procedures. His clinical studies interests include new reversal agents for muscle relaxants; i.e., vecuronium and rocuronium, regulation of acetylcholine receptors in burn patients and all aspects of pain medication including spinal-cord stimulations and intrathecal pumps.

### Dr. Vitaly Soskin, MD, PhD

Dr. Vitaly Soskin is a board-certified anesthesiologist who completed his anesthesia residency program at Sinai Hospital in Detroit, Michigan. He is a clinical assistant professor of Anesthesiology at Wayne State University School of Medicine and director of obstetrical anesthesiology at Hutzel Women’s Hospital in Detroit, Michigan.

Dr. Soskin’s major areas of interest are in postoperative epidural analgesia, preemptive analgesia and sympathetic nerve blocks and treatment modalities for sympathetic mediated pain.

### Dr. Samir F. Fuleihan, MD

Dr. Samir Fuleihan is a board-certified anesthesiologist who completed his anesthesia residency program at the Harvard Medical School in Boston, Massachusetts. He is a clinical associate professor of Anesthesiology at Wayne State University School of Medicine and currently serves as chief of anesthesia at Harper University Hospital in the Detroit Medical Center.

Dr. Fuleihan’s major areas of interest are in postoperative epidural analgesia, preemptive analgesia and sympathetic nerve blocks and treatment modalities for sympathetic mediated pain.

### Dr. Hong Wang, MD, PhD

Dr. Hong Wang is a board-certified anesthesiologist who completed her anesthesia residency program at Henry Ford Hospital in Detroit, Michigan. She is an associate professor-clinical of Anesthesiology at Wayne State University School of Medicine and serves as the residency research director of the joint Wayne State University/Detroit Medical Center Anesthesiology Residency Program.

Dr. Wang’s major area of interest is in the development of the Intelligent Anesthesia Monitor and Anesthesia Depth Diagnosis Assistance System, which is currently a collaborative research effort with the WSI Department of Electrical & Computer Engineering and supported by the Michigan Economic Development Corporation.
Farhad Ghoddoussi, PhD

Matthew Galloway, PhD, earned his doctoral degree in Biochemistry at St. Louis University in 1981. After post-doctoral training in neurochemical pharmacology at Yale University School of Medicine (psychiatry), he accepted a faculty position at Wayne State University School of Medicine where he is currently a professor of Psychiatry and Behavioral Neuroscience and Anesthesiology. In Psychiatry, he is co-director of the Brain Research and Imaging Neurosciences Research Division, and he is director of research in Anesthesiology.

Dr. Galloway’s major research interests include the application of proton Magnetic Resonance Spectroscopy (MRS, 11.7T) to animal models of neuropsychiatric disorders (stimulant addiction, neurotoxicity, depression, schizophrenia, amytrophic lateral sclerosis, Parkinson’s disease) as well as the mechanism of action; e.g., MR-visible neurochemical profiles of anesthetics. Additionally, research is focused on the neurobiology underlying changes in MR-visible neurochemicals such as glutamate, GABA and N-acetylaspartate. Human research studies include MRS analysis of propofol in vivo as well as analysis of epileptogenic tissue. Research endeavors are supported by NIDA.

Lakshmi Chaturvedi, PhD

Lakshmi Chaturvedi, PhD, earned his doctoral degree in Medical Genetics at the Sanjay Gandhi Post-Graduate Institute of Medical Sciences in Lucknow, India. He currently is a research associate in the Department of Anesthesiology at Wayne State University School of Medicine.

Dr. Chaturvedi’s major area of interest is focused in mitogenic and motogenic effects of mechanical strain/stretch on lung epithelial cells. In addition, he is currently collaborating with Dr. Marc Basson in research endeavors which include intestinal epithelial wound healing, cell-matrix interactions, physical force effect, cell-matrix interactions, cell signaling and cancer cell adhesion and metastasis.

George M. McKelvey, PhD

George McKelvey, PhD, earned his doctoral degree in Physiology at The University of Sydney, NSW, Australia. He currently is a research associate in the Department of Anesthesiology at Wayne State University School of Medicine.

Dr. McKelvey’s current research involves clinical and animal studies investigating physiological and neurochemical mechanisms of anesthesia. His specific interests include the application of proton Magnetic Resonance Spectroscopy in the MR-visible neurochemical profiles of anesthetics and cardiorespiratory and electroencephalographic (EEG) effects of anesthesia.

For additional information, you can view our Web site for a current listing of projects and publications at: www.med.wayne.edu/anesthesiology/research.htm

Faculty curriculum vitaeas and bibliographies are available upon request.