

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE

DEPARTMENT OF ANESTHESIOLOGY

ANNUAL REPORT 2010/2011

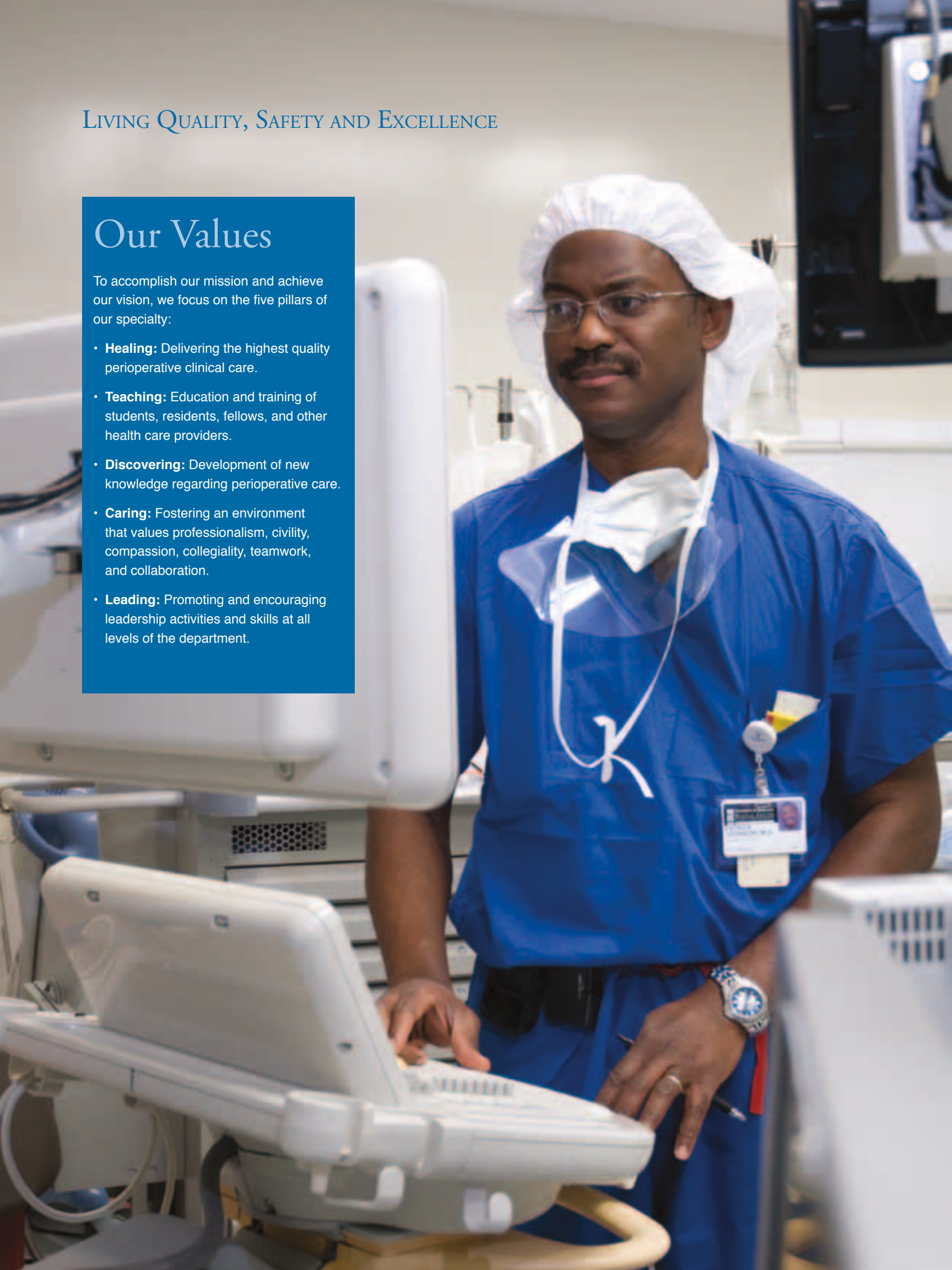
Leading
Healing Caring
Teaching
Discovering



Our Values

To accomplish our mission and achieve our vision, we focus on the five pillars of our specialty:

- **Healing:** Delivering the highest quality perioperative clinical care.
- **Teaching:** Education and training of students, residents, fellows, and other health care providers.
- **Discovering:** Development of new knowledge regarding perioperative care.
- **Caring:** Fostering an environment that values professionalism, civility, compassion, collegiality, teamwork, and collaboration.
- **Leading:** Promoting and encouraging leadership activities and skills at all levels of the department.



LETTER FROM THE CHAIRMAN

When I look back at the last year, I see a year of significant growth for the Department of Anesthesiology at the University of Maryland. We continued to enhance our team by recruiting new faculty who have brought tremendous skill, experience, and compassion to our department. Novel avenues of investigation have bolstered our research portfolio. We implemented our new electronic patient data recording system. And we're building a new hospital wing with a new intensive care unit and more operating rooms. Clearly, we are a department on the move.

We are also a department that remains financially sound. We've been able to weather the economic climate while fulfilling and advancing our mission: to deliver state-of-the-art anesthesia services to patients; to educate students, residents, and fellows; to be recognized for our contributions to the specialty of anesthesiology through education, research, and scholarly activities; and to contribute to the success of the University of Maryland Medical School and Medical Center.

We are one of the fewer than one-third of academic anesthesiology departments in the country to institute an Anesthesia Information Management System (AIMS), which accomplishes real-time digital tracking of perioperative patient data and frees up anesthesiology staff to do what they do best: take care of our patients. AIMS is essential to clinical research, quality assurance, and quality improvement, and gives us great insight into patient care. I'd like to thank our staff for their collaboration in making the transition to AIMS a successful one. Their buy-in to this new way of doing things was inspirational.

Anesthesiologists in our department have access to a wide range of cases they see at locations such as the University of Maryland Medical Center in downtown Baltimore, the Shock Trauma Center, the Baltimore VA Medical Center, and Kernan Hospital. The diversity of patients we see provides physicians with broad experience and trainees with broad educational opportunities, which translate to better care for all patients.

Equally diverse is our staff, who come from a variety of cultures, nations, and ethnicities. Our department is truly a model of a respectful team comprised of people from all backgrounds, and we are all the richer for it.

I'd like to take this moment to thank the anesthesiologists and certified registered nurse anesthetists from the trauma operating rooms, general operating rooms, and Kernan Hospital who stepped up to travel to Haiti for one-to-two week stints after the devastating earthquake in January 2010 to provide anesthesia services. Thanks, too, to the University of Maryland Anesthesiology Department alumni who also responded to our call to help the residents of that impoverished nation. This challenging yet rewarding experience is a perfect example of our staff's commitment to our mission and values wherever they go -- not just within our walls here in Baltimore.

Our residency program is as popular as ever, and we continue to offer fellowships and advanced subspecialty fellowship training. We recently lost one of the greatest champions of anesthesia education when Dr. Jane Matjasko died in January 2011. In her 15 years as department chair, she trained more than 300 residents and fellows in anesthesiology. She was a guiding force in the specialty, serving as a tireless advocate for patients and as a selfless and visionary leader, mentor, and professor.

Dr. Matjasko's legacy continues through her generous funding of two new professorships for research and education in anesthesiology. We were delighted to name two of our distinguished faculty to those professorships: Dr. Gary Fiskum was named the Matjasko Professor for Research in Anesthesiology, and Dr. Mary Njoku was named the Matjasko Associate Professor for Education in Anesthesiology.

I am very fortunate to have succeeded Dr. Matjasko as chair of this wonderful department. Her leadership and vision for academic anesthesiology during what was a challenging period for the specialty resulted in a first-rate department here at the University of Maryland. I am honored to lead the department that Dr. Matjasko helped to build, and look forward to continuing to fortify its commitment to the highest quality patient care, research, and education in our field.



Peter Rock, M.D., M.B.A., F.C.C.M.

Martin Helrich Professor and Chair

Department of Anesthesiology

University of Maryland School of Medicine

Professor of Anesthesiology, Medicine and Surgery

Anesthesiologist-in-Chief, University of Maryland Medical Center

Leading

We continued to enhance our team by recruiting new faculty who have brought tremendous skill, experience, and compassion to our department.



PROMOTING AND ENCOURAGING LEADERSHIP ACTIVITIES AND SKILLS AT ALL LEVELS OF THE DEPARTMENT

OUR HISTORY

Anesthesiology as a medical discipline at the University of Maryland Hospital began in 1913, and was first practiced by Dr. Griffith Davis, the only physician in Baltimore who practiced anesthesiology full-time. The residency program was established in 1946 with a team of five residents and a single full-time faculty member, Dr. Fred Dye. In 1948, the University of Maryland Hospital appointed Dr. Albert Nelson as Chief of Anesthesiology. In 1953, Dr. Thomas Dodd succeeded Dr. Nelson.

The University of Maryland officially established the Department of Anesthesiology in 1956. The same year marked the recruitment of the first Chair, Dr. Martin Helrich, who came to Baltimore from the University of Pennsylvania. Dr. Helrich had completed his anesthesiology training at Bellevue Hospital in New York City under the tutelage of Dr. E.A. Rovenstine, a world-renowned pioneer in the field of anesthesiology. Dr. Helrich established a robust research effort, strengthened the residency program, and expanded clinical services into areas such as the Shock-Trauma Institute (now known as the R. Adams Cowley Shock Trauma Center).

Dr. Helrich served as Department Chair for 31 years, until his retirement in 1987, when Dr. Jane Matjasko became Acting Chair. At that time, there were 18 faculty and 18 residents. All services were delivered primarily at the University of Maryland Medical Center (UMMC). Dr. Matjasko became the official Chair in 1990, a position she held for the next 15 years. During Dr. Matjasko's tenure, the breadth and scope of our services grew tremendously.



Today, 70 faculty, 44 residents, and six fellows provide anesthesiology, pain management, and critical-care services at UMMC, Baltimore Veterans Affairs Medical Center, The James Lawrence Kernan Hospital, and the R. Adams Cowley Shock Trauma Center. Chronic pain management services are provided in a multidisciplinary clinic at Kernan Hospital. Departmental research is carried out in clinical settings and in the Anesthesiology Research Laboratories in the Medical School Teaching Facility, as well as through the interdisciplinary Shock, Trauma and Anesthesiology Research (STAR) Center.

In December 2006, Dr. Peter Rock became the Martin Helrich Professor and Chair of the Department of Anesthesiology. He has committed himself to continuing the tradition of excellence established by his predecessors, while continuing to enhance the department's ability to meet its missions.

DEPARTMENT HIGHLIGHTS

1807

University of MD School of Medicine established. The first public medical school in the United States.



1913

Anesthesiology becomes a medical discipline at University of Maryland Hospital

1946

Residency Program established



1948

Dr. Alfred T. Nelson appointed Chief of Anesthesiology

VISIONARY LEADERS

The University of Maryland Department of Anesthesiology would like to thank its benefactors for their generous contributions in support of our efforts. In particular, we'd like to express our gratitude to the late Dr. Jane Matjasko, who died in January 2011 and whose benevolence led to the funding of two new professorships for research and education in anesthesiology.

Dr. Matjasko was an inspirational and visionary leader and a good friend and mentor who began her 37-year tenure at the University of Maryland as an intern in 1968. A nationally known leader in the field, she was Chair of the Department of Anesthesiology from 1990 to 2005. She served as Director of the Foundation for Anesthesia



Education and Research (FAER), a Director of the American Board of Anesthesiology, and a member of the Accreditation Committee for Graduate Medical Education. She authored numerous publications, including a book entitled *Clinical Controversies in Neuroanesthesia and Neurosurgery*.

During her stewardship, the department grew in both the scope and complexity of its mission — expanding to include approximately 100 faculty and residents, serving four hospitals, and provid-

ing expert care in all subspecialties of anesthesiology. Dr. Matjasko devoted considerable support to the department's research mission in diverse areas, including patient safety and neuroprotection.

She will be most remembered, however, for her dedication to education, having trained more than 300 residents and fellows during her tenure as department chair. Under her leadership, the department developed four medical school courses to introduce students to anesthesiology. Her name will long be synonymous with the practice of anesthesiology at the University of Maryland and throughout the national anesthesiology community.

Dr. Gary Fiskum, Vice Chair for Research, has been named the Matjasko Professor for Research in Anesthesiology. He and his colleagues are elucidating the molecular mechanisms underlying ischemic and traumatic brain injury. Dr. Fiskum joined the department in 1997 and worked with Dr. Matjasko for the next eight years.

Dr. Mary Njoku has been named the Matjasko Associate Professor for Education in Anesthesiology. She serves as Program Director for the Anesthesiology Residency and Fellowship Programs and Vice Chair for Education. Dr. Njoku joined the department in 1992 and worked closely with Dr. Matjasko.

Supporters such as Dr. Matjasko make it possible for our department to excel in ways that would not otherwise be possible with conventional healthcare revenue sources alone.



1953

Dr. Thomas Dodd appointed Chief of Anesthesiology.



1956

Department of Anesthesiology established with Dr. Martin Helrich appointed as the first Chair



1986

Dr. M. Jane Matjasko becomes Acting Chair and then Chair in 1990

HOW YOU CAN HELP

We appreciate your support and look forward to making you part of our team as we continue to build our department to meet the future needs of the Medical Center and Medical School.

Checks may be mailed to:
University of Maryland School of Medicine
Office of Development
100 N. Greene Street, Suite 600
Baltimore, MD 21201

To make your gift with a credit card, visit the University of Maryland School of Medicine Development page at fundformedicine.org, or call the Office of Development at 410-706-8503.

If you wish to contribute to the Matjasko Professorship in Education or the Matjasko Professorship in Research, please make your check payable to the Trustees of the Endowment Fund, write "Matjasko" on the memo line, and send it to the address above with the notation "Attn: Matjasko Fund" on the envelope. Or you may make a credit card donation as described above.

We thank you in advance for your generosity.

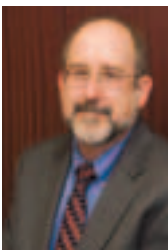


Although the Department is growing in both scope and complexity, we relish our history. Each year, we gather to celebrate our heritage during the Professors Martin Helrich and M. Jane Matjasko

Lecture in Anesthesiology. Leading anesthesiologists from across the U.S. are invited to present their cutting-edge research before the Department, alumni, and invited guests. In 2010, the 23rd invited Lecturer was Dr. Spencer Liu, who spoke in historic Davidge Hall on the role of regional anesthesia in perioperative



outcomes. We look forward to once again remembering our heritage in the fall of 2011, when Dr. Thomas Blanck will present the 24th invited Helrich/Matjasko Lecture.



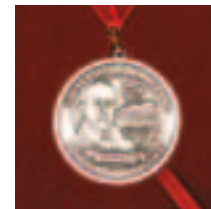
2006

Dr. Peter Rock appointed the third Chairman of the Department.



2007

Shock, Trauma and Anesthesiology Research Organized Research Center (STAR-ORC) established.



2010

Investiture of M. Jane Matjasko Professorships in Research and Education

Caring

Anesthesiologists and Certified Registered Nurse Anesthetists from the trauma operating rooms, general operating rooms, and Kernan Hospital stepped up to travel to Haiti for one-to-two week stints after the devastating earthquake in January 2010 to provide anesthesia services.



FOSTERING AN ENVIRONMENT THAT VALUES PROFESSIONALISM, CIVILITY, COMPASSION, COLLEGIALITY, TEAMWORK, AND COLLABORATION

HELP FOR HAITI

When an earthquake measuring 7.0 on the Richter scale struck the already resource-limited country of Haiti on January 12, 2010, the results were devastating. More than 250,000 people died and some 300,000 more were injured. The new five-story building at the St. Francois de Sales Hospital pancaked on itself and was reduced to just one and a half stories.

Aid was slow to arrive and medical care even slower. The University of Maryland and Catholic Relief Services already had a presence in the island nation to provide HIV education and treatment, and together organized a



team of physicians and staff to care for the injured.

Among them were anesthesiologists and Certified Registered Nurse Anesthetists (CRNAs) from the University of Maryland


Medical Center Shock Trauma ORs, Adult Multi-Specialty Division, and Kernan Hospital, who each committed one to two weeks of their time to provide anesthesia and pain management services through June 2010. Specialists and support staff from infectious disease, trauma surgery, orthopedics, and the wound service collaborated to identify and treat patients for immediate care and track them with follow-up care. Many patients received regional anesthetics because this technique obviated the possible need for post-operative ventilation and provided for additional post-operative pain management.



Participation in the mission was expanded to licensed anesthesia practitioners, senior residents, and fellows across the country. A call went out to all University of Maryland Department of Anesthesiology alumni from the last four years, and several answered that call.

The selfless response of University of Maryland anesthesiology staff was no surprise to those in the department, whose dedication and shared sense of compassion exemplify their commitment to the department's mission.



A photograph of two surgeons in an operating room. The surgeon in the foreground is wearing a blue surgical cap with a floral pattern and a white face mask. The surgeon in the background is wearing a blue surgical cap and a white face mask. They are both wearing blue scrubs. The surgeon in the foreground is holding a white document. In the background, there is a Stryker medical device with a screen displaying a medical image. The word "stryker" is visible on the device.

Our residency program is as popular as ever, and we continue to offer fellowships and advanced subspecialty fellowship training.

Teaching

EDUCATION AND TRAINING OF STUDENTS, RESIDENTS, FELLOWS, AND OTHER HEALTH CARE PROVIDERS.

TRAINING TOMORROW'S LEADERS TODAY

The University of Maryland Department of Anesthesiology features popular residency and fellowship programs as well as training for medical students. Clinicians who train in our department are exposed to an interesting and diverse range of cases, greatly enhancing their educational experience.

Residents

Our residency program is fully accredited with a review cycle of four years. Residency training consists of supervised daily instruction in the care of patients requiring surgery, obstetric care, pain management, critical care services, and preoperative evaluation. Experience is provided in postoperative care, resuscitation, respiratory and hemodynamic emergency care, and ventilator management.

The curriculum complies with the training requirements of the American Board of Anesthesiology and the Accreditation Council for Graduate Medical Education. (ACGME) The program includes three clinical anesthesia years (featuring training in basic, subspecialty, and advanced anesthesiology). We also offer four-year positions which include a medical internship (PGY-1) and CA-1, CA-2, and CA-3 years. Senior residents receive elective time to gain advanced experience in the care of seriously ill patients and complex procedures. Residents have the option of a 6-month research track devoted to laboratory or clinical investigation.

Our residents participate regularly in professional meetings, including delivering presentations at the annual meeting of the American Society of Anesthesiologists. In 2010, six of the eight presentations at the first annual Maryland Anesthesia Residents' Congress were made by our residents.

Dr. Shaka James received the Society for Education in Anesthesia Health Volunteer Overseas Travelling Fellowship. Dr. James traveled to Peru for one month to teach in this developing country and to learn how to adapt current techniques to the needs of their hospital. It is an honor for one of our residents to receive this competitive scholarship.

In 2010, 14 residents completed training. For more information about the residency program, visit us online at <http://medschool.umaryland.edu/anesthesiology/residency.asp>.

Fellows

Individuals may choose to complete subspecialty fellowship training (12-24 months) beyond the three clinical anesthesia years. There are three ACGME-accredited fellowship programs in cardiothoracic anesthesiology, critical care medicine, and pain medicine. We also offer fellowships in neurosurgical anesthesiology, obstetric anesthesiology, trauma anesthesiology, and transplant anesthesiology.

In 2010, five fellows completed training. For more information about fellowship training, visit http://medschool.umaryland.edu/anesthesiology/fellowship_training.asp

Medical Students

The Department of Anesthesiology takes an active role in training fourth-year medical students at the University of Maryland School of Medicine through a four-week anesthesiology operating room elective at the University of Maryland Medical Center and Baltimore Veterans Administration Medical Center (ANES 541); a four-week pain management elective (ANES 542); and a four-week subinternship in Surgical Critical Care Anesthesiology (ANES 548). Four-week and eight-week externships for first and second year medical students are also available in many anesthesia sub-specialties.

For more information about opportunities available to medical students, visit http://medschool.umaryland.edu/anesthesiology/med_students.asp.





Expanding Our Use of Simulation

Simulation is a virtual approach to training physicians in the management of complex clinical cases and challenging situations, especially those they may not encounter on a daily basis in the hospital. The University of Maryland Department of Anesthesiology has expanded the integration of simulation into our training programs through the Maryland Advanced Simulation, Training, Research, and Innovation (MASTRI) Center.

In the last year, a robust curriculum using high-fidelity human patient (mannequin-based, adult- and child-sized) simulators and fully interactive team simulations were developed and deployed. Starting with just one certified instructor, there are now several dedicated faculty who have achieved certification as simulation instructors through The Center for Medical Simulation at Harvard, and more are being trained.

The curriculum has been expanded significantly over the past years since the initial central venous catheter course debuted in 2008. For example, we have developed a daylong difficult airway management course for first-year anesthesiology residents which trains and reinforces accurate use of the American Society of Anesthesiologists' difficult airway algorithms in a small group setting.

A module on one-lung ventilation gave residents an opportunity to engage in the comprehensive anesthetic management of patients requiring this support. Another module focusing on cardiac scenarios was developed which presents CA-1, CA-2, and CA-3 anesthesiology residents with common problems that occur during the cardiac anesthesiology rotation. With a cardiac surgical fellow participating in the simulation, residents learn to manage common hemodynamic and surgical situations in a replica of a cardiac operating room. Importantly, we are focusing on group-based scenarios to emphasize the importance of teams and teamwork in critical situations.

Other recent courses that have been developed address allergic reactions, malignant hyperthermia, and hemodynamic problems occurring during induction. These courses were originally designed for anesthesia residents, but have been expanded to encompass team training exercises and communication issues for a variety of trainees in other specialties. We continue to see greater involvement of medical students, surgical residents, and other healthcare professionals in these programs. Other faculty are developing a simulator program for year-long training and practice in ultrasound-guided regional nerve blocks. They are also developing simulator scenarios uniquely related to regional anesthesia, such as the treatment of local anesthetic toxicity.

Over the next year, additional courses will be developed to address team training and communication breakdowns during STAT or “code-blue” situations. There will also be specific task-based training for techniques such as central venous, pulmonary artery, and intra-arterial catheter insertion; performing intrathecal anesthesia; placement of epidural catheters; and specific nerve blocks. With the increase in simulation-trained anesthesia faculty, we expect to offer additional courses encompassing a variety of anesthesia subspecialties, including pain medicine and obstetrics. One goal for the next year is to be able to expand the role of simulation to faculty anesthesiologists as part of our efforts to ensure quality and safety for patients by periodic training and evaluation of our own practitioners.

We would also like to be able to offer such training and evaluation to community anesthesiologists and intensivists. To accomplish this goal, we plan to achieve certification of our Anesthesia Simulation Program by the American Society of Anesthesiologists. This will enable us to provide opportunities to board-certified anesthesiologists as they enter into the Maintenance of Certification in Anesthesiology (MOCA) process.



Our residents




E. Albert Reese, M.D., Ph.D., M.B.A., Martin Helrich, M.D., Mary Njoku, M.D., Gary Fiskum, Ph.D., and Peter Rock, M.D., M.B.A.

Investiture

On November 30, 2010 Peter Rock, M.D., M.B.A., F.C.C.M., Chair of the Department of Anesthesiology and E. Albert Reese, M.D., Ph.D., M.B.A., Dean of the University of Maryland School of Medicine awarded an unprecedented two simultaneous professorships before a large audience in Westminster Hall. Gary Fiskum, Ph.D. became the Matjasko Professor for Research in Anesthesiology and Mary J. Njoku, M.D. became the Matjasko Associate Professor for Education in Anesthesiology. These professorships were established through the generosity of M. Jane Matjasko, M.D., former Chair of the Department of Anesthesiology.





The diversity of patients we see provides physicians with broad experience and trainees with broad educational opportunities, which translate to better care for all patients.

Healing

DELIVERING THE HIGHEST QUALITY PERIOPERATIVE CLINICAL CARE.

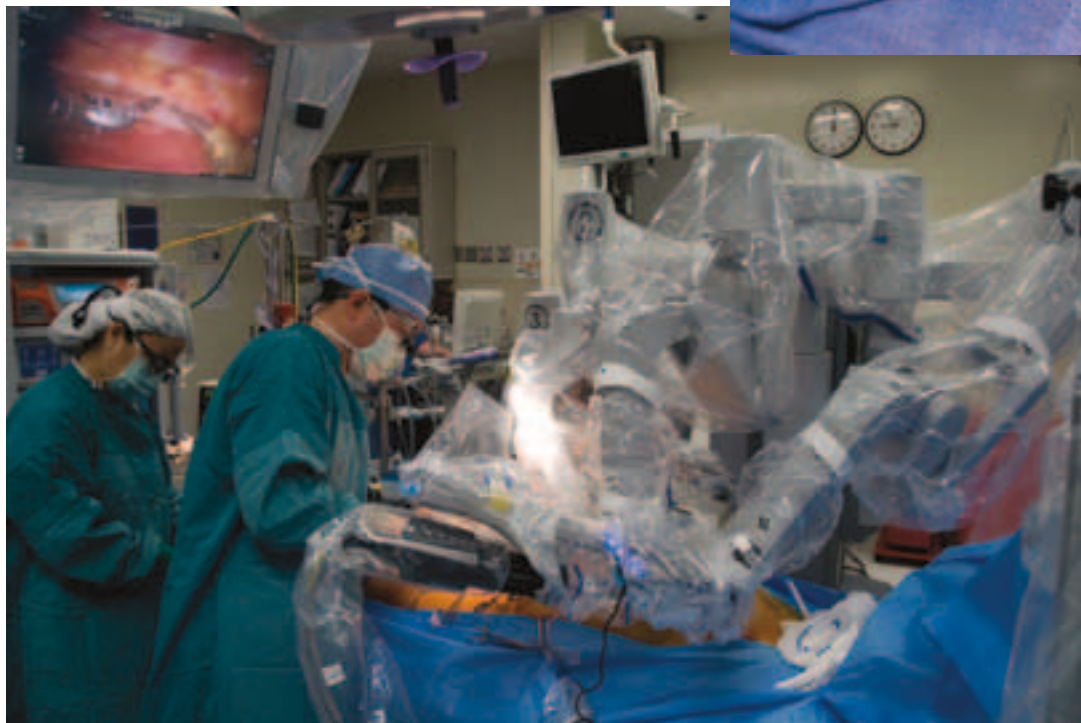
PATIENT CARE

Raising the Bar for Comfort and Safety

When an institution increases its surgical volume as much as we have, it becomes more important than ever to make sure that our patients' needs are met and their safety remains assured. The delivery of state-of-the-art anesthesia services in perioperative care, pain management, and critical care medicine is a central component of our department's mission. Subspecialization enables us to meet our patients' needs while advancing the field.

Subspecialty anesthesiology at the University of Maryland Medical Center is provided through the following divisions and programs:

- Adult Multispecialty Anesthesia
- Cardiovascular and Thoracic Anesthesia
- Critical Care
- Neurosurgical Anesthesia
- Obstetric Anesthesia
- Pain Medicine
- Pediatric Anesthesia
- Regional Anesthesia
- Transplantation Care
- Trauma Anesthesia



ADULT MULTISPECIALTY ANESTHESIA FACULTY

Douglas Martz, M.D.
*Vice Chair for Clinical Affairs
Director, Adult Multispecialty
Anesthesiology Division
Associate Professor*

Beatrice Afrangui, M.D.
*Medical Director, PREP Center
Clinical Assistant Professor*

Jasjit Atwal, M.B.B.S.
Clinical Assistant Professor

Malinda Boyd, M.D.
Clinical Assistant Professor

Shobana Bharadwaj, M.B.B.S.
Assistant Professor

Kathleen Davis, M.D.
*Assistant Director, Residency Program
Assistant Professor*

John Drago, D.O., J.D.
Clinical Assistant Professor

Stephanie Esposito, M.D., M.S.
Instructor

Molly Fitzpatrick, M.D.
Assistant Professor

Annette Folgueras, M.D., J.D.
Clinical Assistant Professor

Ashanpreet Grewal, M.D.
Assistant Professor

Ileana Gheorghiu, M.D.
Assistant Professor

Jawad Hasnain, M.B.B.S.
Assistant Professor

Andrew Heath, M.D.
Clinical Instructor

Caron Hong, M.D.
Instructor

Alisa Horsford, M.D.
Visiting Instructor

Robyn Iglehart, M.D.
Instructor

Chinwe Ihenatu, M.B., Ch.B.
Clinical Assistant Professor

Jeremy Kaplowitz, M.D.
Instructor

Arthur Milholland, M.D., Ph.D.
Clinical Assistant Professor

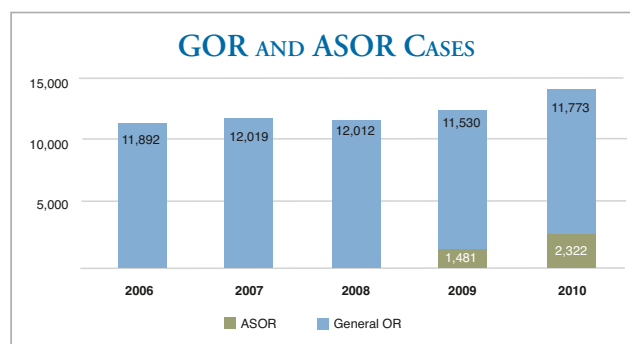
Mary McHugh, M.D.
Assistant Professor

ADULT MULTISPECIALTY ANESTHESIOLOGY

This division, the largest in the department, cares for patients in the operating rooms at the University of Maryland Medical Center in the Weinberg building and the North Hospital perioperative area. These state-of-the-art facilities contain 25 surgical and two endoscopy suites, serving all surgical subspecialties with equipment and supplies to support the clinical care of our diverse patient population. These operating rooms are staffed by a growing roster of faculty members dedicated to the clinical care of their patients and the education of fellows, residents, medical students, student nurse anesthetists, and paramedics. For most clinical cases, we use a model of directed supervision of residents or CRNAs; other cases have anesthesia provided solely by faculty anesthesiologists.

The division's growth has been facilitated by the implementation in 2010 of the Anesthesia Information Management System (AIMS), an electronic system for recording vital data during surgery. (See page 32 for more about AIMS.) In June 2010, the Ambulatory Surgery Operating Rooms (ASOR) became the first unit to "go live" with AIMS. With Information Technology support and a "workflow-friendly" format, it was a very successful transition.

The endoscopy unit has experienced a dramatic increase in volume, with the majority of therapeutic endoscopy procedures for the hospital performed with intravenous sedation or general anesthesia. Our pulmonology colleagues have introduced endobronchial ultrasound (EBUS), a procedure for minimally invasive sampling of mediastinal lymph nodes that requires general anesthesia. There are several projects under way to examine anesthesia techniques and outcome for endoscopic retrograde cholangiopancreatography and EBUS and to evaluate innovative devices for airway management.





(L to R, Top to Bottom) Douglas Martz, Beatrice Afrangui, Jasjit Atwal, Malinda Boyd, Shobana Bharadwaj, Ribal Darwish, Kathleen Davis, John Drago, Stephanie Esposito, Molly Fitzpatrick, Ashanpreet Grewal, Ileana Gheorghiu, Andrew Heath, Caron Hong, Alisa Horsford, Chinwe Ihenatu, Jeremy Kaplowitz, Arthur Milholland, Mary McHugh, Sheryl Nagle, Mary Njoku, Robert Noorani, John Pallan, Amer Quaddoura, Peter Rock, Ron Samet, Sanyogeeta Sawant, David Schreiber, Baekhyo Shin, Victoria Smoot, Shafonya Turner, Obi Udekunwu

CARDIOVASCULAR AND THORACIC ANESTHESIOLOGY

The Division of Cardiovascular and Thoracic (CT) Anesthesiology delivers high-quality and comprehensive perioperative anesthetic and critical care services to patients with significant cardiac, vascular, and pulmonary diseases. Our faculty participate in cardiac care services, thoracic procedures, vascular procedures, and echocardiography services. The division had a successful and productive year.

In 2010, Dr. Alina Grigore was appointed director of the division. She completed her residency in Anesthesiology at Columbia University, St. Luke's-Roosevelt Hospital in 1998 and a Cardiothoracic Fellowship at Duke University Medical Center in 2000. She has held faculty appointments at Duke and the University of Texas, Baylor, College of Medicine – Texas Heart Institute, and most recently was Associate Professor of Anesthesiology at the Mayo Clinic College of Medicine in Scottsdale, Arizona. Dr. Grigore is also board-certified in Perioperative Transesophageal Echocardiography.

The division features innovative technology such as intra-operative transesophageal echocardiography (TEE), including 3D TEE; advanced neurologic electrophysiologic monitoring; and

Sheryl Nagle, M.D.
Clinical Assistant Professor

Mary Njoku, M.D.
*Vice Chair for Education
Director, Residency and
Fellowship Programs
Matjasko Associate Professor for
Education in Anesthesiology*

Robert Noorani, M.D.
Assistant Professor

John Pallan, M.D.
Assistant Professor

Amer Quaddoura, M.D.
Clinical Assistant Professor

Peter Rock, M.D., M.B.A., F.C.C.M.
*Department Chair
Professor*

Ron Samet, M.D.
*Director, Program in Regional Anesthesia
Assistant Professor*

Sanyogeeta Sawant, M.B.B.S.
Clinical Assistant Professor

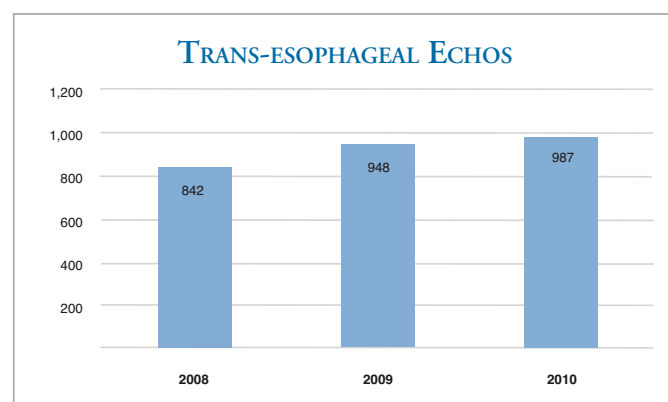
David Schreiber, M.D.
*Director, Neurosurgical Anesthesiology
Assistant Professor*

Baekhyo Shin, M.D.
Clinical Professor

Victoria Smoot, M.D., M.S.
*Medical Director, Ambulatory Surgery
Operating Rooms
Assistant Professor*

Shafonya Turner, M.D.
Instructor

Obi Udekunwu, M.B.B.S.
*Director, Transplant Anesthesiology
Assistant Professor*





Alina Grigore, Wendy Bernstein, Seema Deshpande, Molly Fitzpatrick, Ileana Gheorghiu, Ashanpreet Grewal, Patrick Odonkor

Cardiovascular and Thoracic Anesthesiology Faculty

Alina Grigore, M.D., M.H.S., F.A.S.E.

*Director, Cardiothoracic Anesthesiology Division
Associate Professor*

Wendy Bernstein, M.D.

*Fellowship Director
Associate Professor*

Seema Deshpande, M.B.B.S.

Assistant Professor

Molly Fitzpatrick, M.D.

Assistant Professor

Ileana Gheorghiu, M.D.

Assistant Professor

Ashanpreet Grewal, M.D.

Assistant Professor

Patrick Odonkor, M.B., Ch.B.

Assistant Professor

detailed coagulation tests to achieve a safe and controlled operative environment. The division's faculty also work closely with cardiac surgeons and intensivists to ensure the optimal recovery of our patients.

The division's clinical service volume increased by 6 percent in the last year, and CT also witnessed a 50-percent increase in the number of totally endoscopic coronary artery bypass (TECAB) graft procedures with an arrested or beating heart. The division also features a new hybrid room for multispecialty integrated cardiac care, involving cardiac surgery, cardiology, cardiac anesthesiology, and interventional radiology services. A second hybrid room is being constructed to facilitate our ability to perform procedures such as TECAB, endovascular aortic stents, minimally invasive aortic valve replacement, and minimally invasive atrial septal defect closure.



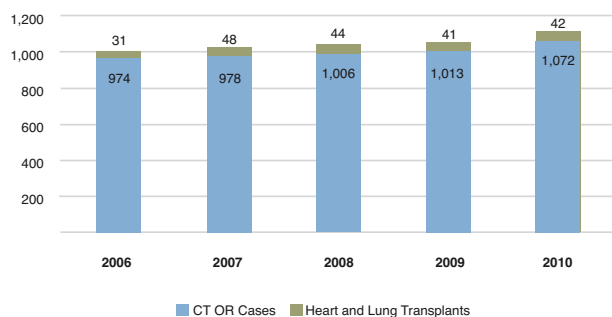
CT faculty are devoting an increasing amount of time to research and academic activities, reflected in developing new projects and manuscripts. Examples of research initiatives in the division include investigations of perioperative cerebral oxygenation of patients undergoing TECAB either with the heart stopped or with it beating; the predictive value of cerebral oximetry in ventricular assist device patients supported by axial flow pumps; and protection against excitotoxicity-induced neuronal metabolic inhibition by pharmacologic levels of magnesium.

The University of Maryland Medical Center is also a site for the national multicenter FOCUS (Flawless Operative Cardiovascular Unified Systems) initiative of the Society of Cardiovascular

Anesthesiologists. The FOCUS initiative is a complementary and cooperative effort designed to raise the bar for patient safety through human factors engineering.

Faculty increased their participation in local, state, and national educational and service activities. Future goals for the division include enhanced training in intraoperative echocardiography, expansion of TEE services to the cardiac ICUs, the development of a perioperative blood conservation program, expansion of the fellowship program, and development and growth of research efforts in the areas of heart failure and organ protection during open heart surgery.

CARDIO-THORACIC SURGICAL CASES



Education: Anesthesiology residents rotate through the Division of Cardiothoracic Anesthesiology. In addition, the Division features a

fellowship in cardiothoracic anesthesiology. The fellowship received re-certification in 2010 for a full five years. Both residents and fellows benefit from lectures and presentations as well as grand rounds on a variety of topics.

Simulation is an integral part of teaching for both residents and fellows. Courses address scenarios such as difficult airway management, insertion of central venous catheters, one-lung ventilation, and other cardiac anesthesia-specific issues.



CRITICAL CARE ANESTHESIOLOGY

The Division of Critical Care Medicine forms an integral part of our anesthesia services, providing direction and supervision to the Surgical and Neurosurgical Intensive Care Units (ICUs) as well as the Post-Anesthesia Care Unit (PACU). The role of the intensivist is vital to the delivery of these services and to the functioning of the ICUs.

Surgical ICU

Intensivists help manage a 19-bed Surgical ICU, sharing the responsibility equally with the Department of Surgery, Division of Surgical Intensive Care. An intensivist manages the Surgical ICU 24/7, providing direction and care in the management of patients undergoing transplants (including liver, kidney, and pancreas transplants) and those having major vascular surgeries (such as open and endovascular aortic aneurysm repairs), ENT operations, thoracic procedures, and extensive plastic surgical flap reconstructions. The patient population also encompasses critically-ill patients with pancreatitis, sepsis, renal failure, and hemorrhagic shock.

The Division integrates evidence-based medicine into its practice and has implemented protocols such as early goal-directed therapy to enhance survival in Surgical ICU patients with sepsis, as recommended by the Society of Critical Care Medicine. The group has also aided in the implementation of bedside resuscitative echocardiography and critical care ultrasound techniques. The Surgical ICU continues to be a source of ongoing clinical research and trials. The division provided 3215 patient encounters in the Surgical ICU in FY 2010.

Critical Care Anesthesiology Faculty

Vadivelu Sivaraman, M.B.B.S.
*Director, Critical Care Division
Assistant Professor*

Jessica Benson, M.D.
Assistant Professor

Anila Bhatti, M.B.B.S.
Clinical Assistant Professor

Ribal Darwish, M.D.
Assistant Professor

Thomas E. Grissom, M.D.
Associate Professor

Caron Hong, M.D., M.S.
Instructor

Mary Njoku, M.D.
*Vice Chair for Education
Director, Residency and
Fellowship Programs
Matjasko Associate Professor for
Education in Anesthesiology*

Peter Rock, M.D., M.B.A., F.C.C.M.
*Department Chair
Professor*

David Schreiber, M.D.
Assistant Professor



Vadivelu Sivaraman, Jessica Benson, Anila Bhatti, Ribal Darwish, Thomas E. Grissom, Caron Hong, Mary Njoku, Peter Rock, David Schreiber

Neuro ICU

Similar to the Surgical ICU, an intensivist manages the Neuro ICU every hour of every day, all year long, and is directly involved in the care of patients with acute neurological events such as subarachnoid hemorrhage, aneurysms, brain tumors, traumatic brain injuries, myasthenia gravis, Guillain-Barre syndrome, and stroke. The University of Maryland Medical Center is one of only a few medical centers in the state equipped to manage acute strokes, including those in patients receiving thrombolytic therapy. The majority of patients in the Neuro ICU are post-surgical, having undergone craniotomy for tumor removal or treatment of cerebral aneurysm. The division continues to be involved in ongoing innovative clinical trials within this patient population. The number of patients the division cared for in the Neurosurgical ICU increases yearly, with the potential for expansion in the coming years. In FY 2010 the division provided 4007 patient encounters in the Neuro ICU.

PACU

In the PACU, our intensivists manage patients who present critical care needs post-operatively as they await transfer to an intensive care unit.

Research

Investigators in critical care medicine are participating in research endeavors involving animal models and patients. These include investigations on inflammation and subarachnoid hemorrhage and outcome studies, as well as clinical trials. The division is also actively involved in trials looking at whether anti-psychotic medications can reduce the incidence of ICU delirium, the role of feeding and nutrition in outcomes after the acute respiratory distress syndrome, ICU weakness, and the impact of transfused blood age on outcomes after cardiac surgery.

Education: The Division of Critical Care Medicine has conducted Grand Rounds addressing many critical care topics, including neurocritical subject matter, life-sustaining therapies, and septic shock. We participate in a year-long, ACGME-accredited, in-depth fellowship program in partnership with the Program in Trauma at the University of Maryland and offer a distinct experience in critical care medicine. Anesthesiology and surgical critical care fellows receive lectures from the faculty of our department, including those addressing the management of liver disease, endocrine emergencies, airway management, and analgesia and sedation in the ICU.





(L to R, Top to Bottom) Linda Goetz, Israel Akpadiaha, Deborah Atwood, Bonjo Batoon, Damian Brant, Robyn Ciurca, Cheryl Cline, Carmen Colbert, Dale Downey, Leanne Downey, Emilene Drager, Victorine Esaka, Shannon Hagan, Bill Howie, Walter Martin, Sharee Miller, Cindy Sampson, Alex Sigalovsky, Natalie Sigalovsky, Tracey Trainum, Deverie Turner, Jessica Webster, Tracy Wood

CERTIFIED REGISTERED NURSE ANESTHETISTS (CRNAs)

The University of Maryland Medical Center offers a dynamic, diverse, and challenging environment where Certified Registered Nurse Anesthetists (CRNAs) can grow, learn, and become experts in the field. Our CRNAs maintain excellence and compassion in the delivery of anesthesia care throughout the University of Maryland Medical Center and in the R Adams Cowley Shock Trauma Center. Fifty of these special advanced practice nurses provide support in our operating rooms. Our team approach to anesthesia care is the result of a collaborative relationship between CRNAs and supervising anesthesiologists.

CRNAs participate in the preoperative evaluation of patients, including ordering and interpreting certain diagnostic tests. They care for patients during anesthesia induction, maintenance, and emergence. CRNAs at the University of Maryland Medical Center perform a wide range of anesthesia-related procedures, including airway management, the placement of invasive catheters, and the delivery of general, regional, and monitored anesthesia care.

As experts in their field, our CRNAs have lectured both locally and nationally. On the state level, they serve as board members and committee members in the Maryland Association of Nurse Anesthetists. They also hold national leadership roles as committee members in the American Association of Nurse Anesthetists. CRNAs were integral members of response teams that were deployed to Haiti weekly from January through June 2010 to provide anesthesia services to hundreds of Haitian citizens who suffered injuries in the January 12th earthquake. This humanitarian relief effort was made possible through the joint efforts of the University of Maryland and Catholic Relief Services.

Certified Registered Nurse Anesthetists

Linda Goetz, CRNA
Chief Nurse Anesthetist

Israel Akpadiaha, CRNA
Deborah Atwood, CRNA
Russell Baker, CRNA
Bonjo Batoon, CRNA
Damian Brant, CRNA
Michael Broussard, CRNA
Robyn Ciurca, CRNA
Cheryl Cline, CRNA
Carmen Colbert, CRNA
Dale Downey, CRNA
Leanne Downey, CRNA
Emilene Drager, CRNA
Victorine Esaka, CRNA
Shannon Hagan, CRNA
William Howie, CRNA
Walter Martin, CRNA
Sharee Miller, CRNA
Lloyd Nagbe, CRNA
Cindy Sampson, CRNA
Alex Sigalovsky, CRNA
Natalie Sigalovsky, CRNA
Tracey Trainum, CRNA
Deverie Turner, CRNA
Jessica Webster, CRNA
Tracy Wood, CRNA



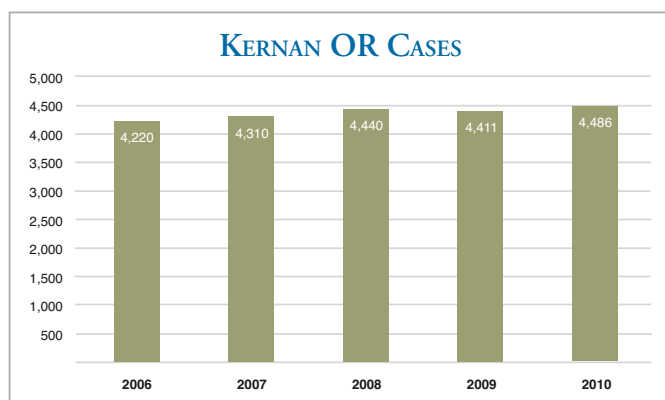
Education: CRNAs are proud to train the next generation of nurse anesthetists, many of whom come to us from all over the country. The General Operating Rooms and the Trauma Operating Rooms are clinical sites for six programs in nurse anesthesia: University of Maryland, University of Pennsylvania, Columbia University, Georgetown University, Old Dominion University, and Walter Reed Army Medical Center. CRNAs provided didactic and clinical training of 60 students during the 2010 academic year. Some of our CRNAs hold faculty positions at the University of Maryland School of Nursing in the Program for Nurse Anesthetists. Many of our staff CRNAs are guest lecturers at the school throughout the year. The University of Maryland Medical Center hosts a quarterly lecture series called “Trends in Nurse Anesthesia” to further educate CRNAs from within and beyond our institution. This lecture series is free and open to all CRNAs in the community. For more information, visit our website at <http://medschool.umaryland.edu/anesthesiology/crna.asp>.

KERNAN HOSPITAL ANESTHESIOLOGY

The Division of Anesthesiology at Kernan Hospital is located in Woodlawn, Maryland (seven miles from the Medical Center). This facility, part of the University of Maryland Medical System (UMMS), specializes in the provision of orthopedic surgery and is the main rehabilitation facility

for UMMS. The faculty at Kernan have a special interest in regional anesthesia. The group employs the most advanced regional anesthesia techniques to achieve optimal intra-operative and post-operative pain control.

Orthopedic operations comprise about 70 percent of the procedures performed at Kernan Hospital. More than half of surgical procedures are completed using only regional anesthetic techniques. With 4,400 total cases per year, Kernan Hospital is therefore an exceptional place to perform and teach regional anesthesia. Faculty in the division also maintain a 24-hour acute inpatient pain service to ensure comfort and continuity of care throughout their hospital stay.





Edwin Villamater, Lise Asaro, Mark Dimino, Andra DiStefano, Jeff Haugh, Emily Joe, Patrick Lee, Amy Marks, Eric Shepard

As pioneers in the use of ultrasound-guided peripheral nerve blockade, Kernan Hospital faculty are compiling data to support the improved safety and efficacy of this approach compared with older techniques of peripheral nerve blockade. They have also been instrumental in helping to incorporate ultrasound-guided pain procedures into the practice of the Chronic Pain Management Division.

Education: As a result of the sheer volume and quality of regional nerve blocks performed at Kernan Hospital, the division is formulating best-practice models for teaching and performing ultrasound-guided peripheral nerve blocks which will ultimately result in a training video. It is expected to be available in 2011. Division members periodically deliver lectures on various topics pertinent to regional anesthesia, such as local anesthetic pharmacology, use of ultrasound and basic anatomy, and new regional block techniques.

The division also holds a monthly morbidity and mortality conference to discuss complications and to ultimately improve the quality of the care. One member of the group, Dr. Jeff Haugh, has created plasticized anatomic dissections available for teaching the anatomical features essential to the performance of peripheral nerve blocks. There is also a weekly journal club which reviews the literature to ensure our faculty and residents are employing evidence-based techniques.

Kernan Hospital faculty participated in a day-long workshop for our residents on ultrasound-guided regional anesthesia and acute pain management, along with other members of the Program in Regional Anesthesia. The course featured lectures and a hands-on practicum that gave residents access to several different ultrasound machines, with direct demonstration of their use on live human models and phantoms.

We are currently developing a fellowship program in regional anesthesia that will be based at Kernan Hospital, the University of Maryland Medical Center, and the R Adams Cowley Shock Trauma Center. It will also include rotations at Walter Reed Army Hospital. The regional anesthesia fellow will participate in ongoing clinical research at these institutions.

Kernan Hospital Anesthesiology Faculty

Edwin Villamater, M.D.
*Director, Kernan Anesthesiology Division
Assistant Professor*

Lise Asaro, M.D.
Assistant Professor

Mark Dimino, M.D.
Assistant Professor

Andra DiStefano, M.D.
Instructor

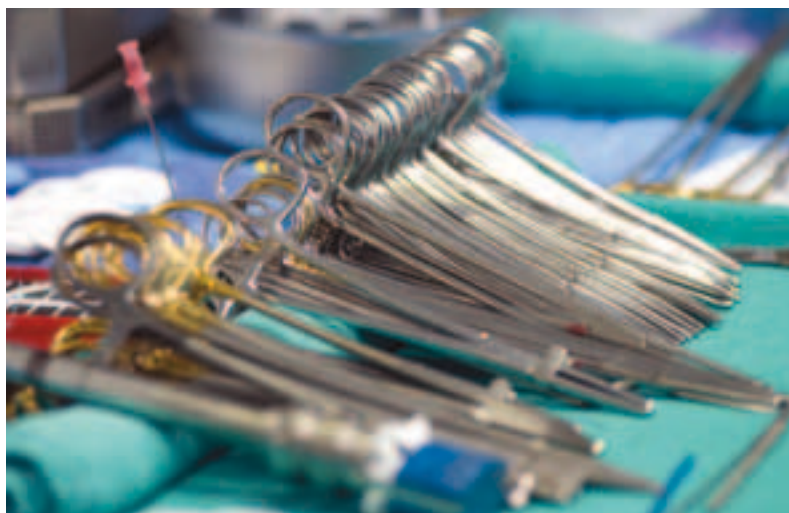
Jeff Haugh, M.D.
Assistant Professor

Emily Joe, M.D.
Assistant Professor

Patrick Lee, M.D.
Instructor

Amy Marks, M.D.
Assistant Professor

Eric Shepard, M.D.
Assistant Professor





David Schreiberman, Beatrice Afrangui, Ribal Darwish, Chinwe Ihenatu, Douglas Martz, Mary Njoku, Baekhyo Shin, Vadivelu Sivaraman

Neurosurgical Anesthesia Faculty

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Clinical Assistant Professor

Ribal Darwish, M.D.
Assistant Professor

Chinwe Ihenatu, M.B., Ch.B.
Clinical Assistant Professor

Douglas Martz, M.D.
Vice Chair for Clinical Affairs
Director, Adult Multispecialty
Anesthesia Division
Associate Professor

Mary Njoku, M.D.
Vice Chair for Education
Director, Residency and
Fellowship Program
Matjasko Associate Professor for
Education in Anesthesiology

Baekhyo Shin, M.D.
Clinical Professor

Vadivelu Sivaraman, M.B.B.S.
Director, Critical Care Division
Assistant Professor

NEUROSURGICAL ANESTHESIOLOGY

The Division of Neurosurgical Anesthesiology provides outstanding and innovative perioperative care to patients with neurologic diseases. The division cares for complex patients with cerebral vascular disease, including intracranial aneurysms, brain tumors, hydrocephalus, epilepsy and other functional disorders, diseases of the spine, and peripheral nerve injuries.

Patient care occurs in many venues throughout the hospital, such as the neurosurgical operating rooms, neuroradiology suite, and the Neurosurgical Intensive Care Unit. This care is provided by specialized anesthesiologists who are knowledgeable in intraoperative neurologic and cardiovascular monitoring. Patients are cared for in conjunction with the operating neurosurgeons, otolaryngologists, orthopedic surgeons, and their staffs.

The division is unique in anesthesiology as it medically directs the Intraoperative Neurophysiologic Monitoring Service. This service provides monitoring for over 1,100 cases a year in three hospitals to a multitude of surgical services, including Neurosurgery, Orthopedics, Otorhinolaryngology, and Cardiothoracic and Vascular Surgery.

The monitoring is specifically tailored to the patient's disease and procedure to allow rapid identification of new neurologic impairments, to provide prompt correction and functional guidance to the anesthesiologist, surgeon, and ultimately to generate the best patient outcomes. Monitoring modalities that are employed include somatosensory and transcranial motor evoked potentials, brainstem auditory evoked potentials, electroencephalography, cranial and peripheral electromyography, nerve conduction studies, brain mapping, and transcranial Doppler.



OBSTETRIC ANESTHESIOLOGY

The Division of Obstetric Anesthesiology consists of 10 faculty members who provide specialty care in the Labor and Delivery Suites, 24/7. Over the past year, the division has provided care to approximately 1,500 parturients, with 27 percent of deliveries performed through C-section and 70 percent of vaginal deliveries requiring an epidural. Members of the division also cared for an additional 50 patients undergoing gynecologic surgery performed in Labor and Delivery.

Our faculty have exceptional expertise in addressing the anesthetic needs of high-risk patients.



The University of Maryland Medical Center is a referral hospital for the rest of the state, and as such, 90 percent of our obstetric patients are considered to be high-risk. In addition to patients with complex fetal problems often necessitating fetal surgery or preterm delivery, our maternal population includes many patients with co-existing cardiac, neurologic, and respiratory disease, and increasingly, previous anesthetic problems

due to super-morbid obesity or other issues. In collaboration with the Department of Obstetrics and Gynecology, the Division of Obstetric Anesthesiology also provides bedside critical-care for critically ill parturient patients.

Recent improvements in obstetric anesthesiology include new hemodynamic monitors for all stations where pregnant women are admitted and additional emergency airway equipment. The division is looking forward to the implementation of the AIMS electronic record and monitoring system to Labor and Delivery.

Our faculty participate at the state level in leadership roles: Dr. Andrew Malinow, the division's Director, is on the Maryland Department of Health and Mental Hygiene Perinatal Review Board, which sets the standards of care for parturients and their newborns in Maryland's hospitals.



(L to R, Top to Bottom) Andrew Malinow, Beatrice Afrangui, Shobana Bharadwaj, Kathleen Davis, Chinwe Ihenatu, Douglas Martz, Sheryl Nagle, John Pallan, Amer Quaddoura, Shafonya Turner, Edwin Villamater

Obstetric Anesthesiology Faculty

Andrew Malinow, M.D.
Vice Chair for Faculty Affairs
Director, Obstetric Anesthesiology Division
Professor

Beatrice Afrangui, M.D.
Medical Director, PREP Center
Clinical Assistant Professor

Shobana Bharadwaj, M.B.B.S.
Assistant Professor

Kathleen Davis, M.D.
Assistant Director, Residency Program
Assistant Professor

Annette Folgueras, M.D., J.D.
Clinical Assistant Professor

Chinwe Ihenatu, M.B., Ch.B.
Clinical Assistant Professor

Douglas Martz, M.D.
Vice Chair for Clinical Affairs
Director, Adult Multispecialty Anesthesia Division
Associate Professor

Sheryl Nagle, M.D.
Clinical Assistant Professor

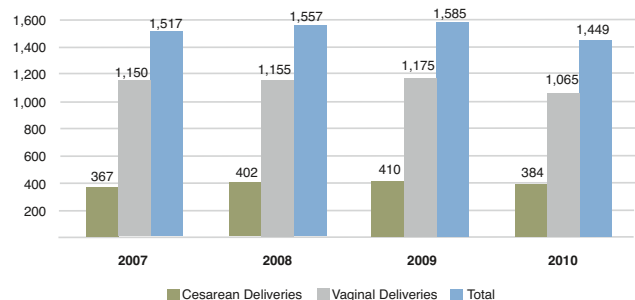
John Pallan, M.D.
Assistant Professor

Amer Quaddoura, M.D.
Clinical Assistant Professor

Shafonya Turner, M.D.
Instructor

Edwin Villamater, M.D.
Director, Kernan Anesthesia Division
Assistant Professor

VAGINAL AND CESAREAN DELIVERIES



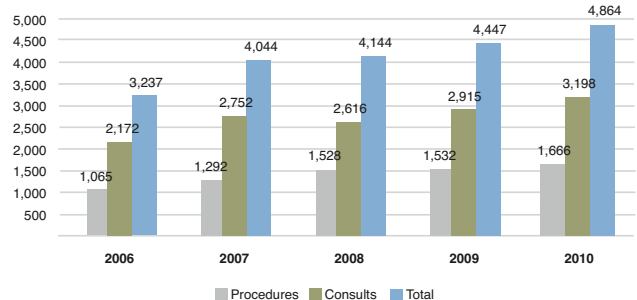
Education: The Division of Obstetric Anesthesiology provides a very popular daily educational session for the junior and senior residents who rotate on the service throughout the year. Our residents have a record of doing very well on the obstetric anesthesiology-specific parts of the in-training and American Board of Anesthesiology written exams. Each resident provides anesthesia for some 100 parturients during their tenure at the University of Maryland Medical Center. The division is now revitalizing its fellowship program to provide one or more individuals with more in-depth training in obstetric anesthesiology and welcomes inquiries from interested candidates. The division also provides educational opportunities for maternal-fetal medicine fellows.

PAIN MEDICINE

Faculty of the Division of Pain Medicine accurately diagnose and relieve pain, increase comfort, and enhance patients' ability to manage pain and pain-related problems. Their shared goal is to increase patients' physical capabilities and their ability to participate in activities and to improve their coping and self-care skills so they can pursue productive lives. The division emphasizes thorough and efficient multidisciplinary assessments to evaluate factors contributing to pain – from headaches to foot pain, including complex regional pain syndromes and those related to peripheral neuropathy. This information is used to individualize treatment plans and to maximize patient outcomes.



PAIN PROCEDURES AND CONSULTS



The Division of Pain Medicine has an arsenal of analgesic tools they access to help each patient, including interventional procedures, pharmacological management, physical and occupational therapy, and psychological support. Approaches include biofeedback, peripheral and autonomic nerve blocks, implantable therapies such as spinal cord stimulators and intrathecal pumps, radiofrequency lesioning, and relaxation training, to name a few.

New this year is the use of ultrasound guidance for chronic peripheral neuropathies, such as ilioinguinal, iliohypogastric, genitofemoral, and lateral femoral cutaneous nerve blocks. State-of-the-art fluoroscopic-guided injections (with sedation when needed) are also available for diagnostic and therapeutic applications.

Pain Medicine Faculty

Thelma Wright, M.D.
*Director, Pain Medicine Division
 Fellowship Director
 Assistant Professor*

Natasha Durant, Ph.D.
*Licensed Clinical Psychologist
 Clinical Assistant Professor - Volunteer*

Kanchana Gattu, M.B.B.S.
Assistant Professor

Emily Joe, M.D.
Assistant Professor

Seung Lee, M.D.
Assistant Professor

Education: The Division of Pain Medicine features a fellowship as well as rotations for anesthesiology residents. Each of our three pain medicine fellows (and residents) participates in Department of Anesthesiology Grand Rounds presentations, conferences, and research seminars. At weekly case conferences, members of the multidisciplinary pain management team meet to discuss existing and new patients and to develop personalized treatment plans. A test at the end of each anesthesiology resident's rotation serves as a tool to guide pain faculty in their teaching of future residents.



Thelma Wright, Natasha Durant, Kanchana Gattu, Emily Joe, Seung Lee



Anne Savarese, Monique Bellefleur, Isis Del Rio, Madhavi Naik, Teresa Niemiec

PEDIATRIC ANESTHESIOLOGY

Children represent a special population of anesthesia patients. Our staff combine compassion and expertise to put both patients and their parents at ease – starting with the preoperative evaluation, throughout the operation, to post-operative care and management of symptoms. We care for our youngest patients in a separate child and family-centered area – the Pediatric Surgery Center.

The division recently expanded its clinical services related to pediatric neurosurgery and pediatric hybrid interventional cardiology and cardiovascular surgery; one operating room was converted to a pediatric hybrid cardiac catheterization and surgery facility. This means it is possible to perform a traditional percutaneous cardiac catheterization and surgery in the same patient, in the same operating room suite, in one setting, which minimizes the number of anesthetics a critically-ill infant would need to undergo. The division now also cares for patients receiving radiation therapy.

Pediatric nurses work with division members to perform pre-anesthetic documentation and provide instructions to patients by telephone, improving family and provider satisfaction and decreasing delays and cancellations on the day of service. In addition, the division has implemented “green” initiatives in the operating room, garnering recognition from the University of Maryland Medical Center for these innovations.

Our faculty take a multidisciplinary approach to each case, participating in regular division meetings in which there is discussion of individual cases and clinical practice guidelines. The division has also participated in implementing AIMS, with specialty-specific data capture screens and care algorithms, facilitating the monitoring and recording of data for every case. Last year, the division administered 2,977 anesthetics.

Education: All anesthesiology residents rotate through the Division of Pediatric Anesthesiology. New this year is a morning subspecialty conference of core pediatric anesthesiology lectures for residents. The division also initiated the development of simulation education with pediatric scenarios using a SIMBABY interactive infant mannequin. (For more about simulation, see the Education section on page 10.)

Pediatric Anesthesiology Faculty

Anne Savarese, M.D.
*Director, Pediatric
Anesthesiology Division
Assistant Professor*

Monique Bellefleur, M.D., M.B.A.
Assistant Professor

Isis Del Rio, M.D.
Assistant Professor

Robyn Iglehart, M.D.
Instructor

Madhavi Naik, M.B.B.S.
Assistant Professor

Teresa Niemiec, D.O.
Assistant Professor



PREP Center Faculty

Beatrice Afrangui, M.D.
Medical Director, PREP Center
Clinical Assistant Professor

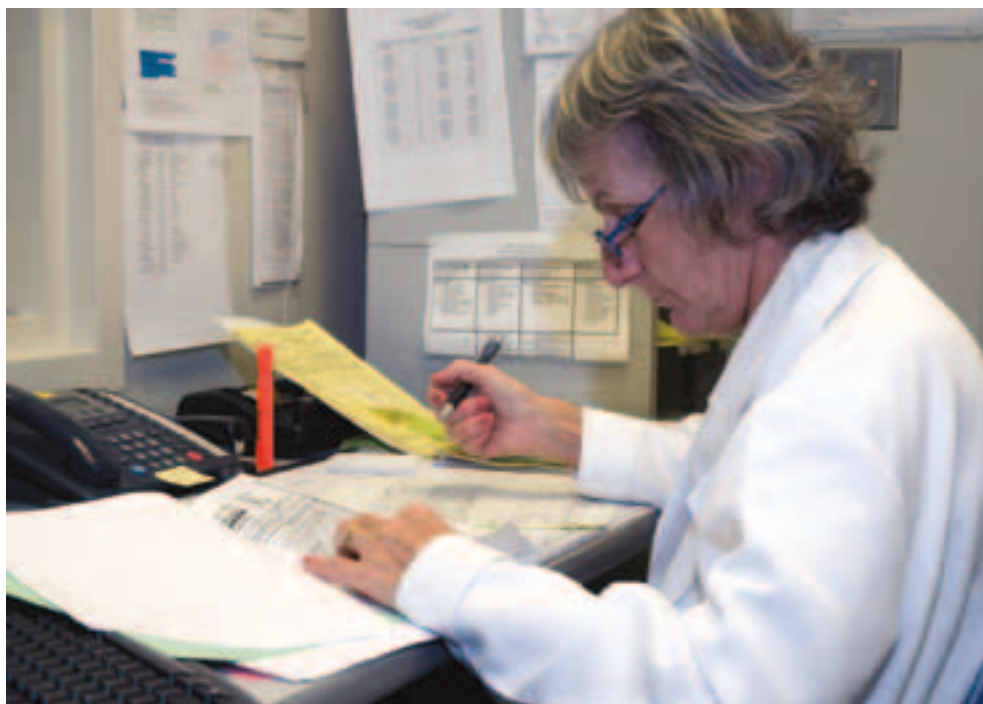
Kathleen Davis, M.D.
Assistant Director, Residency Program
Assistant Professor

Virginia Murphy, M.B., B.Ch., B.A.O.
Clinical Assistant Professor

Sheryl Nagle, M.D.
Clinical Assistant Professor

Robert Noorani, M.D.
Assistant Professor

Victoria Smoot, M.D., M.S.
Medical Director, Ambulatory Surgery
Operating Rooms
Assistant Professor



PREOPERATIVE EVALUATION AND PREPARATION (PREP) CENTER

The PREP Center performs pre-operative history and physical documentation and performs pre-anesthesia evaluations for patients undergoing surgery at the University of Maryland Medical Center (with the exception of those who are already inpatients). About half of the patients are seen in the PREP Center, while the remaining half have their medical record reviewed and are contacted by phone to gather medical information. The main goal of anesthetic evaluation is to minimize risks for patients undergoing surgery or procedures by appropriate evaluation and management of medical conditions, to determine anesthetic risk factors and minimize the impact of such risks, if possible, and – as a result – to improve patient safety.

The PREP team consists of an attending anesthesiologist, an anesthesiology resident, and Certified Registered Nurse Practitioners (CRNPs), who collectively perform preoperative evaluations in the PREP Center. Each patient's case is presented to the anesthesiology attending who decides if the patient requires further evaluation by other specialists (such as a cardiologist) before being approved to safely undergo surgery and anesthesia.

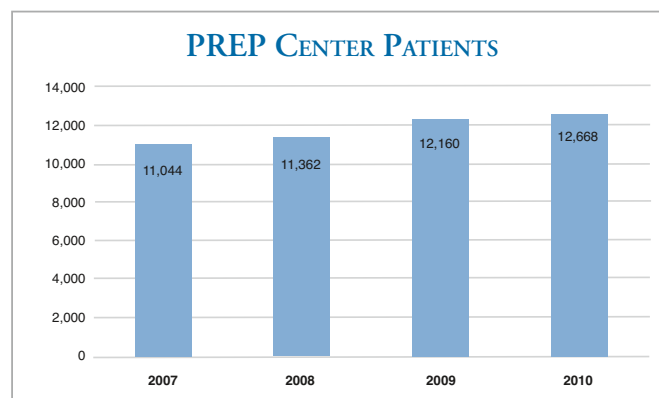
There have been a number of recent initiatives aimed at improving patient and surgeon satisfaction. Several new CRNPs have been hired and trained to work in the PREP Center, and they have been tremendously enthusiastic about their work. The hours the PREP Center is open have



Beatrice Afrangui, Kathleen Davis, Virginia Murphy, Sheryl Nagle, Robert Noorani, Victoria Smoot

been extended, making it more convenient for patients to be seen. A committee of surgeons, anesthesiologists, PREP Center staff members, and perioperative services leaders convened to find ways to further increase the efficiency of the PREP Center. A new short pre-screening questionnaire was developed to determine if a patient needs to be seen in person in the PREP Center or can be evaluated by telephone after the appropriate medical information has been received. New guidelines were developed and are being implemented to establish the need for forwarding necessary medical information (such as laboratory tests, history and physical exams, specialty evaluations, and electrocardiograms) to the PREP Center in a timely fashion, enabling patients to be approved for their procedures at least one week prior to the surgery.

The PREP Center manual, which includes all the information necessary to help approve patients for procedures and anesthesia, has been revised and modified. The PREP Center manual is available online on the departmental intranet Web site, and plans are under way to make it available to other departments on the hospital intranet as well. An innovative preoperative module for the MetaVision automated anesthesia system is now being developed and will also be implemented into PREP Center practice.



PROGRAM IN REGIONAL ANESTHESIOLOGY

The Program of Regional Anesthesiology at the University of Maryland features anesthesiologists dedicated to providing advanced regional techniques to a wide variety of patients. Faculty in the Program are in many of the Divisions in the Department. Services are provided in the GOR and TOR (See also regional anesthesia efforts at Kernan Hospital, page 20). Most of the total joint procedures performed by orthopedic surgeons at UMMC are performed under neuraxial regional anesthesia.

This year, the program recruited three new faculty members. This staff expansion translated to an increase in the number of regional anesthesia techniques performed at the Medical Center, including 100 more single-shot nerve blocks and 25 additional peripheral nerve block catheters compared with the prior academic year. Such blocks include upper extremity brachial plexus



Program in Regional Anesthesiology Faculty

Ron Samet, M.D.
*Director, Program in
 Regional Anesthesiology
 Assistant Professor*

Lise Asaro, M.D.
Assistant Professor

Cynthia Bucci, M.D.
Assistant Professor

Kathleen Davis, M.D.
*Assistant Director, Residency Program
 Assistant Professor*

Mark Dimino, M.D.
Assistant Professor

Andra DiStefano, M.D.
Instructor

Jeffery Haugh, M.D.
Assistant Professor

Emily Joe, M.D.
Assistant Professor

Jeremy Kaplowitz, M.D.
Instructor

Patrick Lee, M.D.
Instructor

Amy Marks, M.D.
Assistant Professor

Arthur Milholland, M.D., Ph.D.
Clinical Assistant Professor

Eric Shepard, M.D.
Assistant Professor

Roger Shere-Wolfe, M.D., J.D.
Assistant Professor

Shafonya Turner, M.D.
Instructor

Edwin Villamater, M.D.
*Director, Kernan Anesthesiology
 Assistant Professor*



(L to R, Top to Bottom) Ron Samet, Lise Asaro, Cynthia Bucci, Kathleen Davis, Mark Dimino, Andra DiStefano, Jeffery Haugh, Emily Joe, Jeremy Kaplowitz, Patrick Lee, Amy Marks, Arthur Milholland, Eric Shepard, Roger Shere-Wolfe, Shafonya Turner, Edwin Villamater

blocks in the interscalene, supraclavicular, infraclavicular, and axillary regions, as well as lower extremity femoral, sciatic, and saphenous nerve blocks. The program has also excelled in offering truncal blocks, including thoracic paravertebral catheters and transverse abdominis plane blocks.

More than 90 percent of regional anesthetics are delivered with ultrasound guidance. The program is acquiring additional ultrasound machines and related equipment to expand the use of this state-of-the-art form of regional anesthesia guidance and to be able to perform nerve blocks without delays. Implementation of the AIMS system will facilitate the ability to track the numbers of regional anesthesia techniques and their outcomes.

Education: The Program in Regional Anesthesiology presents lectures and workshops to residents, fellows, and faculty on regional anesthesia. Faculty also deliver related lectures to nurses. The resident curriculum is being revised to reflect advances in ultrasound-guided regional anesthesia and to include sentinel publications in regional anesthesiology. New this past year, the Program in Regional Anesthesiology gave an all-day workshop for our residents, featuring techniques of ultrasound-guided vascular access and regional anesthesia, real and anatomic models, and classroom instruction. Future goals include the development of a regional anesthesia conference offering continuing medical education credits; the creation of simulation scenarios of regional anesthesia for trainees; and the development of a regional anesthesia fellowship.





Transplant Anesthesiology Faculty

Obi Udekwa, M.B.B.S.
Director, Transplant Anesthesiology
 Assistant Professor

Mary Njoku, M.D.
Vice Chair for Education
Director, Residency and
Fellowship Programs
Matjasko Associate Professor for
Education in Anesthesiology

Vadivelu Sivaraman, M.B.B.S.
Director, Critical Care Division
 Assistant Professor

TRANSPLANT ANESTHESIOLOGY

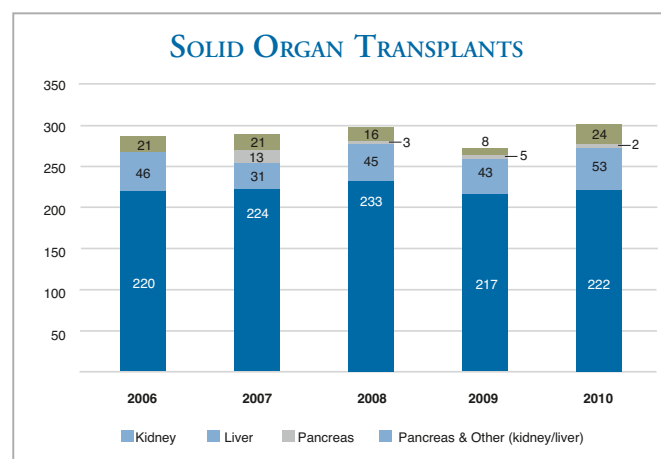
The Transplant Division experienced an increase in its case volume. Recently, two new transplant surgeons were recruited. In 2010, the division completed 53 liver transplants, 222 kidney transplants, 2 pancreas transplants, and 24 combined kidney-pancreas transplants. New processes are being implemented to spend more time evaluating patients earlier in the transplant clinic.

The division performs the most single-port laparoscopic kidney donations in the region. Through this procedure, the donor organ is able to be removed through one 5-cm incision in the navel.

Future plans include increasing the number of living liver donors. The division is also working toward implementing a composite tissue transplant program in 2011 for patients with severe burns and facial trauma from combat injuries. These procedures are lengthy and complicated, and require the collaboration and expertise of a skilled team such as that found at the University of Maryland Medical Center.



Obi Udekwa, Mary Njoku, Vadivelu Sivaraman



Trauma Anesthesiology Faculty

Yvette Fouché-Weber, M.D.
*Director, Trauma
 Anesthesiology Division
 Assistant Professor*

John Blenko, M.D.
Associate Professor

Cynthia Bucci, M.D.
Assistant Professor

Bianca Conti, M.D.
Assistant Professor

Richard Dutton, M.D., M.B.A
Clinical Professor

Thomas Grissom, M.D., F.C.C.M.
Associate Professor

Mary Hyder, M.D.
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Omid Moayed, M.D., M.H.S., M.B.A.
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Christopher Stephens, M.D., M.S.
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Joshua Tobin, M.D.
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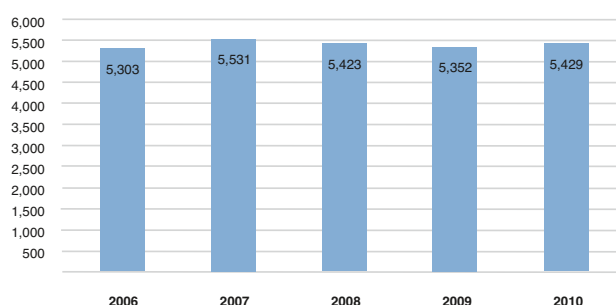
TRAUMA ANESTHESIOLOGY

The Division of Trauma Anesthesiology manages resuscitation and perioperative care for patients at the Shock Trauma Center (STC). The division is one of the few groups in the world that specializes in trauma anesthesia, and is one of the largest. The division supports six operating rooms every weekday and three to four each weekend, as well as holidays. Faculty care for patients in the Trauma Resuscitation Unit and the Trauma Operating Rooms (TORs); manage an acute pain management service (an area of future growth); and provide echocardiography for patients in the TORs and ICUs within the STC.

In addition to patient care, the division is committed to the discovery and promulgation of new and more effective ways of caring for injured patients. Ongoing research covers many issues in trauma anesthesiology, with projects under way in such areas as traumatic brain injury, trans-esophageal echocardiography to assess cardiac dysfunction, airway management, use of special adjuncts such as videolaryngoscopes for emergency intubation, reducing extubation failure, and novel methods of managing pain in trauma patients (such as Reiki therapy and acupressure).

Faculty members are active in national clinical and research committees and are well-represented at national and local trauma symposia. With the past year's rapid growth in research funding and open projects, there will be a corresponding increase in presentations and publications. Translating scientific efforts into academic productivity is one of the division's most important goals for the new academic year.

SHOCK TRAUMA OR CASES





(L to R, Top to Bottom) Yvette Fouché-Weber, John Blenko, Cynthia Bucci, Bianca Conti, Richard Dutton, Thomas Grissom, Mary Hyder, Ron Samet, Roger Shere-Wolfe, Sukhwant Sidhu, Robert Sikorski, Christopher Stephens, Joshua Tobin

Education: Trauma Anesthesiology staff are dedicated to hands-on and didactic instruction of paramedics, nurse anesthetists, medical students, residents, and fellows. Anesthesiologists from the division taught every University of Maryland medical student in a special “hands-on” airway management course, and lectured frequently in the Certified Registered Nurse Anesthetist program at the School of Nursing. The division also produced a webcast called Procedural Sedation for Non-Ventilated Patients by Non-Anesthesiology Health Care Providers, as well as an IRB-approved airway skill assessment tool. The development of simulation training for trauma anesthesia and trauma teams is a goal of the division. The division also has an active trauma anesthesia fellowship.

VETERANS AFFAIRS MEDICAL CENTER (VAMC) DIVISION OF ANESTHESIOLOGY

The Baltimore Veterans Affairs Medical Center (VAMC) offers inpatient, outpatient, and primary care services for veterans living in Maryland and adjacent states. The VAMC maintains a close affiliation with the University of Maryland School of Medicine.

The newly formed VAMC Department of Anesthesiology provides perioperative, critical care, and pain management services to a diverse and complex population of veterans, including many patients with advanced cardiovascular, pulmonary, and metabolic diseases. The department’s clinical staff is expanding and currently includes 6 full-time, board-certified anesthesiologists, 10 CRNAs, and 2 anesthesia technicians. The VAMC perioperative environment includes 9 state-of-the-art operating rooms, a 12-bed Post-Anesthesia Care Unit, a 9-bed Same Day Surgical Unit, and a 10-bed Surgical Intensive Care Unit.



Division Members

Edward J. Norris, M.D., M.B.A., F.A.H.A.
*Director, Department of
 Anesthesiology VAMC
 Clinical Professor and
 Associate Chairman*

Anila S. Bhatti, M.B.B.S.
Clinical Assistant Professor

Daniel J. Bochicchio, M.D.
Assistant Professor

Gregory Cheloff, M.D.
Attending Anesthesiologist

Padmini Thomas, M.B.B.S.
*Clinical Director, Department
 of Anesthesiology VAMC
 Assistant Professor*

Henry L. Wilson, Jr., M.D.
Assistant Professor



*Edward J. Norris, Anila S. Bhatti, Daniel J. Bochicchio, Gregory Cheloff, Padmini Thomas,
 Henry L. Wilson, Jr.*

The department provides comprehensive clinical anesthesiology services to veterans undergoing a wide range of procedures, including major vascular, thoracic, neurosurgical, complex spine, orthopedic, plastic, urologic, ENT, gynecologic, and eye surgeries. Anesthesia services are also provided to veterans undergoing electroconvulsive therapy and those requiring painful diagnostic and therapeutic procedures outside the operating room. Emergency airway management and intubation are provided by anesthesia staff around the clock.

In 2010, Dr. Edward J. Norris was named Chief of the VAMC Department of Anesthesiology, Associate Chair of the Department of Anesthesiology, and Clinical Professor at the University of Maryland School of Medicine. He was most recently Associate Professor in the Johns Hopkins School of Medicine and Director of Vascular and Endovascular Anesthesia at the Johns Hopkins Hospital. Dr. Norris is an accomplished clinical anesthesiologist whose expertise includes the care of patients undergoing complex aortic reconstruction and liver transplantation. He is also an accomplished teacher and has conducted landmark research into outcomes after vascular surgery.

Education: The department has a major teaching commitment involving residents, medical students, student nurse anesthetists, and numerous medical and allied health trainees. One to two residents rotate through the VAMC, which offers residents exposure to a consolidated perioperative program in a single, small-footprint, environment. One-on-one staffing with a board-certified attending anesthesiologist allows for optimal teaching contact hours and supervision. Case selection is tailored specifically to the resident level of training and interest, and the staffing model for residents emphasizes educational opportunities rather than service work requirements. In addition, the VAMC offers a robust clinical training environment, with representation from nine surgical divisions and many high-acuity patients.

ADVANCING INFORMATION TECHNOLOGY

The growth in the University of Maryland Department of Anesthesiology is facilitated by a new electronic Anesthesia Information Management System (AIMS) called MetaVision, the customization and implementation of which was made possible by our Information Technology (IT) experts. Deployment of AIMS has increased the number of IT users from 230 to more than 350.

By providing real-time monitoring and data collection during surgery, AIMS provides quicker and more accurate documentation of patients' vital signs and other data. Because it frees anesthesiologists, residents and CRNAs from having to track data by hand on a lengthy paper document, they can spend more time concentrating on the patient.

AIMS has been nearly fully implemented at the University of Maryland Medical Center; it is expected to be rolled out in the Labor and Delivery rooms and the Preoperative Evaluation and Preparation Center in summer 2011. While some staff were initially resistant to training, they

learned quickly how to use the new system -- thanks to AIMS champions called “superusers” and IT experts who provided detailed AIMS instruction. Surveys have shown that 100 percent of users report they prefer AIMS over the former paper-based documentation system.

There are other benefits of AIMS as well: Anesthesiologists and other researchers can collect and access data that would not have been possible with a paper record, and study it to find ways to improve patient safety and care during and after surgery. AIMS is an objective way to document how well a practitioner is doing. When systems like AIMS are used by multiple centers collaborating on clinical trials, it becomes easier to access and share data between institutions.



Examples of other IT improvements in the last year included:

- An updated and revamped department Web site.
- Upgrading of the Blackboard education software.
- Use of the SpinFusion computerized scheduling system by faculty, residents, and CRNAs.
- Webcasting and Podcasting of grand rounds and didactic conferences.
- Use of New Innovations resident evaluation software.

*Jessica Webster, M.S., CRNA;
Douglas Martz, M.D.; Julie Utz,
AIMS System Administrator,
Damian Brant, M.S.N., CRNA*

**Thank you to our MVOR Superusers
who embraced Metavision and shared
their knowledge and enthusiasm
with others to make for a very
smooth implementation.**

AIMS by the Numbers

197	Number of users of the system (faculty, residents, CRNAs)
51	Number of sites currently wired for AIMS
27 gigabytes	Size of the database (active plus archived)
17,085	Most recent count on the number of patients in all databases
210	Number of computers that are involved
2	Number of servers involved
SQL 2005	Name of database
Windows XP	Operating system for all workstations
Windows Server 2003 Enterprise	Operating system for servers
1 terabyte	Storage space for servers
12 gigabytes of RAM	Amount of memory in servers

Bonjo Batoon, CRNA
Monique Bellefleur, M.D.
Malinda Boyd, M.D.
Cynthia Bucci, M.D.
Damian Brant, CRNA
Stephanie Esposito, M.D.
Douglas Martz, M.D.
Robert Sikorski, M.D.
Victoria Smoot, M.D.
Jessica Webster, CRNA



2010 saw significant research growth
for the Department of Anesthesiology.
Novel avenues of investigation have
bolstered our research portfolio.

Discovering

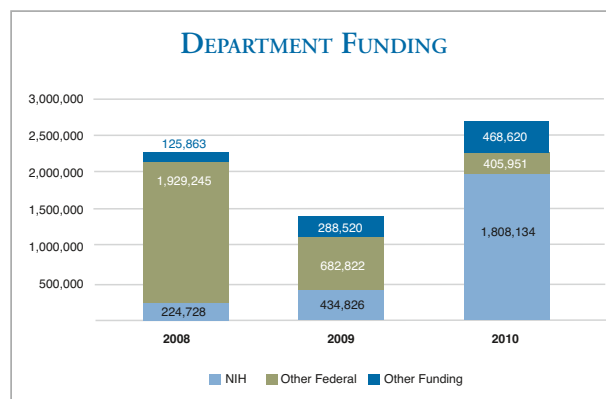
RESEARCH: PROPELLING ANESTHESIOLOGY FORWARD

Basic science and clinical investigation are essential for advances in medicine. The University of Maryland Department of Anesthesiology supports a robust program in investigation to advance the field. These activities are conducted primarily under the umbrella of the Shock, Trauma and Anesthesiology Research (STAR) Center, an organized research center (ORC) created in 2008 which builds upon the congressionally mandated Charles McC. Mathias National Study Center for Trauma and Emergency Medical Systems. The STAR-ORC is led by Dr. Alan I. Faden, the David S. Brown Professor in Trauma and Professor of Anesthesiology. Dr. Faden is a scientist and physician with extensive expertise in the treatment of brain trauma and other central nervous system injuries.

The mission of the STAR ORC is to facilitate translational research in areas related to trauma, tissue injury, critical care, perioperative outcomes, and patient safety. The STAR Center includes faculty from multiple clinical and basic science departments. During the past year, collaborations have been established or strengthened with faculty from the School of Pharmacy, School of Nursing, the Baltimore Veterans Administration Medical Center, University of Maryland (College Park), the Uniformed Services University of the Health Sciences, Georgetown University, and George Washington University.

STAR is developing multiple basic, translational, and clinical research initiatives, with the objective of creating nationally recognized programs of excellence focusing on brain injury; epidemiology, pathogenesis, and prevention of injury; critical care and organ support; perioperative clinical outcomes and patient safety; and resuscitation. One of the most important efforts to date has been the establishment of a Program in Geriatric Trauma and Critical Care, in partnership with the Department of Epidemiology and Public Health, the Center for Research on Aging, and the state-funded Geriatrics and Gerontology Education and Research Program.

Extramural research support in the STAR Center is growing rapidly, with this year's funding nearing \$10.5 million. National Institutes of Health (NIH) funding has increased significantly over the past year, growing from \$750,000 to \$2.25 million.



STAR Research Programs



Dr. Alan Faden's laboratory uses multidisciplinary approaches to examine the pathobiology of experimental brain and spinal cord injuries and their treatment. This research is supported by five NIH grants. There are active collaborations with the School of Pharmacy in medicinal chemistry and drug discovery, and with the School of Nursing in spinal cord injury. Dr. Faden was an invited lecturer at Cambridge University in the United Kingdom and gave the keynote address at the University of Maryland Program in Neuroscience retreat.



Dr. Gary Fiskum, the Matjasko Professor for Research in Anesthesiology, and his colleagues study the molecular mechanisms underlying ischemic and traumatic brain injury, with the goal of improving survival and quality of life after brain injury. The investigators developed a new animal model of mild traumatic brain injury caused by the hyperacceleration experienced by occupants of vehicles targeted by improvised explosive devices. Preliminary neuropathologic findings obtained from these studies were presented by invitation at the National Neurotrauma Symposium and at a US Army-organized trauma medicine symposium.



Dr. Alina Grigore's research focuses on temperature regimens and neuroprotection during cardiopulmonary bypass, as well as myocardial structural changes in end-stage heart failure and the impact of ventricular unloading on alpha- and beta-adrenoreceptor density and distribution.



The Neurochemistry Laboratory of Brain Injury, headed by Dr. Bingren Hu, was recently relocated to the department from the University of Miami. Dr. Hu's research programs investigate protein misfolding and synaptic modification after brain ischemia.

These two lines of research have provided solid evidence for uncovering novel mechanisms underlying ischemic injury and have been continuously supported by the National Institutes of Health and the American Heart Association for the last 12 years. Dr. Hu was an invited speaker at the National Institute of Aging last year and will serve as the chair for an invited symposium at the Brain '11 Society International Conference. He is on the editorial board of *Neurotherapeutics*.



Peter Hu examines real-time patient vital sign data, mobile telemedicine applications for rapid assessment of stroke patients, field collection of vital signs and images for trauma and mass casualty care, and intra-hospital communication systems using video-audio-vital sign data. His group seeks to improve the quality of treatment for trauma and critical care using human factor methodologies and information technologies.



Dr. Tibor Kristian investigates the role of mitochondrial dysfunction in ischemic brain injury. He has generated unique transgenic mice with fluorescently tagged neuronal mitochondria that enable visualization of morphological changes that precede cell death. Dr. Kristian was an invited speaker at the Brain Energy Metabolism symposium in Budapest, Hungary. He was also the recipient of a VA Merit Grant Award this year.



Dr. David Loane focuses on the mechanisms and modulation of chronic inflammation after experimental traumatic brain injury, and how aging affects outcome after such injury. He also studies common mechanisms underlying acute and chronic neurodegeneration. Dr. Loane was an invited speaker at the Irish Neuroscience Meeting.



Dr. Brian Polster examines subcellular mechanisms that govern neural cell death and survival in acute brain injury and neurodegenerative disorders, focusing on excitotoxic and apoptotic programmed cell death. He was an invited speaker at the Brain Energy Metabolism symposium in Budapest, Hungary.



The program in patient safety, clinical effectiveness and outcomes research is led by Dr. Peter Rock. A number of clinician-scientists are actively engaged in clinical research and translational projects. All of the efforts of this group are aimed at improving patient care and decreasing perioperative morbidity and mortality. Dr. Rock is leading efforts at improving outcomes in critically-ill patients with delirium and the acute respiratory distress syndrome. He also is actively engaged in investigating postoperative cognitive dysfunction, genetic markers of postoperative infections and thrombosis, and the impact of the age of transfused blood on outcomes after cardiac surgery.

Colin MacKenzie and Peter Hu have developed a robust system for collecting vital sign data on patients from their first encounter with EMS through trauma hospital discharge. The goal is to use this data to predict outcomes and triage high-risk patients to higher-levels of care. Tom Grisom is developing objective methods of competency assessment in procedural skills and studying the use of simulation in adoption of technology. Robert Sikorski is investigating how the use of TEE in trauma patients can impact clinical management. Chris Stephens is studying best practices for pre-hospital care. Finally, Thelma Wright and Kanchana Gattu are investigating whether spinal cord stimulation can be an acceptable treatment modality patients with diabetic neuropathic and visceral pain.



Dr. Bogdan Stoica studies mechanisms of neuronal cell death using both cell culture and animal neurotrauma models, with a focus on the role of cell cycle pathways and apoptosis-inducing factors in secondary tissue loss after traumatic brain injury.



Dr. Junfang Wu examines secondary damage after experimental spinal cord injury, as well as the role of glial cells in the response to injury. She employs both in vivo and in vitro model systems for these studies.

DEPARTMENT OF ANESTHESIOLOGY

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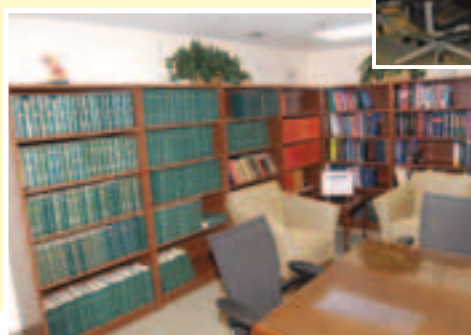
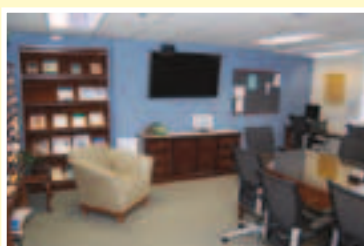
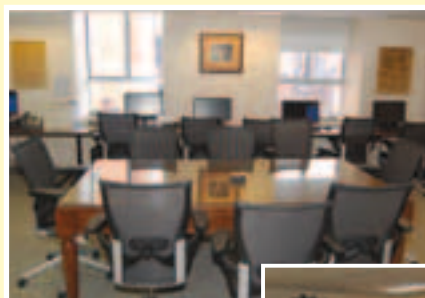
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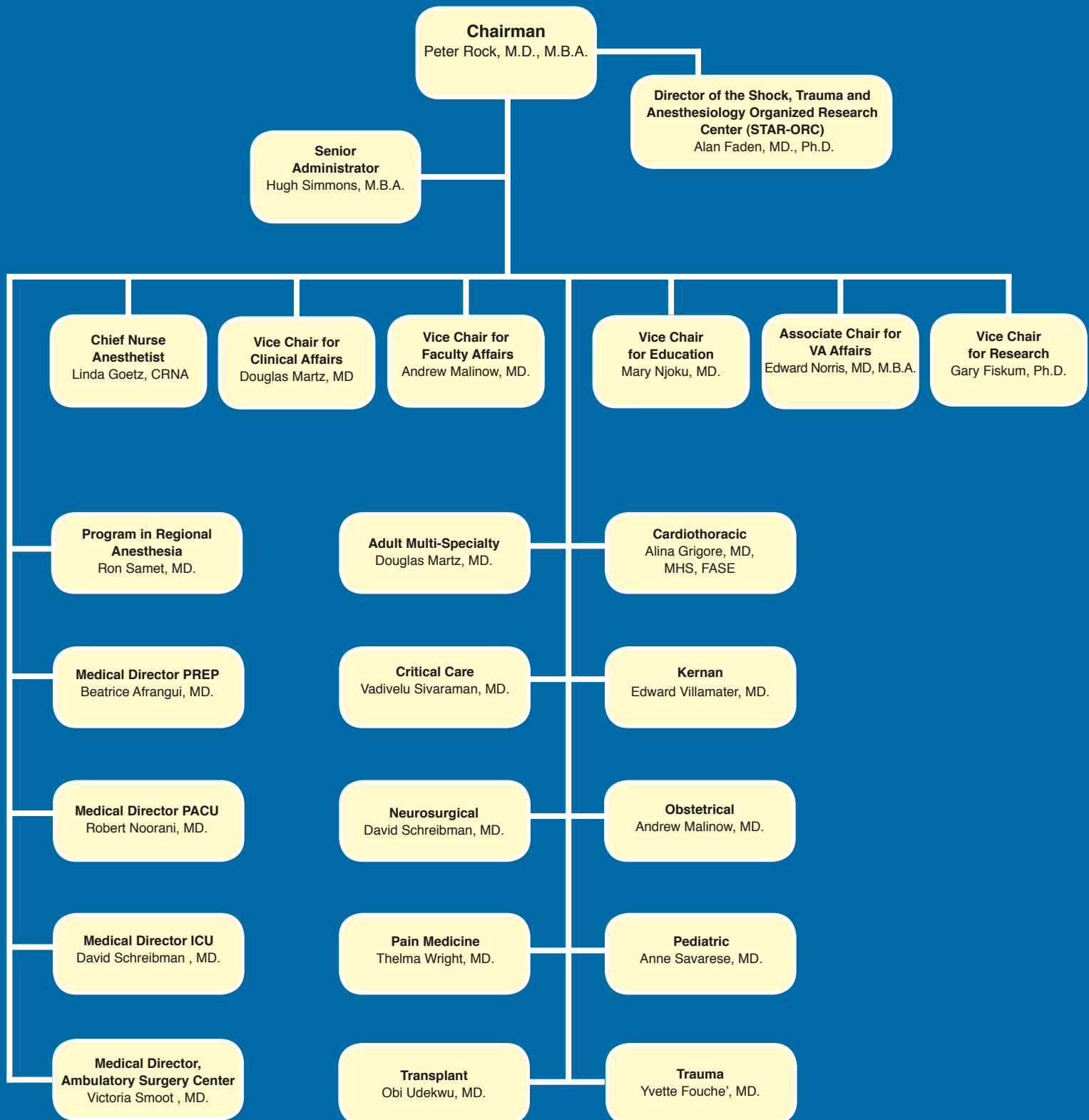
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21. **Naik M.** Laparoscopic Adrenalectomy. In: Roizen MF, Fleisher LA, eds. *Essence of Anesthesia Practice*. Philadelphia, PA: W.B. Saunders Company; 2010:393.
22. **Njoku M, Schreiber D.** Encephalitis. In: Roizen MF, Fleisher LA eds. *Essence of Anesthesia Practice*. Philadelphia, PA: W.B. Saunders Company; PA 2010:144.
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26. **Rock P, Davis K.** Spirometry. In: Roizen MF, Fleisher LA, eds. *Essence of Anesthesia Practice*. Philadelphia, PA: W.B. Saunders Company; 2010:704.
27. **Smoot V.** Anesthesia for Breast Biopsy. In: Roizen, MF, Fleischer, LA eds. *Essence of Anesthesia Practice*. Philadelphia, PA: W.B. Saunders Company; 2010:416.
28. **Stephens C, Sappenfield J.** Marijuana. In: Roizen MF, Fleisher LA, eds. *Essence of Anesthesia Practice*. Philadelphia, PA: W.B. Saunders Company; 2010:616-617.
29. **Turner S, Malinow A.** Anesthesia for the Pregnant Surgical Patient. In Moya, F ed. *Current Reviews in Clinical Anesthesia*; 2010:1-5.
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February 18, 2010 marked the dedication of the M. Jane Matjasko Resident Library. Recent renovations enhanced the library to make it a state-of-the-art learning center featuring five new computer terminals and comfortable reading areas. The multimedia library has a large screen television for viewing educational presentations and a table that accommodates the PGY4 board preparation conference. Highlights of the library's décor include new artwork as well as antique photographs of operating rooms. The library collection includes the newest editions of anesthesiology textbooks, educational DVDs, an extensive journal collection, and continues to grow beyond its 200 volumes.



DEPARTMENT LEADERSHIP



ADMINISTRATION: STRENGTHENING OUR FOUNDATION

The Department instituted a number of new administrative initiatives in 2010 to enhance recruitment, bolster faculty support, and facilitate billing processes.

Improved Administrative Support

In 2010, additional administrative staff were hired to provide each office suite with a dedicated administrative assistant. To enhance and coordinate this additional administrative support, departmental leadership was restructured, including the promotion of Kim Flayhart to Associate Administrator for Professional Billing and Administrative Operations.

2010 Administrative Activities

During fiscal year 2010 the Department published its first annual report. This 27 page full color document showcased the Department's clinical, academic and research strengths and was distributed nationally. Also during the year an online scheduling system for faculty, residents and CRNAs was fully implemented greatly simplifying the scheduling process and making the schedules easily accessible from any network computer. Seven new faculty offices were opened in the D-wing on the 8th floor and became the home for the Cardiothoracic Division.

Automated Billing System

The efficiency and effectiveness of departmental billing was improved through the implementation of the Anesthesia Module for the GE/IDX billing system. By automating the particularly time-consuming processes that are distinctive to the billing of anesthesia services, this new system reduces the time between the rendering of a service and its associated billing.

Primary Faculty

Afrangui, Beatrice M., M.D., Clinical Assistant Professor
 Asaro, Lise R., M.D., Assistant Professor
 Atwal, Jasjit B., M.B.B.S., Clinical Assistant Professor
 Bellefleur, Monique, M.D., Assistant Professor
 Bernstein, Wendy K., M.D., M.B.A., Associate Professor
 Benson, Jessica, M.D., Assistant Professor
 Bharadwaj, Shobana, M.B.B.S., Assistant Professor
 Bhatti, Anila S., M.B.B.S., Clinical Assistant Professor
 Blenko, John W., M.D., Associate Professor
 Bochicchio, Daniel J., M.D., Assistant Professor
 Boyd, Malinda T., M.D., Clinical Assistant Professor
 Bucci, Cynthia J., M.D., Assistant Professor
 Cheloff, Gregory, M.D.
 Conti, Bianca M., M.D., Assistant Professor
 Darwish, Ribal S., M.D., Assistant Professor
 Davis, Kathleen M., M.D., Assistant Professor
 Del Rio, Isis, M.D., Assistant Professor
 Deshpande, Seema P., M.B.B.S., Assistant Professor
 Dimino, Mark D., M.D., Assistant Professor
 DiStefano, Andra, M.D., Instructor
 Drago, John P., D.O., J.D., Clinical Assistant Professor
 Dutton, Richard, M.D., M.B.A., Clinical Professor
 Esposito, Stephanie, M.D., M.S., Instructor
 Faden, Alan I., M.D., Professor
 Fiskum, Gary M., Ph.D., Professor
 Fitzpatrick, Molly, M.D., Assistant Professor
 Folgueras, Annette, M.D., J.D., Clinical Assistant Professor
 Fouche-Weber, Yvette, M.D., Assistant Professor
 Gattu, Kanchana, M.B.B.S., Assistant Professor
 Gheorghiu, Ileana, M.D., Assistant Professor
 Grewal Ashanpreet, M.D., Assistant Professor
 Grigore, Alina, M.D., M.H.S., F.A.S.E., Associate Professor
 Grissom, Thomas E., M.D., F.C.C.M., Associate Professor
 Hasnain, Jawad, M.B.B.S., Assistant Professor
 Haugh, Jeffrey T., M.D., Assistant Professor
 Heath Andrew, M.D., Clinical Instructor
 Hong, Caron, M.D., M.S., Instructor
 Horsford, Alisa, M.D., Visiting Instructor
 Hu, Bingren, Ph.D., Professor
 Hu, Fu M., (Peter), M.S., Assistant Professor
 Hyder, Mary L., M.D., Assistant Professor
 Iglehart, Robyn, M.D., Instructor
 Ihenatu, Chinwe A., M.B.Ch.B., Clinical Assistant Professor
 Joe, Emily, M.D., Assistant Professor
 Kaplowitz, Jeremy, M.D., Instructor
 Kristian, Tibor, Ph.D., Assistant Professor
 Lee, Patrick L., M.D., Instructor
 Lee, Seung J., M.D., Assistant Professor
 Loane, David J., Ph.D., Assistant Professor
 Mackenzie, Colin F., M.B.Ch.B., Clinical Professor
 Malinow, Andrew M., M.D., Professor
 Marks, Amy, M.D., Assistant Professor
 Martz, Douglas G., M.D., Associate Professor
 McHuge, Mary, M.D., Assistant Professor
 Milholland, Arthur V., M.D., Ph.D., Clinical Assistant Professor
 Moayed, Omid G., M.D., M.H.S., M.B.A., Clinical Assistant Professor
 Murphy, Virginia E., M.B., B.Ch., B.A.O., Clinical Assistant Professor
 Nagle, Sheryl, M.D., Clinical Assistant Professor
 Naik, Madhavi A., M.B.B.S., Assistant Professor
 Niemiec, Teresa, D.O., Assistant Professor
 Njoku, Mary J., M.D., Associate Professor
 Noorani, Robert J., M.D., Assistant Professor
 Norris, Edward, M.D., M.B.A., Clinical Professor
 Odonkor, Patrick N., M.B.Ch.B., Assistant Professor
 Pallan, John, M.D., Assistant Professor
 Polster, Brian M., Ph.D., Assistant Professor
 Quaddoura, Amer A., M.D., Clinical Assistant Professor
 Rock, Peter, M.D., M.B.A., Professor

Samet, Ron E., M.D., Assistant Professor
 Savarese, Anne M., M.D., Assistant Professor
 Sawant, Sanyogeeta, M.B.B.S., Clinical Assistant Professor
 Schreiber, David L., M.D., Assistant Professor
 Shepard, Eric K., M.D., Assistant Professor
 Shere-Wolfe, Roger F., M.D., J.D., M.A., Assistant Professor
 Shin, Baekhyo, M.D., Clinical Professor
 Sidhu, Sukhwant, M.B.B.S., Instructor
 Sikorski, Robert A., M.D., Assistant Professor
 Sivaraman, Vadivelu, M.B.B.S., Assistant Professor
 Smoot, Victoria W., M.D., M.S., Assistant Professor
 Stephens, Christopher T., M.D., M.S., Assistant Professor
 Stoica, Bogdan A., M.D., Assistant Professor
 Thomas, Padmini, M.B.B.S., Assistant Professor
 Tobin, Joshua, M.D., Assistant Professor
 Turner, Shafonya M., M.D., Assistant Professor
 Udekwu, Obi R., M.B.B.S., Assistant Professor
 Villamater, Edwin J., M.D., Assistant Professor
 Wilson Jr, Henry L., M.D., Assistant Professor
 Wright, Thelma B., M.D., Assistant Professor
 Wu, Junfang, M.D., Ph.D., Assistant Professor

Secondary Faculty (Primary Department)

Abrams, Thomas W., Ph.D., Associate Professor
 (Pharmacology and Experimental Therapeutics)
 Frost, Douglas O., Ph.D., Clinical Professor
 (Pharmacology and Experimental Therapeutics)
 Rosenthal, Robert E., M.D., Professor (Emergency Medicine)
 Sears, Andrew L., Ph.D., Professor (Information Systems)
 Sheth, Kevin N., M.D., Assistant Professor (Neurology)

Volunteer Faculty

Ashman, Michael N., M.D., Clinical Assistant Professor
 Durant, Natasha, Psy.D., Clinical Assistant Professor
 Helrich, Martin, M.D., B.S., Professor Emeritus
 Masur, Henry, M.D., Clinical Professor
 McAreavey, Dorothea, B.M., B.Ch., Adjunct Assoc Professor
 Natanson, Charles, M.D., Adjunct Professor
 Ognibene, Frederick, M.D., Adjunct Assoc Professor
 Shelhamer, James H., M.D., Adjunct Professor

Residents

Class of 2014

Bansal, Vikram, M.D.
 Goehner, Nicholas, M.D.
 Jassal, Vineet, M.D.
 Shander, Benjamin, M.D.
 Siu, John, M.D.
 Smith, Chase, M.D.

Class of 2013

Gimelshteyn, Yelena, M.D.
 Hoover, Jessica, M.D.
 Huang, Andrea, M.D.
 Khan, Ansar, M.D.
 Khatib, Alwafaa, M.D.
 Mazur, Jordan, M.D.
 Shah, Sneha, M.D.
 Siegel, Alexander, M.D.
 Tao, Jing, M.D.
 Tirmizi, Henna, M.D.
 Villacin, Maria Karla, M.D.
 Walker, Andrew, M.D.
 Wilson, Earl, M.D.

CA-1 Class of 2012

Akozer, Sibel, M.D.
 Cox, Cristalle, M.D.
 Goergen, Katie, M.D.
 Kahntroff, Stephanie, M.D.
 Lange, Aaron, M.D.
 Lewis, Ilene, M.D.
 Montgomery, Maurice, M.D.

Paydar, Kiarash, M.D.
 Porter, Andrew, D.O.
 Sappenfield, Joshua, M.D.
 Steele, John, M.D.
 Strauss, Erik, M.D.
 Yu, Corinna, M.D.

CA-2 Class of 2011

Barack, Justin, M.D.
 Baron, Matthew, D.O.
 Cannon, Ayana, M.D.
 Franklin, Christopher, M.D.
 James, Shaka, M.D.
 Karunwi, Omolara, M.D.
 Mun, Kevin, M.D.
 Patel, Sheena, M.D.
 Sardarian, Leudvig, M.D.
 Sheppard, Maurice, M.D.
 Tsay, Minghan, M.D.
 Vandyck, Kofi, M.D.

CA-3 Class of 2010

Boss, Michael, M.D.
 Brimhall, Brent, D.O.
 Brouillette, Richard, D.O. - Chief Resident
 Evering, Carlos, D.O.
 Giles, Kevin, M.D.
 Heath, Andrew, M.D. - Chief Resident
 Horsford, Alisa, M.D.
 Kabir, Riswanul, M.D.
 Khoie, Arash, M.D.
 Knightshead, Kandi, M.D.
 Lai, Jason, M.D. - Chief Resident
 Lindstrom, Mark, D.O.
 Lockhart, Zakiya, M.D.
 Poursharif, Naeem, M.D.
 Riccobono, Elizabeth, D.O.

Fellows (Specialty)

Brouillette, Richard, D.O. (Pain)
 Horsford, Alisa, M.D. (Pain)
 Khoie, Arash, M.D. (Pain)
 Lockhart, Zakiya, M.D. (CT)
 Riccobono, Elizabeth, D.O. (Critical Care)
 Stirling, Alena, M.D. (Trauma)
 Tarmey, Nicholas, M.B., Ch.B. (Trauma)

CRNAs

Akpadiha, Israel, CRNA
 Atwood, Deborah, CRNA
 Baker, Russell, CRNA
 Batoon, Bonjo, CRNA
 Brant, Damian, CRNA
 Broussard, Michael, CRNA
 Ciurca, Robyn, CRNA
 Cline, Cheryl, CRNA
 Colbert, Carmen, CRNA
 Downey, Dale, CRNA
 Downey, Leanne, CRNA
 Drager, Emilene, CRNA
 Esaka, Victorine, CRNA
 Goetz, Linda, CRNA - Chief Nurse Anesthetist
 Hagan, Shannon, CRNA
 Howie, William, CRNA
 Martin, Walter, CRNA
 Miller, Sheree, CRNA
 Nagbe, Lloyd, CRNA
 Sampson, Cindy, CRNA
 Sigalovsky, Alex, CRNA
 Sigalovsky, Natalie, CRNA
 Trainum, Tracey, CRNA
 Turner, Deverie, CRNA
 Webster, Jessica, CRNA
 Wood, Tracy, CRNA

OUR RESIDENTS AND FELLOWS



Class of 2014: *Vikram Bansal, Nicholas Goehner, Vineet Jassal, Benjamin Shander, John Siu, Chase Smith*



Class of 2013: *Yelena Gimelshteyn, Jessica Hoover, Andrea Huang, Ansar Khan, Alwafaa Khatib, Jordan Mazur, Sneha Shah, Alexander Siegel, Jing Tao, Henna Tirmizi, Maria Karla Villacin, Andrew Walker, Earl Wilson*



Class of 2012: *Sibel Akozer, Cristalle Cox, Katie Goergen, Stephanie Kahntroff, Aaron Lange, Ilene Lewis, Maurice Montgomery, Kiarash Paydar, Andrew Porter, Joshua Sappenfield, John Steele, Erik Strauss, Corinna Yu*



Class of 2011: *Justin Barack, Matthew Baron, Ayana Cannon, Christopher Franklin, Shaka James, Omolara Karunwi, Kevin Mun, Sheena Patel, Leudvig Sardarian, Maurice Sheppard, Minghan Tsay, Kofi Vandyck,*



Fellows: *Richard Brouillette, Alisa Horsford, Arash Khoie, Zakiya Lockhart, Elizabeth Riccobono, Alena Stirling, Nicholas Tarmey*

Transesophageal Echo Sonographers

Ezzati, Babak
 March, Glenda, RDCS
 Nguyen Trinh, RCS
 Salinas, Maria
 Shats, Inna, M.A., B.S., RDCS, FASE - Supervisor

Neurophysiologic Monitoring Technologists

Babaran, Richie Cae CNIM, BSMT, RMT
 Berlin, Samantha, B.S.
 Del Rosario, Mary, B.S.
 Ferguson, Bryan B., REPT., CNIM, M.C.S.E. - Supervisor
 Irle, Kary, B.S., J.D.
 Saxe, Mark, B.S.
 Singson, Hy-D, CNIM, B.S.P.H.

Anesthesia Technicians

Bolling, David
 Fine, Jessica
 Garrett, Roger
 Hubbard, Jeffrey
 Johnson, Tonya
 Lewis, Melvin
 Moore, Corey
 Oliver, Michael
 Palmer, Myrona
 Sheppard, Lanell
 Silverio, Michelle - Supervisor
 Tabron, Victor
 Terry, Keith
 Young, Nicole

Administration

Armiger, Josephine – Administrative Manager, Trauma
 Brooks, Timothy – Manager of Information Technology
 Burcham, Betsy – Sr. Faculty Coordinator
 Cashwell, Wanda – Administrative Assistant III
 Earle-Jackson, Pamela – Executive Administrative Assistant
 Flayhart, Kimberly, CMPE, CPC – Associate Administrator
 Jones, David – Desktop Engineer
 Leshinskie, Vickie – Office Assistant
 Levi, Michael – Residency Program Assistant
 Mast, Taryn – Administrative Assistant III
 McFadden, Debbie, B.A. – Financial Coordinator
 Moon-Habor, Terri – Administrative Assistant III
 Plunkett, Susan – Residency and Fellowship Coordinator
 Pompanio, Emily – Administrative Assistant III, Trauma
 Purcell, Maria – Sr. Residency Program Coordinator
 Shearer, Jake, B.B.A. – Finance Analyst
 Simmons, Hugh, M.B.A. – Sr. Administrator
 Stubbs, La Toya, B.S. – Clinical Research Assistant
 Tchuembou, Josie, M.B.A. – Finance Director
 Utz, Julie, A.S. – AIMS System Administrator



Pain Management Center

Bower, Cathy, B.S.N., RN-BC – Clinical Nurse, Acute Pain
 Clyde, Christina, M.S., RN-BC – Nurse Manager
 Cohen, Vicki, B.S.N., RN – Clinical Nurse
 Conaway, Cheryl – Medical Practice Representative
 Denbow, Bernice, B.S.N., RN – Clinical Nurse
 Durant, Natasha, Ph.D. – Licensed Clinical Psychologist
 Duren, Eleese – Medical Practice Representative
 Elder, Jonathan, RT – Radiographer
 Fitzsimmons, Karen, B.S.N., RN – Clinical Nurse
 Garcia, Candy – Medical Practice Representative
 Lindenmeyer, Karen – Division Administrator
 O'Connor, Karen, RN – Clinical Nurse
 Ryan, Stefanie, PT – Physical Therapist
 Stallings, Della, RN – Clinical Nurse
 Watts-Gibson, La-Vett – Medical Practice Representative, Team Leader
 Williams, Christina – Administrative Assistant

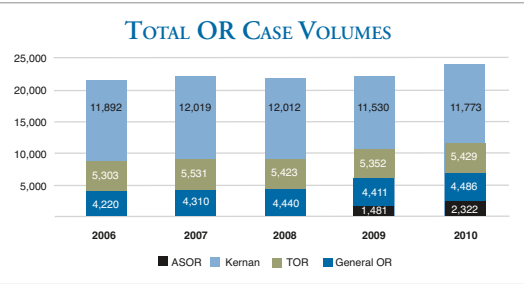
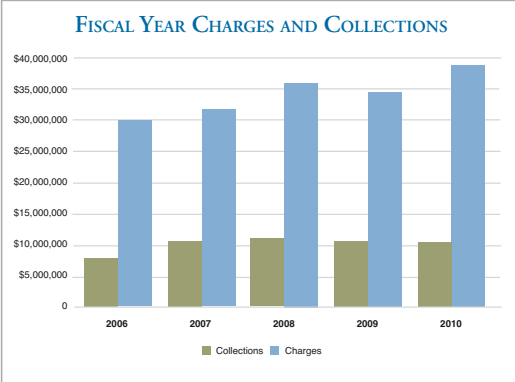
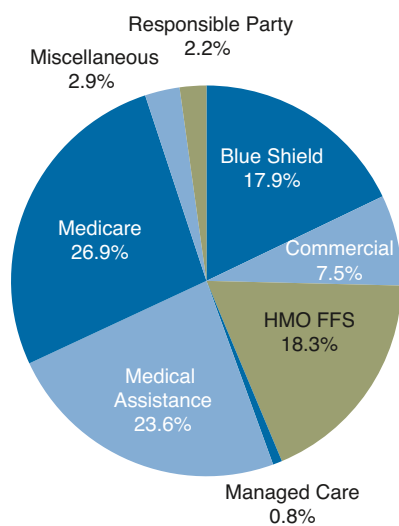
Professional Billing Office

Blackwell, Laurie – Patient Account Representative
 Clayton, Tracy, – Patient Account Representative
 Hallinger, Judith, CPC – Billing Supervisor
 Kizina, Shelly, – Patient Account Representative
 Lifsey, Alice, CPC – Professional Coder
 Loney, Dawn – Patient Account Representative
 Nicholson, Tammy – Team Leader
 Roehm-Tornel, Eta, M.S.W. – Patient Account Representative
 Sizemore, Judy, CPC – Professional Coder

Neuroprotection Lab Staff

Balan, Irina, Ph.D. - Post-doctoral fellow
 Berger, Stephanie, B.S. - Research Assistant Lab
 Brown, Denise - Administrative Assistant II
 Clerc, Pascaline, Ph.D. - Post-doctoral fellow
 Greco, Tiffany, B.S. - Molecular Medicine Ph.D. student
 Guo, Li, M.S. - Laboratory Research Technician
 Hazelton, Julie, M.S. - Lab Manager
 Hwang, Hyehyun, M.S. - Research Assistant
 Laird, Melissa, Ph.D. - Post-doctoral fellow
 Lui, Chunli, M.S. - Research Specialist
 Mehrabyan, Zara, Ph.D. - Lab Manager
 Pan, Yan, B.S. - Research Assistant Lab
 Park, Yujung, B.S. - Research Assistant Lab
 Sabirzhanova, Inna, Ph.D. - Post-doctoral fellow
 Zhao, Jingwei, M.D. - Post-doctoral fellow

END OF YEAR SUMMARY



HOLIDAY PARTY



PICNIC





UNIVERSITY *of* MARYLAND
SCHOOL OF MEDICINE

LIVING QUALITY, SAFETY AND EXCELLENCE

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