

Department of Anesthesiology

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Alumni Connection



John P. Williams, MD

*Peter and Eva Safar Professor and Chair, Department of Anesthesiology
Associate Medical and Scientific Director, UPMC International Division*

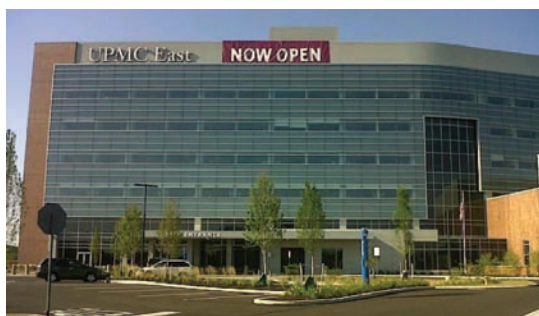
It is hard to believe how rapidly our department has expanded since our last newsletter came out in winter of 2011! We have so much exciting news to report in this issue. First and foremost, UPMC East opened on July 1, 2012 and became the latest addition to our aggregate of clinical sites. This brand new 156-bed hospital in Monroeville, PA will serve the needs of our neighbors in the communities east of Pittsburgh.

In other big news, we recently acquired not one, but two NIH T32 training grants (see page 10) and seven of our physicians were named as 2012 Best Doctors in *Pittsburgh Magazine* (see page 7).

I would like to once again invite our alumni to participate in our success by donating to your favorite departmental effort, whether it be our missionary, research, academic, or educational missions. Information on donating to the department can be found on the last page of this newsletter. If you need assistance in making a donation, please do not hesitate to write or call me. Please remember that we are only as strong as you make us. The costs of research and education continue to escalate and without support from folks like you, we will be restricted, or worse, be forced to curtail otherwise wonderful young and energetic investigators and educators. Please help us with your donations no matter how small! Every single dollar goes to support what you ask. We do not divert the dollars for any reason.

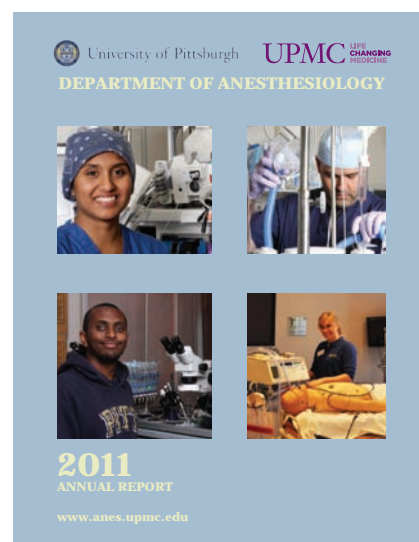
Another thing I would like to ask all our alumni and newsletter readers for is for your feedback. What kind of articles would you like to see in this newsletter? I encourage all of you to please send your suggestions to [Christine Heiner](#) here in the department or to me directly. What do you like and what do you not like? What would like to see more of and what less?

Thank you to all of our alumni and newsletter readers for your continued support over the years. We wish to continue to hear about and share with our readers stories of your successes (contact: [Christine Heiner](#)). I wish you all a safe and happy summer and we look forward to hearing from you!



A Message From the Chair

**Our Fiscal Year 2011
Annual Report is now
online!**



Department at a Glance - FY 11

<i>Anesthesiology Cases</i>	196,324
<i>Chronic and Acute Pain Visits</i>	89,778
<i>OB Deliveries</i>	9,845
<i>Faculty FTEs</i>	187
<i>Total ORs covered</i>	219
<i>Total Anesthetizing Locations</i>	262
<i>CRNA FTEs</i>	370
<i>Graduating SRNAs</i>	47
<i>Residents and Fellows</i>	98
<i>Active Clinical Trials</i>	15
<i>Total NIH Awards</i>	\$4,166,112
<i>Total Awards</i>	\$5,474,845



Dental Injuries: Risk Identification, Prevention and Reduction

Andrew Herlich, DMD, MD, FAAP

Professor and Vice-Chair for Faculty Development

Dental injuries are the most frequent cause of complaints against anesthesia care providers. Based upon review of the literature, they account for as much as one-third of payouts for injury, yet they are the lowest in actual dollars paid. It is quite difficult to accurately quantify the actual dollars paid since most payouts are “out of pocket” and rarely come

from malpractice insurance claims. Almost all injuries have come as the result of airway manipulation under general anesthesia. Surprisingly, there are cases of dental injuries during monitored anesthesia care and regional anesthesia. Young children rarely have injuries to the permanent dentition since most of the lost teeth are primary teeth. Most injuries occur from older adolescence through age 80.

Demographically, the most frequent teeth that are injured are the maxillary central and lateral incisors. The maxillary central incisors are wider and longer than the lateral incisors, hence the increased propensity for injury. The injuries range from slight crazing of the enamel through avulsion or fracture of these single rooted teeth. Posterior teeth, premolars, and molars are multi-rooted and more stable to forces of intubation. They are less likely to be injured or abnormally mobilized unless the patient has periodontal disease. It is important to have the patient remove their removable prostheses as part of the dental evaluation. The clasps (clips) of the removable partial dentures may stabilize mobile teeth or hide gross caries which increase the exposure to dental injury during airway manipulation. Patients with difficult tracheal intubation also pose a great risk for dental injury.

Prevention of dental injuries may dramatically reduce the cost of reimbursement for replacement of injured teeth. The cross-finger scissor approach to opening of the mouth should NEVER be applied to the incisor teeth. Under those circumstances, the mechanical forces are directed at 90 degrees to the single rooted teeth and increase the risk to tooth/teeth avulsion. The cross-finger scissor forces should always be directed posteriorly against the premolar and molar teeth, which are multi-rooted (inherently more stable) and parallel to the root and crown structure. The use of tooth guards is highly controversial. Although the guards may appear to lessen injury when contacted by laryngoscopy, they also constrict a tight airway space. Early use of videolaryngoscopy or flexible fiberoptic endoscopy is strongly recommended if the dentition is at high risk or difficult tracheal intubation is predicted. When feasible, preoperative dental consultation is strongly recommended if the dentition is at great risk.

Since the general population has become more sophisticated and aggressive about maintaining dentition, permanent crowns and bridges in conjunction with dental implants are more common. If iatrogenic dental injuries occur to these structures, replacement or reconstruction is quite costly. A national average cost for implants and accompanying crowns may range from \$2000 to \$14,000 per tooth, depending upon supporting bone anatomy and adjacent dental structures!

All published reviews and studies stress the importance of accurate examination of the dentition and careful documentation of the preoperative status. A comprehensive discussion of dental risk with the patient prior to anesthetizing the patient concomitant with documentation of the discussion is mandatory. Such documentation will assist both the practitioners and risk managers with accurate data when claims are filed with the anesthesia department or hospital. Each anesthesiology department or hospital should have a written protocol for processing these claims. A consistent policy will likely reduce settlement costs and result in less patient dissatisfaction.

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Department of Anesthesiology Educational Programs Receive ACGME Accreditation

The Department of Anesthesiology's residency program and pain medicine and pediatric anesthesiology fellowships recently received continued accreditation from the Accreditation Council for Graduate Medical Education (ACGME). All programs were approved for an additional five years, effective April 20, 2012.

Our residency program, pain medicine fellowship, and pediatric anesthesiology fellowship are directed by David G. Metro, MD, Nashaat N. Rizk, MD, and Franklyn P. Cladis, MD, respectively.

The ACGME also granted first-time accreditation to the obstetric (OB) anesthesiology fellowship, effective July 1, 2012.

The program, directed by Professor Manuel C. Vallejo Jr., MD, DMD, is accredited for a three year time period, the maximum cycle length granted for first time accreditation. Although this is the initial ACGME accreditation for the OB fellowship, The Department of Anesthesiology at UPMC Magee-Womens Hospital (MWH) has offered it since the late 1970s. The OB Anesthesiology program is one year long and is approved for enrollment of two fellows.

Could Cannabis Lead the Way to Safer Painkillers?

Christine Heiner, BA, *Scientific Writer* and Sandra Hirsch, MBA, *Research and Training Coordinator*

Chronic or persistent pain affects 76.2 million Americans, more people than cancer, heart disease, and diabetes combined (1-5). In the U.S., it is estimated that chronic pain accounts for \$100 billion annually in healthcare costs and lost income and productivity. Continuous analgesic medications are the common treatment for chronic pain. These drugs, including narcotics, non-steroidal anti-inflammatory drugs (NSAIDs), and anti-depressants, all come with risks of side effects and dependency (6). They are among the most abused prescription drugs in this country. Opioid prescriptions have increased ten-fold over the last 20 years, and opioid addiction, dependence, and overdose is now more prevalent than ever. A Columbia University study found that opioid addiction tripled between 1991-2002, and Americans reporting dependency and abuse increased from .1% to .3% of the population. Prescription painkillers now kill twice as many people as cocaine and five times as many people as heroin (7).

Over the past decade, cannabinoids targeting the endocannabinoid system have emerged as an effective therapy for pain and numerous other medical conditions (8). Unfortunately, the medical benefits of cannabinoids are hampered by adverse side effects such as cardiovascular disease and impaired respiratory function (if smoked). The most widely known of the cannabinoids, Δ^9 -tetrahydrocannabinol (THC), is the primary ingredient of cannabis (marijuana), which causes many psychoactive side effects, including poor cognitive function, poor memory, paranoia, anxiety, psychotic symptoms, poor motor-coordination, impairment of attention span, and an increased risk of developing depression and psychiatric disorders (9). Cannabis use also carries the risk of dependence and is viewed as a “gateway” drug to addiction. In the U.S., Canada, and Australia, cannabis dependence is the third most common drug dependence disorder after tobacco and alcohol and affects 4-8% of adults in their lifetime (9-11). The 2010 *World Drug Report* (12) cites cannabis as “the most widely used illicit substance in the world.” Cannabis users have a 9% risk of developing dependence during their lifetime, and the risk increases to one in six for those who starting using cannabis during adolescence (11).

Those who suffer from chronic pain are clearly in need of potent analgesics without being exposed to the risks of abuse or dependency. In a study published in *Nature Chemical Biology* last year (13), a team of investigators led by Dr. Yan Xu, Professor and Vice Chairman for Basic Sciences in our department, in collaboration with scientists at the National Institute of Alcohol Abuse and Alcoholism (NIAAA), uncovered the potential to harness THC’s analgesic powers without psychoactive side effects. These investigators identified a novel drug-binding site in the transmembrane (TM) domain of the human glycine receptor (GlyR) critical for the potentiation action of THC on GlyR. Experimental evidence suggests that the site and the action of cannabinoid potentiation critically contribute to the cannabis-induced analgesic effect. The study pointed to a way to separate THC’s psychoactive effects via the cannabinoid type 1 (CB1) receptors from its analgesic power by acting on the GlyRs. This



discovery with high-resolution structure information sets the stage for future research to identify small, drug-like molecules which target a specific binding site in GlyR, thereby producing an analgesic effect without the psychoactive side effects associated with THC and many of its derivatives. The ultimate goal is to develop a new class of drugs with an optimal analgesic and side-effect profile.

In a second study published this year in *Journal of Experimental Medicine* (14), the same team of investigators found that systemic and intrathecal administration of cannabidiol (CBD), a major nonpsychoactive component of marijuana, and its modified derivatives significantly suppress chronic inflammatory and neuropathic pain without causing apparent analgesic tolerance in rodents. The cannabinoids significantly potentiate glycine currents in the dorsal horn neurons in rat spinal cord slices. The analgesic potency of 11 structurally similar cannabinoids is positively correlated with cannabinoid potentiation of the $\alpha 3$ subunit of GlyRs. In contrast, the cannabinoid analgesia is neither correlated with their binding affinity for CB1 and CB2 receptors, nor with their psychoactive side effects. Nuclear magnetic resonance analysis reveals a direct interaction between CBD and S296 in the third TM domain of purified $\alpha 3$ GlyR. The cannabinoid-induced analgesic effect is absent in mice lacking $\alpha 3$ GlyRs. These important findings suggest that $\alpha 3$ GlyRs mediate glycinergic cannabinoid-induced suppression of chronic pain. These cannabinoids may represent a novel class of therapeutic agents for the treatment of chronic pain and other diseases involving GlyR dysfunction.

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Combining the Real and Virtual Worlds to Create the Next Generation of Medical Simulators

"I really see this now. This is the future." These were comments made by Dr. Hiroshi Ishii, co-director of the MIT Media Laboratory, after the research talk presented by the Department of Anesthesiology's Dr. Joseph Samosky at the recent Tangible, Embedded and Embodied Interaction Conference (TEI 2012) in February at Queen's University in Kingston, Ontario.

Dr. Samosky presented his recent work in developing sensor-enhanced and augmented-reality enabled mannequin simulators for medical training: "BodyExplorerAR: Enhancing a mannequin medical simulator with sensing and projective augmented reality for exploring dynamic anatomy and physiology."

Dr. Ishii is regarded as the father of "tangible computing," a concept and term he introduced in a seminal 1997 paper. Tangible computing endeavors to move beyond traditional methods of interacting with computers (flat screens, mice and keyboards) by developing interfaces that involve everyday objects and natural ways of interacting with them. Intuitive, touch-based interactions with smartphones and iPads are steps in this direction, as are new, gesture-based interfaces for games like the Nintendo Wii and the Microsoft Kinect. A related technology, augmented reality (AR), offers the ability to display information on physical objects, moving beyond flat computer screens.

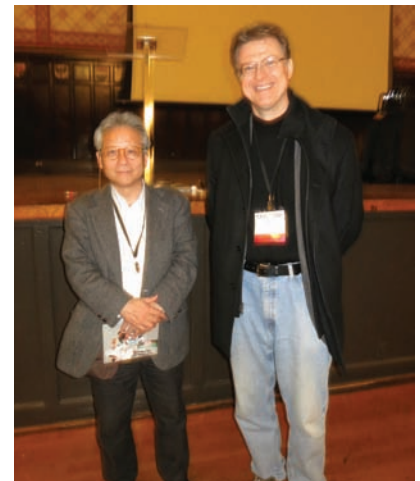
This new world of human-computer interaction holds vast potential for enhancing medical simulation-based training. As Dr. Samosky explains, "Augmented reality, the integration of computer-generated images and information display with real objects, offers tremendous potential to expand and enhance the capabilities of physical simulators such as full-body mannequin trainers. Mannequin simulators are widely deployed for training and are very useful, but they currently have some fundamental limitations. For example, their internal structures (with limited exceptions such as airways) bear little resemblance to actual human anatomy. And, like humans, they are mainly visually opaque. This limits the ability for a learner to perform physical 'dissection' on a mannequin or see and explore the internal consequences of their external interventions. Augmented reality and tangible interfaces offer a way to achieve these capabilities."

For the past two years Dr. Samosky's research team in the Simulation and Medical Technology R&D Center has been developing the "BodyExplorer" system. Projective augmented reality, in which images are projected onto the surface of the simulator, are used to alter the appearance of the mannequin body, creating the illusion of showing internal structures. Information such as vital signs and physiological data streams can also be overlaid onto the body to enhance learning. Dr. Samosky and his students previously developed the Interactive Projective Overlay system, which creates the illusion of a "see through" view through the anterior chest wall during simulated intubation training and senses the depth of endotracheal tube insertion. The BodyExplorer system extends these capabilities by transforming the surface of a mannequin simulator into both a display and an input device. The system enables a user to open, size, and reposition multiple

viewports onto the simulator body using gestures made on the body itself with an infrared light pen. These viewports can then be used to display dynamic anatomy and real-time physiological responses to interventions the user applies to the mannequin, such as injection of a simulated drug.

For example, a user can open a viewport onto the heart, turn on heart sounds, view the ECG and then administer various drugs and observe the effect on heart rate and contractility. The system offers dynamic responses not provided by human cadavers and visualization capabilities and "what-if" exploratory learning not possible with real patients.

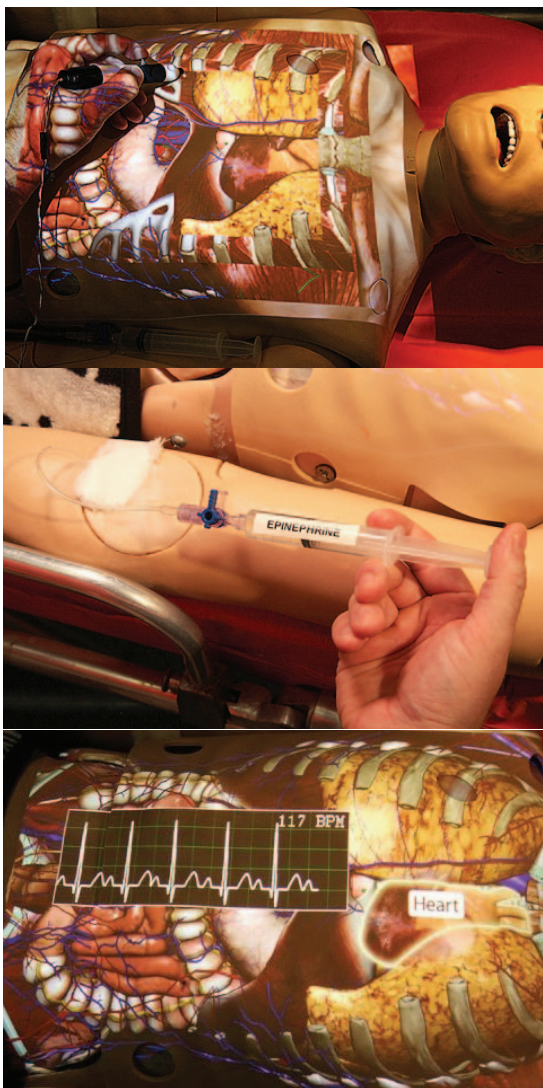
The figure below shows a user opening multiple AR viewports, visualizing layers of thoracic and abdominal anatomy. The system creates the perception of dissecting away first the skin, then the



Dr. Joseph Samosky (right), Director of the Simulation and Medical Technology R&D Center, with Dr. Hiroshi Ishii, Co-director of the MIT Media Laboratory and pioneer of tangible computing, at the TEI 2012 conference at Queen's University in Kingston, Ontario.



Simulation and Medical Technology R&D Center graduate student Douglas Nelson (center) demonstrates the BodyExplorer augmented mannequin medical simulator system to an audience at the Tangible, Embedded and Embodied Interaction (TEI) conference in February 2012.



The BodyExplorer system enables a trainee to open multiple “viewports” into a mannequin simulator by using simple gestures directly on the surface of the body, revealing both anatomy and physiology. Here, a user opens a viewport onto a heart, places a dynamic ECG window onto the body, then injects simulated epinephrine and observes the effect on heart rate and ECG.

anterior muscles and finally the sternum and ribs to reveal a dynamic beating heart.

“Data projected and displayed on the mannequin are not limited to anatomic data,” Dr. Samosky says. “We are currently developing a variety of additional types of data displays, including ‘X-ray vision’ views of inserted breathing tubes or catheters, and the ability to display additional datastreams such as heart chamber pressures, oxygen saturation, blood drug concentrations, etc. We imagine the ability to select and drag any data stream of interest onto the body surface alongside the relevant anatomy, creating a virtual physiologic ‘exploratorium’, combining AR display, sensors for hands-on interventions, and real-time physiological modeling.”

“We also envision the ability to zoom from the macro to micro anatomic scales: for example, zooming in on the synapses in the myocardium to see an animation of drug-receptor interaction, or zooming in on the glomerular apparatus in the kidneys to visualize a drug clearance mechanism. The combination of natural, intuitive and clinically-relevant tangible interactions and virtual enhancement opens broad possibilities for both individual and group learning across multiple levels and specialty areas of healthcare training.”

Novel ways of sensing trainee interactions with simulators are another key area of Dr. Samosky’s research. Sensors enable quantitative, objective measurement of trainee performance, and enable the simulator to respond realistically and automatically to interventions, permitting instructors to focus on higher-order coaching and feedback, rather than needing to “puppeteer” the simulator.

Dr. Samosky’s group has designed and implemented novel sensors for several common clinical interventions, including measuring rate and volume of IV injections and detecting depth of insertion of an endotracheal tube and position of a pulmonary artery catheter. An important aspect of such sensing systems is that they be non-encumbering: they should be “perceptually transparent”, and not alter the normal appearance or feel of using a tool or device. For example, the non-contact sensing system for detecting depth of insertion of an endotracheal tube utilizes a small neodymium magnet placed at the tip of the tube, tracked by an array of Hall-effect sensors fixed to the mannequin’s airway.

Over the past year, Dr. Samosky and graduate student Douglas Nelson, undergraduate researcher Russell Bregman, and systems engineer Brandon Mikulis have developed a new automatic drug recognition system for medical simulators. This research won the first place award for Technology and Program Innovation at the International Meeting on Simulation in Healthcare (IMSH) in January, 2012 (selected out of approximately 160 Technology and Program Innovation abstracts accepted by IMSH). The work was also chosen for presentation to the entire conference in a plenary session talk.

This research developed a drug simulant sensing system that enables a simulator to automatically identify and respond in real-time to an injected simulated drug. The method encodes the identity of a drug directly in a fluid, enabling simulated drugs or IV fluids to be administered to a simulator in a completely naturalistic manner, without non-native components such as bar codes or RFID tags. It also enables “vial to vein” tracking of the drug, permitting exercising of each step in the drug administration process with objective verification of the end result: delivery of the correct drug in the correct volume and rate to the patient.

A sensing system was developed in which the injected fluid itself carries a unique signature that identifies the drug it is intended to represent, enabling a natural, tangible interface to drug-modulated physiological responses. The system uses various concentrations of aqueous salt (NaCl) solutions to represent different drugs. The system design employs a custom-made conductivity sensor and a flow meter in-line with the internal arm “vein” in a standard mannequin simulator. The conductivity of the injected solution is measured to identify the simulated drug, along with rate and volume of fluid administered. For a particular training scenario, a set of salt concentrations can be programmatically mapped to a desired set of drugs. These can be remapped as desired for different scenarios. Salt solutions were chosen since they are clear, safe, inexpensive, and easy to formulate.

Recognition occurs whenever the simulant actually flows into the “vein” of the simulator, whether it is injected at the arm or a distance away. The system detects whether an IV line has been flushed with saline and can also detect injection of an air embolism. The system

enables natural exercising of all steps in IV drug administration, from choosing the correct vial (e.g., from a crash cart), to preparing a syringe loaded with the correct volume of drug, then injecting the drug into the IV line. The system recognizes the clinical endpoint of identity and dose of the actual injected fluid: this enables assessment and verification of correct execution of each of the preceding procedural steps.

“Our research is focused on developing a modular, extensible toolkit of visualization methods, sensor-based naturalistic interactions and dynamic multimedia data displays and integrating these into a user-testable prototype system,” Dr. Samosky describes. “We are currently identifying specific clinical scenarios for which to develop targeted and testable learning experiences. We wish especially to examine the effect of simulation-based learning on reducing clinical errors. We hypothesize that highly interactive, augmented-reality enhanced methods may be particularly beneficial in providing engaging, memorable, but safe display of the consequences of mistakes—for example, clearly seeing in real time how injecting a hypotensive drug too rapidly may result in a hypotensive crisis for a patient, or vividly seeing esophageal intubation as it occurs. We are currently exploring development of such consequence-display scenarios for clinical procedures including IV drug injection, Foley catheterization, and airway intubation.”

Assessing the grand challenges of medical simulation technology and looking toward the future, Dr. Samosky states, “I am very interested in exploring the design space of ways that simulators can offer capabilities enhancing what even actual clinical experience can provide: ways that simulators can be ‘even better than the real thing’. For example, in simulation we can pause or accelerate time, provide objective sensing of a user’s actions in ways often not feasible in the real clinical environment, and enable the exploration of ‘what-if’ scenarios, all without risk to a patient, and with the ability to hit the reset button and try again if a mistake is made. Simulation can offer risk-free hands-on training and objective assessment techniques in potentially every field and environment of our complex healthcare system—and do so in a standardized manner developed with evidence-based best practices.”

“Our research team is also working to develop turnkey, on-demand, 24/7 training systems. Simulators that could be located in the break room of a hospital unit, for example, so that if a resident or nurse has a half hour free at 2am, he or she could walk up to the simulator and quickly receive focused, experiential practice—and a key advantage is that this can be supervised, guided practice, even in the absence of a human instructor, because the simulator has a rich array of sensors, performance-assessment metrics and automated tutoring capabilities built in.”

“Our ultimate goal remains more efficient and effective training for caregivers, and enhanced safety and the highest quality of care for patients.”

New Faculty Appointments and Faculty Promotions

Congratulations to the following Department of Anesthesiology faculty who were appointed since our last newsletter:

Ryan Ball, MD – Assistant Professor
Inna Belfer, MD, PhD - Associate Professor
Karen Boretsky, MD – Assistant Professor
Heather Scott Byrd, MD – Clinical Instructor
Thomas Chalifoux, MD – Assistant Professor
Carl Daltner, MD – Clinical Assistant Professor
Calvin Eng, MD – Clinical Assistant Professor
David Glover, DO – Clinical Instructor
Gregory J. Godla, MD - Clinical Associate Professor
Stephen Esper, MD – Assistant Professor
Denise Hall-Burton, MD – Clinical Assistant Professor
Andrew Herlich, DMD, MD, FAAP - Professor
John Hoffman, DO – Clinical Instructor
James Ibinson, MD PhD - Visiting Assistant Professor
Kevin King, DO – Clinical Assistant Professor
Jun Ho La, DVM PhD – Visiting Research Assistant Professor
Charles Lin, MD – Clinical Instructor
Qing Liu, MD, PhD – Instructor
Darren Loughran, DO – Clinical Assistant Professor

Gordon Mandell, MD – Clinical Associate Professor
Amina Mohideen, MD – Clinical Assistant Professor
Colleen Moran, MD – Assistant Professor
Walter Morris, DO – Clinical Assistant Professor
Scot Muir, DO – Clinical Instructor
Jeffrey Nicklas, MD – Clinical Instructor
Kristin Ondecko-Ligda, MD – Clinical Instructor
Mahesh Sardesai, MD – Clinical Assistant Professor
Anthony Silipo, DO – Clinical Instructor
Kenichi Tanaka, MD, MSc – Visiting Professor
Jeffrey M. Varga, MD - Clinical Associate Professor
Haibin Wang, MD, PhD – Assistant Professor
Erin Young, PhD – Visiting Research Assistant Professor

Congratulations to the following Department of Anesthesiology faculty who were promoted since our last newsletter:

Patricia Dalby, MD - Associate Professor
Kathirvel Subramaniam, MD - Clinical Associate Professor

Seven Anesthesiology Faculty Members Recognized as 2012 “Best Doctors” by Pittsburgh Magazine

The department is proud to announce that seven of our anesthesiologists are recognized in the May issue of *Pittsburgh Magazine* as “Best Doctors” for 2012. They are among a distinguished group of 103 UPMC and UPMC-affiliated physicians who comprise 78 percent of this year’s list.



Shushma Aggarwal, MD
recognized in the specialty of
anesthesiology



Barbara W. Brandom, MD
recognized in the specialty of pediatric
anesthesiology



Peter J. Davis, MD
recognized in the specialty of pediatric
anesthesiology



Andrew Herlich, DMD, MD, FAAP
recognized in the specialties of
anesthesiology and pediatric
anesthesiology



Jerome Parness MD, PhD
recognized in the specialties of
anesthesiology and pediatric
anesthesiology



Nashaat N. Rizk, MD
recognized in the specialty of
anesthesiology



Erin A. Sullivan, MD
recognized in the specialties of
anesthesiology and adult cardiovascular
anesthesia

Faculty Spotlight: William Simmons, MD



Dr. William Simmons, Visiting Clinical Associate Professor and Attending Physician at UPMC Shadyside Hospital, is leading a crusade to promote and improve diversity in healthcare for not only the Department of Anesthesiology, but for the University of Pittsburgh, UPMC, and the nation. Dr. Simmons chairs our department's Committee on Diversity, co-chairs the UPMC/University of Pittsburgh Physician Inclusion Council's Committee on Retention and is the President of the Gateway Medical Society (GMS).

Dr. Simmons graduated with his medical doctorate from Mayo Medical School in 1977 and completed residencies in pediatrics at Georgetown University and anesthesiology at George Washington University Hospital, both in Washington, DC. Dr. Simmons is still remembered at Georgetown for being the first black Chief Resident of Pediatrics. Dr. Simmons continued his education at Children's Hospital of Pittsburgh of UPMC, where he completed fellowships in pediatric critical care medicine (CCM) and pediatric anesthesiology. During his CCM fellowship, he wrote protocols for the use of continuous arteriovenous hemo-filtration, slow continuous ultrafiltration, and continuous arteriovenous diafiltration and investigated their efficacy in the Pediatric and Neonatal ICU. He also earned a Medical Leadership Certificate (Mini-MBA Program) from the University of Rochester in 2002.

His first academic/clinical appointment was in our department as an Assistant Professor and Faculty Anesthesiologist at UPMC Presbyterian Hospital and Children's Hospital of Pittsburgh of UPMC from 1988-1996. He went on to serve as Director of Pediatric Anesthesiology at Maimonides Medical Center in Brooklyn, NY, and in positions at SUNY Health Science Center and Crouse Memorial Hospital in Syracuse, NY, Temple University, Temple Children's and Shriners Hospital for Children in Philadelphia, PA, University of Rochester Medical Center in Rochester, NY, Allegheny General Hospital, and West Penn Allegheny Health System. While at Temple, Dr. Simmons was also the Director of Quality Improvement at the new Temple Children's Hospital and authored a successful QA plan that earned the hospital excellent reviews at their first JCAHO evaluation. In 2004, Dr. Simmons returned to the University of Pittsburgh/UPMC as Visiting Clinical Associate Professor at UPMC Shadyside Hospital, where he also coordinates medical student education in anesthesiology. Over the course of his career, he has presented over 45 invited lectures, over 70 teaching lectures at Pitt/UPMC, and for 18 consecutive years has been an invited speaker and instructor at the American Society of Anesthesiologists annual meeting for workshops on lung separation techniques.

With his proven track record of leadership and as one of few minority physicians in not just our department but our entire health system, Dr. Simmons was driven to increase the diversity of our workforce. He formed our department's Diversity Committee in 2009 and initially focused on creating marketing that showed our department's existing richness and diversity to attract even more

diverse candidates. He also worked to establish relationships among the members of our department where people get to know each other as friends as well as colleagues to promote retention. One of the ways in which he did this was by starting a series of web articles, "Profiles of Diversity" to allow the staff to get to know colleagues who have used their skills in unique ways or showed extreme determination.

He also immersed himself in countless diversity efforts at the university and hospital level. In 2009, he joined UPMC's Multi-Cultural Partnership Council, a Center for Inclusion in Health Care Initiative, and joined the UPMC/Pitt Physician Inclusion Council in 2010. These programs aim to recruit and retain, emphasizing improving resident, fellow, and staff diversity by hosting job fairs for spouses/partners and networking and recruitment events, as well as publishing materials to assist residents' and fellows' transition from training to practice.

In 2009, Dr. Simmons joined the Gateway Medical Society (GMS), a component of the National Medical Society, which has a mission of addressing underserved minority medical needs, "closing the gap" to medical care provided to these communities, and improving the numbers of minority providers. Within a year and a half of joining, Dr. Simmons served as GSM Secretary, Parliamentarian, Executive Board Member, Vice-President, and finally President in 2012. GSM aims to address the community's needs and create a pipeline of African American males to pursue careers in medicine. GSM recognizes that the only real hope of correcting African American males' disproportionately low representation in healthcare, low graduation rate, disproportionate suspensions, and high rate of placement into special education is to reach these students far sooner in the academic pipeline. Hence, they created the long term "Journey to Medicine" mentorship program (JTM) for African American males in grade six and up. JTM is organized into three phases; Phase I is a 10-month curriculum that involves monthly scheduled lessons at the Peter M. Winter Institute for Simulation Education and Research (WISER). Planned lessons for the students use sophisticated computerized mannequins in simulated emergency rooms, simulated ambulances, and simulated ORs. The students are trained in etiquette, to articulate, and are challenged to prepare and deliver oral presentations. They are also trained in basic CPR. In Phase II, students continue to interact with the human simulators, but at a higher, more challenging level, and begin learning pre-algebra. The students can earn cash rewards each quarter for a 4.0 grade point average. In 2012, JTM will start their first Phase III class, which will be ninth graders. The pipeline will continue adding new classes of sixth graders to Phase I every year, while the older kids matriculate up to Phase VI and graduate from high school. JTM has recently received press in the *Pittsburgh Post Gazette*, the *Pittsburgh Tribune Review*, the *Bulletin of the Allegheny County Medical Society*, and the *New Pittsburgh Courier*. The Pittsburgh Public School Board honored the GSM and JTM at their January 2012 meeting, which was televised on Pittsburgh Community Television.

It would be impossible to mention all of the diversity programs in which Dr. Simmons has been involved. His tireless efforts have not only increased our department's involvement in diversity programs (such as WISER's hosting JTM), but may also ultimately attract more diverse physicians into anesthesiology and possibly, our department.

Alumnus Profile: Lewis J Kaplan, MD, FACS, FCCM, FCCP

Christine Heiner, *Scientific Writer*



*Lewis J Kaplan, MD, FACS, FCCM, FCCP
alumnus, surgical critical care
fellowship program, 1997*

Dr. Lewis Kaplan, a '96-'97 graduate of the surgical critical care fellowship program (which became part of the Department of Critical Care Medicine when it separated from the Department of Anesthesiology in 2002), is currently an Associate Professor of Surgery at Yale University School of Medicine. He is also a Tactical Police Surgeon and Director of Tactical Medicine for the North Haven/North Branford, CT SWAT Team.

"What is a Tactical Police Surgeon?" you may ask. Dr. Kaplan is one of very few SWAT team surgeons who provide on-the-scene immediate emergency medical care in the line of danger. He participates in monthly SWAT team training, and in turn,

trains the SWAT officers in emergency medical care. Dr. Kaplan performs these duties on an entirely volunteer basis. As SWAT team membership is not part of typical surgeon responsibilities, he had to undergo specific training to participate in a tactical team. He is outfitted with body armor and other gear similar to the other tactical team officers.

The roots of Dr. Kaplan's desire to become a SWAT team surgeon were planted when he became a trauma surgery consultant for the Air Force 720th Special Operations Command after the tragedies of 9/11. His role was to refine curriculum and teach the medical skills needed for tactical combat casualty care in austere environments. Not much later, Kaplan met a group of police officers at his local Panera where he would often take his autistic daughter. It turned out that Kaplan and the cops had some common acquaintances. They got to talking each time they saw each other, until one day the conversation turned to the idea of embedding a surgeon/critical care medicine specialist in the SWAT team to immediately treat serious injuries before the scene was safe for paramedics to enter. This notion was fueled by Dr. Kaplan's friendship with Richard Carmona, MD a former Surgeon General who championed the Tactical Emergency Medical Support concept.

He was also motivated to do his part to keep the community and his family safe. "My son, who is now 17, asked me what I did that was civic-minded. I can't enlist in the military because of family/career obligations, but helping care for those who help keep all of us safe is something that I can do," says Kaplan.

Kaplan says the most dangerous missions he's encountered with the SWAT team are "high-risk warrant services" – delivering arrest warrants to suspects with histories of violent crimes and who may be anticipating police arrival and are armed with high-powered assault weapons or booby-traps.

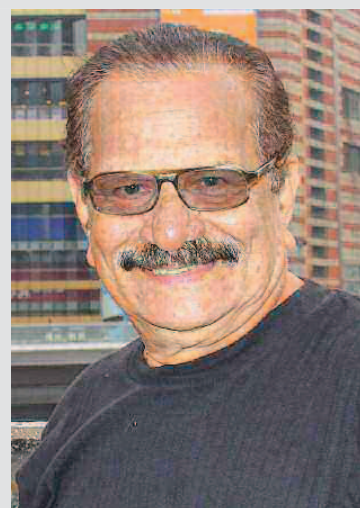
Dr. Kaplan is also working to develop national SWAT officer specific

In Memory of Sivam Ramanathan MD

Manuel C. Vallejo Jr., MD, DMD, Professor and Director of Obstetric Anesthesia

It is with great sadness that we report that Sivam Ramanathan MD, former Chief Anesthesiologist at Magee-Womens Hospital of UPMC (MWH), passed away on Saturday May 26, 2012 at Cedars-Sinai unexpectedly following a trip to China celebrating his 45th wedding anniversary with his beloved wife Sita.

There are no words to express our shock and heartbreak. We reach out to his wife Sita and his entire family during their time of grief, and we send them our deepest condolences and prayers.



Dr. Sivam Ramanathan

Dr. Ramanathan was a gentle giant of a man, beloved in the field of Obstetric Anesthesiology. He was Professor of Anesthesiology, Director of Obstetric Anesthesiology at New York University Medical Center, Chief of Anesthesiology at Magee Women's Hospital in Pittsburgh, and Attending Anesthesiologist and Director of Obstetric Anesthesiology Research at Cedars-Sinai. He taught and inspired hundreds upon hundreds of residents and fellows in obstetric anesthesiology, authored over 120 peer-reviewed articles, dozens of textbook chapters, as well as solely authored the textbook *Obstetric Anesthesia* in 1988. Dr. Ramanathan won several teaching awards, including the National Society for Obstetric Anesthesia and Perinatology Teacher of the Year, and the prestigious Nils Lofgren Award for Outstanding Service to Obstetric Anesthesia.

Sivam Ramanathan loved to travel, enjoyed wines, and was lovingly devoted to and proud of his wife Sita and his children – their daughter Radha, an attorney in Washington D.C., and son Kumar, a paralegal in Pittsburgh, PA.

Dr. Ramanathan will always be remembered for his great sense of humor, phenomenal knowledge, willingness to help, and his ability to mentor and inspire others.

His passing leaves a void in the hearts and communities of New York, Pittsburgh, and Los Angeles.

His obituary in the LA Times can be accessed online at: http://www.lafuneral.com/mgxroot/page_10721.php?id=1076196

fitness standards, which do not currently exist. He knows first-hand how physically taxing it is to just walk with up to 100 pounds of equipment and armor, let alone run or move quickly in high-risk scenarios.

"Critical care medicine is a concept, not a location, and I can bring many of those elements into the field" Kaplan says. It is an important lesson he's learned from his time in our fellowship program and applied to his unique career as a SWAT surgeon.

Department of Anesthesiology Now Home to Two NIH T32 Training Grants

This spring we were very pleased to learn that the National Institutes of Health (NIH) will award the department two T32 Training Grant Awards, effective July 1, 2012.

The first is a renewal of our existing postdoctoral research training program, "Research Training in Anesthesiology and Pain Medicine," directed by Yan Xu, PhD, Vice Chair of Basic Sciences, which was funded by NIH's National Institute of General Medical Sciences (NIGMS) for a second five-year term. Thirty-three leading scientist in anesthesiology and related disciplines, including critical care medicine, surgery, computational & systems biology, and neuroscience, will continue to mentor clinician-scientists to become leaders in the field of anesthesia research by providing rigorous postdoctoral research training with an emphasis on hypothesis-driven laboratory or clinical research. The program will fund three trainee positions per year.



Yan Xu, PhD



Gerald F. Gebhart, PhD

The second is a new T32 Pre/Postdoctoral Training Program, "Training in Mechanisms and Clinical Presentation of Pain," directed by Gerald F. Gebhart PhD, Director of the Pittsburgh Center for Pain Research and funded by the NIH's National Institute of Neurological Disorders and Stroke (NINDS). The program aims to recruit and train the best pre- and post-PhD fellows in cutting-edge theory, techniques, and research strategies, preparing them to lead

the next generation of pain researchers. Thirty one scientists in anesthesiology and related fields such as neurobiology, medicine, otolaryngology, and physical medicine and rehabilitation, have signed on to mentor the trainees.

Dr. Xu's training program will focus on training physician scientists, primarily MDs and MD/PhDs, to prepare for careers in academic anesthesiology. Dr. Gebhart's training program will focus solely on pain research, and will target 3rd and 4th year pre-doctoral graduate students and PhD postdoctoral fellows.

University of Pittsburgh Named one of 11 NIH Centers of Excellence in Pain Education



Debra K. Weiner MD

The National Institutes of Health Pain Consortium recently designated 11 health professional schools Centers of Excellence in Pain Education. The University of Pittsburgh is one of eleven schools chosen nationally to receive the designation. The centers will act as hubs for the development, evaluation and distribution of pain management curriculum resources to enhance pain education for healthcare professionals.

Debra K. Weiner MD, Professor of Medicine, Psychiatry, and Anesthesiology, will direct the new

center. More than 20 faculty within the university's schools of Medicine, Nursing, Pharmacy, Dental Medicine, and Health and Rehabilitation Sciences will develop curricula for pre-professional students to advance the assessment, diagnosis and safe treatment of a wide variety of pain conditions. Department of Anesthesiology faculty who will be part of the new center are Cheryl Bernstein MD, Gerald Gebhart PhD, and Michael Mangione MD.

More information is available in a [UPMC Press Release](#) and an [NIH Press Release](#).

In the News.....

Pain research was the subject of *PittMed's* Spring 2012 cover story, which featured interviews with **Gerald F. Gebhart, PhD** and **Inna Belfer, MD, PhD**.

Dawn A. Marcus, MD was interviewed on blog talk radio with Audrey Vandersloop on February 1, 2012 in a feature entitled, "Managing Your Migraines." She was also featured on the show on February 8 at 2 PM for "Managing Your Fibromyalgia." Dr. Marcus also spoke about her work with service dogs on the My Buddy Butch show on Saturday, February 4th and on the BBC's late night Barking at the Moon radio show on Thursday, February 9, 2012.

Two articles by **William Simmons, MD** were published: A Letter to the Editor in the *Pittsburgh Tribune Review* on Sunday March 18th, 2012, and "Gateway Medical Society Inc. — Closing the Gap," in the April Bulletin (page 168) of the Allegheny County Medical Society (ACMS).

Jan D. Smith, MBChB was featured in the Alumni News section of the Winter 2011/2012 issue of *PittMed*.

Seven department faculty publications were featured in *University Times'* annual "Books, Journals, and More" supplement, which recognizes faculty and staff who have written, edited, and translated books, as well as those whose efforts have extended into other areas, such as journals and electronic publications.

Recent Honors & Awards

Inna Belfer MD, PhD was designated a member of the University of Pittsburgh Cancer Institute Biobehavioral Medicine in Oncology Program. Also, Dr. Belfer's grant, "Exploratory Studies of Psychophysical Pain Phenotyping and Genetic Variability in Children with Sickle Cell Disease" will be funded by the University of Pittsburgh Clinical and Translational Science Institute and the Vascular Medicine Institute starting July 1, 2012. She was also a keynote speaker at the Pain Genetics Symposium in Hong Kong on June 9.



Dr. Bairbre Golden

Trent Emerick, MD was accepted as a Foundation for Anesthesia Education and Research Resident Scholar during the 2012 American Society of Anesthesiologists Annual Meeting.

Gregory J. Godla, MD was announced Chief Anesthesiologist at UPMC South Surgery Center.

Dr. Bairbre Golden, an anesthesiologist at UPMC Beacon Hospital in Dublin, Ireland, was appointed the first ever National

Program Director of Anesthesia for the Health Service Executive (HSE). The HSE is responsible for the provision of healthcare and some social services to the population of Ireland.

Gregg E. Homanics, PhD was appointed chairperson of the Neurotoxicology and Alcohol Study Section at the Center for Scientific Review, National Institutes of Health (NIH) for the term beginning July 01, 2012 and ending June 30, 2014.

Douglas Nelson, a bioengineering doctoral student working in Dr. Joseph Samosky's Simulation and Medical Technology Research and Development Center won the 2012 Carnegie Science Center Student Award for University/Post Secondary Student.



Gregg E. Homanics, PhD

Steven L. Orebaugh, MD was appointed an Associate Editor of the journal *Regional Anesthesia and Pain Medicine*.

The Association of University Anesthesiologists (AUA) appointed Professor and Vice Chair for Education **Rita M. Patel, MD** to their Educational

Advisory Board for a three year term. Dr. Patel's membership will begin at the AUA's 60th Annual Meeting on April 4-6, 2013 in Miami, FL.

William Simmons MD assumed the role of President of the Gateway Medical Society on January 1, 2012. Dr. Simmons was also the invited keynote speaker for a dinner on Wednesday, May 30th, 2012 to initiate a new project at the Community College of Allegheny County (CCAC). CCAC was awarded a grant to start a STEM (Science Technology, Engineering, and Math) Academy project for 11th grade students. The Academy was designed to attract African American youths to embrace STEM careers.

The University of Pittsburgh Medical School Class of 2013 selected **Emily Sturgill, MD** as one of six recipients of the Gold Foundation Humanism and Excellence in Teaching / "Little Apple" Award.

Erin A. Sullivan, MD was invited by the American Board of

Anesthesiology to serve a two year term as a question author for the Primary Certification in Anesthesiology Part 2 Test-Writing Committee.

Manuel C. Vallejo Jr., MD, DMD received the 2012 University of Pittsburgh Chancellor's Distinguished Teaching Award. Dr. Vallejo was also elected the 2nd Vice President of the Society for Obstetric Anesthesia and Perinatology (SOAP) at their most recent meeting held from May 2-5, 2012 in Monterey, California. His presidency term will span 2015-2016.

The following Department of Anesthesiology residents won awards at the Western Pennsylvania Society of Anesthesiologists (WPSA) Resident Research Competition May 17, 2012:

Case Reports:

1st Place - **Philip Adams, DO**: "Cardiac Tamponade after Kidney Transplant: Possible Result of Alemtuzumab Induced Cytokine Release Syndrome"

2nd Place - **Stephen McHugh, MD**: "Use of Succinylcholine Infusion for a Laparoscopic Sigmoid Colectomy Due to a Shortage of Neostigmine"

3rd Place - **John Henao, MD**: "First Experience in 14 Years of Fulminant Extraparasympathetic Symptoms Caused by a Single Dose of Oral Perphenazine 8 mg for PONV Prophylaxis"

Scientific Papers:

1st Place - **Trent Emerick, MD**: "Can Scholarly Activity Points During Residency Predict the Research Productivity of an Anesthesiologist?"

2nd Place - **Phillip Adams, DO**: "Use of the STOP-BANG Questionnaire to Identify Patients at Risk for Obstructive Sleep Apnea at a Tertiary Care Medical Center"

3rd Place - **Tony Silipo, DO**: "Effect of Buprenorphine on Epidural Redosing in Laboring Parturients"

At the 2012 American Society of Anesthesiologists (ASA) Practice Management Conference on January 27-29, 2012 in Orlando, Florida:

Mark E. Hudson, MD, MBA received the first place award for "Impact of a Flexibility Tiered Compensation Structure on Locum Tenens Use and Cost in a Large Multi-Hospital Health Care System" (Mark E. Hudson, MD, MBA; Brent A. Dunworth, CRNA; Edward M. McQuade, and John P. Williams, MD).

Trent D. Emerick, MD received the second place award in overall abstract presentations for "From Idea to Innovation: Hurdles and Milestones in Developing a Scholarly Activity Points Website" (Trent Emerick, MD; David G. Metro, MD; Tetsuro Sakai, MD, PhD). His poster was entered in the Leadership Development Category.

Dr. Hudson and Dr. Emerick's awards were mentioned in the [April 2012 issue of the ASA Newsletter](#).



Recent Publications

- Bhatnagar N, Lin CJ, Orebaugh S, Vallejo MC. Regional anesthesia considerations for awake endotracheal intubation & prevention-management of dental injuries. *International Anesthesia Clinics*. 50(1): 1-12, 2012.
- Bortsov AV, Millikan RC, Belfer I, Boortz-Marx RL, Arora H, McLean SA. M-opioid receptor gene a118g polymorphism predicts survival in patients with breast cancer. *Anesthesiology*. 116: 896-902, 2012.
- Buffington CW, Wells C, Soose R. Expiratory upper airway obstruction caused by the soft palate during bag-mask ventilation. *Open Journal of Anesthesiology*. 2: 38-43, 2012.
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- Cui T, Mowrey D, Bondarenko V, Tillman T, Ma D, Landrum E, Perez-Aguilar JM, He J, Wang W, Saven JG, Eckenhoff RG, Tang P, Xu Y. NMR structure and dynamics of a designed water-soluble transmembrane domain of nicotinic acetylcholine receptor. *Biochimica et Biophysica Acta (BBA) - Biomembranes*. 1818: 617-626, 2012.
- Feng B, La J-h, Schwartz E, Gebhart GF. Neural and neuro-immune mechanisms of visceral hypersensitivity in irritable bowel syndrome. *Am J Physiol Gastrointest Liver Physiol*. 302: G1085-G1098, 2012.
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- Larach MG, Dirksen SJH, Belani KG, Brandom BW, Metz KM, Policastro MA, Rosenberg H, Valedon A, Watson CB. Creation of a guide for the transfer of care of the malignant hyperthermia patient from ambulatory surgery centers to receiving hospital facilities. *Anesthesia & Analgesia*. 114: 94-100, 2012.
- Ley JT, Yazer MH, Waters JH. Hemolysis and red blood cell mechanical fragility in shed blood after total knee arthroplasty. *Transfusion*. 52: 34-38, 2012.
- Mantha V, Vallejo MC, Ramesh V, Jones B, Ramanathan S. Maternal and cord serum cytokine changes with continuous and intermittent labor epidural analgesia: A randomized study. *Scientific World Journal*. Article ID 607938, 2012.
- Marcus D. Letter to the editor: Canine responses to impending migraines. *The Journal of Alternative and Complementary Medicine*. 18: 106-108, 2012.
- Marcus D. Invited commentary: Complementary medicine in cancer care: Adding a therapy dog to the team. *Current Pain & Headache Reports*. April 28, 2012.
- Marcus D, Bernstein C, Constantin JM, Kunkel FA, Breuer P, Hanlon RB. Animal-assisted therapy at an outpatient pain management clinic. *Pain Medicine*. 13: 45-57, 2012.
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Paper by Drs. Matsusaki and Sakai et al. Published and Featured on MDLinx



Tetsuro Sakai, MD, PhD

“Central Venous Thrombosis and Perioperative Vascular Access in Adult Intestinal Transplantation,” authored by Drs. Takashi Matsusaki (Research Fellow), Tetsuro Sakai (Co-First/Corresponding author), Kareem Abu-Elmagd, LM Martin (Department of Surgery, University of Pittsburgh), Nikhil Amesur, F. Leland Thaete (Department of Radiology, University of Pittsburgh), Ibtesam A Hilmi, Raymond M Planinsic, and Shushma Aggarwal (Co-Corresponding Author) was published in the *British Journal of Anesthesia* (IF 4.224, Early Online Publication, February 23, 2012).

The article was also featured on MDLinx. MDLinx is the world's most up-to-date index of articles that matter in the daily lives of physicians and other healthcare professionals. They send almost 1,000,000 free daily briefings across 35 specialty areas. The article was summarized by MDLinx physician editor as follows:

“Matsusaki T et al. – The majority of adult patients undergoing intestinal transplantation had at least one central venous stenosis or obstruction. The recipient outcomes were comparable when either standard vascular access or alternative vascular access (AVA) was used for transplantation

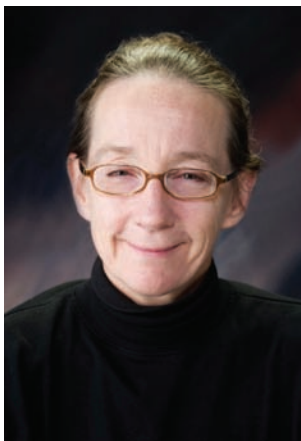
Dr. Dawn Marcus Helps Raise Money for Wounded Veterans

Dawn A. Marcus MD has been working with the Doggie Donation Corps to raise money for the Pawz For Wounded Veterans



program through the non-profit service dog organization Canine Support Teams to train and provide service dogs to wounded Veterans at no charge. So far, The Doggie Donation Corps has raised \$10,000 for service dogs for wounded Veterans.

Article Co-authored by Dr. Barbara Brandom Featured by MDLinx, the American Medical Association, and the International Anesthesia Research Society



Barbara W. Brandom, MD

“Creation of a Guide for the Transfer of Care of the Malignant Hyperthermia Patient from Ambulatory Surgery Centers to Receiving Hospital Facilities,” co-authored by Professor Barbara W. Brandom, MD, was recently published in *Anesthesia & Analgesia* (Larach MG, Dirksen, Sharon J. Hirshey, Belani, KG, Brandom BW, Metz KM, Policastro MA, Rosenberg H, Valedon, A, Watson CB. (2012) Creation of a Guide for the Transfer of Care of the Malignant Hyperthermia Patient from Ambulatory Surgery Centers to Receiving Hospital Facilities. *Anesthesia & Analgesia* 114(1):94-100.) The article was also

highlighted on several websites.

MDLinx, the world's most up-to-date index of articles that matter in the daily lives of physicians and other healthcare professionals, featured the article on their website on December 20, 2011. MDLinx sends almost 1,000,000 free daily briefings across 35 specialty areas. The article was assigned to the specialties Anesthesiology, Medical Student, and Physician Assistant, and was selected as number eight on the MDLinx anesthesiology site.

The International Anesthesia Research Society (IARS), who publishes *Anesthesia and Analgesia*, also featured the transfer of care article on their website.

The *American Medical Association (AMA) Morning Rounds*, a daily eNewsBriefing tailored to the needs of physicians and summarizing key medical reports over the preceding 24 hours, also featured the article on December 30, 2011.

Works by Drs. Tang and Xu Published and Selected as Feature Images in *Nature Communications* and *Biochimica et Biophysica Acta (BBA) - Biomembranes*

“NMR structure and dynamics of a designed water-soluble transmembrane domain of nicotinic acetylcholine receptor,” by Tanxing Cui, David Mowrey, Vasyl Bondarenko, Tommy Tillman, Dejian Ma, Elizabeth Landrum, Jose Manuel Perez-Aguilar, Jing He, Wei Wang, Jeffery G. Saven, Roderic G. Eckenhoff, Pei Tang, and Yan Xu, was published as the cover story in the March issue of *BBA Biomembranes*.



In their paper, the authors report their computational design and experimental characterization of WSA, a water-soluble protein nearly similar to the transmembrane domain of the nicotinic acetylcholine receptor (nAChR) $\alpha 1$ subunit. nAChR is an important therapeutic target for a wide range of pathophysiological conditions, for which rational drug designs often require receptor structures at atomic resolution. Their results illustrate the usefulness of high-resolution NMR analyses of water-solubilized channel proteins for the discovery of potential drug binding sites.

“Structure of the Pentameric Ligand-Gated Ion Channel ELIC Cocrystallized With its Competitive Antagonist Acetylcholine,” authored by Jianjun Pan, Qiang Chen, Dan Willenbring, Ken Yoshida, Tommy Tillman, Ossama B. Kashlan, Aina Cohen, Xiang-Peng Kong, Yan Xu, and Pei Tang, was also published in the online journal *Nature Communications* (2012;3:714). The group’s work was selected as the March 6 issue’s featured image.

In their paper, the authors show that acetylcholine is a competitive antagonist for ELIC, the pentameric ligand-gated ion channel from the bacteria *Erwinia chrysanthemi*. ELIC is a prototype for Cys-loop receptors, which mediate fast chemical to electrical transduction throughout the nervous system and

Papers by Drs. Young, Lariviere and Belfer Published and Featured on Medscape’s Most-Read Journal Articles and Pain Research Forum



Inna Belfer MD, PhD



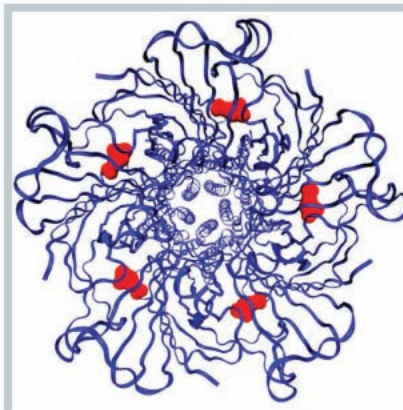
William Lariviere PhD

“Genetic Basis of Pain Variability: Recent Advances” by Drs. Erin Young, William Lariviere, and Inna Belfer was published in *Journal of Medical Genetics* (49[1]:1-9) and was Medscape’s #7 most read article by Anesthesiologists on February 23, 2012.

Medscape is a web resource for physicians and other health professionals. Medscape’s Most-Read Journal Articles features the most popular full-text, peer-reviewed journal articles from hundreds of publications and key societies, most-read by Anesthesiologists on Medscape every month.

Also, “Janus Molecule I: Dichotomous Effects of COMT in Neuropathic vs. Nociceptive Pain Modalities,” (*CNS Neurol Disord Drug Targets*. 2012 Apr 4. [Epub ahead of print]) by authors Samantha K Segall, William Maixner, Inna Belfer MD, PhD, Tim Wiltshire, Ze’ev Seltzer, and Luda Diatchenko, was the “Editor’s Pick” on the Pain Research Forum for the week of Apr 7-13, 2012.

are important therapeutic targets for many diseases. Their work presents a compelling case for understanding the structural underpinning of the functional relationship between agonism and competitive antagonism in the Cys-loop receptors, providing a new framework for developing novel therapeutic drugs.



FEATURED IMAGE

Structure of the pentameric ligand-gated ion channel ELIC cocrystallized with its competitive antagonist acetylcholine

Cys-loop receptors include nicotinic acetylcholine receptors and the pentameric ligand gated ion channel ELIC (pictured) from the gram-negative bacteria *Erwinia chrysanthemi*. Pan *et al.* report the structure of ELIC (blue) bound to acetylcholine (red), which they show is a competitive antagonist.

UPMC Regional Anesthesia & Ultrasound Guided Techniques Conference, Celebration of a Decade of Leadership from John P. Williams, MD, and 50 Year Anniversary of the Anesthesiology Residency Program

The Eighth Annual UPMC Regional Anesthesia Conference/Update in Acute and Chronic Pain and Liver Transplantation Anesthesiology, directed by Jacques E. Chelly, MD, PhD, MBA and co-directed by Cheryl Bernstein, MD, Raymond M. Planinsic, MD, and Lois J. Pizzi, MSN, RN-BC, was held April 21-22, 2012 at Nemaquin Woodlands Resort. The event also included a full nursing education day. An impressive 22 department faculty members participated in the conference: Shushma Aggarwal, MD; Inna Belfer, MD, PhD; Karen Boretsky, MD; Scott Brancolini, MD, MPH; Lynn Broadman, MD; Jacques E. Chelly, MD, PhD, MBA ZongFu Chen, MD; Emerson Conrad, MD; Denise Hall-Burton, MD; Ed Heres, MD; Mark Hudson, MD, MBA; Dawn Marcus, MD; Rita B. Merman, MD; Steven L. Orebaugh, MD; Beverly Pearce-Smith, MD; Raymond M. Planinsic, MD; Nashaat N. Rizk, MD; Tetsuro Sakai, MD, PhD; Daniel Sullivan, MD, JD, MBA; Darrin Taormina, MD; Haibin Wang, MD; and John P. Williams, MD.

The conference was held in conjunction with a celebration of the 10th anniversary of John P. Williams MD as Peter and Eva Safar Professor and Chair of the Department of Anesthesiology and the 50 year anniversary of our residency program.



*Top: John P. Williams MD and Jacques E. Chelly, MD, PhD, MBA
Bottom: The Eighth Annual UPMC Regional Anesthesia Conference*



John P. Williams MD presented a short talk on Pittsburgh Compound B and imaging for Alzheimers at the 15th World Federation of Societies of Anaesthesiologists (WFSA) World Congress of Anaesthesiologists on March 25-30, 2012 in Buenos Aires, Argentina.

VAPHS Anesthesiology Department and OR Staff Donates to Military in Afghanistan

In the fall of 2011, the VAPHS Anesthesiology Department and OR staff collected over 130 pounds worth of food and commodities for the 307th Military Police Company (Apache Green) in Nangarhar Province, Afghanistan. Their donation arrived for the company shortly before Christmas and shortly after the unit had been hit in combat, providing a much needed boost before the holiday.

The donation was organized by VAPHS Anesthesiology Chief Dr. Michael Mangione's son as a community service project.

On February 29th, 2012, Sgt. Paige Wallace (daughter of VAPHS OR scheduler Roberta Mongelluzzo) presented the group with a plaque honoring their support, and Dr. Mangione's son with the flag that flew over the unit.



Faculty & Fellows on the Road

Dawn A. Marcus, MD will deliver a lecture about therapy dogs to a communications class in the Cathedral of Learning Room 358 on Oct 16, 2012 at 9:30 AM.

Steven L. Orebaugh, MD present a lecture and teach several workshops at the American Society of Regional Anesthesia spring meeting, May 2-5, 2013 in Boston, MA.

Inna Belfer, MD, PhD will speak at the joint symposium of the IASP and his, October 5–7th 2012 in Hamburg and at the 3rd International Interdisciplinary Conference “Manage pain” November 9-11th in Moscow.

The following presentations from members of the Department of Anesthesiology (names in bold) were accepted to the 14th World Congress on Pain, August 27-31, 2012, Milan, Italy:

Official IASP Genetics and Pain SIG-Sponsored Satellite Symposium of the 14th WCP:
Current Concepts, Methods and Progress in Pain Genetics Research, August 26th, 2012, 9:00AM-5:15PM.

Organizers: **Inna Belfer, MD, PhD, William Lariviere, PhD**, and colleagues.



Speakers include:

William Lariviere, Animal Models and Pain Genetics
Inna Belfer, Human Association Studies in Pain I (Introduction) and Michael Costigan, Luda Diatchenko, Roy Levitt, Mike Salter, Bill Maixner, Christopher Nielsen, Steve McMahon.

Poster presentation: Na⁺/Ca²⁺ Exchanger Contributes To an Inflammation-Induced Increase in Evoked Ca²⁺ Transients in Rat Dorsal Root Ganglion Neurons

Nicole N. Scheff, Michael S. Gold, PhD
Tuesday, August 28, 2012, 9:45AM

Topical workshop: Novel Preclinical Genetics of Pain Findings Showing Translation to Humans

Organizer: **William Lariviere, PhD**

Speakers:

Jeffrey S. Mogil, Genotype Dependence of Translation of Preclinical Evidence

Michael Costigan, Highly Conserved Contributions to the Genetics of Pain Across Species

Roy C. Levitt, Translating From Animals to Humans: Novel Genomic Risk Factors for Neuropathic Pain

Tuesday, August 28, 2012, 11:00AM

From Acute to Chronic Pain; Risk Factors, Genetics, and Possible Preventive Strategies

Inna Belfer, MD, PhD (Invited Speaker)
Tuesday, August 28, 2012, 4:30PM - 6:00PM

Alumni on the Road

Doris K. Cope, MD, MS was invited to present the Ether Day lecture at Massachusetts General Hospital in Boston, MA on October 18th, 2012. Dr. Cope is our former Professor and Vice Chair for Pain Medicine and is currently an Adjunct Professor, University of Pittsburgh School of Medicine and Johns Hopkins Medical Center (pending).

Poster presentation: The Nicotinic Alpha 6 Subunit Gene Affects Chronic Pain Sensitivity Via an Interaction With P2X2/3 Receptors

Jeffrey S. Wieskopf; Robert Sorge, PhD; Jean-Sebastien Austin; Peter Slepia; Ryan Drenan, PhD; Chris Richards; Rahul Srinivasan; Kay Limapichat; Jayanti Mathur; Valerie Uzzell, PhD; Jeff Janes, PhD; Andrew Su, PhD, Feng Dai, PhD; **Weike Lai, PhD**; Shad Smith, PhD; J. Michael McIntosh, MD; Uwe Maskos; Jean-Pierre Changeux, PhD; Eske Aasvang, MD; Marshall Devor, PhD; William Maixner, PhD, DDS; Luda Diatchenko, PhD; **Inna Belfer, MD, PhD**; Henry A. Lester, PhD; Ardem Patapoutian, PhD; Jeffrey S. Mogil, PhD

Wednesday, August 29, 2012, 9:45AM

Topical workshop: Mechanisms Underlying the Initiation of a Migraine Attack

Michael S. Gold, PhD

Wednesday, August 29, 2012, 11:00AM - 12:30PM

Poster presentation: Identification of Novel Candidate Genes for Inflammation-Induced Hypersensitivity and Hyposensitivity

Erin E. Young, PhD; Catherine D'Ardenne; William Lariviere, PhD

Wednesday, August 29, 2012, 3:15PM

Poster presentation: Contribution of TRPV1 AND P2X3 to Mechanosensation in Colorectal Primary Afferents in Naive and Sensitized States

Michael E. Kiyatkin, BS; Bin Feng, PhD; Erica S Schwartz, PhD; Gerald F. Gebhart, PhD

Thursday, August 30, 2012, 9:45AM

Poster presentation: Expression of Synaptic Vesicle Protein 2c (SV2c), the Neuronal Receptor for Botulinum Toxin A, in Sensory Neurons Innervating the Mouse Pancreas

Jun-Ho La, DVM, PhD; Erica S. Schwartz, PhD; Timothy P. McMurray; Gerald F. Gebhart, PhD

Thursday, August 30, 2012, 9:45AM

Poster presentation: Altered Colorectal Afferent Functions Associated With TNBS-Induced Visceral Hypersensitivity in Mice
Bin Feng, PhD; Jun-Ho La, PhD, DVM; Takahiro Tanaka, MS; Gerald F. Gebhart, PhD

Thursday, August 30, 2012, 3:00PM

Poster presentation: ERK1/2-Egr1 Signaling in Sensory Neurons Mediates Inflammation and Pain in the Progression of Chronic Pancreatitis

Erica S Schwartz, PhD; Jun Ho La, PhD; Gerald F. Gebhart, PhD

Thursday, August 30, 2012, 3:00PM

Poster presentation: Mast Cell Recruitment, Degranulation and Plasma Extravasation in the Dura of Sound Stressed Rats – Implications for Migraine

Lisa A. McIlvried; Michael S. Gold, PhD

Friday, August 31, 2012, 3:15PM

Upcoming Conferences

Note: The BASS Conference was announced in our last newsletter, but some info has changed. Please note the updated info below.

The Department of Anesthesiology will host the **Bermuda Anesthesia Summer Symposium (BASS)** on August 29-September 1, 2012 at the Fairmont Southampton Bermuda Resort. **Raymond M. Planinsic, MD** will serve as the course director; **Jacques E. Chelly, MD, PhD, MBA**, and **David G. Metro, MD** will serve as the course co-directors.

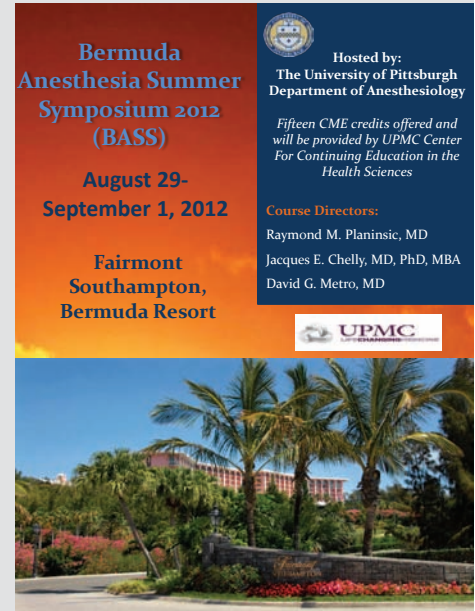
Other department faculty who will participate are:

Shawn T. Beaman, MD	Vimala Ramesh, MD
Thomas Chalifoux, MD	Ryan Romeo, MD
Theresa Gelzinis, MD	Erin A. Sullivan, MD
Mark E. Hudson, MD, MBA	Edward Teeple, MD, MBA, MPH
Rama M. Joshi, MD	John P. Williams, MD
Mario Montoya, MD	

Participants will be able to review recent advances in anesthesiology research and education, learn clinical aspects of anesthesia management for complex surgical procedures, review the latest techniques of regional and ultrasound guided anesthesia, and participate in interactive sessions including problem-based learning discussions.

The UPMC Center for Continuing Education in the Health Sciences will provide up to 15 CME credits for those attending the symposium.

Visit the website <https://cchehs.upmc.com/liveFormalCourses.jsf> for registration information.



The poster for the Bermuda Anesthesia Summer Symposium 2012 (BASS) features a blue header with the event title and dates (August 29-September 1, 2012) at the Fairmont Southampton, Bermuda Resort. It lists the host as The University of Pittsburgh Department of Anesthesiology and mentions 15 CME credits. Course directors Raymond M. Planinsic, MD, Jacques E. Chelly, MD, PhD, MBA, and David G. Metro, MD are listed. The UPMC logo is at the bottom right. Below the text is a photograph of the resort's tropical landscape with palm trees and a building.

Call for Abstracts: 16th Annual Society for Airway Management Scientific Meeting

The **16th Annual Society for Airway Management (SAM) Scientific Meeting** will be held September 21-23, 2012 in Toronto, Canada. **Joseph J. Quinlan, MD** is a member of the Board of Directors of the Society and teaches workshops at the meeting each year. The abstract submission deadline is July 15, 2012. Please visit the SAM website at <http://samhq.com/annual-meeting/> for full details.

A Call to Action: The Role Of Academic Medical Centers in Addressing Health Disparities Conference

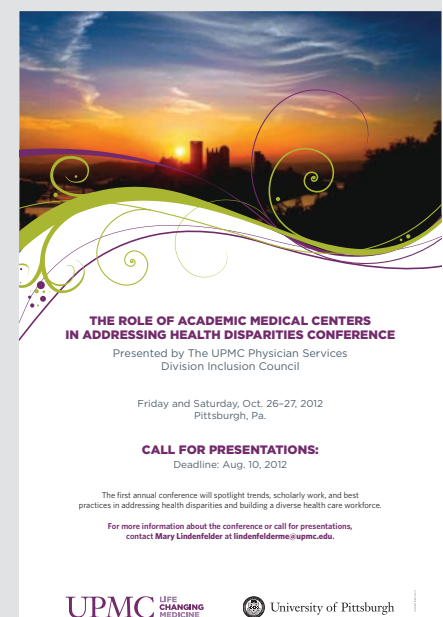
Friday and Saturday, Oct. 26-27, 2012, University Club, Pittsburgh, Pa

CALL FOR PRESENTATIONS:

Deadline: Aug. 10, 2012

The first annual conference will spotlight trends, scholarly work, and best practices in addressing health disparities and building a diverse health care workforce. We are interested in abstracts for presentations or posters that highlight current research on the identification of disparities, the influence of sociobehavioral and socioeconomic inequities on health status, relevant health care policy issues, and innovative topics and research related to these areas.

For more information about the conference or call for presentations, contact [Mary Lindenfelder](mailto:Mary.Lindenfelder@upmc.edu).



The poster for 'The Role of Academic Medical Centers in Addressing Health Disparities Conference' features a sunset background with a city skyline and decorative swirls. It states the conference is presented by The UPMC Physician Services Division Inclusion Council and will be held on Friday and Saturday, Oct. 26-27, 2012, in Pittsburgh, Pa. The call for presentations deadline is Aug. 10, 2012. It describes the conference's focus on trends, scholarly work, and best practices in addressing health disparities. Contact information for Mary Lindenfelder is provided at the bottom. The UPMC logo and University of Pittsburgh logo are at the bottom.

We Would Like to Hear From You!

Alumni Connection is not only a forum to keep alumni informed of the latest department news, but also what other alumni are up to. We would like to hear about where you are working and your recent projects and accomplishments!

Please send any news or suggestions to Christine Heiner at heinerc@upmc.edu or 412-647-7353.

Alumni Fund

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