

*THE GAS PIPELINE*  
ANESTHESIA QUARTERLY GAZETTE  
Department of Anesthesia, Stanford, CA 94305



Patricia I. Rohrs, Editor

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**IN MEMORIUM: ERAN GELLER, MD**



**FROM JULI BARR**

I first met Eran Geller in 1993, after he had been recruited to the Palo Alto VA Hospital to become the new Medical Director of the Surgical Intensive Care Unit (SICU) service. Fresh out of my Stanford Critical Care Fellowship training, I became this service's "other" faculty member. Eran and I worked tirelessly to create a patient-centered, multidisciplinary ICU Team, before it was fashionable to do so. For the first year, we took turns covering the ICU—he for a week, I for a week, etc. We shared call every other night and every other weekend, while also working in the OR during our non-ICU weeks. In retrospect, I view this experience as grueling for both of us; however, I was inspired by Eran's boundless energy, enthusiasm, and passion for improving patient care in the ICU. Within the VA Health

Care System, this SICU service grew to become an early, national example of an Intensivist-run Surgical ICU.

In 1997, when the new VA Palo Alto Medical Center opened, the Surgical and Medical ICUs were merged into one, and Dr. Geller became the Medical Director of the 15-bed MSICU, overseeing seven, full-time, critical-care attendings from both the Anesthesia and Pulmonary and Critical Care Medicine Services, who had joined forces to care for all Medical and Surgical ICU patients. He served in this role until illness forced him to step down in 2007.

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In addition to being passionate about and committed to critical care medicine, Eran was a pioneering, visionary leader in the ICU, always pushing our ICU to be on the cutting edge of the practice of critical care medicine. He was an early adopter of technologies now considered the

standard of practice in critical care medicine—an electronic medical record, bar-code medication administration systems, wireless laptops that allowed clinicians in the ICU to access patient information at the bedside, state-of-the-art patient ventilators and bedside monitoring systems, and bedside portable ultrasound machines (to reduce the risk of complications associated with central venous catheter replacement). Perhaps his crowning technologic achievement, however, was his work in developing ICU clinical databases within the VA Health Care System. He was instrumental in standardizing the use of a common ICU patient-charting system, PICIS, at the five VA ICUs throughout our VA Region. We could compare ICU data and outcomes both within and between these different ICUs and create standardized clinical best practices to use in all five ICUs. Eran was also a chief architect of an ICU Data Warehouse containing the largest ICU database in the US. The warehouse is a powerful, central repository for clinical data captured electronically on all ICU patients throughout our VA Region, data clinicians use to determine relationships between patients' clinical state and their outcomes in the ICU. Under Dr. Geller's leadership, this MSICU Service ranked first within the national VA system in best clinical outcomes.

Isaac Newton (c. 1643 – c. 1727) said, "*Pigmaei gigantum humeris impositi plusquam ipsi gigantes vident.*" Or, "If I have seen further it is only by standing on the shoulders of giants."

Or in the words of the Jewish tosaphist Isaiah di Trani (c. 1180 – c. 1250): "I was never arrogant claiming 'My Wisdom served me well.' Instead I applied to myself the parable of the philosophers.... The wisest of the philosophers asked: "We admit that our predecessors were wiser than we. At the same time we criticize their comments, often rejecting them and claiming that the truth rests with us. How is this possible?" The wise philosopher responded: "Who sees further a dwarf or a giant? Surely a giant for his eyes are situated at a higher level than those of the dwarf. But if the dwarf is placed on the shoulders of the giant who sees further? ... So too we are dwarfs astride the shoulders of giants. We master their wisdom and move beyond it. Due their wisdom

we grow wise and are able to say all that we say, but not because we are greater than they."

As a critical care clinician, Eran Geller was ahead of his time. Those of us who follow stand on his shoulders, seeing how to build upon what he built, continuing to improve patient care in the ICU.

I have learned much from Eran over the last 16 years. I shall miss him. He was a dear friend and colleague.

Juli Barr, MD  
Acting Medical Director, VA ICU Service,  
VA Palo Alto Health Care System,  
Associate Professor in Anesthesia,  
Stanford University School of Medicine

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#### FROM STEVE SHAFER

I met Eran Geller when he was considering taking a position at the Palo Alto VA.. At that time Dick Mazze was the VA Chief of Staff, and Dick recognized that the Medical and Surgical Intensive Care Units at the VA were suffering from the lack of dedicated intensivists to run them. One of Dick's lasting contributions to the VA was the creation of a dedicated ICU service, under the direction of Eran Geller.

Eran's first task was to bring order to a completely disorganized system of providing critical care. With the tenacity of tree roots, Eran slowly brought the different medical services together to create a truly coordinated, interdisciplinary, and modern critical care service. He did this through a combination of reason, intellectual discipline, persistence, and outstanding interpersonal skills. The transformed medical/surgical ICU service became one of the finest critical care services in the world. The VA ICU under his leadership also became a model for interdisciplinary training in critical care. In the process, Eran provided outstanding mentorship to members of our faculty, particularly Juli Barr and Ed Bertaccini, who joined with Eran to create

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the core constituency of the new VA critical care service.

Eran had more journals and books stacked up in his office than anyone else I have ever met. He read constantly. He wanted to know everything there was to know about critical care. He frequently would ask me about paper he had just read, "What do you think of this article?" Since I was always several years behind Eran in my own reading, I usually had no idea.

Eran also wanted to create a first-class critical care research team. Having similar interests in the clinical pharmacology of anesthetic drugs, Eran, Juli Barr, and Ed Bertaccini and worked as a team to study and report the fundamental pharmacokinetic and pharmacodynamics of intravenous sedatives in the ICU. Those studies continue to be landmark papers in the field. The team of Eran Geller, Juli Barr, and Ed Bertaccini established the Palo Alto VA as the premier center for studying sedative and analgesic pharmacology in critically ill patients.

Eran was a *mensch*, a Yiddish word that *The Joys of Yiddish* author Leo Rosten defines as "someone to admire and emulate, someone of noble character. The key to being 'a real mensch' is nothing less than character, rectitude, dignity, a sense of what is right, responsible, decorous." That defines Eran perfectly. He was a good person. He was kind, caring, smart, funny, and a dedicated doctor. However, what stands out as my singular memory was that he was kind. Very kind. Always kind. A *mensch*.

I will miss him.

Steven Shafer, MD

Editor-in Chief, *Anesthesiology & Analgesia*

Professor of Anesthesia

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FROM KEVIN FISH

It was my privilege to work with Eran Geller for the fifteen years he worked at the Veterans Administration Palo Alto Health Care System (VAPAHCS). During that time, I came to admire him for so many of his good qualities and to rely on him for sage advice and direction. Although I was nominally his Chief for the last twelve years, he did not need me. He was totally responsible for all of the Intensive Care innovations introduced during his tenure as Medical Director of the Medical/Surgical Intensive Care Unit (MSICU). As a visionary, by virtue of his interpersonal skills and depth of knowledge, he dragged a sometimes unwilling institution into the forefront of ICU care. His accomplishments extended beyond his own institution to other VA ICU services. He championed the cause of the electronic record in the MSICU, starting with the Emtex system many years ago and progressing to the PICIS system five years ago, in use today in the VAs across Northern California. With Eran, there was always a larger picture, and he was a true visionary for what we could do to improve patient care.

He was never satisfied with what he had achieved; there was always more to do to make things better, and his enthusiasm was not restricted to the MSICU. He was a great gadget man, showing me with great glee how he could save whole articles on his Palm Pilot and use all of its other features to good effect, demonstrating a mastery of technology that I have definitely struggled with. There were many pieces of equipment that he would try and interest me in looking at and possibly acquiring for the Operating Room. Without his constant niggling about extending the automated data record keeper into the OR, we would probably still be using paper records. Instead we have led the anesthesia world in completing the move to the electronic record three years ago, and he has made a convert out of me, initially his greatest skeptic. Despite my reservations to get involved in this change to our comfortable world, he was perhaps one of the greatest sales people of his time in overcoming my resistance to change. I think that is symbolic of his life, that he was always challenging peoples'

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fixed ideas and the status quo, and he could be very tenacious.

He gave tirelessly of himself to other people, helping them develop their careers and making this VA service a world leader. Within the VA system, we have possibly the ICU with the best possible results and the sickest possible patients. Without the foundation that he put in place and the teamwork he worked so hard to hone, this would not be possible. It is a huge loss to the residents in training that they will no longer have the opportunity to learn the nuances of looking after the sickest of the sick patients from someone who was a true medical maestro. We cannot replace the irreplaceable Dr. Geller, who was the leader in building and managing our world-class MSICU during the last fifteen years. However, those of us who knew him have the responsibility to live up to his standards and pass his teaching on to the next generation of physicians. I value the years I knew him and the lessons I learned from him. What an incredible physician and role model he was!

His talents were not limited to the medical field. There is a saying “not every great man is a good father, but every good father is a great man.” The latter category epitomizes who Eran was, a great father and a great man however you looked at things. I extend my deepest sympathy to the family in their great loss. We all share their pain.

Kevin Fish, MD  
Chief of Anesthesiology  
VA Palo Alto Health Care System  
Professor in Anesthesia  
Stanford University School of Medicine

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**FROM SHIRLEY S. PAULSON**

*The qualities of a great man are vision, integrity, courage, understanding, the power of articulation, and profundity of character. —[Dwight D Eisenhower](#)*

It is my honor to write a remembrance of Dr. Eran Geller. My first memories of Dr. Geller were at my interview for the Nurse Manager of

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the Surgical ICU, way back in 1994. He impressed me then as sharp, witty, with a dry sense of humor. Little did I know then what a truly great man he was and how much I would grow to admire and love the man over the years.

As the Nurse Manager of the Surgical ICU, and then as the Nurse Manager for both the Medical Surgical ICU and the Intermediate ICU until I accepted the role as the Chief Nurse for the Inpatient areas in 2002, I worked side by side with Eran.

His office was always so cluttered and overflowing with papers, so he would come to my office instead—multiple times a day, always with that little smile and that question, “Can Nursing do this, too—Hmmm?” Our discussions would sometimes be heated; I had to “train” him that nurses in the US were not the same as those in Israel. But we both learned over the years how to give a little, listen to each other, and sum our strengths into creating a better product. We learned to appreciate each other, to respect each other’s opinions, to laugh together, and to seek each other out to make sure we were creating the kind of ICU that we could be proud of. He was a joy to work with—we knew each other’s idiosyncrasies and often teased each other about them. He always took care of himself physically, but he could never resist a bit of chocolate and especially loved the nursing potlucks.

He truly respected the nursing staff, and always felt that nursing was the answer to fixing everything that ailed the unit. As his wife Aliza would say, Eran loved his work and felt the staff was his extended family.

***He was a great man, a visionary.*** “*We need men who can dream of things that never were,*” said John F. Kennedy, who could have been referring to Eran Geller. By envisioning and believing in what the Palo Alto VA ICU could become, he made it so. I remember so many, many meetings we had, creating the vision for the ICUs as they are today with Eran, Juli Barr, Ed Bertaccini, Joni Dirks,

Bobette Nicholl, and others. We all followed Eran’s lead, not fully realizing then what a special



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time that was—that what we were creating together had “never been.” In my 30 years of nursing, this camaraderie was the most satisfying time of my professional life.

From the way Nursing and the Physician team worked together side by side, to ensure clinical excellence and best practice using proven scientific methods, Eran’s vision led the way.

From Emtek, our initial electronic ICU clinical information system, to the creation of PICIS, the ICU clinical information system that has become a national model to include the OR, Anesthesia, and a data warehouse, Eran’s vision led the way.

From our initial separate Medical Cardiac Care Unit (CCU), 7D Step Down unit, and our Surgical ICU to the Intermediate ICU and Medical Surgical ICU Intensivist-led model that we created in 1997, Eran’s vision led the way.

***He was a great man, with integrity.*** Eran’s actions were always guided by ethical principles, and we never had to question that what we were creating was real and from the heart.

***He was a great man, with courage.*** Eran had the strength and skill to hold us together under difficult circumstances, despite competing demands. His role as the Medical Director of an Intensivist-led Critical Care was just being shaped as I joined the team, and it would have been too easy to maintain the *status quo* of separate medicine and surgical services covering the separate ICUs. Dr. Geller’s vision was to combine the highest risk medical and surgical patients into a single MSICU and have them cared for by an Intensivist-led team (Drs. Gellar, Barr, and Bertaccini), thereby raising the standards for managing patient care. Eran achieved this goal through courage, persistence, and his power of persuasion.

***He was a great man, with understanding.*** Eran was constantly curious, always trying to find a “better way.” He found wonder in new discovery and was persistent in asking questions

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until he had completely “understood” the complexities of the situation. He was a brilliant scholar, who challenged others to use reasoning, research, and openness to new ideas to shape new ways of looking at old challenges. His vision of a data warehouse that would house all of the data elements from the five ICUs within our network and allow queries to compare our patient care outcomes within the network, led to the creation of an analytic data base that is envied throughout the nation.

***He was a great man, with the power of articulation.*** From a Nursing standpoint, Eran was so persistent in asking for what he wanted, he sometimes drove me crazy! He felt that nursing should be the gatekeeper for physicians, stopping them, for example, from even entering the room without washing their hands. I used to argue that it was his responsibility as the Director to teach his docs to wash before they entered the room. But he used his powers of persuasion to delegate this task to Dr. Barr—articulate *and* persuasive! He really did have a way with words. He was a brilliant strategist, and he was able to craft agreements with Service Chiefs, as well as with our hospital and VISN Director, to create an ICU that is a national leader in quality and innovation.

***He was a great man, with profundity of character.*** Eran leaves a legacy in the ICU of a man who is deeply respected, much loved, and sorely missed. He made such a difference in the Intensive Care Unit, and it truly is what it is today, because of him. He was a great administrator and physician, but most of all, he was a proud father and a great man. He has accomplished so much here in the Palo Alto VA, but I think he would say that his greatest accomplishments were his sons, Chai and Ron. He was so proud of them, and we are so grateful to them for sharing his light with all of us.

Godspeed, Dr. Geller, and thank you for being my friend. With much love,

Shirley S. Paulson, RN, MPA  
Chief Nurse for GM&S and Critical Care  
VA Palo Alto Health Care System

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**GEOFF LIGHTHALL**

Fresh out fellowship, I was eager to find a job that allowed me to put my ICU training to use, and I was honored that Eran would take the chance to let me join his crew! I was fortunate enough to join the team at a time when the ICU was running like a well-oiled machine. There was a track record of research, an outstanding lecture program, and a constant drive toward quality improvement. Before he did anything else, Eran's inclusion of me in the ICU group spared the move to some commuter-hell like San Diego or Sacramento! With time, Eran's mentorship had a tremendous influence on my development as a physician.

Eran was an amazing fountain of knowledge and expertise, but he was equally willing to change his views as new information became available. I think he attended conferences like they were final exams. He always came back with notes on who was doing what, whether he thought the data were good or bad, and where he thought a given trend was headed. He loved new technology, and was the classic "early adopter." In the world of medicine, it takes over five years for good science to reach the bedside; rapid deployment within months was more the norm for his unit, and being part of that process provided an incredible education in teamwork and interdisciplinary collaboration.

So what did he leave behind? Certainly three Anesthesia-ICU colleagues who respected his leadership and intellect and loved him very much. A data farm or warehouse that no matter how grandiose or unruly, guarantees that the experience of each veteran who passes through the ICU can contribute to the care of the next generation. The technology. The daily goal sheet. The nurses that will slash your tires if you dare leave them out of rounds! The great relationships with other services. The courage to stand up for what is right yet still engage with people who don't share your views. The innovation, the teaching, and the burning desire to learn more and always do better.

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Associate Professor, Anesthesia and Critical Care  
Stanford University School of Medicine

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**RICHARD MAZZE**

I first met Eran Geller in 1993 when I was Chief of Staff at the VA Palo Alto Health Care System and Eran came to interview for the position of Director of the Surgical ICU. Our medical center was in post-Loma Prieta earthquake configuration, and we had intensive care beds spread out in five different locations under Medical and Surgical Service direction. However, we had no full-time intensivists on our staff and attending input and supervision of housestaff in the ICUs was quite variable and fragmented. We were getting by, but we could do better. Furthermore, the plan for moving into our new hospital in 1997 was that there would be only one combined medical-surgical ICU Service with a single director. This plan was not well-received in all quarters, because it cut into the turf of several of our services. However the need to improve patient care and better utilize scarce space and financial resources dictated that such a change be made.

Eran seemed like just the person we were looking for. First, he was very well-qualified with an unusual background: born in Israel; educated in the US (BS and MS in Electrical Engineering from Wayne State and Northwestern Universities, respectively; and MD in 1969 from Northwestern); and anesthesia residency-trained in both countries (in Boston at MGH and Tel Aviv). After his residency he was an anesthesia instructor at Harvard and Tel Aviv Universities; Director of Intensive Care at a large Tel Aviv University Hospital; and then for ten years (1982-92), Chairman of the Department of Anesthesiology and Critical Care at the Tel Aviv Medical Center of Tel Aviv University.

One of the things that made Eran particularly appealing to me was his concept of how to treat

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the critically ill patient—the basic treatment of patients with multiple organ system failure should be similar, whether the origin of the problems was medical or surgical. Yes, he told me, you had to understand what initially brought patients to the ICU, but getting them out of the ICU followed a common pathway in most cases.

Another important qualification was Eran's demeanor. He was soft-spoken, patient and reasonable. This became apparent in his initial VA position of Director of the Surgical ICU from 1993-97. When we moved into our new hospital in 1997 and combined the medical and surgical units, Eran's currency was such that the formation of the single Medical Surgical ICU went smoothly, and its smooth functioning continued to during Eran's tenure as Director of Critical Care Medicine at the VA Palo Alto Health Care System from 1997 until his illness forced his retirement.

During his 15 years at the VA, I got to know Eran very well. He was a superb clinician, teacher and investigator. He was a good friend and colleague. Perhaps the best single word to use to describe Eran was that he was a *mensch*. For those of you who don't know Yiddish, mensch is "someone to admire and emulate, someone of noble character. The key to being "a real mensch" is nothing less than character, rectitude, dignity, a sense of what is right, responsible, decorous." Eran Geller was a real *mensch*.

Richard I. Mazze, MD  
Professor of Anesthesia (Emeritus)  
Stanford University School of Medicine

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#### ED BERTACCINI

You will read a great deal about Eran Geller, the excellent clinician he truly was. I learned a great deal from him in these matters as his first fellow and then as his colleague. You will read about Eran Geller, the insightful clinical scientist whose enthusiasm would unavoidably rub off on all around. His office was riddled with journals, and I knew I could always count on him for a discussion of the latest and greatest in our field. You will also hear about Eran Geller, the

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forward-thinking administrator who brought our ICU to the cutting edge of critical care medicine within an already outstanding institution.

But what I would like to tell you about is Eran Geller, the friend. This is a man who taught me a great deal about patience, peaceful compromise, grace under fire, and a healthy life perspective.

Eran Geller came directly to us from his chairmanship of an anesthesia department at a major hospital in Tel Aviv. It was there that his leadership of the anesthesia department also included directorship of the ICU, and it was these skills that were tapped for the development of our ICU at the Palo Alto VA. It does not take much imagination to conjure up the hurdles that had to surmount in taking on this role in a new land, though he had trained in Chicago and Boston some time prior.

However, Eran was no stranger to adversity. With him he brought experiences of providing medical care during the Arab-Israeli conflicts in the middle of a scorching hot desert, where tank surfaces were used as frying pans for his eggs. He also brought the tremendous experiences of managing mass casualty situations—on the military battlefield and on the civilian battlefield of terrorist attacks. He brought his experiences of providing anesthesia in an OR himself during the first Gulf War, wearing a gas mask, after dismissing most of his staff to safer ground. He brought with him the stories of air-raid sirens, SCUD missiles, and fleeing his city to safety, once clinical responsibilities allowed, making the dangerous car trip over open ranges of desert highly amenable to foreign attack.

At the VA Eran met challenges that paled in comparison to the gravity of past challenges he had met. First, he led the effort that transferred management of the surgical ICU from surgeons only to a combination of surgeons and non-surgeons. Second, he led the merger of the surgical and medical ICUs, a merger that caused much gnashing of teeth, but resulting in our ICU being the highest rated one within the VA system.

Over the years, Eran endured and resolved a great many conflicts over creating and maintaining this

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ICU, but he did not lose his temper, instead working patiently, maintaining dignity, and persevering until the situation was molded towards his visionary goals.

Eran and I had many occasions to talk about a great deal besides medicine. He gave me an insider's view on the Arab-Israeli conflicts we discussed at length over the years. His perspectives on these issues were greatly reflected in the kind yet firm ways he reached the many necessary compromises and successful agreements for our ICU.

He also conveyed to me his insights about raising two sons. He loved them more than he ever truly let on, except the one time I saw him cry. Eran had experienced many hardships in his life with the various wartime conflicts, terrorist bombings and the death of his father at a young age. However, what brought him to tears was the day a Gunn High School student set off a large explosive in the quad as a chemistry class prank. Eran was beside himself with the fact that he had brought his boys at great expense and toil all the way from Israel to beautiful Palo Alto to pursue their education in a safe environment, and yet they could not get away from bombings which threatened his family's well being.

Eran was also a very thoughtful individual. When my family and I were having some tough illnesses and then I became ill for two weeks, Eran called to see how I was doing and took me to lunch. Here he had pancreatic cancer and knew full well that his time on this earth was to be severely curtailed, yet he was concerned about my family's and my well-being.

Another time, despite his being Jewish and my being Catholic, he brought back from Israel a souvenir for me from the site of our Lord's miracle of the loaves and fishes.

Eran ushered me through the transition from student to teacher. He told me it would be awkward at first, but people got to know me as their attending physician, not just as a fellow or resident. Yet I still went to him for advice on the difficult patient or when I felt all therapeutic

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modalities had been exhausted. His help was always appreciated. He made me feel best when he occasionally came to me for advice on a variety of clinical or administrative manners. I will always appreciate his making me feel like a colleague and friend.

In the end, Eran demonstrated tremendous dignity during the final hardships of his life. These included a broken marriage that hurt him immensely, an event almost concurrent with his diagnosis of pancreatic adenocarcinoma. As he faced his death, I learned how a man could truly die with dignity.

I could say a great deal more about Dr. Eran Geller, but I would like to sum it up as follows: This world is a better place because of him, and I am a better person for having known him. I will miss him greatly.

Edward J. Bertaccini, MD  
Associate Professor of Anesthesia  
Stanford University School of Medicine  
Staff Anesthesiologist and Intensivist,  
Palo Alto VA Health Care System

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## SCIENTISTS IDENTIFY DRUG TO TREAT OPIOID ADDICTION

BY JANELLE WEAVER\*

Scientists at the School of Medicine have discovered that a commonly available non-addictive drug can prevent symptoms of withdrawal from opioids with little likelihood of serious side effects. The drug, ondansetron, which is already approved to treat nausea and vomiting, appears to avoid some of the problems that accompany existing treatments for addiction to these powerful painkillers, the scientists said. Opioids encompass a diverse array of prescription and illegal drugs, including codeine, morphine and heroin. In 2007, about 12.5 million Americans

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\* Janelle Weaver is a science-writing intern in the Office of Communication & Public Affairs at the School of Medicine. This article was originally printed in the Stanford University Medical Report, February 18, 2009.



aged 12 and older used prescription pain medications for non-medical purposes, according to the National Survey on Drug Use and Health, administered by the federal government's Substance Abuse and Mental Health Services Administration.



**Larry Chu**

“Opioid abuse is rising at a faster rate than any other type of illicit drug use, yet only about a quarter of those dependent on opioids seek treatment,” said Larry F. Chu, MD, assistant professor of anesthesia at the School of Medicine and lead author of the study that was published online Feb. 17 in the *Journal of Pharmacogenetics and Genomics*. “One barrier to treatment is that when you abruptly stop taking the drugs, there is a constellation of symptoms associated with withdrawal.” Chu described opioid withdrawal as a ‘bad flu,’ characterized by agitation, insomnia, diarrhea, nausea and vomiting.

Current methods of treatment are not completely effective, according to Chu. One drug used for withdrawal, clonidine, requires close medical supervision as it can cause severe side effects, while two others, methadone and buprenorphine, don’t provide a satisfactory solution because they act through the same mechanism as the abused drugs. “It’s like replacing one drug with another,” said co-investigator Gary Peltz, MD, PhD, professor of anesthesia.

“What we need is a magic bullet,” said Chu. “Something that can treat the symptoms of withdrawal, does not lead to addiction, and can be taken at home.”

The researchers’ investigation led them to the drug ondansetron, after they determined that it would block certain receptors involved in withdrawal symptoms.

The scientists were able to make this connection thanks to their having a good animal model for opioid dependence. Mice given morphine for several days develop the mouse equivalent of addiction. Researchers then stop providing morphine to trigger withdrawal symptoms. Strikingly, these mice, when placed into a plastic cylinder, will start to jump into the air. One can measure how dependent these mice are by counting how many times they jump. Like humans, dependent mice also become very sensitive to pain when they stop receiving morphine.



**Gary Peltz**

But the responses vary among the laboratory animals. There are “different flavors of mice,” explained Peltz. “Some strains of mice are more likely to become dependent on opioids.” By comparing the withdrawal symptoms and genomes of these different strains, it’s possible to figure out which genes play a major role in addiction.

To accomplish this feat, Peltz and his colleagues used a powerful computational ‘haplotype-based’ genetic mapping method that he had recently developed, which can sample a large portion of the genome within just a few hours. This method pinpoints genes responsible for the variation in withdrawal symptoms across these strains of mice. The analysis revealed an unambiguous

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result: One particular gene determined the severity of withdrawal. That gene codes for the 5-HT<sub>3</sub> receptor, a protein that responds to the brain-signaling chemical serotonin.

To confirm these results, the researchers injected the dependent mice with ondansetron, a drug that specifically blocks 5-HT<sub>3</sub> receptors. The drug significantly reduced the jumping behavior of mice as well as pain sensitivity—two signs of addiction.

The scientists were able to jump “from mouse to man” by sheer luck: It turns out that ondansetron is already on the market for the treatment of pain and nausea.

As a result, they were able to immediately use this drug, approved by the Food and Drug Administration, in eight healthy, non-opioid-dependent humans. In one session, they received only a single large dose of morphine, and in another session that was separated by at least week, they took ondansetron in combination with morphine. They were then given questionnaires to assess their withdrawal symptoms. Similar to mice, humans treated with ondansetron before or while receiving morphine showed a significant reduction in withdrawal signs compared when they received morphine but not ondansetron.

“A major accomplishment of this study was to take lab findings and translate them to humans,” said principal investigator J. David Clark, MD, PhD, professor of anesthesia at Stanford University School of Medicine and the Palo Alto Veterans Affairs Health Care System.



**David Clark**

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Chu plans on conducting a clinical study to confirm the effectiveness of another ondansetron-like drug in treating opioid withdrawal symptoms in a larger group of healthy humans. And the research team will continue to test the effectiveness of ondansetron in treating opioid addiction.

The scientists warned that ondansetron will not by itself resolve the problems that arise with continued use of these painkillers. Addiction is a long-term, complex process, involving both physical and psychological factors that lead to compulsive drug use. “This is not a cure for addiction,” said Clark. “It’s naïve to think that any one receptor is a panacea for treatment. Treating the withdrawal component is only one way of alleviating the suffering. With luck and determination, we can identify additional targets and put together a comprehensive treatment program.”

Collaborators on this study included De-Yong Liang, PhD, the study’s co-lead author, previously a research associate in the Department of Anesthesia and currently a research associate at the Palo Alto Institute for Research and Education; Xiangqi Li, MD, a life science research assistant in the department; Nicole D’Arcy, a medical student; Peyman Sahbaie, MD, a research associate at the institute; and Guochun Liao, PhD, of the pharmaceutical company Hoffman-La Roche. This work was supported by grants to Clark from the National Institutes of Health and the National Institute on Drug Abuse, and grants to Chu from the NIH and the National Institute of General Medical Sciences.

The researchers are working with the Stanford University Office of Technology Licensing to seek a patent for the use of ondansetron and related medicines in the treatment of drug addiction.

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## FROM THE CHAIRMAN

BY RON PEARL, MD, PHD, PROFESSOR & CHAIRMAN  
DEPARTMENT OF ANESTHESIA  
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**The Legacy of Eran Geller**—After a courageous, two-year battle with pancreatic cancer, Eran Geller died on May 11. As a world-renowned anesthesiologist and intensivist, Eran was recruited by the Palo Alto VA in 1993 to develop a primary care, multidisciplinary ICU service. Eran's accomplishments during the past 16 years are remarkable, and the VA ICU service he created and led has the best patient outcomes in the country. In addition to major improvements in patient care and important advancements in research, Eran trained a full generation of critical care physicians, including Juli Barr, Ed Bertaccini, and Geoff Lighthall, who will carry on his tradition of always doing the right thing for each patient. His impact on patient care and on the people with whom he worked was extraordinary, attested to by his colleagues' tributes to him, included in this newsletter.

**California Society of Anesthesiologists**—The annual meeting of the California Society of Anesthesiologists (CSA) this year highlighted many Stanford faculty and alumni. Mike Rosenthal was chosen as the Forrest E. Leffingwell Memorial Lecturer, the only CSA eponymous lecture. Not surprisingly, Mike chose to discuss *Physiology: The One True Guide to Patient Care*, a topic that highlighted his decades of teaching physiology as the basis of management in both the OR and ICU. Larry Sullivan, an alumnus of our anesthesia residency program,

received the Distinguished Service Award, the highest honor awarded by the CSA. Mike Champeau, another alumnus of our anesthesia residency program, currently the president of our anesthesia alumni society, completed his term as CSA president, and Linda Hertzberg, an alumna of both the anesthesia residency and the ICU fellowship, became the new president. Finally, Matt Jolley received one of the three resident research awards at both the CSA and the Western Anesthesia Residents Conference (WARC). (At WARC, our department made a dozen presentations, including oral abstracts from both Matt Jolley and Jerry Ingrande.

**National Recognition**—Our faculty continue to achieve national recognition. Four faculty members—Martin Angst, Juli Barr, Steve Howard, and Audrey Shafer—were elected to the Association of University Anesthesiologists, the most from any department in the country. Alex Macario was appointed as an ABA examiner for the oral boards. Divya Chander was chosen as one of the four recipients for a FAER Mentored Research Training Grant this year. And, our faculty continue to successfully compete for national funding for their research programs. We currently have 27 awards totaling over \$25

million; an additional 60 proposals for an additional \$60 million have been submitted.

**Endowed Chair**—I am excited to announce that I will be the inaugural recipient of the Richard K. and Erika N. Richards Professorship at Stanford. Dr. Richards was a pivotal researcher in developing the field of clinical pharmacology beginning in the 1940's, and he had a long history of collaboration with faculty at Stanford, including Don Stanski in anesthesia and Terry Blaschke in medicine and pharmacology. In our 2009 annual report, *Anesthesia News*, we will highlight Dr. Richards's contributions and career as well as the family's goals in creating this professorship. The discipline of anesthesia and its related subspecialties are inextricably linked with clinical pharmacology. Our department has been a national leader in pharmacology research throughout the past half century. I hope that this



will be the first of many endowed professorships in the department.

**Talented Graduates**—Finally, our 21 CA-3 residents will graduate in June. I frequently state, “We choose the best medical students in the country and provide them with the best anesthesia training in the world.” This graduating class confirms this statement. This truly exceptional class has markedly improved the residency program, while providing exemplary patient care. As they go into fellowship, academic, and private practice positions, they will be recognized as Stanford graduates, and I am truly proud to have participated in their training.

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**FROM THE DEPUTY CHIEF**

BY RICK NOVAK, MD

ASSOCIATED ANESTHESIOLOGISTS MEDICAL GROUP

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**Clinical Case for Discussion:** You are appointed Chairman of Anesthesia at an acute-care California community hospital. The hospital administrator offers you a stipend to support the anesthesia care for his medical center, but it will be up to you to determine how to staff your operating rooms in the most cost-effective, safe, and efficient manner. **What do you do?**

**Discussion:** What will the future of anesthesia manpower and staffing in California look like? Will you be supervising an infantry of nurse anesthetists? Will you become the employee of

another anesthesiologist who is your Medical Director? **Let's stroke the crystal ball:**

In the Rovenstine lecture published in the May 2006 issue of *Anesthesiology*, Mark Warner, MD, (ASA President-elect for 2010) wrote, “Do we really need our best and brightest physicians to sedate and monitor patients undergoing cataract procedures when these patients have only an infinitesimal risk of developing a life-threatening problem intraoperatively? Do we need them to deliver one-on-one care to healthy 20-year-olds who need general anesthetics for simple surgical procedures such as herniorrhaphies and peripheral orthopedic procedures? . . . There will be too few anesthesiologists, as well as insufficient funds to pay for such physician-intensive care.

Further, there are no studies to suggest the need for physicians to personally deliver care to healthy patients undergoing minimally invasive procedures. As proven in a number of diverse practice models and in our intensive care units daily, physician oversight or supervision of well-trained sedation and critical care nurses, nurse anesthetists, and anesthesiologist assistants is a remarkably safe, efficient, and cost-effective model for delivering care to appropriately selected patients. . . . We have truly outstanding anesthesiologists who provide terrific care in intensive care units across this country. None of them—not a single one of them—are assigned to provide one-on-one care to even the most critically ill patients in these units.”

On Friday March 20, 2009, the California Society of Anesthesiologists (CSA) sponsored the first-ever meeting of the California anesthesia residency program directors, where representatives from all 11 anesthesia training programs in the state (UCSF, Stanford, UCLA, UCSD, San Diego Naval Hospital, UC Irvine, Harbor, Cedars-Sinai, USC, Loma Linda, and UC Davis) met at UCLA. A portion of the meeting focused on likely changes in anesthetic practice over the next three decades, and how to best train the newest generation of anesthesiology residents to prepare for that future.

Dr. Michael Champeau, current President of the CSA and Adjunct Professor of Anesthesia at



Stanford, attended the UCLA meeting. According to Dr. Champeau, “the meeting attendees overwhelmingly felt that in order to remain economically viable in the changing health care world, anesthesiologists needed to expand the scope of services they provide beyond traditional one-on-one physician administered OR anesthesia to encompass the entire scope of perioperative medicine.”

Per Dr. Champeau, the program directors believed that the future of anesthesia will include a tiered spectrum of models of anesthesia care staffing ranging from a one-anesthesiologist-per-one-patient model for complex surgeries or complex patients down to one anesthesiologist supervising multiple nurse anesthetists (or anesthesiologist’s assistants, should they become licensed in California) for straightforward surgeries on healthy patients. He emphasized that the CSA was certainly not promoting the expansion of the anesthesia care team model, but rather simply bringing the leaders of the anesthesia residency training programs in California together, listening to their thoughts about the future of the specialty, and drawing attention to the likely economic consequences of the anticipated changes in modes of practice. The program directors believed that expertise in preoperative evaluation and optimization, risk stratification, operating room and perioperative team leadership, postoperative pain management and intensive care would be skills required for the anesthesiologist of the future.

While one-anesthesiologist-per-case staffing is currently the predominant model in California, Dr. Champeau went on to say that many groups might be only one entrepreneurial physician and one forward-thinking administrator away from changing to a tiered care model utilizing anesthesia care teams. Per data presented at the 2009 American Society of Anesthesia Conference on Practice Management, between 60-70% of anesthesia groups in the country are supported by a hospital stipend subsidy. If utilizing the anesthesia care team model costs less than an all-physician model for anesthesia care, there may be increasing pressure in the upcoming years for utilizing anesthesia care teams.

In the US, solo MD practitioners deliver 35% of the anesthetics, anesthesia care teams with anesthesiologists medically directing

Anesthesiologist Assistants or CRNAs deliver 55% of the anesthetics, and CRNAs in solo practice deliver 10% of the anesthetics. The anesthesia care team model is less common in California, partly because the supply of anesthesiologists in California is sufficient to staff most cases without CRNAs.

The Kaiser system in California utilizes the anesthesia care team model. David Newswanger, MD, the Chairman of Anesthesia at Kaiser Santa Clara, told me the following key facts about his department: His anesthesia staff includes 21 anesthesiologists in the general OR, 7 anesthesiologists in the cardiac OR, and 29 CRNAs. This staff covers 19 ORs in three locations. In the Ambulatory Surgery Center and in the Eye Center, 90% of the cases are done by CRNAs supervised in a 4:1 or 3:1 CRNA:anesthesiologist ratio. In the main OR, anesthesiologists working alone cover 50% of the cases (more complex cases such as abdominal aortic aneurysms or thoracic cases), and supervised CRNAs cover the other 50% of cases. Kaiser has a system for assessing which patients are appropriate for an anesthesia care team and which need a solo anesthesiologist. A Preoperative Clinic team of 7 Nurse Practitioners screens 35% of pre-surgery patients, an MD anesthesiologist examines 5%, and medical assistants interview the remaining 60% by telephone and fill out standardized, preoperative questionnaires.

Back to our clinical case from the beginning of the column:

**(1) Would you hire both MDs and CRNAs, utilizing the anesthesia care team model?**

**(2) Would you hire anesthesiologist employees and pay them the lowest salary you possibly could?**

**(3) Would you assemble a team of anesthesiologists as equal partners?**

Regarding the first option, the Kaiser CRNA anesthesia care team model, for a small hospital the start-up costs for staffing a pre-operative clinic and hiring enough anesthesiologists to cover all the night call may not leave any cost savings. According to Dr. Newswanger, in the capitated Kaiser model a CRNA is equivalent to 2/3 of an anesthesiologist when it comes to the economics of OR staffing. That is, if he staffs his ORs at a 3:1 ratio of CRNA:anesthesiologist, it's a break-even point ( $1 + 3 \times 2/3 = 3$  MD- equivalents for 3 ORs), whereas a 4:1 ratio is a money-saving staffing scenario ( $1 + 4 \times 2/3 = 3 \frac{2}{3}$  MD- equivalents for 4 ORs). In a fee-for-service practice, these numbers may be different, depending on the payer-mix of the patients.

Regarding the second option, a Medical Director anesthesiologist employing a team of lower-paid anesthesiologist employees, a central issue is that most anesthesiologists shun lower paying positions, and these hospital departments may be doomed to understaffing and high turnover. The third option, assembling a team of equal-partner anesthesiologists, avoids these problems, but it may be less cost-effective.

There are specific concerns in staffing out-of-hospital surgery centers and office-based anesthetic locations. I currently work in a one-anesthesiologist-per-patient private practice in which 15% of our cases are done in surgery centers or a plastic surgery centers where there is only one operating room. In these settings, there is no cost saving to having both an MD and a CRNA present to do the anesthetic, and a solo anesthesiologist-per-patient seems the likely staffing model. The question regarding the safety of replacing that solo anesthesiologist with a solo CRNA is a heated and separate issue that will not be discussed in this column.

The crystal ball is murky, and no one knows if the anesthesia care team model will turn out to be a dominant form of practice in California. While the specifics of future anesthesia care staffing in California are uncertain, I am optimistic that the future will involve vigilant, high-quality perioperative medicine, led by anesthesiologists.

**FROM THE RESIDENCY DIRECTOR**  
**ALEX MACARIO, MD, MBA**  
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Dear colleagues,  
I am happy to announce our outstanding new chief residents; our residents of the month for January, February, and March; our superb match

results; and our teaching scholars and their projects and collaborators.

**2009-10 Chief Residents**—I am very happy to let you know that the residents and faculty voted for Drs. Vincent Hsieh, Rob Becker, and Jenna Hansen to be next year's Chief Residents. Please join me in congratulating them. They were elected from an exceptionally strong group of CA2s, and I know they will function very well in this important role in the department.

### **Congratulations, Residents of the Month!**

**January**— Dr. Julianne Mendoza

**February**— Dr. Nate Kelly

**March**— Dr. Gary Lau

**April**— Dr. John Nguyen

**May**—Dr. Vince Hsieh

**Match Results**—We very pleased with the outcome!

- Marianne Chen, Boston University
- Sam Chen, Case Western University
- Morgan Dooley, Johns Hopkins University
- Roy Esaki, University of Michigan
- Brice Gaudilliere, Harvard University
- Melanie Gipp, Stanford University
- Andrea Goodrich, Baylor University

- Natalya Hasan, New York University
- Kathryn Hawrylyshyn, University of Toronto
- Boris Heifets, Albert Einstein University
- Calvin Lew, UMDNJ, RW Johnson
- Michael Marques, University of Southern California
- Ethan McKenzie, Drexel University
- Megan Oeljniczak, University of Minnesota
- Giovanni Passanante, University of California, Los Angeles
- Jared Pearson, University of Vermont
- Catherine Reid, Baylor University
- Brendan Smith, University of Southern California
- Vivianne Tawfik, Dartmouth College
- Loren Toplosky, Duke University
- Tatyana Travkina, UMDNJ-Robert Wood Johnson
- Ankeet Udani, St. George's University
- Luis Verduzco, Harvard University

**2009 Teaching Scholars**— This one-year faculty career-development award provides recognition and funding for travel expenses/tuition and non-clinical time for Teaching Scholars to collaborate with a resident on improving resident education, attend Dr. Kelley Skeff's Stanford teaching seminar in medical education, and attend another off-site, education-related meeting. This year's scholars, projects, and resident-collaborators are listed below:

Teaching Scholar	Project	Resident
Brenda Golianu	Teaching acupuncture during pediatric anesthesia rotation	J. Hairston & J. Sherman
Ludwig Lin	Education module on the psychosocial & economic ramifications of critical illness	Z. Khan & S. Bain
Pedro Tanaka	Problem-based learning (PLB) model for orthopedic cases	To be determined
Vanila Singh	Updating resident and fellow handbook for regional anesthesia	B. Rohlen
Jonay Hill	Standardized regional anesthesia curriculum	V. Hsieh
Cosmin Guta	Teaching module for abdominal surgery cases	R. Yun
Suma Ramzan	Assess resident learning on the PACU rotation	To be determined

### A HUGE (SNOWY) SUCCESS—22ND ANNUAL STANFORD ANESTHESIA UPDATE IN BIG SKY

*Wonderful conference! Very educational and pertinent to improving my practice, yet I had plenty of time to ski and enjoy myself! I plan on returning for future conferences!*

In Big Sky, Montana's February winter wonderland, the community of general and subspecialty anesthesiologists and nurse anesthetists, from 28 states and five countries, learned from luminaries about the latest advances and published guidelines in anesthesia, earned CME credits, and got in some fabulous skiing in sunny, warm weather. Kudos to Sheila Tost and her staff at Stanford's Continuing Medical

Education (CME) Office for superbly organizing this meeting.

Speakers from Stanford included Sean Mackey, MD, PhD; Andrew J. Patterson, MD, PhD; Ronald G. Pearl, MD, PhD; and Myer H. Rosenthal, MD. Speakers from elsewhere included



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Joseph Annis, MD, Dartmouth College School of Medicine; Talmage Egan, MD, University of Utah; Carin A. Hagberg, MD, University of Texas at Houston; Steve Hollenberg, MD, University of Medicine and Dentistry New Jersey; and Robert A. Peterfreund, MD, PhD, Harvard University.

Talks emphasized this year included the following:

- *Difficult Airway Management* by renowned expert Dr. Carin Hagberg, who gave several outstanding lectures,
- Several excellent lectures on *Cardiovascular Pharmacology* by Dr. Steve Hollenberg, a well-known Cardiologist/Intensivist involved in creating consensus guidelines for using vasopressors and inotropes, and
- Several excellent lectures on the most recent options for *Pain Management and Medication Delivery* by Drs. Mackey and Egan.



### **Daybreak, Lone Peak, Big Sky, Montana**

Skiers enjoyed blue skies, warm temperatures, non-existent lift lines, and over 100 inches of phenomenal snow at the summit. Nearby Moonlight Basin offered skiing off of super-steep Lone Peak, as well as long cruising runs and beautiful glade skiing. Kids skied for free. Beautiful scenery and abundant wildlife were also part of the appeal.

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### **WARC CONFERENCE**

As you may have heard we all had a great time at WARC, and all our residents did exceedingly well.

We should all be proud of them. We had 4 oral presenters (out of 44) and 11 abstracts (out of 147).

Stanford was represented in, no particular order, by Jennifer Hah, Tzevan Poon, Jerry Ingrande, Matt Jolley, Mark Gjolaj, Troy Wu, Vikas Shah, Dondee Almazan, Carolyn Schiffner, Jenna Hansen, Erin Hennessey, John Nguyen, Katie Ellerbrock and Carlos Brun.

Due to the withdrawal of sponsorship, the annual resident research competition has been discontinued. In the past, the 8 best resident research papers at WARC were presented at a special session at the California Society of Anesthesiologists (CSA). As part of the CSA judging team this year I can say that Stanford would have been better represented this year as compared to the past.

The new CSA format is to invite the 3 CSA award winners to come to the Annual CSA meeting in Monterey on the 16 May 2009. As you know Matt Jolley came in the top 3, and he is to be congratulated for a job well done.

Next year WARC is in Disneyland. It is scheduled for April 30 to 2 May 2010, so get your studies together for Donald Duck and his friends. They will be delighted with your input.

Kind regards, John Brock-Utne

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### **THE CRYSTAL CLEAR MIRACLE OF MEDICINE BY MARK GJOLAJ, MD, CA3**

In 2004, when I was a medical student, I got bitten by the medical mission bug when I visited a migrant workers' camp in Bangalore, India. More than fifty families subsisted in an open field under makeshift tents. Toddlers in tattered clothes played amongst them. The level of poverty was staggering. It was there that my perspective about real-life difficulties got shaped.

The visit was an opportunity to publicize the free medical clinics that would be held later that week.



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But I also spent time giving new toys to the children and playing games with them. To see the joy on their faces was incredible.

In February this year, my Stanford colleagues—Dr. Andrew J. Patterson and nurses Nicole Cromwell, and Jana Barkman—and I went with Medical Missions for Children to Gitwe, a remote, agricultural village in western, land-locked Rwanda, near its border with the Democratic Republic of the Congo. Gitwe is accessible by a 5-hr drive on a dirt road; it has no running water. Until last year, the local hospital's focus was Cesarean section surgery, using only ketamine anesthesia. Last year's mission group, spearheaded by Dr. Patterson, taught the local doctors how to perform spinal blocks. But the equipment did not exist to perform general anesthesia.

This year the team brought all the equipment required, including a DRE vaporizer, CO<sub>2</sub> analyzer and portable monitors for vital signs. Endotracheal anesthesia was performed, primarily for procedures involving facial plastic surgery, for 40 patients ranging in age from 5 months to 60 years of age.



### Waiting for cleft lip repair

Performing general anesthesia in this remote location was fraught with difficulties. The most basic commodities were incredibly precious. Electricity would intermittently be unavailable. Oxygen tanks with unusual connector fittings had to be mated with western vaporizers while minimizing wasteful leaks. Succinylcholine had to be used judiciously for fear of it not being available when it was urgently needed. Despite the

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hardships, the Rwanda mission was remarkably successful. Long-standing medical problems were corrected. Apprehensive parents who brought their children for treatment cried with joy when they saw the outcomes. For me, used to the safe surgery environment at home, the miracle of medicine was crystal clear.



### Girl carrying baby brother

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## BREADTH AND DEPTH: ANNUAL RESEARCH AWARDS

BY PATRICIA ROHRS

*“I’m impressed with the breadth and depth of research in Stanford’s Department of Anesthesia—analgesic effects of romantic love, optogenetics, and mice with humanized livers,”* stated guest evaluator Dr. Debra Schwinn, Chair of the Department of Anesthesia at University of Washington. Dr. Schwinn’s research area combines molecular pharmacology with translational human functional genomics. Not only does she study mechanisms underlying regulation of adrenergic receptors (ARs) in health and disease, but she also helped start the Perioperative Genomics project, studying how genetic variability can be used to predict (and intervene to prevent) adverse outcomes in the perioperative period.

Dr. Schwinn’s remarks, made at the annual departmental research event, applied to the 44 poster abstracts she had seen and the discussions she had had with the researchers who prepared them. She was also impressed by the strong faculty mentoring of junior researchers.

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After a sumptuous buffet, Rona Giffard, MD, PhD, vice chair of research, opened the after-dinner program by summarizing the past year's research accomplishments and thrust. She particularly mentioned that the incoming residency class has three FARM fellows and that Divya Chander had received a FAER 2009 Mentored Research Grant—Basic Science Award.

Dr. Giffard introduced speakers for each award-winning abstract, each of whom described intricate, seminal work.

The first speaker, Dr. Geoff Lighthall, co-authored his abstract with Sharman Markar and Robert Hsiung: *Abnormal Vital Signs are Associated with an Increased Risk for Critical Events in US Veteran Inpatients.*

The second speaker, Dr. Xian Tang, co-authored his abstract with Midori Yenari and Rona Giffard: *NADPH Oxidase from Circulating Inflammatory Cells Exacerbates Injury in Experimental Stroke.*

The third speaker, Dr. Nick Phillips, co-authored his abstract with David Clark, Gary Swan, and Martin Angst: *Heritability of Opioid Effects: Preliminary Results of a Twin Study.*

The fourth speaker, Dr. Andrew Patterson, co-authored his abstract with G. Ackland, C. Hou, and R. Agrawal: *Sepsis-induced Cardiac Dysfunction: A Physiologic and Genomic Analysis.*

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## MEDICINE AND THE MUSE BY AUDREY SHAFER, MD

In April, Medicine and the Muse, the eighth, annual, arts, humanities, and medicine symposium, featured keynote speaker Rob Kapilow, a renowned music educator, composer and conductor, and Stanford's world-famous ensemble-in-residence, The St. Lawrence String Quartet, attracting a standing room only crowd in Clark Center auditorium.

Explicating the structure of the scherzos of Beethoven's Quartet op.18 number 1 and op.135 (Beethoven's last full work), Kapilow explored the dangers and false assumptions that can accompany labeling and categorization—in both

music and in medicine. Kapilow also discussed his career at a lunch with medical students; in particular what he has learned from collaboration, listening to others, and growing from experience. "It's okay to fail! Just figure out what you can learn from it!" he advised them.



The symposium was organized by medical students, directed by first-year student Christina Gamba, and it showcased the talents of Phil Pauerstein and the Groove Approval Jazz Quintet; trio Patrick Avila, Stesha Doku and Gloria Yiu; creative writers Eric Leroux and Atalie Young; and Julliard graduate Christine McLeavey on piano. The twenty-five art exhibitors included students, staff, faculty, and local middle-school youth who visited the hospital.

For more information about the Arts, Humanities and Medicine Program, please visit <http://bioethics.stanford.edu/arts/>; to see an archive of Medicine and the Muse symposia, see <http://bioethics.stanford.edu/arts/events/MedicineandtheMuse.html>.

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## ALUMNI CORNER

**Michael Champeau, MD**, 1985 Stanford residency graduate, has worn many hats during his 24-year career: Stanford faculty member, ABA oral examiner, president of his private practice group, president of Stanford Department of Anesthesia's Alumni Association, Adjunct Clinical

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Professor of Anesthesia at Stanford, and, for the past year, president of the California Society of Anesthesiologists (CSA).



**Michael Champeau**

Since becoming CSA president in May 2008, his goals have been to modernize the governance structure of the society, promote communication between the society and its members, and advocate for the profession. In his statement regarding advocacy, published on the CSA website ([csahq.org](http://csahq.org)), Champeau says, "While there is no single issue of importance to all anesthesiologists, our chances of success in the struggles with those who seek to define our role and our worth are greatly enhanced when we speak with one voice. Without organized anesthesiology, the individual anesthesiologist has no voice. But by banding together and pooling our resources, we can make our voices heard on matters of interest to our patients, our society and ourselves."

Dr. Champeau reports that the two major political struggles during his year at the helm have been the fight to overturn the Medicare anesthesia teaching rule and the battle to preserve balance billing. The first, a tremendous victory for organized anesthesiology, restored full Medicare payment to teaching anesthesiologists working with residents on overlapping cases. Champeau and his colleagues invested hours of time and energy developing relationships with congressional representatives in the four-year

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fight to achieve parity with other teaching physicians.

The second, more frustrating issue was the attempt to preserve a physician's right to balance-bill a patient when the responsible HMO had failed to make adequate payment for non-contracted emergency services. Although the practice was understandably unpopular with patients, CSA leadership felt obligated to enlist patients' support in the fight to obtain appropriate payment (balance-billing) from the HMO. Despite solid legal arguments in defense of balance-billing, both the California Superior and Supreme courts voted to remove patients from the line of fire between physicians and HMOs. CSA now plans to put forward legislation calling for fair, efficient dispute resolution between HMOs and non-contracted physicians.

The soon-to-be-former CSA president is particularly proud of the changes he has enacted to reinvigorate society's governance structure and of the new CSA Member Discussion Forum that was unveiled just last month on the CSA website. Dr. Champeau points out that Myer (Mike) Rosenthal, MD, well-known for developing the multidisciplinary critical care unit at Stanford, delivered the Forrest E. Leffingwell Memorial Lecture at the CSA Annual Meeting, held May 15-17 in Monterey, CA. Rosenthal joins the list of luminaries, constituting a veritable Who's Who of California anesthesiologists, who have delivered the address. To see text of Rosenthal's address, go to [csahq.org/up-more.php?idx=34](http://csahq.org/up-more.php?idx=34)

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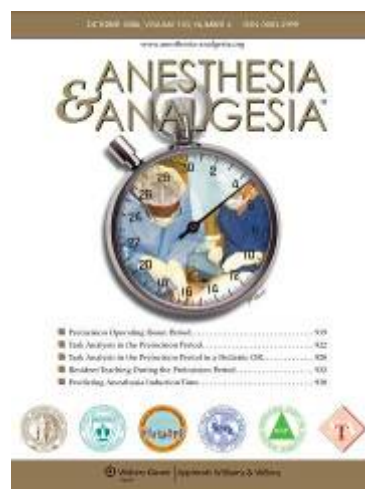
#### **NEW BOOKS IN OUR LIBRARY**

Hillary Farkas, Anesthesia Medical Librarian announces new additions to the collection. She asks you to suggest titles you would like to see added. Please e-mail her at [hfarkas@stanford.edu](mailto:hfarkas@stanford.edu).

- *A Practical Approach to Cardiac Anesthesia*, 4<sup>th</sup> Ed. (RD 87.3 .H43 P72 2008)
- *A Practice of Anesthesia for Infants and Children*, 4th Ed. edited by Cote, Lerman and Todres (RD 139 P73 2009)

- *Anaesthesia and the Practice of Medicine: Historical perspectives* (RD 79 S95 2007)
- *Anesthesia for Cardiac Surgery*, 3<sup>rd</sup> Ed. (RD 87.3 H43D 2008)
- *Anesthesiology and Critical Care Drug Handbook: Including select disease states and perioperative management* (RD 82.7 D78 A479CC 2008)
- *Anesthesiologist's Manual of Surgical Procedures*, 4<sup>th</sup> Ed. (RD 81 A54 2009), donated by Dr. Richard Jaffe.
- *Cardiopulmonary Bypass: Principles and practice*, 3<sup>rd</sup> Ed. (RD 498 C354G 2008)
- *Chronic Pain: A primer for physicians* (RB 127 P199 2008)
- *Geriatric Anesthesiology* (RD 145 G467 2008)
- *Handbook of Ambulatory Anesthesia*, 2nd Ed. (RD 82 H192 2008), donated by Dr. Alex Macario.
- *Handbook of Anesthesiology* (RD 82.2 E94 2008)
- *Harrison's Principles of Internal Medicine*, 17<sup>th</sup> Ed. (RC 46 H222 2008)
- *Management of the Difficult and Failed Airway* (RC 735 M36 2008)
- *Perioperative Medicine: Managing for outcomes* (RD 49 P46 2008)
- *Recent Advances in Anaesthesia and Intensive Care*, 24<sup>th</sup> Ed. (RD 82 R24 2007)
- *Understanding Anesthesia Equipment*, 4<sup>th</sup> Ed. (RD 78.8 D67 2008)
- *The Washington Manual of Medical Therapeutics*, 32<sup>nd</sup> Ed. (RC 71 W37 2007)

## FACULTY CORNER



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#### ABSTRACTS AND POSTERS

- Scuderi G, Cuellar J, Gabrovsky V, Yeomans D, Angst MS. *A cytokine biomarker and potential therapeutic target for disc herniation-induced sciatica*. 2009 Annual Meeting of the Orthopedic Research Society, San Francisco, CA.
- Lipman S, Carvalho B, Cohen SE. *The "5-Minute Rule" for Perimortem Cesarean Delivery: Should the Patient be Moved to the Operating Room?* The Society for Obstetric Anesthesia and Perinatology Annual Meeting. [May 2009](#) in Washington, DC.
- Atkinson L, Lipman S, Cohen SE. *Challenges Associated With Ankylosing Spondylitis in the Obstetric Patient: A Case Report*. The Society for Obstetric Anesthesia and Perinatology Annual Meeting. [May 2009](#) in Washington, DC.
- Tagalao AL, Butwick A, Carvalho B. *A Survey of Obstetric Anesthetic Practice for Cesarean Delivery*. The Society for Obstetric Anesthesia and Perinatology Annual Meeting. [May 2009](#) in Washington, DC.
- Atkinson L, Collins J, Riley E, Ting V, Harter, Carvalho B. *Intrathecal Bupivacaine Requirements in Morbidly Obese Patients Undergoing Cesarean Delivery*. The Society for Obstetric Anesthesia and Perinatology Annual Meeting [May 2009](#) in Washington, DC.
- Butwick A, Ingrande J. *Anesthetic Management of an Obstetric Patient with Severe Pre-eclampsia and HELLP Syndrome Requiring Cesarean Delivery*. The Society for Obstetric Anesthesia and Perinatology Annual Meeting. [May 2009](#) in Washington, DC.
- Butwick A, Coleman C, Cohen S, Collins J, Riley E, Carvalho B. *A Randomized Study to Investigate the Minimum Effective Dose of Oxytocin in Patients Undergoing Elective Cesarean Delivery*. The Society for Obstetric Anesthesia and Perinatology Annual Meeting, [May 1, 2009](#), Washington, DC.

- Harter, Carvalho B, Riley E. *Porcine Dura Mater Puncture Force as a Function of Spinal Needle Gauge and Type*. The Society for Obstetric Anesthesia and Perinatology Annual Meeting. [May 2009](#) in Washington, DC.
- Harter S, Riley E. A profound Hemorrhage in a Parturient with Placenta Previa and Percreta Complicated by Amniotic Fluid Embolism and Disseminated Intravascular Coagulation. The Society for Obstetric Anesthesia and Perinatology Annual Meeting. [May 2009](#) in Washington, DC.
- Ting V, Atkinson L, Harter S, Riley E, Butwick A. *Thromboelastography to Assess the Relationship Between Coagulation Changes and Blood Loss in Patients Undergoing Elective Caesarean Delivery*. The Society for Obstetric Anesthesia and Perinatology Annual Meeting. [May 2009](#) in Washington, DC.
- Alex Butwick and Brendan Carvalho participated in a panel discussion on *Minimizing Risks with Neuraxial Techniques*. The Society for Obstetric Anesthesia and Perinatology Annual Meeting. [May 2009](#) in Washington, DC.
- Vickie Ting (fellow) presented at the fellow/resident forum at The Society for Obstetric Anesthesia and Perinatology Annual Meeting. [May 2009](#) in Washington, DC.
- Lindsey Atkinson (fellow) won second place in the Gertie Marx Competition for the best paper by a fellow or resident at The Society for Obstetric Anesthesia and Perinatology Annual Meeting. [May 2009](#) in Washington, DC.

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#### INVITED TALKS AND GUEST PROFESSORSHIPS

- Andrew J. Patterson, MD, PhD, spoke about *Hemodynamic Pharmaceuticals: Things that Make the Blood Pressure Go Up* at the Stanford University Emergency Medicine Grand Rounds, January 21, 2009.

- Scott Ahlbrand, MD, spoke about *What are the Risks and Benefits of Manipulating the Coagulation Process with Pharmaceutical Agents?* at the Society of Critical Care Medicine 38th Critical Care Congress in Nashville, TN on February 1, 2009.
- Ana Crawford, MD, spoke about *Immune Effects of Opiates* at the Society of Critical Care Medicine 38th Critical Care Congress in Nashville, TN on February 2, 2009.
- Ronald G. Pearl, MD, PhD, spoke about *Management of Pulmonary Hypertension: What are the Latest Evidence-Based Strategies?* at the Society of Critical Care Medicine 38th Critical Care Congress in Nashville, TN on February 4, 2009.
- Andrew J. Patterson, MD, PhD, spoke about *An Update on the Management of Left Heart Failure* at the Society of Critical Care Medicine 38th Critical Care Congress in Nashville, TN on February 4, 2009.
- Carlos Brun, MD, spoke about *Recombinant Activated Factor VII: When is it Unethical to Administer it?* at the Society of Critical Care Medicine 38th Critical Care Congress in Nashville, TN on February 4, 2009.
- Andrew J. Patterson, MD, PhD, spoke about *Beta Blockers: Are They for Everyone?* at the New Horizons in Anesthesiology Meeting, sponsored by Emory University in Steamboat, CO on February 8, 2009.
- Andrew J. Patterson, MD, PhD, spoke about *Quantitative and Qualitative Considerations for Fluid Resuscitation* at the New Horizons in Anesthesiology Meeting, sponsored by Emory University in Steamboat, CO on February 9, 2009.
- Andrew J. Patterson, MD, PhD, spoke about *Management of Perioperative Hypertension* at the New Horizons in Anesthesiology Meeting, sponsored by Emory University, in Steamboat CO on February 9, 2009.

- Andrew J. Patterson, MD, PhD, spoke about *International Medical Missions* at the New Horizons in Anesthesiology Meeting, sponsored by Emory University in Steamboat, CO on February 10, 2009.
- Andrew J. Patterson, MD, PhD, spoke about *Strain-specific Differences in Murine Sepsis-induced Cardiac Dysfunction: A Physiologic and Genomic Analysis* at the Association of University Anesthesiologists 56th Annual Meeting in Galveston TX on April 5, 2009.
- Sean Mackey, MD, PhD, spoke about *Functional Imaging in CRPS* at the American Academy of Pain Medicine Annual Meeting, in Honolulu, HI, January 2009.
- Sean Mackey, MD, PhD, spoke at Grand Rounds at Yale University in New Haven, CT, February 2009.
- Sean Mackey, MD, PhD, spoke about *Neuropathic Pain: Current Mechanisms and Treatments* at the Stanford 22nd Annual Anesthesia Update in Big Sky, MT, February 2009.
- Sean Mackey, MD, PhD, spoke about *Abuse of Prescription Pain Meds and How to Stay out of Trouble while Prescribing them* at the Stanford 22nd Annual Anesthesia Update in Big Sky, MT, February 2009.
- Sean Mackey, MD, PhD, spoke about *When Acute Pain Becomes Chronic —What Do We Know and How Can We Prevent It?* at the Stanford 22nd Annual Anesthesia Update in Big Sky, MT, February 2009
- Sean Mackey, MD, PhD, spoke about *Cortical Restructuring in Patients with Chronic Pain* at the Society for Urodynamics and Female Urology Annual Meeting in Las Vegas, NV, February 2009.
- Sean Mackey, MD, PhD, spoke about *The Strain in Pain Lies Mainly in the Brain* at the

Google Tech Talk Seminar Series in Mountain View, CA, March 2009.

- Greg Hammer, MD, spoke about three topics: *Regional Anesthesia in Children*, *The Difficult Pediatric Airway* and *The Use of Acetaminophen in Children* at the 47th Clinical Conference in Pediatric Anesthesiology in Anaheim, CA February 6–8, 2009.
- Martin Angst, MD, spoke about *The Relevance of Descending Inhibition to Understanding and Treatment of Neuropathic Pain: Experimental Assessment of Descending Inhibition in Normal Humans and those with Neuropathic Pain* at the Plenary Session Annual Meeting of the American Pain Society, San Diego, CA, May 2009.
- Emily Ratner, MD, spoke about *A Paradigm for Integrative Medicine Practice: Medical Acupuncture in an Academic Setting* at the 19th Israeli Medical Association World Fellowship International Congress in Tel Aviv, Israel, from April 22-26, 2009.
- Sean Mackey, MD, PhD, spoke about *Functional Imaging of Pain* at the Western Pain Society Annual Meeting in Englewood, CO, April 2009.
- Sean Mackey, MD, PhD, spoke about *Cognitive Aspects of Pain* at the American Pain Society 28th Annual Meeting in San Diego, CA, May 2009.
- Sean Mackey, MD, PhD, spoke about *The Strain in Pain Lies Mainly in the Brain: Lessons Learned from Functional Neuroimaging* at the University of Pittsburgh in Pittsburgh, PA, May 2009.
- Sean Mackey, MD, PhD, spoke about *The Strain in Pain Lies Mainly in the Brain: What Have We Learned from the Neuroimaging of Pain?* at the National Institutes of Health, Bethesda, MD, May 2009.

- Alex Butwick, MD, spoke on *Anticoagulation and Neuraxial Techniques* at the Society for Obstetric Anesthesia and Perinatology Meeting in May 2009 Washington, DC.
- Brendan Carvalho spoke on *Opioid Respiratory Depression* at the Society for Obstetric Anesthesia and Perinatology Meeting in May 2009 Washington, DC.
- Sheila Cohen, MD, participated in a session on Neuraxial Techniques: Risk Management at the Society for Obstetric Anesthesia and Perinatology Meeting in May 2009 Washington, DC. Her lecture was entitled *Informed Consent: If Only I'd Know... What Risks Should Be Shared?*

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#### PROMOTIONS, AWARDS, AND HONORS

- Sean Mackey, MD, PhD, was awarded an NIH NIDDK U01 subcontract via the University of Pennsylvania for his project *Central Mechanisms of Urologic Pelvic Pain: Functional and Structural Analysis by MRI*.
- Sean Mackey, MD, PhD, was awarded an NIH NIDA R21 grant for his *project Learned Control of Frontal and Limbic Systems via Real-Time fMRI*.
- Sean Mackey, MD, PhD, was invited to serve on the California Neuropathy Task Force.
- Ian Carroll, MD, has been awarded a Stanford Anesthesia grant for his project *T3 for fibromyalgia: a prospective non-randomized double blind controlled pilot study*.
- Steve Lipman, MD was nominated with Dr Kay Daniels by Dr J Berek, Chair, Dept of ObGyn, for the Kaiser Award for Outstanding and Innovative Contributions to Medical Education, May 2009.
- Divya Chander, MD, received a FAER 2009 Mentored Research Grant Basic Science Award.

- Michael Champeau, MD, was promoted to Adjunct Clinical Professor of Anesthesiology September, 2008.
- Michael W. Brook, MD, was promoted to Clinical Assistant Professor of Anesthesia, effective April, 2009.
- Samuel A. Mireles, MD, has been appointed as Clinical Assistant Professor of Anesthesia, effective 2009.
- Echo Rowe, MD, has been appointed as Clinical Assistant Professor of Anesthesia, effective August 2009.
- Stephen D. Coleman, MD, has been appointed as Clinical Assistant Professor of Anesthesia (Pain Management), effective July 2009.
- Chad D. Pritts, MD, has been appointed as Clinical Assistant Professor of Anesthesia (Critical Care Medicine), effective July 2009.

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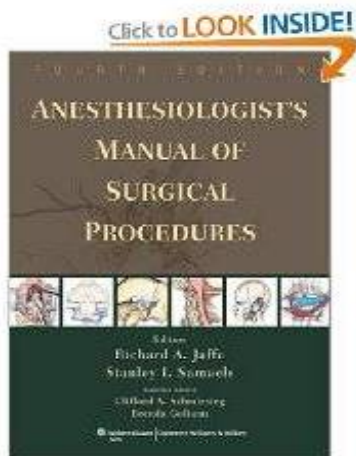
#### POPULAR PRESS

- *Brain Scans of Pain Raise Questions for the Law Science* January 2009.
- *The Science of Pain Scientific American* Podcast December 2008.  
mp3 available at <http://paincenter.stanford.edu/press>
- *Heroin Addiction Drug May Relieve Symptoms of Fibromyalgia. Scientific American* April 2009.
- *Addiction Drug May Relieve Fibromyalgia Symptoms.* Reuters April 2009.
- *Life-Changing Benefits' for Patients Using Addiction Drug. The Herald* April 2009.
- *Brain Scans of Pain Raise Questions for the Law. Science* January 2009.



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## BOOKS



The 4<sup>th</sup> edition of the classic *Anesthesiologist's Manual of Surgical Procedures* has arrived on bookshelves. It is available in English, Chinese, Italian, and Portuguese language editions. Intended primarily for residents planning a case, but also extensively used by all anesthesiologists, this edition contains 20% new material, distributed across its 15 chapters and eight appendices. The new material reflects new procedures—for example, minimally invasive techniques such as robotic surgery, laparoscopic surgery, video-assisted thoracic surgery, off-pump coronary bypass—new anesthetics, and increased use of regional anesthesia.

The fact that this book is a best-seller reflects well on Stanford surgeons and anesthesiologists; all of the book's 181 contributing authors are linked to Stanford as faculty or former residents.

Co-editor Richard Jaffe, MD, PhD, describes the genesis of this book: "This will be the last edition to benefit from the unique talents of my long-time colleague, Stanley Samuels [co-editor]....First a bit of history. I was a resident in anesthesiology when I developed the concept for this book....The most successful medical textbook author I knew was my former chairman, William F. Ganong. Shortly after I joined the faculty at Stanford, I approached him for advice. He liked the concept and agreed to put me in contact with one of his publishers. About the same time, I had the realization that it might be difficult to convince a large number of my new surgical and anesthesia colleagues to contribute their valuable

time and talent to what they might view as a not particularly rewarding endeavor. Fortunately, as a resident, I had many occasions to work with Stanley and had quickly realized he possessed a certain Irish charm and almost magical ability to elicit the cooperation of others....I approached him regarding collaboration. He agreed, and some 2½ years later the first edition was published, an accomplishment that was in no small part a result of his persuasive powers."

The 4<sup>th</sup> edition also benefits from the expertise of its two hardworking associate editors, Cliff Schmieging, MD, with expertise in adult anesthesia, and Brenda Golianu, MD, with expertise in pediatric anesthesia.

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## LIFE'S TRANSITIONS: BABIES

Marnie Robinson, MD, 2003 residency graduate and pediatric anesthesiologist in Orlando, Florida and her husband, Andy, proudly announce the birth of their second child, Logan James Robinson depicted here with his big sister, Ashley. Born February 9, 2009, Logan weighed 7 lbs, 3 oz and measured 20 inches.



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The pipelines that transport oil and gas around the world are objectively a marvellous feat of human engineering. Their sheer size and stretch is something to behold and construction can take several years, if not decades. Where are the world's longest pipelines and what is the progress on their expansion? Talal Hussein 14 September 2018. The oil and gas industry boasts some of the world's longest pipelines ever created. Where are they and what is the progress on their planned expansions? Credit: Max Pixel.