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Outside the OR: Anesthesiologists Making a Difference

VOLUME 16
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FROM THE EDITOR

Growing up in Albany, New York, I never thought I would write as much as I do now, especially when I decided to become a physician. Between authoring scientific articles, grants to get money to fund more studies that need to be written up, my first book (a family travel memoir titled *A Sabbatical in Madrid - A Diary of Spain* published this year), and editing Stanford Anesthesia News, I wish I had paid more attention in those high school writing classes.

Every fall the Department of Anesthesia releases this newsletter -- a publication intended to promote the Department’s innovations in research, education, and patient care. This year we have begun a substantial make-over, by upgrading the depth and breadth of the writing and adding photographs and features written by professional writers. Initially, we attempted to include in this publication something about all of this year’s newsworthy events, but we quickly realized that would be impossible. Instead, we chose the more manageable task of highlighting certain people and events.

Thank you for your interest and support. I hope you will tell us what you like and don’t like about our latest effort.

Alex Macario MD, MBA
Editor
Stanford Anesthesia News
This has been another spectacular year for the department, with success in achieving our clinical, educational, and research missions. Our department is not only bigger than ever, it is also better. The new format of this annual newsletter, edited by Alex Macario, is designed to highlight the changes that have occurred in the department.

The past year has seen a marked increase in surgical volume. While the growth in pediatric anesthesia has been continuous throughout the past decade, the growth on the adult side has primarily occurred over the past two years. In response, we have recruited superb faculty members and have expanded the size of our residency program to a total of 57 residents.

The development of the clinician-educator line has allowed recruitment of faculty who excel in clinical care and teaching of residents, medical students, and fellows. At the same time, we have recruited additional medical center line faculty who are outstanding clinicians and teachers and also have clinical or basic science research programs. As the divisions within the department have increased in size, we have been able to reach the critical mass required to fulfill all the goals of an academic anesthesia department. For example, pediatric anesthesia has expanded to 17 faculty, allowing us to become one of the leading academic pediatric anesthesia groups in the country.

This year we graduated another outstanding class of senior residents and began training a new group of 19 residents. Half of the graduating residents have gone on to faculty or fellowship positions, and the other half found financial, volunteer their time as part of the Adjunct Clinical Faculty, finding practice positions for our graduates, and enhance the reputation of our department by their leadership in practice and in the community. Together we are able to achieve the goal of making our department the leading anesthesia department in the world.

CHAIRMAN’S MESSAGE
by Ron Pearl, M.D., Ph.D.

Assistant Professors on the Cutting Edge of Research

A Closer Look at Pain

By Danielle deLeon

Pain is a universal human experience studied since the dawn of recorded history. Ancient civilizations attributed pain to demons and curses, and the Middle Ages began to see evidence that pain is involved with the brain and nervous system. Today, Dr. Sean Mackey, Assistant Professor of Anesthesiology, aims to image how the brain processes pain signals.

Advances in Spinal Cord Imaging

While brain-imaging technology has advanced considerably, spinal cord imaging proves to be difficult. This is due to the spinal cord’s small size, surrounding air, bone, and the movement of blood and cerebrospinal fluid. In collaboration with Gary Glover, Professor of Radiology, Mackey leads one of two groups in the world to successfully image the human spinal cord and its response tonoxious stimuli. Mackey states, “These techniques offer tremendous opportunity to understand the neural plastic changes in the human spinal cord that occur during acute and chronic pain as well as the spinal cord’s response to pharmacologic agents that anesthesiologists typically use.”

Sean Mackey

Characteristics of People in Pain

How someone experiences pain varies from person to person. What may be a mild annoyance to one might be excruciating to another. Some of this has to do with one’s baseline anxiety and fear traits. When subjects are exposed to a standard thermal stimulus that all subjects rate as moderately painful, Mackey found a direct correlation between the subject’s degree of anxiety and fear, and activation in certain frontal brain regions. These results help explain some of the variability seen in many imaging studies in pain, as well as some of the factors that modulate a normal subject’s experience of pain.
Heme Oxygenase as a Target to Facilitate Pain Management
By Danielle deLeon

Dr. David Clark, Assistant Professor of Anesthesia and Director of Pain Service at the Veterans Affairs (VA) Hospital in Palo Alto, is focusing the bulk of his research on targeting heme oxygenase for pain management. Heme oxygenase, an enzyme expressed in large amounts in the central nervous system, takes the molecule heme and produces carbon monoxide, a neurotransmitter chemically similar to nitric oxide. Clark explains, “In animals where you inhibit the heme oxygenase enzyme, they have a fewer pain behaviors, less evidence of neuroplastic changes induced by pain. The animals seem less distressed by painful stimuli.” Clark hopes within the next couple years to do human trials using heme oxygenase inhibitors as analgesic pain relievers. “Ultimately, I would like to see a new analgesic product targeted at the heme oxygenase enzyme system.”

Clark also focuses on the limitations of opioid use for the treatment of chronic pain. “One of the most common limitations thought to exist is tolerance to opioids; that is, after some period of time of taking an opioid, like morphine, a patient might get less pain relief.” Limiting the decline in the effectiveness of a drug may provide the patient with better pain relief. “I often get emails from people who’ve read what I’ve written, or what we’ve presented, and I really feel I’m contributing to the field by educating people and changing obstetric anesthesia practice.”

More recently, Clark, in collaboration with Assistant Professors of Anesthesia, Drs. Martin Angst and Larry Chu, has become interested in a second and potentially as important phenomenon: opioid induced hyperalgesia -- a natural compensation in which an organism that has had long-term exposure to a pain relieving drug responds by making itself more sensitive. Clark elaborates, “The person can actually have pain in excess to what they would have experienced if they had never come in contact with the drug.”

OB Anesthesia: A Labor of Love
By Danielle deLeon

After finishing his obstetric (OB) anesthesia rotation at Derriford Hospital, in Plymouth, England, Brendan Carvalho, Assistant Professor of Anesthesia, knew that OB would be his sub-specialty. “I can really make a difference in these patients,” he says. Carvalho is now focused on improving how a woman’s pain and overall anesthetic are managed during their time in labor and following delivery. Along with Sheila Cohen, Ed Riley, and Steve Lipman, Carvalho is currently involved in over 10 research projects. “We’re one of the most productive obstetric anesthesia groups in the country, and I’m proud to be a part of it.” He adds, “I’ve done a number of studies trying to improve pain control either during labor using PCEA (patient controlled epidural analgesia) or following cesarean section using either long acting opioids, like DepoDur, or the new COX-2 inhibitors, like valdecoxib.”

For the future, Carvalho wants to explain pregnancy-induced differences in analgesic responses. For example, compared to healthy volunteers, parurients in a preliminary study had an increased pain tolerance (more resistant to a heat pain stimulus) but not to a cold stimulus. If these findings are found to be consistent with those of ongoing studies, this means that the pregnancy state results in an altered pain response. Carvalho also wants to know how the genetics of pain expression in the obstetric population change.

Challenges: Lack of Funding & Time

Obstetric anesthesia is a difficult subspecialty in which to get industry funding. Carvalho explains, “It’s a fairly mature field—the drugs we use are very good—and there’s little pharmaceutical interest in anesthesia.” There’s a particular aversion to funding OB anesthesia research. “Drug companies don’t want to touch pregnant patients because of all the other potential problems with the baby. It’s very difficult to attract industry funding.” However, Carvalho isn’t giving up on clinical research. “I am hoping to get FAER and then NIH funding to allow me to pursue my research interests, in particular unraveling analgesic differences in pregnant women. But you have to take little bites at a time, and it takes a long time to answer these big fundamental questions.”

The challenge is, though, that federal funding tends to favor primary bench research. Balancing time between clinical responsibility, teaching and research is a juggling act. There’s only so much time in a day. Carvalho keeps his perspective. “I think the biggest discipline I’ve had to learn is when to say no to work, balance my time, and keep my priorities in mind, which is having time for me and my better half, family and friends, my academic and professional career, as well as sporting and recreational activities.”

Making a Difference

Born and raised in Johannesburg, South Africa, Carvalho never thought the day would come where he would be an Assistant Professor at Stanford University working with amazing people and making a difference in his sub-specialty. “Going from a little country like South Africa—not so little geographically, but no USA—to England where I lived for 8 plus years, then establishing myself here, to me, is one of my biggest achievements. From a big fish in a little pond to a little fish in a big pond but still somehow managing not to drown. I’m thankful to Ron Pearl who made sure to do everything I’ve wanted to do and the mentoring from Sheila Cohen.” His efforts don’t go unnoticed. “I often get emails from people who’ve read what I’ve written, or what we’ve presented, and I really feel I’m contributing to the field by educating people and changing obstetric anesthesia practice.”

Carvalho also gives national presentations, his latest being at the Texas Anesthesia Conference for Obstetrical Anesthesia in February 2004. Carvalho appreciates the value of lecturing to large audiences. “By educating anesthetists, they will go on and impact many women’s lives. I can affect the lives of many more women compared to just the patients I care for myself.”
Experimental Human Pain Research Laboratory

Pain after surgery remains undertreated for a variety of reasons, including fear of side effects and addiction. Many people also suffer from chronic pain. Dr. Martin Angst launched the Experimental Human Pain research laboratory at Stanford in 1995. Other active members in this lab are Larry Chu and Martha Tingle.

Initial research focused on using experimental pain models in Phase I/II clinical studies looking at analgesic efficacy of novel compounds (systemic opioids) and of established opioids being delivered with innovative technology (oral osmotic pump systems). A second early focus was acting in the spinal cord or in the brain.

Angst launched the Experimental Human Pain research laboratory at Stanford in 1995. Other active members in this lab are Larry Chu and Martha Tingle. Initial research focused on using experimental pain models in Phase I/II clinical studies looking at analgesic efficacy of novel compounds (systemic opioids) and of established opioids being delivered with innovative technology (oral osmotic pump systems). A second early focus was acting in the spinal cord or in the brain.

Today, Angst's laboratory is active in three major research areas. The various pain models used mimic acute pain, inflammatory pain, and pain due to amplified neuronal processing at the level of the spinal cord. Firstly, the lab examines changes within the central nervous system as a consequence of analgesic drug therapy (opioid induced pain hypersensitivity). A second major area is developing a biomarker assay in humans (such as cytokines, growth factors, neuropeptides, or prostaglandins) for early validation or rejection of new anti-inflammatory and analgesic candidates. Third, Angst aims to search for inter-individual variations in pain sensitivity and responsiveness to analgesic drugs.

Healing the Heart

By Danielle deLeon

Nearly five million Americans live with congestive heart failure, and another half million new cases are diagnosed each year. There is no cure, and treatment relies on a combination of lifestyle changes and medications. Dr. Andrew Patterson, Assistant Professor of Anesthesia, focuses his research on Cardiovascular Physiology and Molecular Biology. His investigations of congestive heart failure, adrenergic receptors in the heart, vascular tone, and gene expression are vital towards understanding how certain drugs affect various cardiovascular mechanisms.

Concettg Heart Failure: The Need for New Treatments

During times of stress, catecholamines are released in high doses, causing elevating cardiac output—invalidable if you're running from a lion, but problematic in long-term exposure. As Patterson explains, “The constant barrage of catecholamines on the heart causes cellular changes that are damaging. Continuous activation of β1 adrenergic receptors (ARs) has a way of remodeling the heart that is detrimental.” He continues, “β2ARs seem to prevent some of the remodeling—particularly apoptosis.” If the heart effects of β2AR activation were better understood, new therapies might be developed. Interestingly, β2ARs weren’t always thought of as being so beneficial.

Disputing the Roles of Adrenergic Receptors in the Heart

Progress in science often involves disproving widely held beliefs. For example, Galen, a Roman physician during the second century AD, wrote that the heart was made of muscle but incorrectly believed the liver was responsible for the movement of blood through the body.

Patterson is among a growing number of scientists challenging current theory that the β2AR in the heart simply represents a duplication of its sister receptor, the β1AR. As explained in greater detail in his most recent paper in Critical Care Medicine, “Protecting the myocardium: A role for the β2AR in the heart,” Patterson argues that although β1ARs and β2ARs are similar in terms of the substances that activate and block them, they differ in terms of gene location, size, and signaling properties. Patterson notes, “For years it was believed that cardiac β2s were redundant receptors. Now it appears that β2ARs, in addition to serving as adjuncts to β1ARs in terms of function of the heart, protect the heart from injury.”

Understanding Vascular Tone for Treatment of Hypertension

Patterson also focuses on understanding vascular tone, a much needed area of research considering that, according to the American Heart Association, one in five Americans has high blood pressure. Amazingly, even when high blood pressure is detected and controlled, the cause in the majority of cases remains unknown.

Patterson collaborates with John Cooke (Cardiovascular Medicine) and Rick Aldrich (Molecular and Cellular Physiology) studying the nitrergic pathway and vascular tone. Patterson states, “We’ve been able to elucidate some of the means by which blood vessels regulate their tone. For example, in one study we showed a role for a calcium-activated potassium channel.” This channel may some day serve as a target for pharmaceutical companies developing novel anti-hypertensive agents.

Transitioning Research to the Clinical Level

As an Intensive Care Unit physician, Patterson’s fourth area of research is developing methods for assessing gene expression in critically ill patients. Working with Dr. Ron Davis and colleagues at the Stanford Genome Technology Center, as well as Dr. Ann Weinacker (Pulmonary and Critical Care Medicine) and Dr. Susan Brundage (Trauma Surgery and Surgical Intensive Care), they are attempting to develop protocols for the collection and analysis of tissue samples from ICU patients.

Access to tissue samples in the clinical realm is more difficult to arrange than in laboratory research. However, Patterson informs, “One of the easiest targets, in terms of tissues from which to get samples, is blood. We’re looking first at diseases where blood cells are affected. Our initial study focuses on gene expression changes in patients with severe sepsis and relative adrenal insufficiency who receive steroids. Severe sepsis patients are admitted to the ICU with life-threatening blood-borne infections. Often, their adrenal glands aren’t working so we have to give them steroids. Our hypothesis is that steroids change the gene and protein expression in the white blood cells from an inflammatory expression pattern to a healing pattern.”
NeoSim Course at the Center for Advanced Pediatric Education (CAPE)

In September 2003, Stanford anesthesia residents began taking a course at the Center for Advanced Pediatric Education called NeoSim, a simulation-based crisis management training focusing on the neonatal population. Thus far, 28 residents, five fellows, and one attending have taken the course and become certified in the process. The residents spend the second Monday of each month at CAPE while rotating on the Obstetric Anesthesia service.

During NeoSim, our anesthesia residents are paired with Neonatal Intensive Care Unit nurses and must resuscitate a neonate in a mock delivery room during a rapidly evolving scenario under time and performance pressure, as well as auditory overload with incomplete information coming from multiple sources in a demanding, error prone environment...sound familiar?

The course provides an ideal environment for multidisciplinary training. Since the performance of the team directly affects patient outcome in a crisis, and includes teams of nurses, physicians, and technicians that respond to real crises, team-oriented simulation training makes sense. Indeed, a critical component of effective crisis response is the quality of interaction between the care providers comprising the team.

If medical care is to approach the safety standards of other high reliability organizations like the aviation and nuclear industries, such courses represent the future “gold standard” for training all health care professionals involved in patient care. The paradigm shift in training for health care personnel has begun (witness the focus on patient safety evidenced by the new limits on resident work hours and recent Anesthesia Patient Safety Foundation grants focusing on simulation). For example, since 2002, a course called ObSim has been in the works for crisis management training oriented toward parturients.

RESIDENCY UPDATE

By John G. Brock-Utne, M.D.

I can’t believe it, but I have now been the Associate Residency Director for 5 years. Where have the years gone? The only thing I know is I have enjoyed it. Being with eager, enthusiastic young people is a real blessing and makes you feel young, although one can only look in the mirror to know you may be young at heart, but the outside tells another story.

My job is made very easy because of the wonderful help provided by Janine Roberts and Nuvia Pacheco who never stop smiling. What a pleasure to work with them. This year’s chief residents were no exception from the previous group. Bridget Philip and Brian Dunn have been most enthusiastic, loyal and very attentive to making sure the rotations work and everyone is happy.

This July the following residents will leave our program and go out into the big, wide world:

- Cynthia Arvay (Staff Physician, Stanford University Hospital, California)
- Gregory Charlop (Fellowship in Pediatric Anesthesia, University of Southern California)
- Brian Dunn (Private practice at Hoag Hospital, Newport Beach, California)
- Maria Gomez (Private practice, Las Vegas, Nevada)
- Jennifer King (Private practice at Hoag Hospital, Newport Beach, California)
- Sanford Littwin (Fellowship in Cardiac Anesthesia, Columbia Univ, Hospital, New York)
- Gary Maturovsky (Fellowship in Pain, University of California, Davis, California)
- Elena Mauad (Kaiser Permanente, Boulder, Colorado)

Eleven of our graduates chose academia, and five will go into private practice. When you look at the last five years’ distribution as to where residents go, academia or private practice, there is no clear pattern. The chief residents for the coming year are Pat Bolton and Barry Waddell. They have been very proactive, upbeat and smiling despite the difficult task of having to please everyone - all the time. They have already organized for the incoming residents to attend, with their families and friends, a baseball game with the Oakland As in a luxury box. We hope to see them come to work the next day.
The following residents went on overseas trips to provide anesthesia care:

**Tessa Walters** went to Transkei in South Africa. She gave an excellent talk on her experiences showing that the Humphrey ADE breathing system still works in that part of the world.

**Elizabeth Steele** (Ecuador) and **Bridge Phillip** (Peru) went with the Medical Missions for Children (out of Boston). **Barry Waddell** went to Vietnam with Rotaplast (San Francisco).

**Cindy Arvay** went to Guatemala with an Orthopedic group. **Brian organized social activities for the** residents. Very popular is the February weekend skiing trip to Tahoe. My thanks to the many faculty, in all the three hospitals, who covered for them.

Residents learn new technologies, including the Innercool, during the neurosurgical rotation. Innercool is an endovascular technology designed to maintain a chosen target temperature and rewarm patients to normothermia.

This year’s chief residents Bridget and Brian organized social activities for the residents. Very popular is the February weekend skiing trip to Tahoe. My thanks to the many faculty, in all the three hospitals, who covered for them. The education committee has been very busy this year. This year we will use a new computer evaluation program for both faculty and residents.

The two most popular rotations among residents are the cardiac rotation at the Veteran’s Administration (VA) and the regional rotation at Stanford. VA Cardiac faculty include Drs. Kevin Fish, Ed Bertaccini, Steve Howard, Larry Siegel, Geoff Lighthall, and David Gaba. During the lottery to choose rotations for the following year these were the two rotations taken first.

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**In Denver,** at the Western Anesthesia Resident’s Congress (WARC), we were represented by **Ed Mariano** (last year’s Chief Resident and this year’s pediatric anesthesia fellow), **Bridge Phillip**, **Richard Shinaman**, **Jiang-li Kong** and **Debbie Williams**. The latter three presented their work at the oral session, which was a great honor. **Jiang-li** and **Debbie** are Stanford medical students doing research in our Department. With the help of **Dr. John Chow**, **Debbie** got a Stanford Medical student scholarship to study in our Department.

At the WARC, the California Society of Anesthesiologists select the best eight resident research papers to be presented at the annual meeting in San Diego. The department got three of the eight presenters. This is equal to our best result so far when in 1998 **Ann Marie Mallott**, Lauren Hill, and Cathy Russo also made the last eight.

The three from Stanford this year were **Richard Shinaman**, **Ed Mariano**, and **Debbie Williams**. **Richard** went on to win the resident’s prize at the Annual meeting. That is the first time that has happened in 15 years. **Dr. Sean Mackey** supervised Richard’s work.

In 2003 we instituted a Food and Research meeting (FNR) at Stanford every Thursday evening. This is an opportunity for everyone in the Department to present their research ideas, work in progress, etc. From time to time residents and fellows also present.

**We are still very fortunate to have so many of the alumni come back and work in the OR with our residents. The residents really do appreciate the teaching and the networking. We are grateful to all of you for taking the time and effort to contribute to the education of our residents. Thank you to Audrey Pullen for the list.**

In conclusion, I have a most wonderful job working with young, happy and enthusiastic people. I feel blessed. Thanks to all the Department’s members for the laughs, smiles and general happiness.

**Adjunct Clinical Faculty this past year:**

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Packard Looks to Private Practice for New Business Mechanisms

by Danielle de Leon

In a university-affiliated hospital, the practice of medicine is a lot different than in a private practice. In an academic environment with many large departments it is easy for the individual physician to feel somewhat removed. New mechanisms needed to provide university physicians with the same responsibility and control over their practice that private practitioners have. To bridge the gap between hospital business and physicians, Packard Children’s Hospital is one of the first academic institutions to establish a joint venture with Lilly Research Laboratories in the Pediatric/Obstetric Faculty Practice Organization (FPO), with Dr William Feaster as Executive Director.

Feaster has been practicing anesthesia since 1981, the majority of the time in private practice. “I was very fortunate to have my family in the Stanford area and to have been able to practice for over 30 years.” Feaster initiated the FPO as a new model for delivering care.

“Packard Children’s Hospital is one of the first academic hospitals to establish a joint venture with Lilly Research Laboratories in the Pediatric/Obstetric Faculty Practice Organization (FPO), with Dr William Feaster as Executive Director. Feaster has been practicing anesthesia since 1981, the majority of the time in private practice. “I was very fortunate to have my family in the Stanford area and to have been able to practice for over 30 years.” Feaster initiated the FPO as a new model for delivering care.

Next was Stanford, but for longer than the intended stay. “I decided to reenter clinical practice, but since I’d been out of practice for 3.5 years, I came to Stanford in February 2002 for a couple months. Within one day of arriving, people began talking to me about going to practice at Stanford and Lucile Packard Children’s Hospital. They were very effective recruiters.” Feaster quickly realized that his heart was in teaching as well as pediatric anesthesia. With his administrative and private practice experience, Feaster’s skills matched up well with Packard Hospital’s effort to organize and direct a newly emerging faculty practice organization.

The Pediatric/Obstetric Faculty Practice Organization

As described in the February 17, 2003 Dean’s Newsletter:

“The Pediatric/Obstetric Faculty Practice Organization (FPO) is being designed to further enhance the alignment of the goals of the faculty, LPCH and the School of Medicine. It is being designed so that faculty will be responsible and accountable for the financial, quality and service outcomes of the pediatric/obstetric clinical programs.”

Feaster explains, “Academic physicians will always have the competing priorities of teaching and research. For the time they spend in clinical practice, we’re trying to create an environment where the physician feels responsible and accountable for the results of their practice and the satisfaction of referring physicians, patients and staff. The same as if it was their own private practice.” The FPO provides physicians with detailed financial data to show them how much overhead they’re incurring, and how much money they’re bringing in. The physicians will eventually be accountable to the bottom line of their practice. Future incentive plans will not only reward physicians for their hard work, but also for the levels of quality, service and satisfaction they provide. Feaster is hopeful for cooperation from the doctors. “They’re beginning to understand that they have a say and can make a difference.”

The FPO now has the full administrative responsibilities for the outpatient clinic at LPCH. At the School of Medicine department level, the FPO hopes to assist, not replace, those responsible for current practice operations and doesn’t want to disrupt the department’s current practice organization. The FPO provides Packard physicians with detailed financial data so they know how much overhead they’re incurring, and how much money they’re bringing in. The physicians will eventually be accountable to the bottom line of their practice. Future incentive plans will not only reward physicians for their hard work, but also for the levels of quality, service and satisfaction they provide. Feaster is hopeful for cooperation from the doctors. “They’re beginning to understand that they have a say and can make a difference.”

The Future

The adult practices at Stanford Hospital and Clinics have discussed doing something similar, which places pressure on the Pediatric FPO to perform. “The Pediatric/FPO is the best model for this type of practice. If we do it right, we will see what the pediatric and obstetric faculty can accomplish by working in a close partnership with Packard hospital.”

Feaster is in a Masters in Liberal Arts program at Stanford and someday sees himself teaching literature or history at a college. “I was very fortunate to have my family in the Stanford area and to have been able to practice for over 30 years.” Feaster quickly realized that his heart was in teaching as well as pediatric anesthesia. With his administrative and private practice experience, Feaster’s skills matched up well with Packard Hospital’s effort to organize and direct a newly emerging faculty practice organization.
Bruce MacIver Received the Allan Cox Medal for Faculty Excellence Fostering Undergraduate Research. This article is reprinted with permission from the Stanford University News Service.

The Cox Medal is awarded annually to a faculty member who has established a record of excellence directing undergraduate research over a number of years. It may also go to a faculty member who has done an especially outstanding job with just one or two undergraduates whose work is unusually superior.

The citation for MacIver’s award acknowledged his “long-standing and widely acknowledged commitment to undergraduate research and lifelong mentoring that has moved students from initial exposure to cutting edge work to careers in their own biomedical laboratories.”

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The citation also noted that MacIver had fostered independent thinking “in a supportive, but intellectually rigorous research environment that encourages the development of scientific thinking as well as technical virtuosity – training which has garnered prestigious awards for his students.

The citation credited MacIver for “transforming under- graduates in his laboratory into researchers who, along with him, are defining the field of neurophysiology and contributing to therapeutically relevant research in the area of anesthesia; for inspiring students to pursue medical and research careers motivated by intellectual excitement and humanitarian service; for demonstrating commitment to support the efforts of women who seek to pursue medical research; and for modeling a life of balance, intellectual excellence, and compassion.”

The Cox award was established in memory of the late Allan Cox, a Professor of Geophysics and Dean of the School of Earth Sciences. He is widely known as the codiscoverer of magnetic-field reversals.

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J. Kent Garman, who became president and president-elect of the Stanford Hospital medical staff in Sept. 2003, believes in connecting his own career as a cardiovascular anesthesiologist to other professional activities - medical administration, sure, but sellingier?

In the 1960s, while a Navy Flight Surgeon, he regularly flew combat missions “in the right seat of an A-6 as a bombardier-navigator” with the Marines. He provided care for in Chu Lai, Vietnam. “You get to know your patients and their concerns really well in the cockpit,” he said during a recent interview. “You get to know what they’re thinking, what they need.”

As a cardiovascular anesthesiologist, Garman connects patients to surgeons and the rest of the medical team. He says he’s proud to have the recognition of the value of non-clinical activities to our department and our specialty; and to the Department and my ICU colleagues, who have allowed me the time to devote to many and varied roles in anesthesiology. My family has been very supportive in understanding the time and critical care. My family has been very supportive in understanding the commitment I have made and benefited along with me in traveling to many areas and making numerous treasured friends.

I missed the collegiality, and I missed working in an academic setting. I have been very effective in understanding the constraints that I must somehow resolve, and this will be a multi-year project. Right now, for example, I'm physician project co-leader on a task force that is looking at a comprehensive perioperative management system for the hospital, a multimillion dollar multi-year project.

Garman will serve as vice president for two years and then ascend to the presidency for two more years. “As vice president, I would like to focus on preparing the department for the leadership transition in the mid-reactor of a cluster and certifies. As a physician leader, he served as Chief of Cardiovascular Anesthesia at Stanford for 12 years starting in 1973.

Since the mid-1980s, the connections have included linking hospitals, physicians, and patients - something I have always been a member of the board of. All through a Sloan fellowship and an M.S. in manage- ment from Stanford’s business school in 1983, Garman took a break from his academic work and made it a principle goal to be involved in all of my children’s activities extended to my grandchildren. I have always believed that if one has the desire to maintain a positive family environment, there is no inconsistency with a successful academic career, and that the failure of either is by choice not necessary. On a personal note, I also enjoy snow skiing, water skiing and flying and maintain an intellectual interest in early US History and the Whaling Industry in the United States in the 18th and 19th centuries.

Staff-president-elect, J. Kent Garman, believes in connections - bombardier to cardiovasculan anesthesiologist

Garman has also been chosen as next year’s recipient for the Distinguished Service Award from the California Society of Anesthesiologists

"Right now a major issue is clinic access. This affects faculty recruitment, and we have faculty coming to us and asking to address as physicians in close partnership with our hospital. Garman said. “Our medical staff has an opportunity to ‘package’ this issue and present our concerns and suggestions to hospital administration in a coherent, consistent manner.

Other current issues include computerization and record-keeping. Garman said. “Stanford is not a leader in information systems, and I’d like to work hard on this with my colleagues and the hospital to develop something that will make life not only more efficient, but less stressful for everyone.”

Among his specific interests is an effort to better use personal digital assistants to manage, often interactively, prescriptions, medical records and scheduling.

“Tone can learn quite a bit from our colleagues and neighboring institutions, including the VA. The Veteran’s Administra- tion has very sophisticated data tracking systems that produce a wealth of information. If we could tap into that, we’d have an opportunity to develop the tools we need to improve efficiency - without reinventing the wheel.”

Garman, a native of Reading, Pennsylvania, graduated from Temple University School of Medicine in his home state. After serving in the Navy, he returned to the University of Pennsylva- nia for his anesthesia residency and fellowship before joining the faculty of the Department of Surgery in 1978. His time at Stanford, from 1973 to 1984, and again since 1998 has included scholarly critical research in cardiovascular anesthesiology. He has written the chapter on cardiovascular anesthesiology in the prestigious 1988 book, Anesthesiologist’s Manual of Surgical Procedures. Scheduled to be published in 2004 is a chapter on Information Technology in Anesthesiology in Lake’s Advances in Anesthesia.

The new vice president will serve in Half Moon Bay with his wife, Judith. The couple has four children, all over the age of 30, and three grandchildren under age three. Among his hobbies is a connection to photography. Garman won a blue ribbon from the American Society of Anesthesiologists for a photo of a window in an old building he visited on a recent trip to Italy. Garman admits that his career combining academic, clinical, and administrative responsibilities with medical business has been a bit un- usual and isn’t for everyone.

“I made my choice, because I enjoy what I’m doing and I hope that in the next four years I can work with my colleagues to make a difference with Stanford’s medical staff.”

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Incorporating Acupuncture into Western Medicine

By Danielle deLeon

My elbow tendon thrummed like a guitar string as Dr. Emily Ratner, Associate Professor of Anesthesia, flicked the 6-inch long, copper-topped, acupuncture needle sticking out of my arm.

Normally, I hate needles. But, after interviewing Dr. Ratner and Dr. Brenda Golianu, Assistant Professor of Anesthesia (Pediatric Anesthesia), for this article, I asked them to treat the tendinitis in my elbow and an impinged nerve in my neck.

I couldn’t look. My neck, shoulder, and hand were also dotted with needles that, fortunately, didn’t hurt. I immediately noticed pain relief. The pain wasn’t completely gone but the sharpness was. Amazingly, I could use my arm in positions that had hurt for months. After not responding to traditional physical therapy, and dreading surgery, I will try more acupuncture sessions.

Golianu has kept acupuncture alive at Stanford for the past five years. She and Dr. Julie Good, Clinical Assistant Professor of Pediatrics and Pain Management, have an active pediatric acupuncture service as a part of the pain clinic at Lucile Packard’s Children’s Hospital. They also run an inpatient service. Now, Golianu and Ratner aim to expand. Ratner explains, “What we’re most excited about is creating a division of medical acupuncture to provide inpatient services to adults and kids who are recovering from surgeries or other illnesses.”

I asked why acupuncture has been slow to take hold in the West. Golianu speculates, “Primarily, because of a lack of understanding of acupuncture and just a lack of experience. Those who have seen it be effective are very open to this type of complementary medicine.”

Ratner had specialized in Obstetric anesthesia for 12 years, but during her sabbatical became more aware that many people had problems incompletely addressed by traditional Western medicine techniques. Ratner states, “We really want to grow this division because there aren’t enough practitioners to treat the potential number of patients out there.”

A Fall 2003 article in the Stanford Medical Magazine notes, “More than a third of all pain treatment centers in the United States offer [acupuncture] as therapy and an estimated 3,500 physicians have acupuncture credentials - using it to treat everything from heroin addiction to low back pain and postoperative surgery pain.”

The same article states, “An April 2000 study in Pediatrics found that 70 percent of children treated with acupuncture felt it helped their symptoms, while two-thirds described the treatment as pleasant. Babies and teenagers make the best subjects.”

Covering all bases, in terms of patient care, Good focuses mainly on pediatrics. Golianu treats both children and adults, and Ratner intends to focus on adults. “In addition to outpatient services, we want to provide a consult service for inpatients,” Ratner explains. “We’re not going to be admitting patients for acupuncture. The patients are already here.” This service will be used to complement, not replace, whatever treatment the patient is currently receiving. Ratner continues, “There are effective treatments for many conditions in Western medicine, but there are also a lot of people who fall between the cracks. One of my visions is to try to close those cracks.”

A recent study notes that acupuncture decreased 17% of postoperative surgical pain. “We’re using acupuncture and acupressure to decrease the amount of medications needed for postop cardiac surgery sedation,” Golianu explains, “I hope these kids can be weaned off the ventilator sooner, thereby lessening postoperative complications. This work is based on studies in adults showing that acupuncture helps decrease symptoms of withdrawal in detoxification programs.”

While acupuncture may be a solution to those who don’t respond to traditional treatments, it also enhances effective Western treatments. Golianu uses the side effects of anesthesia as an example. “Let’s say a patient has nausea and vomiting after surgery. They can have post-op pains, headaches, various side effects of existing medication, or just side effects of being in the hospital. Acupuncture may be helpful.”

Some of Golianu’s research focuses on acupuncture’s effects on neonatal withdrawal. Golianu explains, “Children in the ICU on opiates and benzodiazepine often experience withdrawal when they’re weaned off them. We’re using acupuncture and acupressure to decrease the amount of medications needed for postop cardiac surgery sedation. I hope these kids can be weaned off the ventilator sooner, thereby lessening postoperative complications. This work is based on studies in adults showing that acupuncture helps decrease symptoms of withdrawal in detoxification programs.”

Future research topics include the use of functional MRI imaging of acupuncture’s affects on certain brain trigger zones. Golianu is also interested in how acupuncture, in addition to medication, increases fertility, and the affects of acupuncture on chemotherapy.

Another potential area of growth is education. Golianu currently teaches an introductory medical acupuncture course at the School of Medicine, but the two doctors would like to expand the program to include a concentration in acupuncture for interested medical students.

Ratner is hopeful about the future of the acupuncture service. “This is a very exciting time for us, because we’ve been given the support of our chair to expand the service into a full fl edged program including comprehensive clinical care, research and education.”

The Department of Anesthesiology at Stanford cordially invites you to attend the ALUMNI REUNION RECEPTION

DATE: Sunday, October 24, 2004

PLACE: Las Vegas Hilton Hotel / Pavilion 10

TIME: 6:00 - 8:00 pm

Please RSVP to Renee Grys, grys@stanford.edu or (650) 723-5439

(Please inform your colleagues)
Stanford campus in the spring is best enjoyed outside. If that’s not possible, the courtyard view from Joan Kendig’s office—its sun-splashed trees begging us to come outside—serves as a pleasant backdrop for our interview. Kendig, Professor of Biology in Anesthesia, retires on January 31, 2005. I’m fortunate enough to speak with her before she leaves.

Dd: Are you excited?
JK: Yes. My son says, “Mom, it’s like you’re graduating from high school.” I’m moving on to the next stage.

Dd: What are you going to do on the first day of your retirement?
JK: Go to a freeway overpass and gloat over the poor souls still stuck in the commute.

Dd: I’ll wave back. How long have you been at Stanford?
JK: Since 1968 in this Department. I got my PhD here a couple years before that.

Dd: Could you give me an overview of your work here?
JK: Well, it has changed considerably over the years. I was originally hired as a Research Associate by the Department’s first chair, John Bunker, who was interested in a problem involving changes in electrolyte balance during anesthesia when certain types of muscle relaxants were used. I worked on that for a while but realized that, compared with other factors during surgery, the action of the drug was going to be minor. So I took advantage of the opportunity to collaborate with another investigator, Jim Trudell, who joined the department as a Research Associate with Ellis Cohen, to try to find out how very high pressures appeared to antagonize general anesthetics in the then current belief that pressure would provide insight into how the anesthetics worked. When Professor Bunker left, I was able to identify that as an area of interest. I worked on it for a number of years but finally convinced myself that there were too many ways this could just be an indirect effect and had nothing to do with the way anesthetics work. For many years, people thought this was a specific antagonist to anesthetics, but it’s not. So then I changed to looking at what anesthetics actually do, particularly specific receptors and ion channels.

About that time, the whole field moved from this very global idea of anesthesia as a single event due to some non-specific change in membrane conformation, to a constellation of endpoints, such as amnesia and loss of ability to move in response to a painful stimulus, which all have distinct mechanisms and are probably due to actions at very specific binding sites on proteins. Part of my research in the last few years has been trying to determine which are the most likely target sites. That’s the part I worked on in the program project at UCSF, of which I was one of the most exciting intellectual groups I’ve worked with—really a good group of people.

Tell me more about the program project.

JK: Ted Eger who got us together started it nearly 15 years ago. We put in a proposal for a program project level grant, and it failed. So Ted picked himself up off the floor and, a couple years later, reconstituted the group with different members. This time it worked. That was 10 years ago. We got funded, and then funded a second time. I’ve been associated with it throughout its history. The program project just got its site visit and will be funded for a third, five-year period. I won’t be an active part of the research any more but will be on the advisory board.

My research in recent years has also been looking into the mechanisms of opioid and alcohol tolerance and withdrawal, which are related to the addictive properties of these drugs. I’m hoping, by the time I actually retire, the last of those papers will have been shepherded through the publication pipeline.

Dd: How has the understanding of general anesthesia changed since you started?
JK: What people were concentrating on in mechanisms of anesthesia ten or fifteen years ago was all about a non-specific membrane effect. It was a real revolution to identify specific proteins and start dealing with how they actually changed.

Dd: What do you feel was your greatest contribution?
JK: I think partly hammering the nail in the coffin of pressure reversal in anesthesia as a relevant area of study. Also, identification of mechanisms of acute tolerance and withdrawal—that’s much more recent.

Dd: What are you going to miss the most about your time here?
JK: The daily interaction with a lot of very interesting and intelligent people. That I will miss. We’ve got some very good, young faculty members. I particularly like talking to them.

Dd: What are you going to miss the least?
JK: The commute. I live in Campbell.

Dd: So what’s next? What are you going to do with all this time?
JK: My passion is gardening, and I’m really looking forward to being able to pursue it uninterrupted by not having to stop and clean up Sunday night to get to work on Monday morning. I’ve got a couple of grandchildren, and hopefully there will be more.

Dd: Do you have any advice for someone who is just starting out in anesthesia?
JK: Be a whole lot more thoughtful about their careers than I was. So much of mine was serendipity. I joined the Department by accident. I was bound geographically at the time while looking for work. My PhD advisor told me about a position here, and I said, “Well, ok, I’ll do that for a couple of years.”

JK & Dd: [laughter]

JK: I was lucky a couple of times. I started working on spinal cord preparation almost exactly at the moment when a couple of people had identified the spinal cord, not the brain, as where anesthesia produces one of its largest effects.

The other thing that was lucky—and I owe a group of courageous women a great debt—is that, when I joined this Department as a research associate, there was only one tenured woman faculty member in the medical school. All the rest of us were stuck in these research associate positions. So a group of women who included Dora Goldstein in pharmacology, the late Rose Paine in hematology, the late Judith Poole, Marlon Smith, Netta Grandstaff, and others got together and were initially energized by finding out that Katherine D. McCormick, an early supporter of women’s causes, like the right to vote and birth control, had left 5 million dollars to Stanford with the hope that it would be used to support women in their medical careers. [Vctor Hugo] once said, “Nothing in the world is so powerful as an idea whose time has come.” The injustice and the discrimination were so blatant that the school agreed to a one-time review of everyone who was a research associate. That included me and all the women I mentioned, and the result was that some of them that had national and international reputations went immediately to tenured positions as full Professors.

Dd: Wow. You’re a pioneer.
JK: I was the beneficiary of the true pioneers. I owe those women a great debt. That was a turning point in my career. I would never be in the position I am now if they had not forced through this one time review.

Dd: Anything else you’d like to mention?
JK: When my first mentor, Dr. John Bunker [Chair of the Department at that time], left it would have been very easy for me to be told to pack up and go. Instead Dr. Ellis Cohen supported me, and I owe him a great debt because he didn’t have to. I was not his responsibility. Also, I’ve been very fortunate in terms of colleagues. The intellectual stimulation of this group of people who gathered for the program project has been absolutely wonderful. I’m glad to think that I was influential in recruiting two new members to take my place when I move on. They did a great job in the effort to renew the grant. And the people I worked with in my lab were very good people. About seven or eight years ago I took on new lab manager, Shirley Wong, who’s been the best thing that ever happened to me. And for the last two years, I had a wonderful post doc, Sarah Switzer-best I’ve ever met. I’m very happy that at the end of my career we have eight papers published or in press in less than two years, most of them as a result of her efforts. Also, I’m very happy to have had Ron Pearl as chair the last few years. He’s made such a difference. The Department’s really lucky.