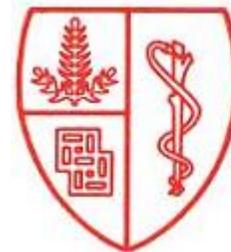


THE GAS PIPELINE
ANESTHESIA QUARTERLY GAZETTE
Department of Anesthesia, Stanford, CA 94305



Patricia I. Rohrs, Editor, rohrrs@stanford.edu

June, 2007

CHAIRMAN'S UPDATE
by **Ron Pearl, MD, PhD**



Supply and Demand—Over the past two decades academic anesthesia departments have been directly affected by supply-demand changes in private practice. During the 1990s, the relative oversupply of anesthesiologists decreased the number of available positions for graduating residents. As a result, salaries in private practice decreased and the number of medical students entering anesthesia residency dramatically declined.

During the past decade, the decreased number of graduating anesthesiologists created a shortage, thereby increasing salaries in private practice and increasing the number of medical students entering anesthesia residency programs. These factors drove academic anesthesia departments to increase salaries above revenues; teaching hospitals have up to now subsidized the difference.

The Medicare Anesthesiology Teaching Rule—Whereas supply-demand issues affect both private practice and academic anesthesia, the Medicare Anesthesiology Teaching Rule, which affects only academic anesthesia departments,

poses a major threat to the survival of our specialty. If we act in concert as a profession, we can reverse the Teaching Rule, so that academic anesthesia departments, and indeed the entire specialty can survive. But first a few words about the Teaching Rule itself, which halves the entire anesthesia services reimbursement whenever a teaching anesthesiologist works with two residents on cases that overlap for even a single minute. Prior to 1994 all specialties were fully reimbursed by Medicare (now called CMS), if the attending physician was present during the key portions of the procedure and available to respond throughout the entire case. In 1994, the Teaching Rule specified that academic anesthesiology services would receive 50% Medicare reimbursement when one attending physician supervised two residents. The rationale for this decision was based on a flawed comparison to the coverage of nurse anesthetists where Medicare pays the entire reimbursement but the revenue is split between the anesthesiologist and the nurse anesthetist.

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For many years, the Teaching Rule was recognized as being unfair to academic anesthesia departments, but reversing it was a low priority for several reasons: low proportion of Medicare patients, limited financial impact of half of an already low Medicare reimbursement, and high reimbursement from regular insurance that offset the low Medicare reimbursements.

The Threat—Unfortunately, the Teaching Rule now threatens the survival of academic anesthesia. As the baby boomers (born 1946-1964) reach age 65 (beginning in 2011) and as longevity increases, the proportion of the population covered by Medicare will progressively increase, reaching approximately 20% over the next two decades. Because older patients in any setting have an increased incidence of surgery, the proportion of anesthesia cases covered by Medicare will markedly increase. Because academic medical centers, which handle complex procedures, have an even greater number of older patients, it is possible that half of an academic anesthesia departments' billings will be through Medicare. Thus, the Teaching Rule may produce an unacceptably large financial burden to academic anesthesia departments.

Although the Medicare impact of the Teaching Rule by itself is significant, the potential impact is even greater since many private insurers have attempted (successfully in multiple states) to apply the same Teaching Rule penalty to their contracts. It is likely that the Teaching Rule will become standard for *all* insurers over time. Because most academic centers routinely use double coverage, the net impact will be to decrease the revenue of a typical academic department by up to 50%. The past decade has seen many anesthesia departments lose academic focus: available funds have been used to pay increased salaries to recruit and retain faculty rather than to support teaching and research programs. This trend is likely to continue if we don't reverse this onerous Teaching Rule.

Politics Does Matter—Although the Teaching Rule affects only academic anesthesia, the ASA has invested time and money to reverse it. Last

year, the ASA succeeded in having a bill introduced into Congress to restore full payment to anesthesiology teaching programs for double coverage of residents. However, at the last minute, forceful lobbying from the American Association of Nurse Anesthetists (AANA) killed the bill; lobbyists argued that it would result in training more anesthesiologists as opposed to more nurse anesthetists. This year, ASA is trying to obtain passage of H.R. 2053, introduced by Rep. Xavier Becerra (D-CA), to reverse the Medicare Teaching Rule and restore full payment to anesthesiology teaching programs. This year, the AANA has introduced a competing bill that also increases payments to nurse anesthesia training programs. Since the cost of this second bill is likely to be prohibitively expensive, there is the real risk that both bills will be viewed as a package and neither will pass.

Historically, many anesthesiologists have not been involved in advocacy issues, but this is a critical time for all of us to become involved. At a minimum, please ask your Representative to co-sponsor H.R. 2053. Information on how to do so is at

<http://www.asahq.org/news/asanews043007.htm>.

In addition, please consider contacting your Representative and Senator directly to discuss the impact of the Teaching Rule on academic anesthesia departments and the entire specialty.

What is at Stake—Today is a great time in academic anesthesia. We attract the best medical students in record numbers. We are developing new educational initiatives to provide better training for our residents and fellows. We are advancing knowledge to provide increased safety for the millions of surgical patients who undergo anesthesia yearly. At Stanford, we are graduating a superb group of residents in June and welcoming an equally superb group of new residents in July. We have been leaders in areas such as simulation, pharmacology, and anesthetic mechanisms. We are developing new leaders in clinical care, education, and research.

Continued on page 3

My preference is to write about these incredible accomplishments, but our ability to continue such achievements will depend upon receiving fair reimbursement for the work we do. I encourage each of you to be involved in this issue and thank you in advance for your efforts.

Professor and Chairman
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DEPUTY CHIEF'S COLUMN
by **Rick Novak, MD**
Associated Anesthesiologists Medical Group
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Clinical Case of the Month: You're medical director for a busy outpatient surgery center. An RN routinely does the preoperative screening by telephoning each patient two days prior to surgery. The RN pages you with this question: A 48-year-old patient scheduled for anterior cruciate ligament (ACL) reconstruction surgery takes hydrochlorothiazide for hypertension, and has not had electrolytes checked for six months. His last potassium was 3.6 mEq/L. The patient is asymptomatic except for knee pain. The nurse asks you whether this patient needs to have his potassium rechecked now, before surgery.

What do you do?

Discussion: Pre-op evaluation will never be the topic of a Hollywood thriller—you'll never see Tom Cruise or Brad Pitt rubbing their temples, worrying about whether they need to recheck the electrolytes. But for you and me, it's a question worth discussing. How important is it to diagnose hypokalemia in this asymptomatic patient on chronic diuretic therapy? If the $K=3.0$ mEq/L, will you cancel the surgery? What if the $K=2.9$ mEq/L? Experienced anesthesiologists know standards of care for their specialty and also develop a gut impression about which patients are prepared for surgery and which are not. Do you sense this patient is at risk for sudden death or a cardiac arrhythmia? Let's examine this question.

First off, why didn't you see this patient in your pre-op clinic? The answer is because you won't find the Stanford model of a well-staffed Pre-Anesthesia Clinic in the private practice community. The Pre-Anesthesia Clinic is important at Stanford because many patients suffer from significant medical comorbidities, and because of the invasive nature of many of the inpatient surgeries. In a community practice with healthier patients and less invasive procedures, there is neither the money nor the need to physically meet and examine every patient several days prior to surgery. Adam Smith's economic dictum of the invisible hand pertains to clinical medicine as well— anesthesiologists are paid to give anesthetics. Neither insurers nor Medicare will reimburse you for routine pre-operative clinic encounters with patients.

In 2002, the American Society of Anesthesia published *Practice Advisory for Preanesthesia Evaluation: A Report by the American Society of Anesthesiologists Task Force on Preanesthesia Evaluation*. This publication is available on the ASA website at www.asahq.org/publicationsAndServices/practice_param.htm. Their recommendations for the timing of preanesthesia evaluation differ, depending on the severity of disease and also on the surgical invasiveness. Our patient's surgery involves a non-severe comorbidity (well-controlled hypertension) and a non-invasive surgery (knee arthroscopy). For such patients, the *ASA Practice Advisory* states,

“preoperative assessment may be done on or before the day of surgery. “ In our community outpatient practice in Palo Alto, a surgery-center RN calls the patient two days prior to surgery to ask pertinent questions. This telephone call helps avoid day-of-surgery surprises (e.g., patients still on aspirin, patients with undiagnosed chest pain or dyspnea). The physical evaluation by the anesthesia Attending occurs on the day of surgery.

Outpatient surgery centers rarely have the ability to do lab tests other than blood glucose measurements or a 12-lead ECG. Tests such as the measurement of electrolyte concentrations need to be done at an outside lab, at least one day prior to surgery. Regarding preanesthesia serum chemistries (i.e., potassium, glucose, sodium, renal and liver function studies), the *ASA Practice Advisory* gives no specific recommendation to check preoperative electrolytes during chronic diuretic therapy. The recommendation on checking pre-op electrolytes states “Clinical characteristics to consider before ordering such tests include likely perioperative therapies, endocrine disorders, risk of renal and liver dysfunction, and use of certain medications or alternative therapies.”

Might “perioperative therapies” include potassium replacement? Consider this: potassium is predominantly an intracellular ion. “Only 2% of total-body potassium is stored in plasma. . . a 20% to 25% change in potassium levels in plasma could represent a change in total-body potassium of 1000 mEq or more if the change were chronic or as little as 10 to 20 mEq if the change were acute. Chronic changes are relatively well tolerated because of the equilibration of serum and intracellular stores that takes place over time to return the resting membrane potential of excitable cells to nearly normal levels.” (*Miller’s Anesthesia*, 2005, pp.1105-6)

The same textbook states, “Retrospective epidemiologic studies attribute significant risk to the administration of potassium (even chronic oral administration). In one study, 1,910 of 16,048 consecutive hospitalized patients were given oral potassium supplements. Of these 1,910 patients,

hyperkalemia contributed to death in 7, and the incidence of complications of potassium therapy was 1 in 250.” (p. 1107)

Given this information, what should we do?

Here’s the answer: “As a rule, all patients undergoing elective surgery should have normal serum potassium levels. However, we do not recommend delaying surgery if the serum potassium level is above 2.8 mEq/L or below 5.9 mEq/L, if the cause of the potassium imbalance is known, and if the patient is in otherwise optimal condition.” (p. 1107)

The textbook points out an additional problem in ordering lab tests: “the failure to pursue an abnormality appropriately poses a greater risk of medicolegal liability than does failure to detect that abnormality. In this way, extra testing increases the medicolegal risk to physicians.” (p. 945)

Regarding the timing of lab testing, the *ASA Practice Advisory on Preanesthesia Evaluation* states “test results obtained from the medical record within 6 months of surgery are generally acceptable if the patient’s medical history has not changed substantially. More recent test results may be desirable when the medical history has changed, or when test results may play a role in the selection of a specific anesthetic technique (e.g., regional anesthesia in the setting of anticoagulation therapy).”

For all the reasons stated above, you tell the RN that you won’t recheck the potassium lab value for this patient, and you won’t delay or cancel the ACL surgery. The surgery is completed two days later, without complication. Your two clients, the patient and the surgeon, are both happy, and you’ve practiced sound, evidence-based medicine.

Clinical case for next month: A 56-year-old internist colleague of yours is scheduled for cholecystectomy. He has stable hypertension, asthma, and hyperlipidemia. During your pre-op evaluation, he asks if you will be listening to his breathing and heartbeat continuously during the anesthetic. **What do you say? How do you defend your answer?**

RESIDENCY PROGRAM DIRECTOR'S COLUMN



**Alex Macario,
MD, MBA**

There are several items I want to bring to your attention:

- Results of the Alumni Internet survey,
- Proposed change to 13 resident rotations/year
- Updated Program Goals Document for the Stanford Anesthesia Residency, and
- Residents' Town Hall Meeting.

ALUMNI INTERNET SURVEY

Larry Chu and John Brock-Utne completed an Internet survey of over 30 of our recent alumni graduating since 2003. The goal was to determine how the Stanford anesthesia educational program met the needs of our graduates now in practice. Overall, the take-home messages are that:

1. Alumni feel well-prepared to deal with any patient they encounter.
2. Most do general OR cases with limited pain, cardiac, preop clinic, or OB work.
3. Most stated they had the right number of clinical rotations (including simulator time) during residency with these exceptions: 82% said they needed more regional anesthesia training, half wanted more ENT/difficult airway training, and 58% felt they needed more thoracic anesthesia experience.

We are addressing these issues. First, we created a dedicated regional anesthesia team (one resident and one attending), available to perform lots more peripheral nerve blocks, instead of assigned to specific cases. In fact, a senior resident told me last week she had done more blocks in two days on the new regional rotation than in the entire previous year. Second, we hold an annual airway workshop (next one August 25, 2007) with one day for junior residents and a separate day for senior residents. Third, we hope to have additional thoracic cases, resulting from the hospital's recruitment of another thoracic surgeon.

PROPOSED CHANGE TO 13 RESIDENT ROTATIONS/YEAR

The Education Committee is discussing a proposal to change the resident rotation calendar from 12 rotations (some lasting 4 weeks and others 5) per academic year to 13 rotations (one every four weeks). Although the total number of cases/resident will not change, a 13th rotation affords greater flexibility and more specialty rotation choices during the lottery. For example, we would offer an additional 4 adult cardiac anesthesia slots or 5 pediatric anesthesia slots. These proposed changes are within the context of increasing our total number of residents to 66 and, in 2008, increasing ACGME-required subspecialty rotations— Neuroanesthesia (2 months), Obstetric anesthesia (2 months), ICU (4 months, 1 as intern), Pediatric anesthesia (2 months), pre-op clinic (1 month), Acute Pain (1 month), Chronic pain (1 month), PACU (0.5 months), and Regional analgesia in Pain Medicine (1 month). A structure of 13 rotations (each four weeks) per academic year also coincides with existing structures in the medical school (for med student rotations) and some hospital departments (e.g., emergency medicine). Instead of being labeled with the name of a month, the rotations will be called "period 1" or "period 13." For approximately half of the months, the 13 rotations/year schedule means the rotation would start in the middle of the month, which may change resident team function in the ICU for example, where

medicine residents change on the first of the month. ER residents in the ICU already change mid-month, according to a schedule of 13 rotations per year. We continue to discuss this topic with faculty and residents.

UPDATED PROGRAM GOALS DOCUMENT

All new employees strive to do well in the workplace. Knowing the Stanford Anesthesia Residency Program's educational goals, as specified in the *Updated Program Goals Document*, is the first step in attaining them. These goals form the basis for faculty evaluations of resident performance at the end of each rotation. The resident should exhibit the following essential attributes:

- High standards of ethical and moral behavior
- Honesty, integrity, reliability, and responsibility
- Learns from experience/knows limits
- Reacts to stressful situations in an appropriate manner
- No documented or suspected active chemical dependency
- Adequate cognitive, physical, sensory and motor faculties
- Respect for the dignity of patients and colleagues, and sensitivity to a diverse patient population

In addition, residents should know and practice specific educational goals within each of these six ACGME core competencies: medical knowledge, patient care, system-based practice, practice-based learning and improvement, professionalism, and interpersonal and communication skills.

Medical Knowledge

- Applies appropriate physiology, pharmacology and anatomy to clinical decision-making
- Possesses sound background in general medicine to articulate and prioritize relevant surgical and medical disease states

Patient Care

- Gathers adequate preoperative information and recommends appropriate diagnostic steps/consults if preparation is inadequate
- Carries out safe and rational anesthetic after proper selection of drugs/techniques and responds appropriately to changes in anesthetic course
- Prescribes appropriate post-anesthetic care
- Is able to consult on and provide appropriate care of critically ill patients
- Evaluates acute and chronic pain disorders and selects/administers appropriate therapy
- Possesses appropriate technical skills in airway management (mask, ETT, LMA, FOB) and vascular access (IV, CVP/PA, arterial line)
- Is able to place peripheral nerve blocks
- Places patients' welfare and safety uppermost
- Accepts obligation to secure assistance from faculty when confronted with high-risk situations or with clinical decisions that exceed resident's confidence or skill to handle alone

System-Based Practice

- Acts to deliver anesthesia services efficiently without compromising patient care/safety
- Is able to call on system resources (for example, such as hospital IT, consultants, protocols) and other providers to optimize care
- Is not overly dependent on others to improve care and not wasteful of resources in delivering anesthesia care

Practice-Based Learning and Improvement

- Analyzes own practice and self-corrects without being overly critical of own performance
- Investigates patient-care issues through discussions with faculty without being overly dependent on consults/faculty to make decisions

- Comprehends the need for faculty to supervise interactions with patients
- Understands scientific study design and uses IT to gather information relevant to patient and practical decision-making
- Facilitates learning of others and provides candid and constructive feedback on the performance of colleagues, recognizing life-long obligation to participate in peer-evaluation and quality improvement
- Welcomes candid and constructive feedback from faculty and others, recognizing that objective assessments are indispensable guides to improving skills
- Attends/participates in lectures and completes faculty evaluations and case logs
- Professionalism
- Takes responsibility and is appropriately self-confident
- Respectful, courteous, and compassionate
- Adheres to professional ethics and respects patient privacy and confidential information

Interpersonal and Communication Skills

- Listens effectively, allows patients/families to ask questions, and attends to their concerns without wasting excessive time
- Acts as Leader in the healthcare team by being appropriately assertive and decisive
- Explains procedures and anesthesia plans appropriately for patient consent by providing enough information, checks for patient understanding, and does not use overly technical language
- Creates sound relationship with patient with empathy and objectivity

RESIDENT TOWN HALL MEETING

At our May 9, 2007 meeting, we discussed the following: policy for who carries the airway pager, quality of the SICU experience for the anesthesia resident, and adequate stocking of the airway box

in ICU anesthesia items and drugs in OR (being addressed by a working group of residents.)

Two town hall meetings will be held during the next academic year: one in October 2007 for senior housestaff and one in March 2008 for CA1s.

IMPLEMENTATION OF EPIC ANESTHESIA INFORMATION SYSTEM: A MILESTONE FOR OUR DEPARTMENT!



**by Christoph B. Egger Halbeis, MD, MBA
Clinical Assistant Professor and Medical Informatics
Director (Anesthesia), Department of Anesthesiology**

For decades healthcare providers from all over the globe have envisioned hospital information systems. Most of you have heard that Stanford Hospital and Clinics (SHC) chose EPIC's Clinical Information System (CIS) (Epic Systems Corporation, Madison, WI) after evaluating several products from other vendors. You are savvy enough to realize that while we are long overdue for such a system, the implementation will be a huge challenge for all of us.

EPIC tools

Once in place, EPIC will offer us paperless clinical documentation and computerized physician order entries (CPOE), clinical decision-making support, and managerial support for patient scheduling and billing.

EPIC will “go live” in the following sequence:

- EPIC for inpatient services in February 2008 (*Silver* phase),
- EPIC for outpatient service during the subsequent months (*Gold* phase),
- EPIC for administrative purposes in late 2009 (*Platinum* phase).

In addition to offering documentation and ordering tools for inpatient services and ambulatory clinics, EPIC also provides a surgical scheduling tool (replacing the current grease board in the OR) as well as tools for anesthesiologists.

I am pleased to be the lead person on an anesthesia advisory physician team (including Bryan Bohman, Jay Brodsky, Annie Evans, Kent Garman, Alex Macario, and Ron Pearl) responsible for strategic decisions during these implementation phases of our AIS: planning, system design and build, validation, and training. I am also the main point of contact between our department and the EPIC CIS implementation team as well as EPIC Systems Corporation.

We are currently designing and building the following EPIC tools for anesthesiologists:

- Preoperative documentation of the preoperative patient assessment and anesthesia plan and preoperative order sets
- Postoperative documentation (notes) and postoperative orders.

These pre- and postoperative tools will be implemented during the *Silver* phase, while initially we continue using the intraoperative paper-based record. EPIC Systems is currently developing a distinct the Anesthesia module, which will include an electronic anesthesia record and sophisticated pre- and postoperative documentation and order tools. We have committed ourselves to a design partnership with the manufacturer, so that we can help affect and conclude the development of EPIC’s anesthesia information system (AIMS).¹

¹ Don’t be fooled by the myriads of acronyms you come across if you look into the topic. People talk about anesthesia patient data management system

We don’t know yet when this module will be ready for implementation, but we will ensure its stability and safety for patient care, before we go live.

Why would anesthesiologists want to use an AIMS?

In 2001, the Anesthesia Patient Safety Foundation (APSF) endorsed the use of an AIMS in the perioperative period and the subsequent analysis of data to improve patient safety. However, research on the benefits of an AIMS began more than 30 years ago, when Zollinger et al from the Department of Surgery and Anesthesiology in Cleveland, OH, created a prototype of an electronic anesthesia record and found the electronic record much more accurate than its manual counterpart.²

The advantages are practical and far-reaching:

- An AIMS relieves the anesthesiologist of copying vital sign data from the physiological monitors to the paper record. As automated anesthesia record-keeper, it supports collecting information on our intraoperative activity.
- It helps produce a record with superior accuracy and timeliness.
- It supports clinical decision-making through the availability of relevant information at the point of care.
- Quality-improvement (QI) initiatives are enhanced by allowing superior incident analysis.
- Clinical research will be improved by providing data-mining options.

(APDMS), Automated anesthesia record-keeping (AARK), Operating Room Data Manager (ORDM), computer based records for anesthesia (CBRA), anesthesia information management system (AIMS), automated anesthesia record (AAR), electronic anesthesia record system (EARS), Electronic anesthesia record keeping (EARK), etc. I think we should avoid a PCMAISA (People can’t memorize anesthesia information systems’ acronyms) and I therefore call it simply anesthesia information management system (AIMS).

² For the interested reader: I have a comprehensive list of references of articles discussing all benefits and risks of AIS. I’m more than happy to give you any desired reference.

-
- It may help for medico-legal defense by providing accurate and unbiased documentation of intraoperative events.
 - Economic analysis on resource utilization, costs, etc. will be provided.

The challenges ahead

Although our department will benefit from AIMS, we will face significant challenges while moving to an electronic system:

- The AIMS will influence our workflow, which for many of us hasn't changed in a long time. The implementation will be more challenging for those subspecialties with a high case volume and short turnovers. We will address these challenges by pre-configuring the user interface for specific needs, e.g., templates for each subspecialty with most used drugs already listed.
- Inaccurate timeliness of documentation may have medico-legal consequences. For example, documentation of the presence of the attending anesthesiologist for patient emergence more than 30 minutes before the end of surgery has been criticized during audits. We will therefore have to address the timeliness of documentation issues together with hospital compliance to avoid potential pitfalls. Possible solutions might include time-dependent documentation rules (i.e., you can't document presence during emergence before the end of the surgery), which in turn will affect our workflow by itself.
- We will finally also have to overcome several technical challenges, such as verification of data transmission between the physiological monitors and the AIS (to avoid unnoticed transmission failure), recording of implausible zero values (may be caused by automatic data collection when no vital sign reading is taken), and recognition of artifacts, to name a few.

Fortunately, I was previously involved with developing and implementing similar systems. As end-user of two, different electronic medical record systems and lead implementer of a surgical scheduling system, I am well aware of the challenges ahead. I would like to reassure you that the entire EPIC project team is carefully and thoroughly planning the implementation to ensure that our entire Go Live will be as seamless as possible.

I will keep you posted, as this EPIC AIS implementation progresses. Please send me your questions and concerns about EPIC and the new AIMS. I will count on your support, understanding, and patience during planning and implementation. Thank you!

Sincerely, Chris Egger Halbeis

MEDICINE AND THE MUSE: AN ARTS, HUMANITIES AND MEDICINE SYMPOSIUM

by Audrey Shafer, MD, Director, Arts, Humanities and Medicine Program, Stanford Center for Biomedical Ethics



Medicine and the Muse is an annual spring celebration of the vibrant and surprising intersections between the arts, humanities and medicine. The event is organized by Stanford

medical students and features an invited keynote speaker as well as medical humanities, music and art presentations by students. May 7, 2007 we held our sixth event and hosted guest speaker psychiatrist-author Dr. Stephen Bergman, aka Samuel Shem, best known for his book *The House of God* and current off-Broadway play *Bill W. and Dr. Bob*. Dr. Bergman's address advised physicians and doctors-in-training to avoid the cynicism and burnout depicted "as it truly happened" in *The House of God* by keeping a connection with the patient and also with each other.

During his stay, Dr. Bergman was guest of honor at two dinners and a round-table lunch with medical students and faculty.

Student presentations ranged from readings of creative writing, a presentation from Dr. Amy Ladd's course, Anatomy of Movement, on sonification of upper-limb motion, and an overview of the Healing HeARTs program with pediatric patients, to music composed in response to suggested topics and a rousing *a cappella* singing group. Choreographer Hope Mohr, who collaborated with videographer Douglas Rosenberg and medical students and faculty on a new work about women's bodies and medical imaging, presented video from the dance. A visual arts exhibit included photodocumentary, student projects, and multimedia art.

Student directors Chantal Forfota, Seth Sherman, and James Andrews were part of the committee composed of ten, hard-working students. Traditionally, committee meetings are held at my house over take-out Chinese food due to my insatiable love of dumplings, spring rolls, chow fun, mu shu, candied pecans with shrimp, etc.

The genesis of *Medicine and the Muse* was the amazing work by medical students on projects in the Arts and Humanities Medical Scholars program, which has since morphed into the Biomedical Ethics and Medical Humanities Scholarly Concentration with the curricular reform of 2003. I had learned from prior efforts that the

inclusion of students in the planning and development of the symposium leads to a palpably energizing, buzz-in-the-air atmosphere that is key to a successful event. Since the inception of the student program in 2000, projects have resulted in four books; numerous published articles; and poems, photodocumentaries, and online resources, including a course. We held the symposia at Cantor Arts Center, with a number of attendees noting that it was the first time they had entered the museum. This year's larger venue resulted from the SRO (and complaints of 'can't get in') we experienced last year.

The event is funded by a number of grants and donors and could not happen without the support of Helen and Peter Bing, The Osher Foundation, The Vera M. Wall Center at Stanford and our latest grant from The Drs. Ben and A. Jess Shenson Foundation. Additionally, the event receives outstanding administrative support from the Stanford Center for Biomedical Ethics. Please visit our website <http://bioethics.stanford.edu/arts/Events.html> for a full list of past speakers.

ANNUAL RESEARCH AWARDS DINNER

On May 8, presenters and their colleagues enjoyed viewing and discussing the 40 fascinating poster abstracts created by our department's talented research groups. The Sheraton Hotel in Palo Alto put on the spread of cocktails and dinner.

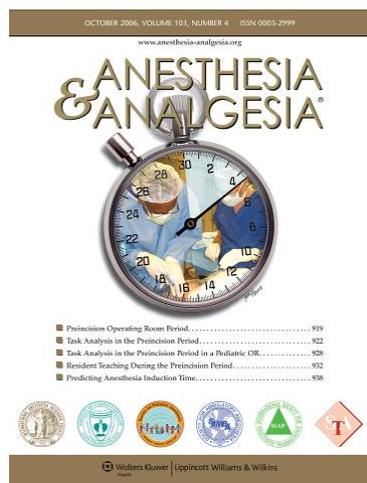
After-dinner speakers represented these four, winning projects:

- Dr. Martin Angst presented *Skin microdialysis in humans: dissociated anti-inflammatory and anti-hyperalgesic effects of ibuprofen*. Angst MS, Qiao Y, Clark JD, Tingle M, Yeomans DC.
- Dr. Nerissa Prieto presented *Dexmedetomidine: a novel approach to the management of alcohol withdrawal in the ICU*. Prieto MN, Barr J, Tanaka T, Davies F, Geller E.

- Dr. Tim Angelotti presented for Dr. Carl Hurt *Structural and functional analysis of Alpha2 adrenergic receptors*. Hurt C, Björk S, Kobilka B, Angelotti T.
- Dr Ru-Quan Han presented *Postischemic brain injury is attenuated in mice lacking the beta2 adrenergic receptors*. Han RQ, Yi-bing Ouyang Y, Xu L, Agrawal R, Patterson AJ, Giffard RG.

Dr. Pearl and Rona Giffard, Vice-Chair for Research, acknowledged and thanked all contributors, as well as Nancy Federspiel, Director of Strategic Research Development; and Frances Davies, Director of Faculty Development, for fostering our research success. They highlighted the fact that collectively the research spanned basic science, translational research, and clinical research, thus matching the Department's and School's thrusts. We thank Chelsea Nguyen, Rene, Grys, and Alan Winkleman for organizing this successful, enjoyable celebration of our department's accomplishments.

FACULTY CORNER



ARTICLES

- Namath A, Chen C, Agrawal R, Patterson AJ. *beta1 and beta2 Adrenergic Receptor Polymorphisms: Their Impact on Cardiovascular Physiology, Disease States, and Response to Therapeutic Agents*. *Sem Anesth Periop Med Pain* 26(1):2-9, 2007.

- Lu L, Wong B, Kaur K, Kho MF, Cooke JP, Giffard RG. *NO(x) and ADMA changes with focal ischemia, amelioration with the chaperonin GroEL*. *Neurosci Lett* 418: 201-204, 2007.
- Voloboueva LA, Suh SW, Swanson RA, Giffard RG. *Inhibition of mitochondrial function in astrocytes: implications for neuroprotection*. *J Neurochem*, 2007 May (in press)
- Ouyang YB, Bolobourva LA, Xu LJ, Giffard RG. *Selective dysfunction of hippocampal CA1 astrocytes contributes to delayed neuronal damage after transient forebrain ischemia*. *J Neurosci*. 27: 4253-4260, 2007.
- Mitra R, Zeighami A, Mackey S. *Pulsed radiofrequency for the treatment of chronic ilioinguinal neuropathy*. *Hernia*, February 2007.
- Younger J, Mackey S. *Neuroimaging the Central Nervous Components of Neuropathic Pain*. *US Neurological Disease*, Issue II, January 2007.
- Mackey S, Feinberg S. *Pharmacologic Therapies for Complex Regional Pain Syndrome*, *Current Pain and Headache Reports*, February 2007, 11:1; 38-43.
- Carroll I, Mackey S, Gaeta R. *The role of adrenergic receptors and pain: The good, the bad, and the unknown*. *Seminars in Anesthesia*, March 2007.
- Patterson AJ, Pearl N, Chang C. *Impact of Phosphodiesterase 4D on Cardiac beta2 Adrenergic Receptor Signaling*. *Sem Anesth Periop Med Pain* 26 (1):22-27, 2007.
- Patterson AJ. *Ushering in the Era of Nuclear Terrorism*. *Critical Care Medicine* 35(3):953-954, 2007.
- Wong J, Murthy A, Patterson M. *beta-Adrenergic Receptors: Role in Modulating the Host Immune Response*. *Sem Anesth Periop Med Pain* 26(1):10-16, 2007.

- Hurt C and Angelotti T. *Molecular Insights into alpha2 Adrenergic Receptor Function: Clinical Implications*. *Sem Anesth Periop Med Pain* 26(1):28-34, 2007.
- Bolton JB. *Clinical Use of Lactate Testing in Shock States*. *Sem Anesth Periop Med Pain* 26(1):35-39, 2007.

POSTER ABSTRACT PRESENTATIONS

See also the article about the Soap 39th Annual Meeting 2007 on page 14 for additional poster abstracts presented.

- Samad T, Murthy A, Wong J, Agrawal R, Patterson AJ. *Role of the beta2 Adrenergic Receptor PDZ Binding Motif in Modulating Myocyte Apoptosis in Vivo*. Society of Critical Care Medicine 36th Congress, Orlando Florida, February 17-21, 2007.
- Fung E, Samad T, Chen C, Wong J, Agrawal R, Patterson AJ. *Analysis of Cardiac Gene Expression in Mice with Disruption of the beta2 Adrenergic Receptor PDZ Binding Motif*. International Anesthesia Research Society 81st Clinical and Scientific Congress, Orlando Florida, March 23-27, 2007.
- Murthy A, Samad T, Pearl N, Wong J, Agrawal R, Patterson AJ. *Impact of beta2 Adrenergic Receptor Signaling upon Cardiac Remodeling and Gene Expression*. International Anesthesia Research Society 81st Clinical and Scientific Congress, Orlando Florida, March 23-27, 2007.
- Watcha D, Brown J, Kornelsen J, Darnauer J, Sarin R, Glover G, Mackey, S. *Processing of motor, tonic pain, and phasic pain signals in the human spinal cord*.
- Muramoto D, Younger J, Ueno T, Kirschen M, Mackey, S. *Working memory load attenuates moderate pain, but not high pain, in healthy individuals* at the American Pain Society Meeting.

- Crowell A, Younger J, Lobato R, Kaplan K, Carroll I, Mackey S, Gaeta S. *Demographic and psychosocial predictors of disability due to pain* at the American Pain Society Meeting.
- Lucca, A., Younger, J., Lawrence, J., Hoefl A., Glover, G., DeCharms, C., Mackey, S. *Modulation of brain networks via real-time fMRI feedback training* at the American Pain Society Meeting.
- Mackey A, Crowell A, Carroll I, Younger J, Zulauf M, Kaplan K, Gaeta R, Mackey S. *Depressed Mood Predicts Analgesic Response to Intravenous Lidocaine* at the American Pain Society Meeting.
- Druzin M, Lipman S, Harney K, Daniels K. *Development and Implementation of Simulation Based Training for Obstetric Crises in Resident Education*. CREOG Annual Meeting, Salt Lake City, Utah, March 2007.
- Daniels K, Lipman S, Lopez D, Valdes B. *Using Health Failure Modes Effects Analysis to Improve Teaching and Clinical Performance in Simulation-based Team Training for Obstetric Crises*. International Meeting for Simulation in Healthcare (IMSH) Annual Meeting, Orlando, FL.
- Brown J, Kornelsen J, Watcha D, Darnauer J, Sarin R, Glover G, Mackey S. *The hemodynamic response function in the spinal cord in response to motor and nociceptive stimuli*. International Society for Magnetic Resonance in Medicine, Berlin, Germany on May 19.

INVITED TALKS

- Steve Lipman, MD, and Kay Daniels, MD, spoke on *Team Training and Risk Management for ObGyn* at the 7th International Meeting for Simulation in Healthcare, January 14, 2007, Orlando, Florida.
- Andrew J. Patterson, MD, PhD, spoke on *Bioterrorism and Chemical Injuries: How to Recognize and Respond* for the Society of Critical Care

Medicine 11th Critical Care Refresher Course.
Society of Critical Care Medicine 36th
Congress, Orlando Florida, February 16, 2007.

- Steve Lipman, MD, and Kay Daniels, MD, spoke on *Development and Implementation of Simulation Based Training for Obstetric Crises in Resident Education* at the Council for Resident Education in Obstetrics and Gynecology, March 8, 2007, in Salt Lake City, Utah.
- Greg Hammer, MD, spoke at the Meeting of the Children of the World Anesthesia Foundation in Mexico City, Mexico April 23-27, 2007 on these four topics: (1) *Perioperative management of children undergoing liver transplantation*, (2) *Pharmacology of sedative/hypnotic agents in pediatrics*, (3) *Pharmacology of opioids in pediatrics*, and (4) *Anesthetic management of the critically ill child*.
- Andrew J. Patterson, MD, PhD, spoke on *Blood Pressure Management in Surgery, Intracranial Hemorrhage, and Stroke* for Critical Care Medicine Grand Rounds at Duke University Medical Center in Durham North Carolina, May 3, 2007.
- For the SiME (Simulation in Medical Education) Lecture, Steve Lipman, MD, and Kay Daniels, MD, spoke May 11, 2007 on *HFMEA and Other Lessons Learned: Simulation for Obstetric Team Training*, at The Center for Immersive and Simulation Based Learning in the Stanford University School of Medicine.
- Sean Mackey, MD, PhD spoke on *Pain & the Brain: What Has Neuroimaging Taught Us?* and *Neuropathic Pain* at Steamboat, Colorado in February 2007.
- Sean Mackey, MD, PhD spoke on *Current Concepts in Perioperative Pain Management* and *New Ideas for Regional Anesthesia in Extremity* at Cozumel, Mexico April 2007.
- Sean Mackey, MD, PhD spoke on *Neuroimaging of the Brain: Changes Due to CRPS* the American Academy of Pain Medicine Annual Meeting, March 2007.

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- Sean Mackey, MD, PhD, spoke on *The Strain in Pain Lies Mainly in the Brain* at Neuroscience Grand Rounds, Santa Clara Valley Medical Center, San Jose CA on March 22.
 - Sean Mackey, MD, PhD, spoke on *Modulation of brain networks via real-time fMRI feedback training* to the Poster Association of University Anesthesiologists on April 27.
 - Sean Mackey, MD, PhD spoke on *Emotional and Cognitive Factors in Pain* to the NIH in Bethesda, MD on April 20.
 - Sean Mackey, MD, PhD, spoke on *Opening Windows into the Brain: Advances in Neuroimaging of Pain* to the Annual American Pain Society, Washington, DC.
 - Sean Mackey, MD, PhD, spoke on *Pain and the Brain: What Have We Learned from Neuroimaging?* to the Marin Pain Consortium in Mill Valley CA on May 15.

HONORS AND AWARDS

- Congratulations to Audrey Shafer, MD, who will receive the Henry J. Kaiser Family Foundation Award for Outstanding and Innovative Contributions to Medical Education, at the Medical School Commencement Ceremony.
- Congratulations to Christina Mora-Mangano, MD, who was inducted as 18th president (first woman) into the Society of Cardiovascular Anesthesiologists (SCA) — a 7000-member organization that represents anesthesiologists who care for patients requiring heart, non-cardiac thoracic, and high-risk vascular surgery.
- Congratulations to Martin Angst, MD, who joined the esteemed editorial board of *Anesthesia & Analgesia*.

- Congratulations to Rona G. Giffard, PhD, MD, who reports that in March we received a new 5-year NIH grant to study the *Role of astrocytes in the brain injury resulting from global ischemia or cardiac arrest*.
- Congratulations to Kay Daniels, MD; Steve Lipman, MD; Julie Arafteh, RN; and Maurice Druzin, MD, who were awarded the \$15,000 APGO/Ortho-McNeil Faculty Development Award to study *Using Simulated Maternal Cardiac Arrest to Identify Barriers to Effective Resuscitation in Obstetric Team Training*.
- Andrew J. Patterson, MD, PhD, received a Presidential Citation from the Society of Critical Care Medicine.
- Chandra Ramamoorthy, MD, was program director for the March inaugural meeting in Phoenix, Arizona of the Congenital Cardiac Anesthesia Society, a new society that is part of the Society for Pediatric Anesthesia (SPA). Two Stanford cardiologists spoke: Dr. Norman Silverman delivered an overview of TEE in congenital heart disease, and Dr. Karen Booth spoke on perioperative arrhythmias. Dr Glyn Williams debated the use of aprotinin in children, taking the con position. The 600 registrants gave enthusiastic reviews.
- Sean Mackey, MD, PhD, was appointed to the California Department of Workers Compensation to revise pain guidelines for the State of California

POPULAR PRESS

The research of Sean Mackey, MD, PhD, was featured on the Discovery Channel with Dr. Drew, KGO-TV, Readers Digest, and MSN.

SOAP 39TH ANNUAL MEETING 2007

The Obstetric Anesthesia team was productive at the Society for Obstetrical Anesthesia and Perinatology's (SOAP) annual meeting in Banff May 16 to 19, presenting 11 abstracts and winning several honors. In addition, Ed Riley led the research hour.

PRESENTATIONS

- *Is External Cephalic Version Cost-Effective?* Tan JM, Macario A, Carvalho B, El-Sayed Y. Oral Presentation: Zuspan Award Symposium
- *Cerebrospinal Fluid Pressure and Sensory Block Height with Single-Shot Spinal Compared to Combined-Spinal Epidural Anesthesia for Cesarean Section.* Horstman DJ, Riley ET, Mehta S, Carvalho B. Oral Presentation: Gertie Marx Symposium
- *A Cost-Analysis of Neuraxial Analgesia to Facilitate External Cephalic Version.* Tan JM, Macario A, El-Sayed Y, Carvalho B. Poster presentation and resident session oral presentation
- *Plasma and Wound Exudate Prostaglandin E2 and Substance P Release following Cesarean Section.* Carvalho B, Angst M, Clark D. Oral Presentation
- *Incisional Wound and Systemic Cytokines Release Following Cesarean Section.* Carvalho B, Clark D, Angst M. Poster presentation
- *Where Do Women Get Their Information About Labor Epidurals?* Harkins J, Carvalho B, Evers A, Mehta S, Riley E. Poster presentation and resident session oral presentation
- *Factors Associated With Women Receiving Epidural Analgesia In Labor.* Harkins J, Carvalho B, Evers A, Mehta S, Riley E. Poster presentation and resident session oral presentation

- *Maximized Learning In Limited Time: Using Health Failure Modes Effects Analysis (HFMEA) In Simulated Obstetric Crisis Drills—Poor Communication Is The Highest Ranking Team Deficiency.* Lipman S, Daniels K, Lopez D, Valdez B, Druzin M. Oral Presentation
- *Alternative Techniques in Resident Education: Simulation Team Training for Obstetric Crises.* Daniels K, Lipman S, Harney K, Arafah J, Puck A, Druzin M. Poster presentation
- *Fulminant Hepatic Failure Due to Hepatitis B Reactivation in Pregnancy.* Evers A, Butwick AJ. Poster presentation and resident session oral presentation
- *Anesthetic considerations in a parturient with a history of chronic granulomatous disease, undergoing cesarean delivery.* Mehta S, Lipman S. Poster presentation

AWARDS

- Steve Lipman's abstract *Maximized Learning in Limited Time: Using Health Failure Modes Effects Analysis (HFMEA) in Simulated Obstetric Crisis Drills: Poor Communication is the Highest Ranking Team Deficiency* won the annual Research Information Award for best educational abstract.
- Damian Horstman won third prize in the Gertie Marx session for best paper by a resident or fellow.
- Jenifer Harkins (visiting medical student from the University of South Florida mentored by Ed Riley and Brendan Carvalho) won her section's award for best presentation by a resident.
- Medical student James Tan (mentored by Brendan Carvalho and Alex Marcario) had his abstract selected as best paper contributed by an obstetrician for presentation in the Zuspan award session.
- Steve Lipman and Brendan Carvalho had abstracts selected for oral presentation.

CONGRATULATIONS TO OUR STELLAR RESIDENTS-OF-THE- MONTH

- Dr. Shawn Hodge and Dr. Vicki Ting, February 2007
- Dr. Chris Thu, March 2007
- Dr. Kevin Scholten, May 2007

CONGRATULATIONS TO OUR STELLAR ATTENDING-OF-THE- MONTH

- Dr. Hendrikus Lemmens, February 2007
Stanford University Hospital
Resident responses: *"He's always honest and to-the-point: Just put in the tube....great teacher and resident advocate."*
- Dr. Leland Hanowell, March 2007
Stanford University Hospital
Resident responses: *"He has a great attitude....What other attending will do the pre-op himself and learn something new!"*
- Dr. Jeremy Collins, April 2007
Stanford University Hospital
Resident responses: *"Great attitude, great accent....Anyone want to master the technique of the retrograde wire?....Always willing and ready to teach."*

THE 45TH WESTERN ANESTHESIA RESIDENTS CONFERENCE by John Brock-Utne, MD, PhD

WARC 07 was hosted May 4-6 by University of California Davis, Department of Anesthesiology and Pain Medicine, at the Hyatt Regency Sacramento. During the 15th floor reception, one floor above the Governor Schwarzenegger's penthouse, we did not see the governor, but we were observed by a flock of security guards.

Of 123 abstracts submitted from all over the western United States, our department was represented with 12 abstracts—eight clinical or laboratory studies and four clinical case reports. Of 28 oral presentations, Stanford presented three. Participating Stanford residents included

Dondee Almazan, Chris Arkind, Damian Horstman, Jiang-Ti Kong, Gary Lau, Sam Mireles, Kevin Scholten, Naiyi Sun, Judy Thai and Brant Walton. Also presenting their work were medical student Melissa Duan, working in Dr. Giffard's lab this year, and foreign graduate Masako Fujiki, working as a research associate in our department. They all did a great job.

Brant Walton's paper, *Biventricular pressure-volume analysis in spontaneously ventilated mice*, was chosen as one of the eight best California Resident research papers. He collaborated with Timothy J. Ryan, Christine Chang, Rani Agrawal and Andrew J. Patterson. Walton was invited to the annual California Research Prize. Kevin Scholten was awarded third prize in the poster category from a field of 95 posters for his presentation, *Isolation of the right upper lobe with a left-sided double-lumen tube following left-pneumonectomy*. His faculty collaborators were Vivek Kulkarni and Jay Brodsky.

Saturday night we enjoyed the usual gala dinner with a guest speaker telling us about the marvels of beer. After that, a hard core group of residents and I went out on the town, following Dondee Almazan who knew his way, having been to Davis for medical school. We homed in on a karaoke bar. In fine singing form, we were told to try out for "American Idol." Needless to say, we were the life and soul of the party. Virginia Mason Medical Center, which will organize WARC April 08 in Seattle, has promised another karaoke evening. So, residents and fellows, now is a good time to start working on your studies and case reports to present, as well to start memorizing your favorite song lyrics. It promises to be another "lovely party."

BABIES

Calvin Kuan and Shannon Schwartz announce the birth of their son, Duncan Kuartz, on September 5, 2006. He is already a smiler and a swimmer.



GAS PIPELINE IS ONLINE

Danielle deLeon, web content manager, writer, and editor for the departments of Anesthesia and Cardiothoracic Surgery, has put back issues (July 2005 through the present) of *The Gas Pipeline* onto the Anesthesia Department website. Click <http://med.stanford.edu/anesthesia/newsletter/> to read them. Danielle will add issues, as they are published each quarter. Contact her at ddeleon@stanford.edu

5TH ANNUAL ANESTHESIA GOLF TOURNAMENT

The 5th Annual Anesthesia Golf Tournament was held on the 20th May 2007 at the Stanford University Golf Club. We had 24 players. The sun shone, the wind blew, and we had a good afternoon of golf.

The format was as always a scramble, meaning that all 4 players tee off and the best ball is selected. All 4 players then hit (no kicking allowed) from that position. The best ball is then selected and all 4 players then hit or putt from that position etc. until the ball is holed out. Every team must use at least 3 drives from each of the 4 players.



The winning team consisted of Scott Rudy (previous chief resident 05-06 now in private practice in Palo Alto, Mark Pratt (a friend and clinical psychologist in Palo Alto) Peter Barelka (CA 3 resident) and Michael Bigelow (resident 99 to 02 and now in private practice in Seton in San Francisco). Michael has attended all the previous golf tournaments. They had a whooping 60. In second place with a score of 65 were Jen and Todd Marcus, Ivar Brock-Utne, and Chris Thu. Jen and Chris are chief residents this year, while Todd is Jen's better half. The longest drive for men was won by David Pfanestiel (a friend of Rich Cano, CA1)) who hit a 254-yard drive on the 12th hole. The longest drive for women was won by Sue Brock-Utne, and the closest to the pin was Rich Cano (CA 1) on the 8th hole.

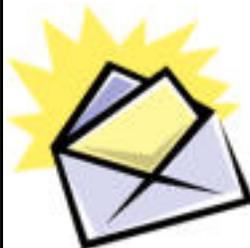
After the round, we all enjoyed drinks and a lot of different snacks on the patio near the 18th green and prizes were handed out. We had a great time. If you are interested in playing next year, please let me know.

John G. Brock-Utne, MD, PhD
Professor of Anesthesia
brockutn@stanford.edu

LETTERS TO THE EDITOR

Dear Dr. Pearl,

While many in my profession have tried to marginalize my work as applicable *only* to cosmetic surgery, the US military found my book, *Anesthesia in Cosmetic Surgery*, highly useful in the field hospitals of Iraq and Afghanistan (Note: Chapter 7 was written by Dr. McMasters, US Marine



Corps). In fact, in February Congressman John Campbell awarded me a Certificate of Special Congressional Recognition for my contribution to the safety of our wounded soldiers. Rep. Campbell's cover letter said:

“For his contribution to military anesthesia in Iraq and Afghanistan, sparing the need for anesthesia machines in the field hospitals as well as the logistical difficulties involved in supplying large quantities of oxygen to run the machines....”

Among the “firsts” in this book are (1) first book in the field, (2) first book whose cover depicts a BIS monitor, (3) first to assign numerical values to sedation/anesthesia levels, and (4) first medical book to open with a quotation from singer Bob Dylan.

With great pleasure I enclose two copies of my book—one for the residents' library and one for your personal collection. *Anesthesia in Cosmetic Surgery* is the fruit of the past 15 years of my professional practice; I am very proud to make this donation.

Yours sincerely,

Barry L. Friedberg, MD
www.drfriedberg.com
Stanford Resident 1975-1977

Dear Barry,

Thank you for the generous donation of the two copies of *Anesthesia in Cosmetic Surgery*. We will add one to the departmental library, and I will keep

one in my bookshelf. I have asked our newsletter editor, Patricia Rohrs, to include your letter. Please accept my congratulations on your book and certificate.

Ron

Dear Rick,

In your note about alpha-2 agonists in the February issue of *The Gas Pipeline*, you wrote that “the drugs haven’t filled any empty niche in my patient care.” Although probably just an offhand comment, it reminded me of two regrettable phrases recently in the news, “what we don’t know that we don’t know,” and “if it ain’t broke don’t fix it.” As you subsequently noted, at least you were open to the idea, and the residents should keep in mind that there’s ALWAYS room for improvement, no matter how good they think they, their drugs, or their equipment already are. Witness propofol and the LMA, two adjuncts which have changed the world of anesthesia in ways that weren’t even imaginable to me as a resident in the late 1980s.

Dexmedetomidine is another such avenue. When I first began extubating hearts on the table immediately postoperatively, the wake-up was a mess, because even though the patients were medically stable, they were delirious for a short while, sometimes moving around to a degree that potentially compromised nursing care and good ventilatory excursion. When I started using dexmedetomidine as half of my intraop anesthetic for hearts, it was like a miracle. The smoothness of the intraop course improved somewhat, but the wake-up was truly stunning: The patients emerged from anesthesia totally “chilled out,” looking and breathing like they’d just had a hernia repair. Again, if you don’t extubate hearts postoperatively, you might not be aware of this highly beneficial agent. But I would encourage all to “Try it; you’ll like it.” The other type of case in which dexmedetomidine offers unique value is open abdominal or thoracic operations in the morbidly obese— or in any case in which

ventilatory function immediately postop presents unique challenges.

As I’ve mentioned to Mervyn Maze, though, dexmedetomidine’s greatest future benefit may lie in a pill form that parents would be able to give to their obstreperous children who need to “chill out” for a while (or is it vice-versa?).

Best, Leo Stemp

Dear Rick:

Re: Slow wake-up and deep extubation

It’s been a long time since I was last at Stanford, and I am not sure if you remember me. I must tell you that I do enjoy your monthly brain teasers. Related to your monthly case, I am curious as to how to convince an ENT surgeon I work with that you do not have a child wide awake, screaming at the end of a case—specifically a T&A.. Obviously I do not agree with his approach; I like my kids waking up nicely and comfortably. His argument is that having kids wide awake at end of his cases avoids issues related to aspiration pneumonia. I have tried enlightening him, but he is “right” and everybody else is “wrong.” Your suggestions are welcome.

Sincerely,
Beemeth Robles
Class of ‘94

Dear Beemeth:

Thanks for your question. Of course I remember you—you were one of Stanford’s finest surgical residents, converted to the esteemed specialty of anesthesia by your own outstanding judgment.

Your question is an important one that we all wrestle with. If the child is too awake, like your ENT surgeon requests, the child is probably screaming. If the child is too sleepy, there are problems with slow wake-up, slow room-turnovers, risk of aspiration, risk of cyanosis, or lost airway.

For years I sided with your surgeon colleague, aiming for wide-awake kids without any chance of airway problems. However, three years ago, my partner Mike Champeau anesthetized my 4-year-old son, Theo, for tonsillectomy. At the conclusion of surgery, Theo arrived in the PACU slumbering on morphine. He slept peacefully for one hour, and both the PACU nurse and my wife were delighted.

Since then, I've aimed to practice more like Dr. Champeau, aiming for a tranquil PACU course for my tonsillectomy patients. Regarding convincing your ENT colleague, my advice is this: Agree with him that your primary aim is safety and avoiding all airway, oxygenation, and aspiration risks. That said, merge these goals with the goal of a tranquil wake-up. I don't recommend deep extubations, and I abhor slow wake-ups. Instead, aim for an appropriate amount of intraoperative narcotic, so that the child is awake and reasonably comfortable at the end of surgery, and extubate when the child opens his eyes. After extubation, in the OR, if the child is agitated, then you can titrate in more narcotic, as indicated, for a tranquil PACU course.

I hope this helps. It's all part of the art of anesthesia, and the art of anesthesia is the reason I'm fascinated by our challenging profession.

Keep in touch,
Rick

Dear Rick:

Thank you for your reply. Yes indeed, the best decision I ever made was leaving surgery. It just was not my bag. I love what I do and like you, I have a great respect for our discipline. No doubt our profession *is* an art form, given that we do not all achieve the same end result (I think you know what I mean). I have been in Phoenix for 5 years, having practiced in California for about 8 years before that. We have a huge ENT practice and do a lot of kids.

The surgeon I described to you is the only one who is difficult to work with, as he is a "know-it-

all" who tells me which blade to use for intubation and checks my pilot balloons on my ETTs. I know he means well, but he does go over the top.

As for my original question to you, feel free to include it in your next segment. I miss the Farm, and it was tough to leave way back when. I have many fond memories of Stanford, the Department, and the many physicians who taught and guided me.

Kind Regards, Beemeth

Rick,

Re: Clonidine for emergence delirium

Thank you for your clinically relevant and thought-provoking case presentations in *The Gas Pipeline*. They are especially valuable for our younger colleagues.

We have a large contingent of former Stanford faculty, fellows, and residents (16 to be exact) in Valley Anesthesiology Consultants in Phoenix. Several of us practice primarily pediatric anesthesia, and we have gained a great deal of experience with clonidine for the treatment of emergence delirium for a wide variety of cases. Between Phoenix Children's Hospital and St. Joseph's Hospital (Phoenix), we administer anesthesia for 60-75 children weekly for MRI procedures. As there is no need for analgesics in these patients, we have an excellent opportunity to assess the efficacy of clonidine. Physicians and nurses alike are very impressed with the results when 1-2 mcg/kg is given prior to awakening. We plan to begin a formal clinical study to assess our results. I write because you mentioned that none of the Stanford Adjunct Clinical Faculty polled used the alpha2 agonists.

Again, thanks for your work.

Kind regards, Dean F. Smith, III, MD

Dean,

Thanks for your email. It's interesting and important to learn what other busy private anesthesiologists do to facilitate clinical care. The use of pre-emergence IV clonidine is intriguing. Do you see much sedation using clonidine post-MRI? Do you have experience with clonidine use in pre-emergence, following painful procedures like tonsillectomy? Do you titrate clonidine and narcotic as needed?

Also, in your busy practice, how common is the use of LMA in pediatric tonsillectomy anesthetics?

Thanks, Rick

Rick,

I delayed a response, so that I could speak with several of my colleagues about your inquiries. As you will see from my response, we need to determine what is "best" for us through some sort of clinical trial.

Timing—Our consensus is that during the MRI procedure, clonidine is best given early (at least 30 minutes prior to the conclusion). Failure to do so prolongs the PACU stays; some have lasted as long as 30 minutes with clonidine administered late. The head PACU nurse believes stays for MRI patients should be comparable to those for myringotomy tube patients ("the quicker out the better!").

Dosage—Generally, the dosage of clonidine my partners administer is 1.5 to 2 mcg/kg to kids under 20 – 25 kg. Older (bigger) kids receive 1 mcg/kg, unless they have a history of seizures and are on anticonvulsants, in which case they frequently receive up to 2 mcg/kg.

Nurses in the PACU—Virtually all PACU nurses appreciate the sedation with clonidine, although one nurse said she believed we were "overdoing" it. She likes clonidine but thinks not every kid needs it and some receive "too much." For non-MRI cases in the PACU, many of our physicians combine meperidine, clonidine, and, in severe cases, midazolam. There is no clear consensus

here; everyone thinks his way is "best." Finally, I just spoke with our lead scheduler who estimates we perform 15-20 anesthetics daily for tonsillectomies. I know of no one who uses an LMA for these cases. (I guess in that situation we have not yet pushed the envelope!)

Thanks again for your great work. Dean

UPCOMING EVENTS

- May 31–June 3, 2007 California Society of Anesthesiologists Conference, San Diego, CA
 - June 8–10, 2007. *Implementing Innovations for the New Century: Educating Adults*, spring meeting of the Society for Education in Anesthesia, Santa Fe, NM. Click <http://www.seabq.org/>
 - Saturday, June 9, 2007—The annual resident graduation dinner is from 6-10 pm at the Sheraton Hotel in Palo Alto.
 - Tuesday, June 26, 2007—We will celebrate our faculty who have reached emeritus status from 5-7 pm at the Faculty Club. Honorees are John Brock-Utne, Pam Fish, Kent Garman, Mike Rosenthal, and Frank Sarnquist.
 - Sunday, July 15, 2007—We welcome our new residents at a brunch, to be held at Quadrus.
 - Sunday, October 14, 2007—We hold our reception at the ASA meeting in San Francisco.
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