Volume 70, Number 4
April 2006

CONTENTS

Critical care medicine continues to face a crisis. The number of clinicians trained in critical care is not keeping up with a growing demand for such services. This *NEWSLETTER* explores the anesthesiologist's role in helping to save a critical subspecialty.

FEATURES

Critical Care Medicine: At the Crossroads

ARTICLES

DEPARTMENTS

SUBSTANCE ABUSE HOTLINE:
Contact the ASA Executive Office at (847) 825-5586 to obtain the addresses and telephone numbers for state medical society programs and services that assist impaired physicians.

The ***ASA NEWSLETTER*** (USPS 033-200) is published monthly for ASA members by the American Society of Anesthesiologists, 520 N. Northwest Highway, Park Ridge, IL 60068-2573. E-mail: mail@ASAhq.org
Editor: Newsletter_Editor@ASAhq.org
Web site: http://www.ASAhq.org
Periodical postage paid at Park Ridge, IL, and additional mailing offices.

POSTMASTER: Send address changes to the *ASA NEWSLETTER*, 520 N. Northwest Highway, Park Ridge, IL 60068-2573; (847) 825-5586.

Paradigms

Recently I received the following letter to the editor. My ensuing editorial is not a personal attack on the letter's author, but rather it is a response to points raised that I have heard from ASA members for a considerable period of time. The purpose here is to refute the arguments and provoke a professional discussion. Thus while the author has given permission to publish his name, I have withheld it.

Douglas R. Bacon, M.D., Editor

I found the ASA task force vision of the "Anesthesiologist of the Future" very disturbing. Serious mistakes have already been made involving mode and scope of practice and now "leadership" appears ready to make another. The CRNA problem and its amplification by the manpower shortage are two current examples of miscalculations. A flawed decision-making process that lacks meaningful input from mainstream clinical anesthesia providers is in large part responsible. Leadership role players tend to come from academia, never experience significant mainstream immersion and are atypical representatives of the specialty. This limits their viewpoint and increases their fallibility.

A case in point is the leadership fostered perpetuation of the totally illogical "Anesthesia Care Team" mode. If it requires two professionals to accomplish safe induction and intubation and two to bring off emergence, extubation and post extubation airway management, there is something seriously wrong with training. If anesthesia administration is the practice of medicine, why doesn't every patient deserve a physician for the entire procedure, not just physicians, their families, relatives and dignitaries? This mistake is compounded by the fact that the genie is out of the bottle.

Our leaders are now hoping to carve out of surgical therapeutics something called "perioperative medicine." This denies the reality that except for those who come into anesthesiology from internal medicine and perhaps family practice, anesthesiologists will not possess the qualifications to provide this care. Furthermore, anesthesiology attracts individuals who desire short-term doctor-patient relationships. This bias is not going to generate a lot of recruits interested in turning the anesthesia component over to a nurse while they practice internal medicine for the unknown duration of the patient's confinement.

The name of our specialty is ANESTHESIOLOGY, with the interventional component of pain management a logical extension of what anesthesiology training encompasses. We chose anesthesiology to provide ANESTHESIA care; to make surgery, obstetrics and diagnostic and therapeutic procedures painless, safe and free of emotional stress. Moreover, we did not sign on to master the discipline and then have our skills decay over the years by watching a technician perform what we have been trained to do better.

Task force projections on the rate and degree of technological change that will alter the way anesthesia is administered are purely speculative. Cure for cancer was "just around the corner" in 1940. More than 60 years later, with few exceptions, we are still searching. Yet the task force is advocating, and "15-20 programs are ready to begin," the production by 2025 of a provider who practices "perioperative medicine" (a form of internal medicine better provided by hospitalists), only supervises anesthesia and will be an expert in neither. The anesthesia provider will be a nonphysician. Despite what CRNAs and politicians say, I want my anesthesia administered by a physician.

Most of us who chose the specialty did so to learn and provide O.R. anesthesia. I submit that will continue to be the case as long as leadership does not change the name of the specialty. Meantime, we would be better served by concentrating energy and resources on reclaiming lost turf, shoring up our acknowledged boundaries and turning out more physician providers.

Aside from the many inaccuracies, I found this letter particularly disturbing. Anesthesiology is far more than the mechanical administration of anesthetics; it requires the insight of a physician for preoperative assessment, a matching of the anesthetic to the patient's conditions and postoperative management of the acute recovery phase from the anesthetic and conquering of the patient's surgical pain. There are many changes occurring in the operating room practice of anesthesiology, and we are faced with either adapting or being dictated to by forces outside our control and possibly having our role in the care of the patient greatly reduced or eliminated.

The first misguided belief, and the one easiest to deal with, is that the majority of ASA leadership comes from academia. The vast preponderance of leaders in ASA — and by that I mean committee chairs, directors, alternate directors and officers, as a start — are volunteers and work in areas in which they have interest. ASA has no control over who will step up to help with the important work that moves the Society forward. Academics tend to flock toward research and education, areas of anesthesiology that

are of great interest to them, while private practitioners look toward practice and reimbursement issues. The senior leaders, if the recent past is any indication, are a nice balance among the various groups in anesthesia. Past presidents Roger W. Litwiller, M.D., and Eugene P. Sinclair, M.D., have spent their entire careers in private practice. Our current President, Orin F. Guidry, M.D., was in private practice for many years before moving to a hybrid practice at the Ochsner Clinic in New Orleans. President-Elect Mark J. Lema, M.D., Ph.D., and First Vice-President Jeffrey L. Apfelbaum, M.D., are both from academic institutions. Many of the remaining ASA officers and leaders are in private practice. Similar concerns over representation at ASA have been voiced by subspecialty groups. Yet the important point to remember is that ASA is only as strong as the people who volunteer their time, talents and money to make the organization run. In my estimation, if there is a problem with under-representation of any group or subspecialty at ASA, it is because someone did not come forward to do the work.

The second of my concerns with this letter is harder to dissect. For at least the past century, there have been many strong voices advocating the "one patient, one anesthetic, one anesthesiologist" mantra. This paradigm has been talked about and fought over on many different levels. In the distant past, the 1920s and '30s, Francis Hoefer McMechan, M.D., pushed the American Medical Association (AMA) so hard on this point that AMA almost disavowed anesthesia within the confines of the organization. At another point, the Federal Trade Commission became involved, believing that this mantra restricted other anesthetic providers with the ability to practice, and ASA agreed to a cease-and-desist order that centered on restraint of trade.[1]

In 1939 an opportunity arose whereby the American Board of Anesthesiology (ABA) would assume responsibility for the certification of nurse anesthetists.[2] Surgeons brought the anesthesiologists and nurses together, for ABA was a sub-board of the American Board of Surgery at the time. What has always fascinated me was that the anesthesiologists present wanted nothing to do with the process. These early anesthesiologists were concerned that if they certified the nurse anesthetists, it would be a license for surgeons to use them exclusively. The potential to regulate the specialty was foreign to them — and only through the retrospectascope can the potential good be seen.

In the mid 1990s, there was an "oversupply" of anesthesiologists, and many individuals and groups studied the problem. The net result was a decrease in the number of residency positions. This was in response to the concern that compensation for services would decrease. At the same time, newly graduated residents were being unfairly exploited and expected to work unreasonably long hours for wages less than many nurse anesthetists made. If we truly believed in the mantra of one anesthesiologist for each operation, if this were the ambition of all anesthesiologists, would we not have reacted differently?

Canada, the United Kingdom and much of Europe have used physician anesthesia exclusively. Yet these nations are under increasing pressure to bring physician extenders into the O.R. The last two issues of the *European Society of Anaesthesiology Newsletter* have contained articles and letters dealing with these issues. In private conversation, there is much fear that the system will become "like the U.S." and the contributions of anesthesiologists will be missed. Faced with the inability of their respective systems to provide enough anesthesiologists to cover the anesthetizing locations, however, alternatives are being sought. At the moment, in the United Kingdom, basic science graduates who are having difficulty finding jobs are being trained to give anesthetics. While physicians abroad may feel differently, administrators — and remember, the vast majority of European nations have a socialized, federally funded health care delivery system — see the need to expand services economically, and they feel that physicians are not the most logical alternative.

Can the number of physicians being trained in anesthesiology significantly increase? The unfortunate answer is no because a majority of the funding for residency positions comes from the federal government. Trying to increase the numbers of anesthesiologists to meet the demand means lobbying for support for the new positions. Unless an academic department or its parent institution is very well funded and willing to support the cost of a residency line, it is impossible to increase the number of training positions and thereby increase the number of anesthesiologists.

In a special supplement to the journal *The Hospitalist*, Geno Merli, M.D., wrote an editorial whereby he expressed the opinion that the best physician to care for the perioperative patient was not a surgeon (or an anesthesiologist) but a hospitalist — an internist who practices only in the hospital environment.[3] While internists may be experts on chronic disease states, they have limited understanding, in my experience, of the complex interactions of surgical manipulations, anesthetic agents and chronic disease. In reading the articles in this particular issue, anesthesiology, or an anesthesiologist, is rarely mentioned and then often as an afterthought or as part of a list of providers involved in operative patient care. In the same issue, Amir K. Jaffer, M.D., and Daniel J. Brotman, M.D., argue that preoperative care is the proper setting for hospitalists to expand their practice.[4]

Rather than turfing preoperative and postoperative care to the internists, anesthesiologists ought to be as aggressive in caring for their patients in these settings as they are in the operating room. The chair of my residency program always taught that the anesthesiologist and the surgeon

make the decision about when the patient needs or ought to come to the operating room, not an internist. He abhorred the term "medical clearance" because it took the decision-making process out of the most qualified hands, those of the anesthesiologists and surgeons, and let the internists dictate practice. Anesthesiologists have better insight into the problems patients encounter in the surgical process, and we need to act as we were trained.

Will a hospitalist ever master perioperative pain medicine, or will they "steal" the techniques we have developed — such as femoral nerve catheter insertion, for total knee arthroplasty analgesia, in a manner similar to what many interventional radiologists have done with blocks for chronic painful conditions — and only call on anesthesiologists when they cannot manage to care for the patient adequately? Dealing effectively and aggressively with postoperative pain has the potential to decrease length of stay significantly. Already many regional anesthesiologists have focused on the immediate postoperative period; is it such a stretch to manage other more routine health issues in a very short-stay environment?

I do not advocate anesthesiology becoming involved in long-term care, but the acute stay in the hospital can be part of our care. Perhaps the role for the hospitalist is in the care of the very complex surgical patient in consultation with anesthesiologists, not the other way around!

The third issue with this letter, like many letters I have recently received, is that it criticized the concept brought forth by the ASA Task Force on Future Paradigms of Anesthesia Practice. I would argue with the changes in O.R. technology being similar to the cure for cancer. There are plenty of examples of how the technology of surgery is rapidly changing. Coronary artery bypass grafting (CABG) cases have decreased by at least one-third nationally over the last few years due to the increased use of drug-eluting stents by cardiologists. At the cutting-edge of interventional cardiology are left main angioplasty, valvuloplasty and ascending aortic aneurism repair.[5] Vascular surgery, especially repair of abdominal aortic aneurisms, has radically changed with the introduction of percutaneous stents; and the acuity of the anesthetic management has concurrently changed with some patients having the procedure under regional anesthesia alone and oftentimes with less invasive hemodynamic monitoring.

At the ASA 2005 Annual Meeting this past October in Atlanta, the Emery A. Rovenstine Memorial Lecturer, Mark A. Warner, M.D., presented some of the anesthetic implications of the next generation of minimally invasive surgery using elements of nanotechnology. His example was transgastric appendectomy. These patients require either deep sedation or a "light" general anesthetic, leave the hospital the day of surgery and return to normal activities within hours. Since his lecture, several cholecystectomies have been done transgastricly. The future of surgery, and consequently anesthesiology, is less and less invasive. Therefore anesthesiologists will face less complicated anesthetics in the operating room of the future. What does this mean for our specialty?

There is the unfounded belief that less acute anesthetics, with less invasive monitoring, is an invitation to decrease the number of anesthesiologists. While articles written by nurse anesthetists and some anesthesiologists attempt to delineate when the anesthesiologist's role should be limited, the health policy literature is more disturbing. A Johns Hopkins University Press product, the *Journal of Health, Politics, Policy and Law*, published an article which stated that anesthesiologists were a barrier to low-cost health care.[6] The Lansdale Public Policy Fellowship, whereby an anesthesiologist spends a year in Washington, D.C., studying public policy and government, is so critically important to our specialty in fighting this trash.

When I decided to become an anesthesiologist, the intense, short-term patient care was attractive to me. Twenty years ago, at the start of my residency, most, if not all, patients were hospitalized the night before surgery; all had a CBC, a set of electrolytes and liver function tests. Twenty years later, I work on occasion in a preoperative assessment clinic, and less than 5 percent of the patients I care for are admitted to the hospital 24 hours before surgery. The scope was a tool for the gynecologic surgeons almost exclusively, yet today there is no organ, or body part, save perhaps the brain, that is safe from its use in surgical diagnosis and treatment. Anesthetics in the radiology suite were rare, as were any anesthetics outside the O.R., but have now become the norm.

Is it such a stretch to see that 15 years down the road, as my career in anesthesiology draws to a close, that many of the major operations of today, done laparoscopically, will be done utilizing nanotechnology? Witnessing that CABG cases are declining rapidly, being replaced by a procedure done under sedation without, by and large, an anesthesiologist or a nurse anesthetist present, is it so hard to believe that our beloved O.R. practice will undergo a radical change that will most likely involve simplification in the next 20 years? If anesthesiology is to survive, we need to change with the conditions, to adapt and to seek new opportunities. Failure to do so will force us to go the direction of the dinosaurs.

Is it not better to be a Morganucodon* than Tyrannosaurs Rex? Which would you choose for our beloved

Continued on page 9

* The Morganucdon was one of the first mammals alive at the time of the dinosaurs.

Bookmark It! Take Two Minutes and E-mail Us in the Morning

Jeffrey L. Apfelbaum, M.D., First Vice-President

Two Minutes Twice a Week Will Enable You to Better Control Your Destiny …

The days of "snail mail" are long behind us. And many of us have begun to ignore "blast" e-mails because we are seemingly inundated with them each and every day from a multitude of sources. An easy way to stay on top of rapidly evolving changes in the medical specialty of anesthesiology is to simply visit the ASA Web site <www.ASAhq.org> and peruse the "What's New" section. New items of importance are posted regularly as they evolve, typically several times weekly. I have chosen to summarize just a few examples of the dozens of items that appeared in recent weeks on the "What's New" portion of our Web site.

Jeffrey L. Apfelbaum, M.D.

Is Reimbursement for Medicare Patients Important to Your Practice?

At several key junctures in the legislative process, a "call to action" related to Medicare physician reimbursement adjustment appeared on the ASA Web site. Typically in the 24 to 72 hours prior to a vote in both the U.S. House of Representatives and the U.S. Senate, ASA members were urged to contact their legislators in support of a pending piece of legislation. By providing a hyperlink to the Washington Office "Capwiz" tool, in a mere two to three minutes, ASA members could electronically contact their legislators and express their opinions. In spite of the rapidity with which legislation changes in Washington, ASA members were always afforded an easy, simple-to-use tool enabling them to immediately contact their legislators to express their opinions.

Would You Like to Contribute to the Development of ASA Practice Standards, Guidelines or Advisories?

At the 2005 ASA Annual Meeting, the House of Delegates approved the following documents, which will be published in *Anesthesiology* over the next several months:

- "Practice Guidelines for the Perioperative Management of Patients With Obstructive Sleep Apnea"
- "Practice Advisory for Perioperative Visual Loss Associated With Spine Surgery"
- "Practice Guidelines for Perioperative Blood Transfusion and Adjuvant Therapies"
- "Practice Advisory for Intraoperative Awareness and Brain Function Monitoring."

Each of these guidelines and advisories deals with extremely important areas of our daily clinical practice. At one time or another during the past two years of development for each of these documents, members were offered the opportunity to review a draft of each document and provide input for consideration by the task force charged with preparing the document. Typically these drafts were only made available for a limited time, so checking the Web site frequently would have enabled you to provide input on all four drafts while they were still in preparation.

Does One Need to Have Training in Anesthesia to Provide Anesthesia Services?

In late January, ASA was made aware of a proposed revision of the Anesthesia Care Standards at the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Many anesthesiologists felt two of the proposed changes would have a profoundly detrimental effect on patient safety. The first was to remove the requirement that a licensed independent practitioner be involved during the performance of surgery and sedation or anesthesia [PC.13.20]. The second proposed change was to remove the requirement for involvement of a licensed independent practitioner in the planning of sedation or anesthesia [EP.11]. JCAHO had posted these proposed revisions on its Web site and was actively soliciting input from health care professionals through its Field Review process. A subgroup of the ASA Committee on Quality Management and Departmental Administration prepared a draft set of responses and posted those responses on the ASA Web site with a "hot link" to the JCAHO Field Review. If you had not checked the Web site during the short 10-day "window" in which we were afforded the opportunity to provide input to JCAHO, you would have missed the chance to do so.

Do You Practice Pain Medicine?

On February 17, 2006, ASA announced an initiative to

"I urge all of our members to take two minutes twice a week and check out ASA's Web site!"

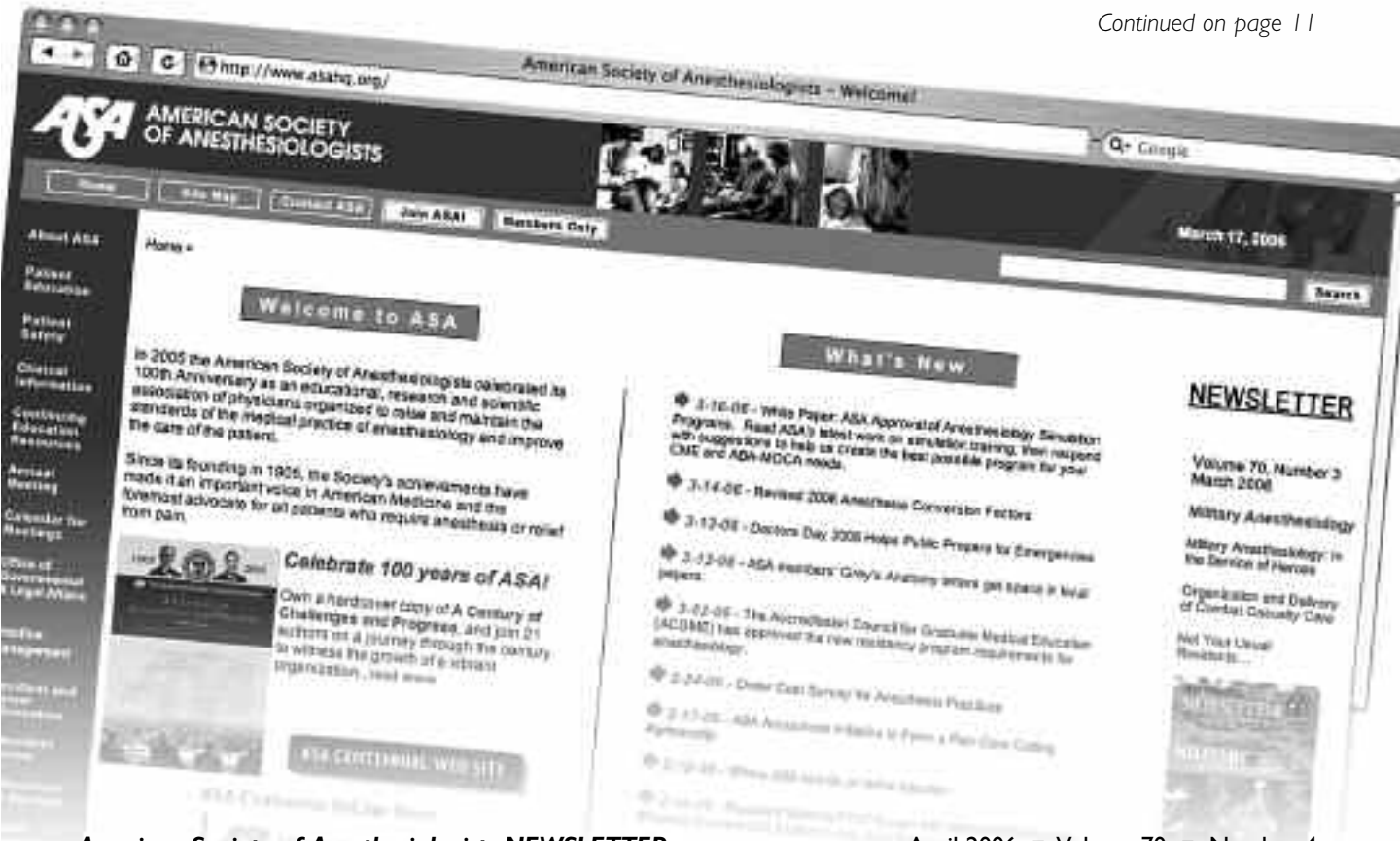
form a multidisciplinary pain coding partnership. Other multispecialty partnerships have achieved admirable success by working collaboratively to create and obtain appropriate valuation for Current Procedural Terminology® codes that describe safe and effective medical practices. To that end, ASA believes it is important that the myriad specialists involved in pain medicine speak with one voice on matters concerning coding coverage and patient care, and ASA has invited many of these specialties to join together in an organized coalition to further our common goals. To date, the following specialties have been invited to participate in this partnership, and discussion is under way with several additional interested organizations:

- American Academy of Orthopaedic Surgeons
- American Academy of Pain Medicine
- American Academy of Physical Medicine and Rehabilitation
- American Association of Neurological Surgeons/ Congress of Neurological Surgeons
- American College of Radiology
- American Society of Interventional Pain Physicians
- International Spine Intervention Society
- North American Spine Society.

Has Anyone in Your Hospital or Ambulatory Surgical Treatment Center Asked About Nonanesthesiologists Administering Propofol?

In fall 2005, the American College of Gastroenterology (ACGE) petitioned the Food and Drug Administration (FDA) Advisory Committee on Anesthetic and Life Support Drugs to remove the following language from the propofol (Diprivan®) labeling: "For general anesthesia or monitored anesthesia care (MAC) sedation, DIPRIVAN Injectable Emulsion should be administered only by persons trained in the administration of general anesthesia and not involved in the conduct of the surgical/diagnostic procedure." On November 10, 2005, ASA Immediate Past President Eugene P. Sinclair, M.D., testified before the committee as did Carol E. Rose, M.D., of the University of Pittsburgh Medical Center, and Marc E. Koch, M.D., M.B.A., all of whom testified in favor of keeping a warning on the propofol labeling. Shortly after the hearing, a copy of ASA's letter comment-

Continued on page 11



Spotlight on Medicare Payment Policy Reform

Ronald Szabat, J.D., LL.M., Director
Governmental Affairs and General Counsel

The curtain has risen. With fewer than 100 legislative days left in 2006 for Congress to act, the staging for this year's production of Medicare Part B physician payment reform is rapidly taking shape. Competing for attention is a focus on the asserted need to slow overall Medicare spending.

Some critics and skeptics say that the theater could be dark early this year, with an over-cost production simply shutting down with no real resolution or change. Looming large for all physicians is the unrelenting Medicare Sustainable Growth Rate (SGR) formula that threatens fresh cuts of 5 percent starting in 2007, only recently averted for just one year. Added to this misery could be other reductions as a result of the Medicare five-year review, practice expense changes and other payment cuts based on geographic variables.

Where can Congress turn for guidance to get this show on the road? Fortunately its own advisory panel, MedPAC, or the Medicare Payment Advisory Commission, continues to shed its bright spotlight, if only Congress would listen, honor and consider its commitment to the elderly through rational reimbursement policy.

Just last month, MedPAC released another periodic *Report to the Congress: Medicare Payment Policy.* In its latest March 2006 report, MedPAC called for Congress to increase payments for physician services by the projected change in input prices less an expected productivity growth of 0.9 percent for 2007. Translation: MedPAC is telling Congress that positive update's are essential for Medicare program integrity.

As noted by MedPAC, "current law calls for substantial negative updates from 2007 to 2011, under the [SGR] formula." Consistent with its past policy stance, MedPAC has again signaled to Congress that it "does not support these sustained fee cuts because over the long run they could threaten beneficiary access to physician services." As ASA is already telling the Hill, the current abnormally low anesthesia Medicare conversion factor, coupled with irrational payment policies, is creating an unsustainable situation for our academic anesthesiology programs and anesthesiologists practicing in locales with heavy Medicare populations, in particular.

Of added note, MedPAC also is recommending that the Secretary of Health and Human Services should establish a standing panel of experts to help the Centers for Medicare & Medicaid Services identify so-called "overvalued services" and review recommendations from the Relative Value Scale Update Committee (RUC), ensuring that the members of this new panel include those with expertise in health economics, physician payment and clinical expertise.

Of added interest, the Commission recommends that the Secretary, in consultation with this expert panel, should initiate the five-year review of services that have experienced substantial changes in length of stay, site of service, volume and practice expense and other factors that may indicate changes in physician work. In addition MedPAC is recommending that after consultation with the expert panel, the Secretary should initiate, after a specified period, reviews of the work relative values for recently introduced services to identify those services that should be referred to the RUC to assess. This would be a change from the current practice of waiting for the next five-year review. Finally MedPAC believes that the Secretary should review all physician services periodically to ensure the validity of the physician fee schedule. Needless to say, should these particular recommendations gain "legs" in the House or Senate and take center stage, ASA will actively lobby to refine them.

As Congress receives and considers these important recommendations, ASA as always will seek to reinforce the need for sound policy justifications for congressional action on Medicare payment policies, particularly as they affect physician payment. Even now the House and Senate Budget committees continue their attempts to cobble together a working Budget Resolution for 2007, affecting the larger Medicare spending picture. As this dynamic process unfolds and the Medicare and health committees of jurisdiction begin their work, please stay alert for important opportunities for grassroots input into another year of high-stakes drama.

ASA Washington Office • 1101 Vermont Ave., N.W., Suite 606 • Washington, DC 20005-3528 • (202) 289-2222 • mail@ASAwash.org

The Opportunity of Critical Care Medicine

Gerald A. Maccioli, M.D., F.C.C.M., Chair,
Committee on Critical Care Medicine

Neal H. Cohen, M.D., F.C.C.M., Chair,
Scientific Content Subcommittee on Critical Care

As is true for anesthesiology as a whole,[1] critical care medicine (CCM) is facing a huge workforce crisis.[2] The clinical volume of critically ill patients continues to rise in every major hospital in the country; the acuity of inpatients is at an all-time high. At the same time, the number of clinicians trained for and interested in providing critical care services is not keeping up with the demand. As a result, critical care represents one of many opportunities for our specialty should we decide to accept it.

Currently the vast majority of certified and practicing intensivists in the United States are board-certified in internal medicine, and the preponderance of those practitioners are certified in pulmonary and critical care medicine.[3] This is a radical change from the birth of the subspecialty of CCM, which was led by such anesthesiology legends as Myron B. Laver, M.D., Henning Pontoppidan, M.D., Henrik H. Bendixen, M.D., and J. Hedley-White, M.D., to name a few. Although these anesthesiologists saw the anesthesiologist as the perioperative

"The clinical volume of critically ill patients continues to rise in every major hospital in the country; the acuity of inpatients is at an all-time high."

Gerald A. Maccioli, M.D., F.C.C.M., is ASA Director for North Carolina, and Director of Critical Care Medicine, Critical Health Systems of North Carolina, Raleigh Practice Center, Raleigh, North Carolina.

Neal H. Cohen, M.D., F.C.C.M., is Vice-Dean, School of Medicine, Professor of Anesthesia and Medicine, and President of the University of California-San Francisco Medical Group, University of California-San Francisco, San Francisco, California.

physician before anyone coined the term, the specialty has shifted its focus back to the operating room (O.R.) for a number of reasons. The O.R. orientation is not surprising, since the surgical volumes and complexity continue to climb, and the need for highly skilled anesthesia providers is significant.

The return of anesthesiologists' emphasis back to the O.R. has a multitude of explanations that we will not address in this manuscript. The question for us to consider is whether the medical specialty of anesthesiology can and will continue to embrace critical care as a viable opportunity to endorse and aggressively pursue.

> "The combination of a sicker patient population, coupled with the payer-driven demand for quality care, will result in significant demands for future critical care practitioners."

Despite a large body of literature demonstrating that the critical care physician adds value to the care of the complex intensive care unit (ICU) patient, many hospitals provide only cursory oversight of the critically ill patient, providing fragmented care by a combination of primary care providers or groups of specialists with little coordination. In addition although the "closed" (specialist-practitioner only) ICU model has been demonstrated to improve outcome [4-14] and optimize resource utilization,[15] the vast majority of community hospital ICUs have "open" (any practitioner) admission and management policies. The traditional "open" model reduces friction between the medical staff and the intensivist in most instances but does little to improve the quality of care. Despite the advantages of the "closed" model of care and the potential opportunities it offers to the critical care-trained anesthesiologist, until recently, it has not been widely adopted due to issues of resource allocation, control of patients and concerns by nonintensivists over lost revenue.

This landscape is changing rapidly though. In November 2000, the Leapfrog Group published a standard regarding Intensive Care Unit Physician Staffing (IPS).[16] The Leapfrog Group is a consortium of Fortune 500 companies and other large health care purchasers committed to a common set of purchasing standards. The standards, which were fully implemented in 2003, define expectations for critical care physician services that are consistent with the closed ICU model of care. As a result, their adoption creates an increased demand for intensivists.

The current anticipated need cannot be met with the projected available workforce. It has been estimated that 35,000 critical care physicians will be required to staff all adult U.S. ICUs.[2] The current supply is about 9,500. This deficit of providers, coupled with the aging population and increased acuity of inpatients in all adult hospitals and in extended care facilities, mandates a re-evaluation of our training programs and models of care. First, we should evaluate the anesthesiology residency curriculum to determine if we are training the providers that will be required, if they will have the skills necessary to deliver the care that future generations will expect and if we should redefine the specialty, much as pulmonary medicine has done, and embrace critical care as an integral part of the practice of anesthesiology. In addition the need for alternative models of care in the ICU provides an opportunity for our specialty to take another leadership role, building on our traditions. Anesthesiologists have done an outstanding job of utilizing nonphysician, mid-level providers as part of the anesthesia care team to continue to deliver high-volume, high-quality, efficient care. As such the specialty of anesthesiology, given its historical roots in CCM, is the ideal profession to help solve the delivery of care crisis in critical care.

Finally we will have to think about how the pressures of a critical care practice and the career expectations of our trainees can be simultaneously addressed. Full-time careers in CCM are limited by long hours, emotional and physical challenges, unpredictable work patterns, potentially lower remuneration and politics. We do not believe each and every anesthesiologist should be able to practice as an intensivist, just as the specialty does not expect every member to practice pain management or perform echocardiography. Rather we propose that each department or group have a subset of practitioners who do function as intensivists for some portion of their professional activities. This group of providers, however, must be seen as integral to the department and must work collaboratively to fulfill patient needs in the O.R. and ICUs. The incorporation of other providers, including acute care nurse practitioners and other physician extenders, will improve care delivery and make a long-term career in critical care both rewarding and viable. Initial studies of such collaborative, medically directed models indicate that this paradigm is clinically efficient and effective in some patient populations.[17, 18]

Like our parent specialty, anesthesiology, economic issues are of major importance to the practice of CCM; a substantial percentage of patients treated in ICUs are covered under Medicare, and that percentage is expected to grow as the population ages. The Critical Care Workgroup addresses these issues with the Centers for Medicare & Medicaid Services and includes these six organizations: the American Society of Critical Care Anesthesiologists, the American College of Chest Physicians, the American Asso-

ciation for the Surgery of Trauma, the American Thoracic Society, the National Association for Medical Direction of Respiratory Care and the Society of Critical Care Medicine. With regard to reimbursement, the relative value unit for critical care services was recently increased and the definition broadened to include both treatment and prevention of major organ dysfunction.

Over the coming years, as the population ages and an increased number of individuals survive with chronic diseases, tertiary-care centered hospitals are likely to increase the percentage of critical care and monitored beds to upward of 50 percent of the total. In addition much of what is now described as acute inpatient care may be transitioned to ambulatory care, leaving the hospital an even more high-intensity environment that will require the expertise of the critical care practitioner. The combination of a sicker patient population, coupled with the payer-driven demand for quality care, will result in significant demands for future critical care practitioners. Likewise these same changes will require all anesthesiologists, whether "intensivists" or not, to broaden their skill-set to continue to provide optimal care for these high-acuity patients. Whether the majority of critical care services will be delivered by physician intensivists or whether we will expand the pool of other providers working collaboratively with critical care-trained physicians, the opportunities for our specialty to regain its preeminent role in critical care is outstanding — if we take advantage of it.

As described by Ronald D. Miller, M.D., Chair of the ASA Task Force on Future Paradigms of Anesthesia Practice,[19] the future of intraoperative anesthesiology practice may change significantly, and our perceived deficit of "providers" may, in fact, be wrong. Likewise, during his outstanding Emery A. Rovenstine Memorial Lecture at the ASA 2005 Annual Meeting in Atlanta, Mark A. Warner, M.D., challenged us to embrace the changing profession of anesthesiology as our skills become resourced to the most critically ill patients in the O.R. and ICUs.

> " … the opportunities for our specialty to regain its preeminent role in critical care is outstanding — if we take advantage of it."

The challenge is before us: How we choose to embrace it is another question.

References are available on the ASA Web site at <www.ASAhq.org/Newsletters/2006/04-06/cohen.html>.

From the Crow's Nest: Paradigms

Continued from page 3

specialty? Only by making your voice heard, by participating in the work of ASA, by donating time and perhaps money, can we influence our future. Anesthesiology needs you now more than ever. Will YOU come forward and help lead, or will you sit in a comfortable armchair, decry the state of the specialty and criticize those who try to guide us? Only YOU can decide — and to begin the process, I welcome your comments.

— D.R.B.

References:

1. Smith BE. The 1980s: A decade of change. In: Bacon DR, Lema MJ, McGoldrick KE. (eds.) The American Society of Anesthesiologists: *A Century of Challenges and Progress*. Wood Library-Museum of Anesthesiology Press. 2005:174.
2. Bacon DR. A curious moment: The proposal to certify nurse anesthetists by the American Board of Anesthesiology. *J Clin Anesth.* 1996; 8:614-619.
3. Merli GJ. The hospitalist as perioperative expert: An emerging paradigm. The Hospitalist special supplement of *Perioperative Care*. 2004; 8(6):4.
4. Jaffer AK, Brotman DJ. Preoperative care: An opportunity to expand and diversify the hospitalist's portfolio. The Hospitalist special supplement of *Perioperative Care*. 2004; 8(6):57-59.
5. Burkle CM, Nuttall GA, Rihal CS. Cardiopulmonary bypass support for percutaneous coronary interventions: What the anesthesiologist needs to know. *J Cardiothorac Vasc Anesth.* 2005; 19(4):501-504.
6. Cromwell J. Barriers to achieving a cost-effective workforce mix: Lessons from anesthesiology. *Journal of Health, Politics, Policy and Law*. 1999; 24(6):1331-1361.

Perspective of a Nonintensivist:

Why Critical Care Medicine Is Important to the Future of Our Specialty

Ronald D. Miller, M.D., Chair
Task Force on the Future Paradigms of Anesthesia Practice

The creation of critical care units and evolution of critical care medicine (CCM) as a specialty were originally brought about by anesthesiologists. In many countries, anesthesiology has retained a major involvement in CCM. Unfortunately anesthesiology involvement in CCM in the United States has regrettably decreased over the past 40 years, presumably because of the competing pressures of operating room anesthesia and economics. What should be the role of anesthesiology in CCM in the future tertiary care hospital?

In 2004 ASA President-Elect Eugene P. Sinclair, M.D., appointed a Task Force on the Future Paradigms of Anesthesia Practice to address the projected evolution of anesthesiologists' clinical practices over the next 20 years. A summary of the task force's deliberations has been presented in several formats, including a presentation at the ASA Board of Directors in August 2005 and in the October 2005 *ASA NEWSLETTER*. Major emphasis was placed on the future of the tertiary care hospital, surgery and procedures, operating room anesthesia and a possible strategy for the future of our specialty.

Ronald D. Miller, M.D., is Professor and Chair, Department of Anesthesia and Perioperative Care, University of California-San Francisco, San Francisco, California.

The effect of likely changes in the distribution of beds in tertiary care hospitals, as well as other community hospitals, must be evaluated before forecasting the future of anesthesiology. Based on a broad base of information, however, the task force concluded that tertiary care hospitals of the future will be increasingly dominated by seriously ill patients who require procedures (i.e., surgical, imaging, cardiovascular) and monitored and/or critical care beds. Even now the percentage of total beds assigned to CCM has increased from 10 percent as recently as 10 years ago to as much as 40 percent in many tertiary care hospitals today. Critical care physicians are well aware of the critical need for technology to help manage the care of seriously ill patients, including an accelerating push for electronic medical records, the use of data to improve patient safety and error reduction and even the ability to provide care remotely by the use of medical information technology. In fact improved delivery systems and monitoring technology — with "smart" associated information technology and pharmacology — will allow critical care physicians and anesthesiologists to deliver care remotely and for more patients concomitantly than presently exists and to do so in both tertiary care facilities and other community hospitals. While predicting the impact of these advances is difficult, they need to be considered in planning for the future of both CCM and anesthesiology.

Independent of the welfare of the specialty of anesthesiology, the need for critical care is dramatically increasing in the United States. Furthermore many groups, most notably the Leapfrog Group, have strongly recommended that critical care be delivered by individuals especially trained and board-certified in CCM. Clearly the specialty of CCM needs to better define staffing requirements in critical care units and the skill mix, recognizing the wide variation in the acuity of the patients for which care is being provided, including those critically ill patients in postanesthesia care units. Nevertheless there is a tremendous shortage of critical care physicians. This is especially acute in academic medical centers with the advent of work-hour regulations.

With the tertiary care hospital of the future being dominated by surgical-imaging procedures and CCM, physicians with "executive knowledge" will be required to improve patient flow via a systems analysis and outcome approach. Coordination of all materials and personnel needed to achieve optimal efficiencies is required. Also, for patient care, how will the allocation of surgical and medical specialties occur? Who should have responsibility and authority for overall quality and costs? Clearly tertiary care hospitals will need to be structured to provide efficient and effective care in increasingly sicker patients related to surgery and other procedures. The fundamental components of such a hospital are preoperative evaluation, intraoperative anesthesia and postoperative care, including pain management and CCM. Other than the procedure itself, anesthesiology is the only specialty that has the training, skills and experience in all clinical aspects of the tertiary care hospital of the future. Anesthesiology is especially appropriate to coordinate care

between the tertiary care hospital components (e.g., CCM and preoperative evaluation) and to assume some of these critical administrative functions.

Major changes are occurring in many specialties, including vascular surgery, cardiac surgery and others. While operating room anesthesia has dominated our specialty for many years, in planning for our future, we would be well served to diversify our value to medicine specifically and society overall. Encouraging additional training in CCM and also encouraging anesthesiology residents to take critical care fellowships would provide a sound basis for our specialty's role in the future tertiary care hospital. Even if an anesthesiologist who is board-certified in critical care does not work in a critical care unit, the skills learned during that training will ensure that he/she is highly qualified to take care of the increasingly complex surgical cases that confront us intraoperatively. Because of the long lag time between a change in training and an increased output of anesthesiologists in CCM, changes need to be made as soon as possible. Our task force concluded that if the specialty of anesthesiology does not "step up to the plate" with increased involvement in CCM, others will (e.g., pulmonary medicine, hospitalists). The potential for our specialty is enormous in the tertiary care hospital of the future. Significant involvement with CCM is crucial for our specialty's future and the welfare of CCM overall.

"While operating room anesthesia has dominated our specialty for many years, in planning for our future, we would be well served to diversify our value to medicine specifically and society overall."

Having been a chair of a major anesthesiology department for 22 years and editor-in-chief of a major journal for 15 years, my personal opinion (independent of the task force) is that the specialty of anesthesiology should be involved with CCM as much as possible. The combined training of anesthesiology and CCM creates the knowledge and skills for the physician leaders of the future tertiary care hospital and potentially with different models of care, the leaders for inpatient care generally. Furthermore such training will provide our specialty with a diversity of options, including operating room anesthesia and the ability to manage our most seriously ill patients, in the tertiary care hospital of the future.

To facilitate such a combination, increased training of CCM in our residencies is essential. The methods to accomplish this goal are numerous, including incorporating more critical care experience in our residency programs, lengthening our residencies, encouraging incentive-based choices of our fellowships or even redesigning some of our residencies to provide a combined anesthesiology and CCM residency for board certification in both specialties.

Administrative Update: Bookmark It! Take Two Minutes and E-mail Us in the Morning

Continued from page 5

ing on the ACGE petition was filed with the FDA, and a copy of Dr. Sinclair's testimony was made available on the ASA Web site. Many anesthesiologists found it useful to have full access to these documents when addressing the same issue in their local institutions.

Would Productivity Benchmarking Information Be Useful in Your Practice?

In late February 2006, it was announced on the ASA Web site that the *Cost Survey for Anesthesia Practices, 2005 Report Based on 2004 Data* was available for purchase. Produced by the Medical Group Management Association in collaboration with ASA, this book serves as an incomparable resource for anesthesiology financial and productivity benchmarking. In addition to providing a link to purchase this book, ASA members were offered a substantially discounted price negotiated by ASA. Even better, ASA members who completed the 2004 cost survey (also made available through a hyperlink on the Web site) received this information free of charge!

I urge all of our members to take two minutes twice a week and check out ASA's Web site!

New Concepts in ACLS

ADVANCED CARDIAC LIFE SUPPORT

Andrea Gabrielli, M.D., F.C.C.M.
Committee on Critical Care Medicine

Steven A. Robicsek, M.D., Ph.D.

" … the practice of anesthesiology and critical care medicine puts the anesthesiologist in a unique position to lead all in-hospital resuscitation in North America … "

Cardiac arrest during anesthesia has become a rare event. The development of better monitoring, safer medications, adoption of clinical standards and advances in knowledge and training have all had a significant impact on patient safety. Despite this, cardiac arrest during anesthesia still occurs, and with prompt recognition, diagnosis and treatment can be successfully managed.

Although general anesthesia represents one aspect of health care where the risk of death is relatively low,[1] challenging surgical indications are now being extended frequently to higher-risk cardiovascular and elderly patients. Furthermore anesthetic procedures have extended outside the operating room (O.R.) into arenas such as the radiology and gastroenterology suites, and the role of the anesthesiologist has become prominent in the intensive care unit.

In summary the practice of anesthesiology and critical care medicine puts the anesthesiologist in a unique position to lead all in-hospital resuscitation in North America, with extension to prehospital care in many European emergency systems where they participate directly in ambulance rescue teams.

In this progressively challenging clinical environment, a major goal of the American Heart Association (AHA) has been to provide all health professionals with updated and evidence-based guidelines on resuscitation from cardiac arrest and management of dysrythmias to acute coronary syndrome and stroke. The 2005 AHA "Guidelines for CPR" represent the largest review of cardiac arrest and resuscitation literature ever published.[2, 3] An extensive critical analysis of the literature (the last five years), which includes the level of evidence, is the result of a consensus conference organized by the International Liaison Committee on Resuscitation, or ILCOR,[2] and the "Cardiopulmonary Resuscitation Guidelines" have been published as a supplement in the journal *Circulation*.[3] This comprehensive issue

Andrea Gabrielli, M.D., F.C.C.M., is Associate Professor of Anesthesiology and Surgery, Department of Anesthesiology, University of Florida, Gainesville, Florida. He is ASA liaison to the American Heart Association.

Steven A. Robicsek, M.D., Ph.D., is Assistant Professor of Anesthesiology, University of Florida, Gainesville, Florida.

lists a class of recommendations that integrate the strength of the scientific evidence with application factors in the United States. Both publications are available free on the Web <www.circulationaha.org>.

One of the striking findings of the 2005 International Consensus Conference on Cardiopulmonary Resuscitation has been better awareness of the poor quality of chest compression provided at the scene of the arrest. Good CPR remains the foundation upon which adequate cerebral and coronary perfusion is built, while pharmacological intervention and defibrillation are used to enhance restoration of spontaneous circulation (ROSC).[4]

To achieve the goal of improving the quality of chest compressions delivered, simplification of CPR recommendations and strong messages were sought. AHA guidelines now emphasize that the rescuer should "push hard, push fast" (a compression rate of 100 per minute) on the chest while allowing full chest recoil and should minimize "dead time" periods of no compression. This is achieved in the focused professional rescue team by limiting time spent during pulse check (10 seconds), defibrillation and advanced airway insertion. Performing good chest compressions is fatiguing, as demonstrated by the reliable recording of acute deterioration of CPR quality within two minutes in mannequin models. This observation led to the recommendation that the rescuers should change "compressor" roles approximately every two minutes. Other simplifications of the algorithms included the elimination of differences in single-rescuer CPR technique for different ages and combining the pulseless electrical activity and asystole algorithms.

During the first minutes of CPR for ventricular fibrillation (VF), oxygen delivery is flow-dependent (cardiac output) and therefore more dependent on effective chest compressions than ventilation. During CPR, blood flow to the lungs is only about 30 percent of normal, so less ventilation than normal (fewer breaths and smaller volume) is needed to match ventilation with perfusion.

The above considerations led to the overall single most important change in the guidelines: the change of compression/ventilation ratio (C:V) to a universal 30:2 for single rescuers for victims of all ages (except newborns) and two-rescuer CPR for adult victims until an advanced airway device is inserted. The concern that a higher percentage of infants and children frequently develop cardiac arrest secondary to asphyxia has resulted in a more conservative approach on ventilation in this patient population, with a recommended C:V of 15:2 when two rescuers are available.

Anesthesiologists have traditionally learned to link patient's cyclic blood pressure variation when positive pressure ventilation is applied with hypovolemia or lung over inflation (extremely good lung compliance or excessive positive pressure provided). A striking finding of the new guidelines, however, has been the recognition of frequent unintentional hyperventilation during CPR (too many breaths or large tidal volumes given) and its inherent risk for the patient's survival.[5] Excessive intrathoracic pressure can decrease venous return, thereby decreasing coronary and cerebral perfusion and effectiveness of CPR.

The recommended respiratory rate, inspiratory time and tidal volume also have been decreased from the earlier 2000 AHA guidelines and are limited to 8-10 per minute, one second and 500-600 mL, respectively. Because it is difficult to estimate tidal volume without a spirometer, each rescue breath provided should be sufficient to produce visible chest rise, a parameter that corresponds to about 500 to 600 mL in the average healthy adult under anesthesia.[6]

Two-rescuer CPR with an advanced airway is the most likely scenario of cardiac arrest we can encounter in the O.R. Once an advanced airway is in place for an infant, child or adult victim, the rescuers no longer need to deliver cycles of compressions interrupted with pauses for ventilation and ventilation paced every six to eight seconds. The danger of inadvertent hyperventilation in this scenario has been again emphasized.

Treatment of VF / Pulseless Ventricular Tachycardia (VT)

Evidence accumulated in the last few years suggests a very high first-shock success in eliminating VF and pulseless VT using biphasic waveforms. Therefore defibrillation attempts in this scenario have been limited at one every five C:V cycles (about two minutes) of CPR to allow the provider to assess ROSC by pulse check and electrocardiogram in the shortest possible time. Vasopressors are administered if VF or pulseless VT persists after the first or second shock. Epinephrine 1 mg remains the recommended dose, to be repeated every three to five minutes. A single dose of vasopressin (40 U) may be given to replace either the first or second dose of epinephrine. Importantly, lidocaine should be considered *only* if amiodarone is not promptly available, and after the first dose of vasopressors if VF or pulseless VT persists.

Treatment of Asystole/Pulseless Electrical Activity

For rhythms that do not respond to electrical shocks, vasopressors and fluid challenge continue to be the mainstay of therapy based on improvement in aortic blood pressure and coronary artery perfusion pressure until the cause of the event is rectified. Epinephrine (1 mg) is still recommended and may be administered every three to five minutes. One dose of vasopressin (40 U) may be substituted for either the first or second dose of epinephrine. In fact in one large out-of-hospital, prospective, randomized study, vasopressin (compared with epinephrine) improved ROSC for a sub-

"In this continuously changing environment, it is time to provide our specialty with solid clinical guidelines when "an O.R. code" occurs — a challenging but perfect task for the ASA Committee on Critical Care Medicine."

group of patients with asystole, suggesting that this drug may have a role in "late CPR patients" where this type of rhythm is more frequent.[7] Atropine (1 mg) may still be considered for asystole or slow pulseless electrical activity, up to three doses. In general most drug doses are the same as those recommended in the 2000 AHA guidelines, with the exception of symptomatic bradycardia in which the recommended dose of atropine was halved to 0.5 mg to reduce the potential adverse effect of uncontrolled tachycardia after its administration.

Defibrillation

As stated above, the evidence accumulated in the last few years suggests a very high first-shock success of biphasic waveforms in eliminating VF or rapid VT.

The "Shock! Shock! Shock!" stacked sequence has been replaced by a single shock followed by immediate CPR at a five C:V cycle or two-minute intervals. The need for more "aggressive" chest compression has been emphasized to the level that it be considered before defibrillation if cardiac arrest is presumed to be ongoing for more than four to five minutes. Prehospital and in-hospital studies failed to identify one single "best dose" of defibrillation energy due to the complexity and diversity of defibrillator and protocols used. A guideline recommendation range now exists, however. The initial selected dose for attempted defibrillation is 150 J to 200 J for a biphasic truncated exponential waveform and 120 J for a rectilinear biphasic waveform. If the biphasic waveform is unknown, 200 J is recommended. The follow-up shock approach is unchanged, with the second dose being at least the same or higher energy. Monophasic defibrillators are disappearing from the production chain. Because they are less efficient, the recommended dose has been set immediate to the highest dose of 360 J.

Conclusions

The newer 2005 AHA guidelines represent the current state-of-the-art, evidence-based medicine applied to resuscitation post cardiac arrest. The epidemiology of cardiac arrest in the O.R., however, is unique, and special circumstances still apply when acute coronary syndrome or a hypoxia/hypercarbia scenario is observed when a regional or general anesthetic is provided. In fact there are intuitive differences in patient management when the health care provider has prior knowledge of a patient's medical history, is immediately aware of the probable cause of arrest and begins medical management within seconds.

In this continuously changing environment, it is time to provide our specialty with solid clinical guidelines when "an O.R. code" occurs — a challenging but perfect task for the ASA Committee on Critical Care Medicine.

References:

1. Lagasse RS. Anesthesia safety: Model or myth? A review of the published literature and analysis of current original data. *Anesthesiology*. 2002; 97:1609-1617.
2. 2005 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Circulation, 112(22 suppl, November 29), 2005.
3. 2005 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Circulation, 112(24 suppl, December 13), 2005.
4. Abella BS, Alvarado JP, Myklebust H, et al. Quality of cardiopulmonary resuscitation during in-hospital cardiac arrest. *JAMA*. 2005; 305-310.
5. Aufderheide TP, Lurie KG. Death by hyperventilation: A common and life-threatening problem during cardiopulmonary resuscitation. *Crit Care Med*. 2004; 32(9):S345-S351.
6. Baskett P, Nolan J, Parr M. Tidal volumes which are perceived to be adequate for resuscitation. *Resuscitation*. 1996; 31(3):231-234.
7. Wenzel V, Krismer AC, Arntz R, Sitter H, Stadlbauer KH, Linder KH, for the European Resuscitation Council Vasopressor During Cardiopulmonary Resuscitation Study Group: A comparison of vasopressin and epinephrine for out-of-hospital cardiopulmonary resuscitation. *N Engl J Med*. 2004; 350:105-113.

Translational Critical Care Research

Collaboration Across the Sea

Yoram G. Weiss, M.D.

Clifford S. Deutschman, M.D., M.S., F.C.C.M.
Committee on Critical Care Medicine

About the Authors

In 1998, Yoram G. Weiss, M.D., was a well-trained and reasonably accomplished anesthesiologist/intensivist at the Hadassah Hebrew University Medical Center in Jerusalem. Like many university physicians in Israel, he was told he needed to spend "time in America" to solidify his academic credentials. Therefore he sought an additional educational experience in critical care in the United States. Since he had received extensive training in critical care, both as part of the basic residency in Israel (which encompasses five years and includes a full six months of critical care) and as a fellow, clinical work was only a small part of his interest. More importantly Dr. Weiss wanted some sort of formal training in research

At the time, Clifford S. Deutschman, M.D., was an associate professor at the University of Pennsylvania. Beyond the care of the critically ill surgical patient and the education of others in this discipline, Dr. Deutschman's primary interest was in the molecular changes induced in the liver by sepsis. He had developed a modestly successful "boutique" research program but had never thought beyond investigating hepatic abnormalities. Dr. Weiss' application for a fellowship dramatically changed things for both of them.

Sepsis Study

During the first year of a two-year fellowship, Dr. Weiss distinguished himself as an outstanding clinician and teacher. More importantly, however, he convinced Dr. Deutschman to rethink the animal model of sepsis that had been used to study sepsis. Dr. Weiss was interested in changes in the lung and was looking for an appropriate model. After several conversations with Irshad Chaudry, the renown Ph.D. researcher who had first proposed and standardized the "cecal ligation and puncture" (CLP) model of sepsis in mice and rats, we

"We are anesthesiologist/intensivists, but our colleagues and collaborators are surgeons, pulmonologists, critical care internists, infectious disease specialists, biochemists, cell and molecular biologists and a host of others. Research is complex. The more experts involved, the better."

Yoram G. Weiss, M.D., F.C.C.M., is Senior Lecturer in Anesthesia and Critical Care Medicine, Hadassah Hebrew University School of Medicine, Jerusalem, Israel, and Adjunct Assistant Professor in Anesthesia and Critical Care, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania.

Clifford S. Deutschman, M.D., M.S., F.C.C.M., is Professor of Anesthesiology and Critical Care and Surgery, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania.

became convinced that this approach also would affect the lungs. Specifically, preliminary studies made it clear that CLP induced significant lung injury that was analogous to acute respiratory distress syndrome (ARDS), as it most often arose in surgical patients. Dr. Deutschman's work with the liver had demonstrated that sepsis pathologically altered gene expression. Dr. Weiss was convinced that the same was true in the lung and set out to identify a deficiency. Once this was accomplished, they hit upon the idea that these abnormalities could be corrected using "gene therapy;" that is, restoring expression of an underexpressed gene by introducing a copy of that gene attached to an attenuated adenovirus. The lung was especially well-suited to this approach as the techniques had been standardized by others and because tracheal instillation limited viral spread to other organs. Dr. Deutschman, as a somewhat more-seasoned investigator, expressed skepticism but was won over by Dr. Weiss' energy and enthusiasm. The results, detailed in the *Journal of Clinical Investigation* in 2002 were, in their opinion, remarkable.

Trans-Atlantic Collaboration

When Dr. Weiss returned to Israel, they both desired to continue their collaboration. This time, however, skepticism was bilateral. The ability to maintain a useful trans-Atlantic collaboration is difficult for basic scientists. For two busy clinicians, the idea seemed almost foolish. Nonetheless mutual interest and a relationship that had grown from a shared professional interest to a strong friendship made it important that they try. Today, seven years after the initial meeting, they have been able to create a true trans-Atlantic collaborative research endeavor, which involves mutual research projects, joint grant proposals and the opportunity for meaningful intellectual discourse. They have drawn in important collaborators on both sides of the Atlantic. In addition Dr. Weiss has been able to establish a thriving research initiative despite the difficulty inherent in doing so, and Dr. Deutschman has expanded the scope of his work to include areas he never dreamed of exploring.

It is clear that the binational research collaboration has been useful for the two authors of this article. What, however, is the value in sharing this experience with the general ASA readership?

Authors Reflect on Research

We believe there are several important lessons. The first lies in an understanding of just what anesthesiologists in countries other than the United States do and how that differs from the American experience. The second relates to the re-establishment of critical care as a primary focus of anesthesiologists in this country. Finally we believe that the future of both academic medicine and anesthesiology as a medical specialty lies in translational research. There are strengths and weaknesses, and similarities and differences, in the way anesthesiologists practice both in the United States and in Israel.

"Our experience is that research is enjoyable, stimulating and essential to understanding the diseases we treat and of key importance in providing value to our patients."

Our research collaboration has provided us with a first-hand basis for comparison. Of direct importance here, critical care is more strongly emphasized in Israel. Thus more anesthesiologists include the intensive care unit in their practice. In the United States, more educational programs are able to provide an opportunity for fellows and junior faculty to engage in research. Thus there are more investigators in the United States.

In both places, however, there is an increased emphasis on clinical service, to the detriment of "academic" endeavors and subspecialty practice. Therefore the number of individuals either interested in or able to engage in either critical care or investigative activities is declining. The economic price for those pursuing an academic/research career is limiting participation.

We feel that this current trend is unfortunate. Our experience is that research is enjoyable, stimulating and essential to understanding the diseases we treat and of key importance in providing value to our patients.

Increasing Challenges

Despite the great strides we have made in the treatment of diseases in the critically ill, mortality and morbidity remains high. In essence this is because the pathophysiology of sepsis, septic shock, ARDS, myocardial ischemia, multiple organ dysfunction and "chronic critical illness" remain poorly understood. In the near future, the problem is certain to increase as enhanced life expectancy results in an increase in the number of patients admitted to ICUs with these syndromes. In addition, dysfunction will be aggravated by chronic disease in these older individuals. This represents the true challenge to critical care physicians in the near future.

Currently our approach to the treatment of patients with sepsis, septic shock, ARDS, myocardial ischemia, multiple organ dysfunction, asthma, exacerbations of chronic obstructive pulmonary emphysema and other forms of critical illness is primarily supportive. Because most research into these syndromes has focused on their early initiating phase, we have some understanding of the pathophysiologic changes that precipitate these deadly disorders. Most arise, at least in

part, from an overexuberant inflammatory response. We can manage these early phases of inflammation appropriately, and death from hyper-inflammation is rare.

We are, however, fundamentally ignorant with respect to the abnormalities that perpetuate and extend these deadly syndromes. We lack understanding of the subacute and subchronic pathophysiological changes that follow the initial inflammatory response. This has led to a situation where patients transition from an acute, inflammatory illness (which may arise from a number of initial disorders) into a state of "chronic critical illness." In this paradigm, patients settle into a remarkably stable state that also is remarkably abnormal. They can be kept alive almost indefinitely but require exogenous support of virtually all organ systems.

We have yet to decipher the abnormalities that lead to chronic critical illness or how the initial inflammatory response precipitates this situation. This remains a basic flaw in critical care practice.

Research Process

A gap in the understanding of a medical condition requires research. While it is important to study the fundamental behavior of molecules and cells, we believe that physicians are best suited to investigate conditions directly related to the diseases and syndromes that they treat. The hope of physician-scientists is that their findings can be applied directly to patient care. Given our lack of knowledge regarding the effects of inflammation and the transition from inflammatory state to chronic critical illness, we chose to investigate aspects of this particular enigma.

Translational research is a multifaceted process. Our joint approach has been to start with a basic assumption regarding a process that often requires the use of an animal model to simulate one of the diseases that kill our patients. On occasion we need to examine processes and effects that, using current techniques, cannot be investigated in animals. In those cases, we resort to cell culture experiments. This "hypothesis-testing" approach represents the first phase of translational research. It is hoped that this type of laboratory research will culminate in a proven hypothesis that can be extended to patient care at other institutions in Israel, the United States and in Switzerland.

Thus the object is to provide the basis for a clinical trial, an approach often referred to as "bench-to-bedside." The ability to study complex biochemical and cellular processes, in animals or cell preparations, requires the participation of people of diverse talents. While physicians can best identify the problems to be studied, they most often lack expertise in the techniques required to optimally study these issues. Their participation is priceless. Thus a multifaceted team is required. Since the breadth of expertise required may be vast, participation of more than one academic institution may be optimal.

Identification of abnormalities that contribute to the pathogenesis of a clinical syndrome is another key aspect of translational research. Some translational research is therefore based on the study of large populations of patients. Such studies require the involvement of many clinical centers to achieve significance. This approach is designed to define specific groups of patients who may present with a specific biochemical/physiologic abnormality or genetic trait. In the case of the disorders that constitute critical illness, such abnormalities often predispose to or identify an overexuberant or deficient inflammatory response.

This approach requires teams of dedicated investigators collecting data at many different sites. Examples include the current sepsis "Glue Grant" sponsored by the U.S. National Institute of General Medical Sciences (in which Dr. Deutschman participates) and the "Gen-O-Sept" study into the genetics of septic shock sponsored by the European Society of Intensive Care Medicine and the European community (where Dr. Weiss is a participant). The basic approach uses screening processes that identify gene polymorphism or variations in the expressions of genes, either on the mRNA or protein level. When a marker is identified in a large cohort of patients with a specific disease, it can be investigated more fully. Often it will suggest a hypothesis to be tested in animal models or cells. Such an approach is "hypothesis generating" and leads from bench to bedside.

It is hoped that these efforts ultimately will culminate in a number of medications tailored to sustain or extinguish specific parts or phases of the inflammatory response. In other words, we will come from the bench back to the bedside.

Branching Out

Both of the above approaches to research are well-served by multinational collaboration. The "bench-to-bedside" approach, which we have used extensively, allows us to collaborate not only with each other but to involve a talented group of investigators and the vast resources of both our institutions. We are beginning to "branch out": This approach has led to strong collaborations with well-known basic science researchers at our home institutions, at other institutions in Israel, the United States and in Switzerland. Modern telecommunications and overnight delivery systems make it relatively simple to conduct research that spans individual countries or even an ocean. We maintain daily contact via e-mail, and we frequently hold telephone conversations or even teleconferences. Despite the understandable increase in scrutiny required for the transfer of biologic material between countries, we exchange material on a regular basis.

The need for and value of trans-Atlantic cooperation in "bench-to-bedside" research is even more obvious. Large-scale clinical investigations require the participation of

Continued on page 24

RAPID RESPONSE TEAMS:

THE ROLE FOR ANESTHESIOLOGISTS AND ANESTHESIOLOGY-BASED INTENSIVISTS

Gerald A. Maccioli, M.D., F.C.C.M., Chair
Committee on Critical Care Medicine

Bradford D. Winters, M.D.

The minute-by-minute and hour-to-hour intense observation of patients for early signs of clinical deterioration and the rapid response to those signs and symptoms is the foundation of the medical practice of anesthesiology and critical care medicine. We spend our professional lives watching, under a clinical microscope, for potential adverse events in our patients. The intraoperative and perioperative realm (intensive care and postanesthesia care units) is inherently at high risk for clinical deteriorations.

Likewise adverse events also are common on general medical and surgical wards in acute care hospitals with perhaps hundreds or even thousands of patients experiencing serious harm, including death, cardiac arrest, respiratory arrest or unanticipated transfer to a critical care unit.[1] Published data imply that the prevalence of adverse events ranges from 4 percent to as high as 16 percent of all hospital admissions[2,3] with one study showing that more than 13 percent of adverse events ultimately led to the patient's death. The true impact on patient morbidity and mortality is likely to be much higher, acknowledging that the ability to identify and capture such events and categorize them is often poor.

Many of these adverse incidents on general wards are preventable as they rarely happen suddenly or unexpectedly. A number of studies[4-9] have demonstrated that premonitory signs and symptoms clearly herald these adverse events. Many hours prior to the event, the signs of deterioration are identified; however, medical staff often underappreciate their significance. This concatenation to a critical or adverse event leaves time for successful intervention in many cases, if the significance of the signs are recognized in a contemporaneous fashion.[7,9,10]

One strategy to help identify and treat patient problems prior to a patient suffering a critical or adverse event is the Rapid Response Team (RRT), also known as a Medical Emergency (Response) Team [ME(R)T], Patient At Risk Team (PART) or Critical Care Out-Reach Team (CCOT). For the purpose of this manuscript, we will use the more common term RRT. Using "alert criteria," such as changes in vital signs, critical laboratory values or even general concern on the part of the floor staff, these teams are activated to come to a patient's bedside to assess and intervene with the goal of stabilizing the patient and halting deterioration. This is conceptually and functionally different than a "code blue" team that responds once the patient has arrested, although both teams may use some or all of the same responders.

RRTs are being widely advocated and implemented in many hospitals around the United States, although the data on their effectiveness remain in evolution. The number of trials examining the effectiveness of RRTs is limited. There are only 10 studies[11-20] reported in the literature that examine outcomes in a controlled fashion, and only two of these use randomization in their methodology.[11,18] The outcomes of interest include hospital mortality, in-hospital cardiac arrest, unanticipated intensive care unit (ICU) admission, length of stay (both hospital and ICU) and ICU mortality. Unfortunately there is significant heterogeneity in definitions and denominators used in many studies, and since several of these outcomes involve subsets of patients exposed to the intervention, there is substantial risk for bias.

Several observational studies suggest improvement in hospital mortality and incidence of cardiac arrest *(vide infra)*, but of the two cluster-randomized studies reported in

Gerald A. Maccioli, M.D., F.C.C.M., is ASA Director for North Carolina, and Director of Critical Care Medicine, Critical Health Systems of North Carolina, Raleigh Practice Center, Raleigh, North Carolina.

Bradford D. Winters, M.D., is Director, Adult Rapid Response Teams Project, and Assistant Professor of Anesthesiology and Critical Care Medicine, Johns Hopkins University School of Medicine, Baltimore, Maryland.

the literature, the multicenter MERIT study demonstrated no benefit for these outcomes. This study, however, was relatively underpowered despite its excellent design, and the conclusions were questionable. The four observational trials, however, unanimously found statistically significant reductions in the incidence of in-hospital cardiac arrest with an RRT as compared to controls.[13, 15-17] In light of these early findings, the likelihood remains that RRTs should be able to have significant impact on improving patient safety and quality of care.

Participation in RRT programs is a perfect opportunity for general (nonintensivist) anesthesiologists and subspecialist anesthesiologist/intensivists to bring their education and expertise to the greater hospital venue. The development and implementation of RRT programs is an endeavor that should be vigorously embraced by all departments of anesthesiology and critical care medicine based on the precedents in the literature, improvement of patient outcomes and for professional reasons. Of the studies that have reported outcome data over the last decade, 70 percent described their RRT as being staffed by a critical care physician (fellow and/or attending) either directly (60 percent) or as the medical consultant to a nurse-led team (10 percent). One used multiple teams in multiple hospitals. The remaining 20 percent were physician-led programs not specifying the educational background of the physician.

All studies[11, 13-16] that demonstrated a reduction in mortality and cardiac arrest were led by physicians or had physician consultation available, and when identified, this physician was nearly always critical care-trained. Most studies used four physiological parameters (critical values or changes in blood pressure, heart rate, respiratory rate and mental status) to trigger the RRTs. Decrements in pulse oximetry values and concern or worry on the part of the ward staff also were commonly used. Specifically four studies[13, 15-17] reporting benefit for in-hospital cardiac arrest were physician-led teams, with three of those specifically identifying the team leader as a critical care physician. Examining in-hospital mortality, three of four[13-15] studies demonstrating benefit were led by critical care physicians. The fourth study[11] had critical care physician consultation available for its senior nurse-led team.

Since so many of the programs are critical care physician-led or not specified, it is difficult to make a comparison to noncritical care physician-supervised programs. Thus there is no rigorous way of knowing whether there is an outcome benefit from having critical care physicians as members or leaders of the team as compared to another specialty. Historically, though, it is clear that most programs reported in the literature have chosen to use intensivists as the leaders of their teams. Where intensivists are not readily available, however, general anesthesiologists are extremely well-suited to lead RRTs.

Professionally, leadership of RRTs by intensivists makes intuitive sense. Intensivists are the best-educated and best-equipped physicians to take on leadership roles since the inherent purpose of RRT programs is to recognize and intervene in the development of critical illness. While the patient may not yet be an ICU patient or may not have deteriorated to the point of requiring transfer to an ICU, the care rendered is "intensive care," creating an "ICU without walls" phenomenon.

"Published data imply that the prevalence of adverse events ranges from 4 percent to as high as 16 percent of all hospital admissions, with one study showing that more than 13 percent of adverse events ultimately led to the patient's death."

Through this "out-reach," one suggested additional benefit of RRTs is the potential reduction in unanticipated ICU admissions. While the data have yet to bear this out, patients who deteriorate to a critical event such as cardiorespiratory arrest or septic shock will inevitably be admitted to the critical care unit. Even when patients visited by an RRT still require admission to the ICU, early pre-ICU care may yield benefits in terms of mortality in the ICU and length of stay. Unfortunately there is insufficient data available to make those outcome determinations at the present time.

Through expansion of our practice to the general wards, we may be able to prevent adverse events, thereby improving patient safety and reducing poor outcomes. The potential reductions in in-hospital cardiac arrest and in-hospital mortality from having RRTs, when applied to all general wards admissions across the United States, should yield an improvement in lives saved on the same order of magnitude as staffing ICUs with intensivists. Through leadership of RRTs, intensivists may bring their expertise to the hospital-wide community, adding value to their care.

Anesthesiologist/intensivists are perhaps the best qualified of all critical care physicians for this role by virtue of their extensive education and experience in physiology and pharmacology, airway management and nonsurgical invasive procedures. Patients progressing to critical illness often require the benefits that all of these skills bring. Additionally,

Continued on page 25

Changing Concepts of Transfusion Triggers: Lessons From the ICU

Stephen D. Surgenor, M.D., M.S.

Michael H. Wall, M.D., F.C.C.M.

Despite decades of effort, red blood cell (RBC) transfusion practice remains suboptimal. Large variations in the indications for and timing of RBC transfusion have been documented among coronary artery bypass graft (CABG) surgery patients that are not explained by patient or surgical variables, but rather by differences in provider and institutional preferences.[1]

This variation persists despite the availability of practice guidelines. One of the oldest transfusion triggers is the "10/30" rule, which originated from comments made by Adams and Lundy in 1942.[2] Several transfusion guidelines have been published more recently based on the best available evidence. While medical guidelines are believed to be an efficacious method to improve patient care, they have been ineffective in reducing unwarranted transfusions for three reasons.

First, a prescribed hemoglobin trigger is not appropriate for all patients and clinical settings because a consistent physiologic deterioration is not observed among all patients as the hemoglobin falls. Second, many physicians remain unaware of these transfusion guidelines. Finally, there really has not been a clear understanding of the risks of anemia relative to the risks and potential benefit of RBC transfusion.

Risks of Anemia

There are numerous reports of severe anemia being well-tolerated in healthy subjects. Acute normovolemic hemodilutional anemia has been safely performed with animal models in dogs and baboons as well as with human subjects with and without surgery. Data from patients who decline RBC transfusion for religious reasons suggest that mortality is more related to substantial blood loss than a low preoperative hematocrit. The effect was significantly more pronounced among patients with cardiovascular disease.[3]

Studies from several prospective observational cardiac surgical databases have reported the association of hemodilutional anemia during cardiopulmonary bypass (CPB) and an increased risk of renal failure, stroke and mortality during CABG surgery. Plausible explanations for these observations include injury as a result of exposure to hemodilutional anemia or to intraoperative RBC transfusions administered as treatment for anemia. A recent report by the Northern New England Cardiovascular Disease Study Group observed that among patients managed without intraoperative RBC transfusion, exposure to hemodilutional anemia during CPB was associated with increased need for prolonged inotropes, post-CPB intra-aortic balloon pumps and return to CPB after initial separation.[4] These observations support the concept that intraoperative anemia reduces the oxygen supply available to the tissues to adequately meet demand, leading to ischemic tissue injury and subsequent adverse outcomes.

Risks of RBC Transfusion

During the 1990s, the risks of RBC transfusion seemed to be well-characterized. For example viruses such as cytomegalovirus, hepatitis C, hepatitis B, HIV and HTLV can be transmitted by RBC transfusions. Evidence has been accumulating more recently, however, that RBC transfusions are complex biologic products capable of initiating a systemic inflammatory response, inducing nonspecific immunosuppression and perhaps occluding local microvasculature, causing local tissue hypoxemia. Observational evidence to support immunomodulation by RBC transfusions includes: 1) improved renal transplant outcome; 2) increased risk of cancer recurrence and postoperative infection; and 3) increased

Stephen D. Surgenor, M.D., M.S., is Associate Professor and Chief of Critical Care Medicine, Dartmouth Hitchcock Medical Center, Lebanon, New Hampshire.

Michael H. Wall, M.D., F.C.C.M., is Associate Professor, Vice-Chair for Clinical Affairs and Director of Cardiothoracic Anesthesiology, University of Texas Southwestern Medical Center, Dallas, Texas.

risk of acute respiratory distress syndrome and multiorgan failure among patients previously exposed to RBC transfusions.

Benefits of Transfusion

Several studies evaluating transfusion in adults with critical illness sepsis and acute coronary syndromes have been published and will be briefly reviewed.

The first large, prospective, randomized trial of transfusion therapy in critically ill patients without active bleeding was published seven years ago.[5] The Transfusion Requirements in Critical Care, or TRICC, trial evaluated a restrictive transfusion strategy maintaining hemoglobin between 7 and 9 gm/dL versus a liberal strategy maintaining hemoglobin between 10 and 12 gm/dL. Inclusion criteria included anemic euvolemic patients who were not actively bleeding. Patients with chronic anemia or following cardiac surgery were excluded, and a large number of patients with significant coronary artery disease were not enrolled in the study at the discretion of the attending physician.

This study showed that the restrictive strategy was "at least as effective as and possibly superior to a liberal transfusion strategy." Furthermore, subgroup analysis showed an association of *improved* 30-day survival in patients younger than 55 years old or those with APACHE II scores lower than 20 managed with the restrictive strategy.

Another subgroup analysis of 357 patients with cardiovascular disease showed no difference in mortality rates between the restrictive and liberal strategies for this subgroup.[6] A trend for decreased survival was observed, however, for patients in the restrictive group with the diagnosis of acute coronary syndromes (ACS) [ACS, acute myocardial infarction (AMI) or unstable angina]. Because of these findings, the authors stated that a restrictive transfusion strategy "appears to be safe in most critically ill patients with cardiovascular disease, with the possible exception of patients with AMI and unstable angina."

There are three observational studies that provide some further insight of treatment of anemia among patients with acute coronary syndromes. Wu et al. retrospectively analyzed 78,974 Medicare beneficiaries hospitalized with AMI.[7] Anemia on admission was associated with increased 30-day mortality, and transfusion of patients with hematocrit *less than* 30 percent was associated with improved survival. Rao et al. found different results when studying 24,112 patients with ACS who were prospectively enrolled in three trials (GUSTO IIb, PURSUIT and PARAGON B).[8]

This retrospective analysis of prospectively collected data showed an association between increased 30-day mortality and transfusion, which was significant for nadir hematocrit as low as 25 percent. This suggests that a nadir hematocrit as low as 25 may be tolerated in otherwise stable patients with AMI. The authors, however, caution that this data should not be used to change practice due to its retrospective nature. Finally Yang et al. retrospectively evaluated the effect of transfusion among 74,241 patients with ACS and also showed that patients who were transfused were associated with a higher risk of death or reinfarction.[9]

Together these observations provide conflicting results; therefore a prospective trial of transfusion among patients presenting with acute coronary syndromes needs to be done. Until then variation in RBC transfusion practice among this important population will most likely persist.

There is one other randomized trial that provides some evidence regarding the role of RBC transfusion as part of early goal-directed therapy for the treatment of sepsis or septic shock. Rivers et al. randomized septic patients to either standard resuscitation or an explicit goal-directed protocol.[10] RBC transfusions were indicated in the goal-directed protocol to maintain central venous oxygen saturation ($ScvO_2$) > 70 percent, if the hematocrit was < 30 percent. Patients in the early goal-directed therapy group required significantly more fluid, transfusions and inotropic therapy and had higher hematocrit than the standard therapy group. Patients in the early goal-directed group experienced superior hospital and 28-day and 60-day mortality compared to those patients managed with standard resuscitation. Because there were multiple interventions used in this protocol, it is not possible to separate the relative importance of RBC transfusion to the survival benefit.

How to Improve?

Since transfusion is not without risk and the "triggers" remain controversial, every effort should be made to minimize blood loss (use of blood conservation techniques) and optimize patients prior to and following surgery (use of erythropoietin, iron, etc.). Even taking this approach, though, transfusion may be needed. Unfortunately a single "transfusion trigger" cannot be applied to all patients. Instead the decision to transfuse needs to be based on several factors, including rate and amount of ongoing bleeding, acute versus chronic anemia and possibly physiologic triggers.

In acute hemorrhagic shock transfusion, decisions should be based on the rate and amount of hemorrhage. For euvolemic patients who are not actively bleeding, maintaining the hemoglobin between 7-9 g/dL is as safe as hemoglobin between 10-12 g/dL and, in fact, may be superior among patients younger than 55 years old or with APACHE II scores less than 20.[5] For patients in the early resuscitation phase of sepsis or septic shock, maintaining the hematocrit greater than 30 percent is reasonable if the response to fluids and inotropic therapy is not adequate.

For patients with significant cardiovascular disease, transfusion strategy is more controversial. In patients with

Continued on page 30

Chicago:

Welcome to the Neighborhood

Looking at a map of Chicago can really make a non-native lose his or her perspective. The endless boundary lines of the countless neighborhoods, all with different names and varying sizes, are liable to make one think that one is looking at a new map of some Balkanized country, fresh from a revolution.

When asked where he/she is from, a Chicagoan will never give this response: "Chicago." You will instead hear "Pilsen" or "Greektown" or "Edgewater" or "Sauganash." The city of Chicago is the product of its wildly diverse and ethnically unique neighborhoods. Perhaps no city in the country is more ethnically diverse, and therefore more unabashedly American, than Chicago. Such diversity has made Chicago what it is today: a big city of small neighborhoods that has become one of the world's great economic, cultural and artistic centers.

In 1930, as the Great Depression raged and his own popularity waned, Al Capone opened the first soup kitchen in Chicago.

The City That Smells

Although the Potawatomi Indians were native to the area, the first permanent settlement in what is now Chicago was founded in 1781 by a Haitian fur trader named Jean-Baptiste Pointe du Sable. The city's current name was taken from the Potawatomi word "Checagou" that roughly translates to "field of stinking onions," which might be the most humble nickname given to a city whose propensity for innovation and influence would garner countless other less "odorous" nicknames.

The town of Chicago was organized on August 12, 1833. Its population numbered 350. Upon being given a city charter in 1837 by the state of Illinois, however, the city began a growth spurt the likes of which had never been seen in the United States. Thanks to Chicago's geographically ideal location and proximity to waterways, it was soon to be the transportation hub of the United States. In 1870, the city's population had grown to around 300,000. By 1890, it was the second largest city in the nation, having grown to 1.1 million people in less than 60 years.

Later, just as Chicago had dominated commerce and transportation through water routes, railroads and highway,

it became the center of the air travel universe as well. Soon after its completion in 1927, Midway Airport (originally known as Chicago Municipal Airport) was the world's busiest until the early 1960s, when its Chicago neighbor, O'Hare International Airport, took that title away.

Growing UP

One of the most memorable events in the nation's history happened on October 8, 1871, when the Great Chicago Fire destroyed 3.5 square miles of the city, killing around 250 people and destroying 17,450 buildings. Following in line with a pattern of toughness and determination for which it would soon come to be famous, the city did not lament long about its losses. Instead, the fire was seen as a golden opportunity for Chicago's citizens to rebuild the city on a clean slate. And build they did.

In 1885, the 10-story Home Insurance Company Building became the first ever building to be built with an internal iron and steel frame rather than brick. And in 1891, the world's first "skyscraper" was erected, the 16-story Monadnock Building. From that point on, Chicago became synonymous with groundbreaking architecture. Chicago sports the world's largest commercial building, the Merchandise Mart, and the tallest building in the United States, the Sears Tower, which was the tallest building in the world from 1973 to 1998. Currently, three of the top five tallest buildings in the United States are in Chicago.

My Fair City

It was around the time of the 1893 World's Columbian Exposition (a.k.a., the Chicago World's Fair) that the city picked up perhaps its most famous moniker, The Windy City, so named because of the residents' fondness for boasting about their accomplishments. The World's Exposition attracted 27 million visitors — one-half of the entire U.S. population at the time! The many products and innovations introduced at the fair quite literally changed the lifestyles of people in the United States and the world. Among the new products introduced were Cracker Jack caramel-coated popcorn and peanuts, Cream of Wheat, carbonated soda, Pabst Beer, Shredded Wheat, the Ferris Wheel and the concept of the carnival. Also, that most ubiquitous and American of foods, the hamburger, was introduced to the United States during the fair. More importantly, though, the World's Columbian Exposition established the United States as a key

Second to None: A list of Chicago firsts

- Founded in 1891 by African-American surgeon Daniel Hale Williams, Provident Hospital in Chicago was the first interracial hospital in the United States.
- The first television soap opera, "These Are My Children," was broadcast in Chicago in 1949.
- On December 2, 1941, Enrico Fermi and his team at the University of Chicago released the first controlled atomic nuclear chain reaction.
- In 1937, Chicago became home to the first blood bank in the United States.
- In 1942, Wrigley Field, home of the Chicago Cubs, became the first baseball park to feature organ music.

The Art Institute of Chicago

Chicago's most popular destination: Navy Pier

The Old Water Tower on Michigan Avenue

With 1,300 students, the University of Illinois-Chicago College of Medicine is the largest medical school in the United States.

player in world economics and politics, and its success was a testament to Chicago's burgeoning "I Will" energy and spirit. That spirit can still be seen in the structures built for the exposition that stand to this day. The Field Museum, Soldier Field, the Shedd Aquarium and the Adler Planetarium are permanent reminders of Chicago's vibrant past and its current standing in world culture and the scientific community.

The City That Keeps Working

Perhaps no other U.S. city better exemplifies American productivity and inventiveness than the "City That Works." The same attitude that saw the city's meteoric rise to prosperity in the 19th century is still alive today. Modern-day commodity trading and futures were established in Chicago, and it is a little-appreciated fact that the city's gargantuan pork and beef industries in the 1860s represented the very first global industry. Henry Ford modeled his Model-T assembly lines after Chicago's efficient and successful meat-packing plants. Currently, the Chicagoland area is home to the second largest concentration of Fortune 500 companies in the United States. And here's a statistic that really puts Chicago's economic impact on the world in perspective: If Chicago were a nation-state, its gross domestic product would rank 18th in the world!

The People

Chicago's geographic location is no doubt much of the reason for its economic and cultural successes. But it's the people that made, and make, Chicago work. Waves of German, Irish, Italian, African-American and Polish immigrants flocked to Chicago in its formative years, and new immigrants continue to add to the city's melting pot. There are more people of Polish descent in Chicago than any place other than Poland itself, and the city has the largest population of Swedish-Americans and the largest Assyrian population in the country, to name just a few of the diverse ethnicities that mark the city and its neighborhoods.

Annual Meeting Kind of Town

Chicago is the birthplace of jazz and urban blues, and home to one of the world's most prestigious symphony orchestras. It is the birthplace of the iconic Walt Disney, and was the home of infamous gangsters Al Capone and John Dillinger. It can be one of the coldest U.S. cities in winter, and one of the most stiflingly hot in summer. It is home to some of the most highly regarded fine dining establishments in the world, and its favorite dish is pizza. It is a city separated North and South by rival baseball teams with rabid loyalties. It is a city of neighborhoods of wild contrasts that manage to work together just well enough to make it one of the most important, efficient and influential cities on earth.

On October 7, 1997, the Chicago City Council passed a resolution that absolved Mrs. O'Leary and her cow of all the blame for the Great Chicago Fire of 1871.

So when you come to Chicago for this year's Annual Meeting, no matter who you are, you won't have to look far to find a place that you can call home, at least for a little while.

Translational Critical Care Research — Collaboration Across the Sea

Continued from page 17

multiple institutions. Since inflammation is a universal condition, ethnic and national diversity in the patients to be studied is an added benefit.

The examples presented here highlight that translational research has a much wider meaning than in the past. It requires the interaction of investigators with different specialties and fields of expertise. We are anesthesiologist/intensivists, but our colleagues and collaborators are surgeons, pulmonologists, critical care internists, infectious disease specialists, biochemists, cell and molecular biologists and a host of others. Research is complex. The more experts involved, the better.

Critical illness is not limited by country or continent. Worldwide cooperation may well be the key to providing our patients with the care they deserve.

2006 Annual Meeting Learning Tracks

The 2006 Annual Meeting in Chicago will incorporate eight full learning tracks as the Annual Meeting is planned and organized according to educational content. The inclusion of tracks in the meeting has progressed since 2004, when two tracks were introduced. Track offerings were increased to four in 2005. In 2007, content will be organized into the full complement of 10 tracks.

The 2006 learning tracks are: ambulatory anesthesia, cardiac anesthesia, critical care medicine, neuroanesthesia, obstetric anesthesia, pain medicine, pediatric anesthesia and regional anesthesia. Content also will be offered in the areas of basic science/clinical anesthesia and professional issues.

A track is a concentrated curriculum on a focused area presented throughout the meeting. A key concept of the track system is to highlight aspects of subspecialty care that interest a broad audience. The track format is intended to foster the integration of subspecialty anesthesiologists with the needs of the membership as a whole. Track content will be spread across the entire five days (October 14-18) of the meeting and will consist of a variety of learning formats: Refresher Courses, workshops, panels, luncheon panels, point-counterpoint sessions, Problem-Based Learning Discussions and Breakfast Panels. Tracks will not be assigned to specific days.

Most sessions will be held at McCormick Place. Because ASA hotels are not adjacent to McCormick Place, and to allow adequate travel time to the sessions, the schedule has been altered so that many sessions will begin at 9 a.m. Breakfast Panels will begin at 7 a.m. and conclude at 8:15 a.m., again to allow time for attendees to take the shuttle to McCormick Place in time for the next sessions. The Committee on Annual Meeting Oversight also has standardized sessions by type and starting times.

All exhibits will be located at McCormick Place. Medically Challenging Cases, introduced last year in the exhibit hall to provide an opportunity to discuss particularly interesting cases, will be featured again.

Co-headquarters hotels will be the Chicago Hilton and Towers, Chicago Marriott Downtown and Hyatt Regency Chicago.

Special sessions will include a Tuesday plenary lecture on translational research given by John B. West, M.D., Ph.D., D.Sc., Distinguished Professor of Medicine and Physiology, University of California, San Diego. A future *NEWSLETTER* article will provide additional information about Dr. West. A new simulator session planned by the Committee on Outreach Education and its Simulation Education Workgroup will be offered on Saturday.

SAVE THE DATE!

2006 ASA Annual Meeting
October 14-18
McCormick Place
Chicago, Illinois

Rapid Response Teams: The Role for Anesthesiologists and Anesthesiology-based Intensivists

Continued from page 19

while there is no hard data to support availability of RRT services 24 hours a day, seven days a week, it seems incredulous not to do so. The RRT studies reported data on the timing of events; calls were either spread evenly throughout the day and night or tended to occur more at night. Since teams need physician coverage 24 hours a day, physician services already designed to provide this level of commitment are the best choice for leadership. Anesthesiologists and/or anesthesiologist/intensivists, in many instances, provide 24-hour-per-day hospital coverage. Few other physician specialties except trauma and emergency medicine provide such coverage.

Thus the nature of our practice — vigilance, rapid assessment and aggressive intervention, coupled with our broad expertise in medical and surgical issues and a nearly ubiquitous physical presence — puts anesthesiologists, particularly those with critical care education, in a position to be the natural and best-equipped leaders for RRTs.

References are available on the ASA Web site at <www.ASAhq.org/Newsletters/2006/04-06/winters.html>.

Benchmarking Your Group's Clinical Productivity: *Survey Says ...*

Amr E. Abouleish, M.D., M.B.A.
Committee on Practice Management

"Do we work harder than others?"

"Do we work longer hours than others?"

"Are we as productive as we should be?"

The Medical Group Management Association (MGMA) recently published a cost survey of anesthesia practices. MGMA conducted this survey in collaboration with ASA. Titled *Cost Survey for Anesthesia Practices: 2005 Report Based on 2004 Data,*[1] it includes 119 groups, almost all of them private practice. This publication has a wealth of information that helps to benchmark financial, business and staffing activities as related to anesthesiology groups. In addition this publication, in combination with the previously published survey[2] of the Society of Academic Anesthesiology Chairs/Association of Anesthesiology Program Directors (SAAC/AAPD), allows anesthesiology groups to benchmark and compare their clinical productivity with other hospitals and practices.

Prior to these two publications, there was no national survey of anesthesiology groups and hospitals that allowed anesthesiology groups to benchmark their activities. Some previous surveys, including ones from MGMA on physician productivity, have reported productivity measurements as "per FTE," e.g., ASA units per FTE (FTE = full-time equivalent). Since anesthesia care is provided in a variety of care models, from physician-only groups to medical direction groups, the concurrency (defined as number of operating rooms [O.R.s] covered per anesthesiologist) ranges from 1.0 to 4.0. These differences in concurrency have made "per FTE" measurements unhelpful in benchmarking anesthesiology groups.[3] Comparisons using "per O.R." and "per case" have been shown to be more meaningful.[4]

The new survey by MGMA and the previous article of the SAAC/AAPD survey report data use "per O.R. site" and "per case" and break the data into smaller categories to facilitate group comparisons. The MGMA survey breaks down data by size of group, staffing model and government payer mix. The SAAC/AAPD survey breaks down data by size of hospital, type of hospital and type of surgical staff.

The main goal of this article is to inform ASA members that this data is now available. I will briefly show some examples of how this information can be used. For a detailed discussion of benchmarking clinical group productivity, the reader is referred to the discussion section in the second reference.

Surgical Duration: In hospitals that train surgery residents, the surgical

Amr E. Abouleish, M.D., M.B.A., is Professor, Department of Anesthesiology, University of Texas Medical Branch, Galveston Texas.

duration per case is expected to be longer than in hospitals with fully trained surgeons. In the SAAC/AAPD survey, the difference is seen when comparing community hospitals and academic medical centers or when comparing a private-practice surgical staff with an academic staff. The MGMA survey finds the median hours per case (hrs/case) for private practice was 1.6 hours. In the SAAC/AAPD survey, the median hrs/case for academic was 2.6 hours. The longer surgical duration results in lower hourly productivity (defined as total ASA units billed per hour of care, tASA/h).[5] In other words, groups that provide care for slower surgeons will need to work more hours to produce the same number of units as those working with faster surgeons.[6]

Hours (Billed) Per Day: We all have a perception that we work hard. One of the ways to determine if one is working harder than others is to compare if one is working longer hours. Unfortunately it is not possible to determine actual hours worked since turnover time, delays and waiting for patients/surgeons are all nonbillable time. On the other hand, the billable time is comparable. In both survey results, hours billed per O.R. are reported. I prefer to divide the yearly number by 250 days to approximate the hours billed per O.R. per day (h/O.R./d) — a more manageable number to compare. As one may expect, the median h/O.R./d differs among different types of practices and hospitals. Ambulatory surgical centers have the lowest, followed by community hospitals, and the longest is at academic medical centers.[2] As in all benchmarking, comparing oneself to similar practices/hospitals is more informative than comparing to overall data.

Cases Per O.R.: Despite many obvious limitations to the measurement, one of the most common numbers consultants use to determine if an O.R. is working well is the number of cases performed annually per O.R. (cases/O.R.). For instance some consultants use 1,000 or 1,200 cases per O.R. as the benchmark for an O.R. But is this a reasonable number? The problem is that both h/case and h/O.R./d impact the number of cases/O.R. So simply applying one number for all practices or hospitals can lead to erroneous conclusions and recommendations. If a group wishes to utilize cases/O.R. for its own benchmark, it is now possible to determine the correct benchmark of cases/O.R. *for the specific group.*

To determine this, the group needs to know two items: 1) the benchmark h/O.R./d that it will use and 2) the group's own average h/case. The benchmark h/O.R./d should be from similar groups and hospitals. For example the median value for private-practice groups (from the MGMA survey) is 5.5 h/O.R./d and for academic groups (from the SAAC/AAPD survey) is 7.4 hours (equals 1,375 and 1,850 h/O.R./yr, respectively). A group can then divide this benchmark by the group's h/case. If a private-practice group's average duration is 1.5 hours, then using the MGMA h/OR/d, the group's specific benchmark would be 916 cases/O.R./yr. For an academic group with an average duration of 3.0h and using the SAAC/AAPD benchmark, the group's specific benchmark would be 617 cases/O.R./yr.

Editor's note: ASA members may purchase the 2005 MGMA report at member price via the ASA Web site at <www.ASAhq.org>.

"If a group wishes to utilize cases/O.R. for its own benchmark, it is now possible to determine the correct benchmark of cases/O.R. for the specific group."

Total ASA Units Per FTE: Similar to cases/O.R., consultants have historically used "units/FTE," and many administrators still wish to use this measurement as a benchmark, despite its limitations. Again, using the new survey results, the group can determine what the correct benchmark is *for the specific group*. A group must first determine the average concurrency for the group, then multiply this number by the benchmark total ASA units per O.R. (tASA/O.R.) of similar practices/hospitals. For example if an academic group has an average concurrency of 1.6 O.R./faculty, then using SAAC/AAPD median tASA/O.R. for academic medical centers (12,600 tASA/O.R.), the benchmark for the specific group would be 20,160 tASA/FTE. Obviously as concurrency or tASA/O.R. changes, the resultant group-specific tASA/FTE will change. This benchmark is for the group, however, and applying it as an individual benchmark may be incorrect.

The good news is that the data are now available to benchmark clinical productivity of O.R. anesthesia groups. The future looks good as well. All groups should ask their administrators to participate in the 2006 MGMA/ASA survey, which should be sent out soon. All participants in the survey will receive a free copy of the results! The 2006 MGMA survey also will collect data specific to pain management clinics and hopefully have enough data to report.

Continued on page 32

Practice Management Conference: *Colorful, Dramatic, Helpful*

Robert E. Johnstone, M.D., Chair
Committee on Practice Management

2006 Practice Management Committee members at Conference

Front row: Eric W. Mason, M.D., Paul Rein, D.O., Barbara M. DeRiso, M.D., Genie Blough, M.B.A., Gary W. Kimzey, M.D., Susan Dobbs Curling, M.D., Steven L. Sween, M.D., Linda B. Hertzberg, M.D., Frank A. Rosinia, M.D. Back row: Ronald Szabat, J.D., LL.M., Jack S. Folbe, M.D., Robert E. Johnstone, M.D., Asa C. Lockhart, M.D., Karl E. Becker, Jr., M.D., David C. Mackey, M.D., Michael W. Champeau, M.D., Alex A. Hannenberg, M.D., Karin Bierstein, J.D., and Gifford V. Eckhout, Jr., M.D. Photo by Robert E. Johnstone, M.D.

Four hundred and seventy anesthesiologists and administrators attended the 2006 Conference on Practice Management in Orlando, Florida. Held the last weekend of January, this was the 13th annual conference. Attendees rated it the best so far. Planning the conference is a primary activity of the Committee on Practice Management [see photo above].

Robert E. Johnstone, M.D., is Professor of Anesthesiology, West Virginia University, Morgantown, West Virginia. He is the ASA Director from West Virginia.

New for the 2006 conference were exhibitors, an evening reception and a final wrap-up panel. Exhibit space sold out early and ensured a sizable profit for the conference. The evening reception facilitated networking among the attendees and discussions with graduates of the ASA Certificate in Business Administration program.

Fourteen anesthesiologists, six attorneys, three consultants and two administrators lectured. They covered such diverse practice management topics as strategic development, contracting, information systems, quality management, pay-for-performance (P4P) programs, handling disruptive colleagues and customer service. Three breakout sessions grouped presentations on practice issues, administrator views and improving quality.

Attendees described the conference speakers as colorful, dramatic, informed and helpful. Following are quotes that illustrate these descriptions:

"Disruptive physicians rarely seek professional help on their own, nor do they even recognize the effects of their behavior. So it may be up to you — just like some pediatric

Table 1. Discussion Tables at 2006 Conference on Practice Management

Anesthesia and Pain Coding
Sharon Merrick, CCS-P

Group Contracts With Hospitals
Frank A. Rosinia, M.D.
K. Reed Landmark, M.B.A.

Negotiating Pay-for-Performance Contracts
Stanley W. Stead, M.D., M.B.A.
Judith Semo, J.D.

Negotiating With Payers
Genie G. Blough, M.B.A., F.A.C.M.P.E.
Gary W. Kimzey, M.D.
Karin Bierstein, J.D., M.P.H.

Customer Service and Anesthesiologists
Joanne M. Conroy, M.D.
Jody Locke, C.P.C.

Using Locums and Other Independent Contractors
Eric W. Mason, M.D.

How Does a Prosecutor Think?
Gene Rossi, J.D.
Mark Lytle, J.D.

Improve CRNA and AA Production and Satisfaction
Steven L. Sween, M.D.

Medicare Issues
Alexander A. Hannenberg, M.D.
Norman A. Cohen, M.D.
Ronald Szabat, J.D., LL.M.

Cope With JCAHO
Jerry A. Cohen, M.D.

Reduce Your Risks/Handle Litigation
Ann S. Lofsky, M.D.
Christopher Spevak, M.D., M.P.H., J.D.

Ways for Academic Anesthesia to Survive
David C. Mackey, M.D.

Making Pain Medicine Profitable
Karl E. Becker, M.D., M.B.A.

Anesthesia Information Systems
Michael O'Reilly, M.D., M.S.
Gifford V. Eckhout, Jr., M.D.

Group Leadership and Dynamics
Thomas E. McDonnell, M.D., M.P.H.

Grow and Market Your Practice
Will Latham, M.B.A.

What's the Future?
Robert E. Johnstone, M.D.
Roger A. Moore, M.D.

Handle Disruptive Colleagues
James S. Hicks, M.D.
Jack S. Folbe, M.D.

How to Compensate Partners — Production vs. Equal Division
Paul Rein, D.O.
Michael W. Champeau, M.D.

Improve O.R. Efficiency and Quality
Barbara M. DeRiso, M.D., M.B.A.
Linda B. Hertzberg, M.D.
Zeev N. Kain, M.D.

How to Recruit
Asa C. Lockhart, M.D.

anesthetics — to hold them down and bring that realization to them." James S. Hicks, M.D., in "How to Handle Disruptive Colleagues: Leadership Responsibilities."

"Each subsequent meeting was something completely different than the last. New demands were made by the hospital, accompanied by requests for additional data. By now, their intentions were clear. We were never going to reach a deal. This was just a stall to allow them to secure locums coverage." Reed Landmark, M.B.A., in "Lessons Learned in Navigating the Loss of a Hospital."

"P4P systems must be a value-added for both health plans and providers. Health plans will have to justify the value of P4P programs by proving they are clinically relevant, offer incentives that improve margins, provide sufficient patient volume and use measures that are easily administered." Stanley W. Stead, M.D., in "Pay-for-Performance: How Anesthesiology Can Participate."

"Inevitably, surveyors will find problems, and staff will be tempted to argue. This is to be avoided. It is better to defer to a more knowledgeable individual than to keep digging when in a hole." Jerry A. Cohen, M.D., in "The Joint Commission Tap Dance — How to Stay in Step."

Speakers, practice management committee members and expert anesthesiologists led 21 discussion tables [Table 1]. These proved popular as attendees moved among discussion groups and shared their own experiences. Committee members volunteered their time and found participation personally valuable.

Members can purchase copies of individual presentations, as well as the entire syllabus, through the "Practice Management" section of the ASA Web site. Planning is now under way for the 2007 Conference on Practice Management in Phoenix, Arizona, on January 26-28, 2007. Registration will open at the ASA 2006 Annual Meeting in Chicago this October.

MHAUS to Offer Two Writing Awards

The Malignant Hyperthermia Association of the United States (MHAUS) is pleased to announce the availability of awards in the amount of $2,000 and $1,500 to the first-place and second-place authors, respectively, of manuscripts related to malignant hyperthermia (MH).

MH is an inherited disorder of muscle that is "triggered" by commonly used anesthetic agents and may lead to death or disability. Early diagnosis and prompt treatment is the key to reducing morbidity and mortality related to MH. MH may occur at any time during an anesthetic whether in a hospital, ambulatory surgery center or an office-based setting. A large variety of programs have been developed by the scientific panel at MHAUS in order to increase awareness of the syndrome and its manifestations, including procedure manuals for recognizing and treating MH applicable to the hospital or to the ambulatory surgery center, a continuing medical education-accredited slide show and a variety of publications.

In order to promote awareness of MH and its various manifestations and to encourage continued study of the syndrome, Mr. George Massik, a founding member of MHAUS, has graciously offered to support two writers' awards. The Daniel Massik Fund at The Foundation for Jewish Philanthropies in Buffalo, New York, was established by Mr. Massik in memory of his son who died from MH. These awards will provide a stipend of $2,000 for first place and $1,500 for second place to an anesthesiology resident/fellow or an anesthesiologist who is within five years of ending his/her training to attend the ASA Annual Meeting or, in special circumstances, another meeting of similar merit.

Award Details

The awards will be given to the primary author of the best manuscript concerning malignant hyperthermia. The format may be a case report, literature review or original study.

- The document should address a significant issue related to the problem of malignant hyperthermia.
- Those participating must currently be a *resident/ fellow in anesthesiology or an anesthesiologist who is within five years of ending his/her training*.
- The paper must be a minimum of three double-spaced typed pages and a maximum of 10 pages. The author's curriculum vitae should be included.
- The paper must not be in any stage of publication.

Deadline for receipt of the manuscript in the MHAUS office is **August 1, 2006.**

The award will be presented at the annual MHAUS Recognition Reception at the ASA Annual Meeting in Chicago, Illinois, this October 2006.

Winners will be notified by August 31, 2006, to allow for coordination of travel plans.

For further information regarding the application process for this award, please contact Gloria Artist, MHAUS, at P. O. Box 1069, Sherburne, NY 13460, by fax at (607) 674-7910 or by e-mail at <gloria@mhaus.org>.

Changing Concepts of Transfusion Triggers: Lessons from the ICU

Continued from page 21

a history of cardiovascular disease, but *without* an acute coronary syndrome, maintaining the hemoglobin between 7 to 9 g/dL appears to be safe. The management of anemia in patients with acute coronary syndromes, however, remains confusing at best, and firm recommendations will have to await prospective randomized trials.

Clearly these trials and observations among critically ill patients have advanced our knowledge regarding the transfusion management of specific populations of patients, many of whom frequent both operating rooms and critical care units. Transfusion, though, is controversial in large patient populations such as cardiac surgery and acute coronary syndromes. In these patients, transfusion decisions based on the risks of anemia versus the risks and benefits of transfusion will be made at the bedside and, for now, remain part of "the art of medicine."

References are available on the ASA Web site at <www.ASAhq.org/Newsletters/2006/04-06/surgenor.html>.

Balance Billing When You Don't Have a Contract With the Health Plan

Karin Bierstein, J.D., M.P.H.
Associate Director of Professional Affairs

Anesthesiologists, like other hospital-based physicians, do not always have a contract with the health plan in which their patients are enrolled. Obtaining payment for their services can be a challenge. Should they bill the health plan or the patient? How much can they collect?

The answers to these questions depend principally on state law, which governs commercial health insurance. Many states ban balance-billing for amounts beyond plan copays and deductibles by contracted physicians. (On the federal level, physicians may not charge Medicare patients for more than the allowable amount, and they may not balance-bill Medicare Advantage plan enrollees at all.)

Few of the state statutes address the rights of non-contracted providers, however. A Los Angeles County appellate court recently looked at whether the California statute prohibiting balance-billing extended to non-contracted emergency physicians and decided, on February 17, 2006, that it did not. The decision in *Prospect Medical Group, Inc. v. Northridge Medical Group, Inc.* will almost certainly be appealed to the California Supreme Court, where its fate is uncertain. Until and unless it is overturned, however, it has precedential value in California, and judges in other states may follow its sound reasoning.

As Mark F. Weiss, Esq., a Los Angeles lawyer who spoke at the January 2006 ASA Conference on Practice Management, wrote in a personal communication, "The implications for all non-contracted providers, especially hospital-based doctors, are tremendous. Many of my clients have suffered this take it or leave it, 'we're reporting you to the Department of Managed Care,' or worse treatment at the hands [managed care plans]."

The California statute at issue in *Prospect Medical Group* provides that patients shall not be liable to a health care provider for sums due under contracts between the provider and a health plan, and that the provider shall not attempt to collect from or sue the patient. This statute (Business & Professions Code Section 1379) is part of the Knox-Keene Health Care Service Plan Act of 1975, which was enacted as a comprehensive system to regulate health plans and ensure that they maintain an adequate network of physicians and other providers. The plaintiff in *Prospect Medical Group* claimed that there was an "implied" contract between itself and the defendant emergency physicians that both prohibited balance-billing the patients and limited the physicians to collecting a "reasonable" payment equal to the Medicare allowance.

The *Prospect* court disagreed. It held:

First, that there was no explicit or implicit contract barring balance-billing. The prohibition only applies where there are "voluntarily negotiated contracts" between physicians and health plans. The federal Emergency Medical Treatment and Labor Act (EMTALA), which requires hospitals providing emergency room services to do so without regard to a patient's insurance or ability to pay, did not give rise to an implied contract between the physicians and the third-party payer. Note that EMTALA covers labor epidurals placed by anesthesiologists; under the *Prospect* logic, though, it could not be interpreted to prevent non-contracted anesthesiologists from balance-billing obstetrics patient.

Second, that the defendant emergency physicians were not required to accept the Medicare rate as full payment from the plaintiff. The court ruled that it did not have the authority to impose any payment rate and that in any event the California Department of Managed Health Care (DMHC) had stated that the Medicare rate was not appropriate as a benchmark for a "reasonable" rate. (See inset/box).

Third, that the plaintiff health plan, like the defendant physicians, would be able to contest the reasonableness of the fee charged in court, although the court could not itself set the amount.

How much may non-contracted physicians charge?

In 2003, the California DMHC adopted a six-part test to

Medicare as a Benchmark for "Reasonable Value" — *Not*

"The Department *[California Department of Managed Health Care]* recognizes that these government programs *[Medicare, Medicaid]* **are not designed to reimburse the provider for the fair and reasonable value of the services and are therefore an inappropriate criteria.**" (DMHC Statement in the rulemaking record supporting the Knox-Keene regulations.)

determine the "reasonable and customary" rate for paying non-contracted physicians, basing it upon "statistically credible information that is updated at least annually and that takes into consideration:

- The provider's training, qualifications and length of time in practice;
- The nature of the services provided;
- The fees usually charged by the provider;
- Prevailing provider rates charged in the general geographic area in which the services were rendered;
- Other aspects of the economics of the medical provider's practice that are relevant; and
- Any unusual circumstances in the case.

This six-part test is not likely to lend itself to easy application. There is no guidance on valuing the physician's qualifications or "other aspects of the economics of the medical provider's practice that are relevant," and "unusual circumstances" are as nebulous as a regulation can get. One commentator has noted that "prevailing provider rates charged in the general geographic area" may include rates charged to contracted health plans and thus full charges would not be as important a benchmark as it might seem. In the end, the DMHC analysis is not unlike the traditional *"in quantum meruit"* standard by which courts evaluate the amount that a party receiving services should pay to the party furnishing those services in the absence of a contract. The theory behind the *in quantum meruit* principle is that if the receiving party would be unjustly enriched if he or she paid nothing, that party should pay for the reasonable value of the services, or, as one court put it, "for what health care providers actually receive for their services."

Some states have simplified matters by legislating the rates that physicians and other providers may charge to a non-contracted health plan. Maryland, for example, does prohibit balance billing for "covered services" and, in the case of health maintenance organizations (HMOs), sets the maximum amount that a provider may collect at 125 percent of the HMO's contract rate, or 140 percent for trauma care. In Colorado, if an HMO patient knowingly goes out of network rather than travel a "reasonable' distance to receive services from a participating provider, the plan is still liable to the provider for the lesser of (a) billed charges, (b) a negotiated rate or (c) the usual and customary rates, and the patient may be billed for the balance. Another way to simplify matters is to ban balance-billing patients outright, for both participating and nonparticipating physicians, as Connecticut has done.

Laws and regulations on balance-billing vary widely from state to state and also from one year to the next. Any anesthesiology practice contemplating its options for collecting for services provided to out-of-network patients needs to familiarize itself with the applicable local statutes and regulations. Both the American Medical Association and the American Health Lawyers Association offer their members state-by-state information on this subject.

Source Materials:

- Prospect Medical Group, Inc. et al. v. Northridge Medical Group, Inc., et al., B172737 (Cal. Ct. App., 2d App. Dist. 2006) (Court's decision and opinion)
- Lucas C. Non-Contracted Provider Billing: The "Who?" and the "How Much?" *Health Lawyers News;* October 2005, 7-12.

Benchmarking Your Group's Clinical Productivity: Survey Says …

Continued from page 27

References:

1. Medical Group Management Association. Cost survey for anesthesia practices: 2005 report based on 2004 data. Englewood, CO: MGMA, 2005.
2. Abouleish AE, Prough DS, Barker SJ, et al. Organizational factors affect comparisons of clinical productivity of academic anesthesiology departments. *Anesth Analg*. 2003; 96: 802-812.
3. Abouleish AE, Prough DS, Zornow MH, et al. Designing meaningful industry metrics for clinical productivity for anesthesiology departments. *Anesth Analg*. 2001; 93:309-312.
4. Abouleish AE, Prough DS, Whitten CW, et al. Comparing clinical productivity of anesthesiology groups. *Anesthesiology*. 2002; 97:608-616.
5. Abouleish AE, Prough DS, Whitten CW, Zornow MH. The effects of surgical case duration and type of surgery on hourly clinical productivity of anesthesiologists. *Anesth Analg*. 2003; 97:833-838.
6. Abouleish AE. Academic or private-practice groups: You still support surgical training programs. *ASA Newsl*. 2005; 69(9):10-11.

Opposition to Board of Nursing's Proposed Conscious Sedation Rules

Lisa Percy, J.D., Manager
State Legislative and Regulatory Issues

Over the past few years, the Florida Board of Nursing has solicited comments on its proposed Conscious Sedation Rules. The proposal was drafted in response to petitions for declaratory statements from registered nurses regarding the scope of practice of a registered nurse who is not a nurse anesthetist. Specifically the question was whether the administration of propofol and ketamine were within their scope of practice. The nursing board concluded that an R.N. could administer propofol under certain conditions but rejected petitions to administer ketamine. The R.N. could administer propofol pursuant to an order (written or verbal) if the patient is monitored and intubated. The R.N. must be trained in advance cardiac life support (ACLS) and must follow the policies and procedures of the facility.

Once the petitions for declaratory statements were heard, the nursing board published the proposed rules. The Florida Society of Anesthesiologists (FSA) and Florida Medical Association (FMA) submitted comments to the nursing board and Joint Administrative Procedures Committee (JAPC) expressing concerns. JAPC reviews agency rules to ensure that such rules do not exceed or conflict with the statutory authority delegated by the legislature to an agency.

Under the proposal, a R.N. qualified by training and education could administer limited medications to achieve conscious sedation pursuant to the order of a qualified anesthesia provider or physician. "Anesthesia provider" includes an anesthesiologist, physician or certified registered nurse anesthetist as authorized in a protocol agreement. The R.N. would be authorized and obligated to question orders and decisions that are contrary to standards of nursing practice and could refuse to administer medications that may induce general anesthesia or loss of consciousness. The R.N. would be required to have met the knowledge, education and competency requirements set forth in the rule, such as competence in patient assessment and the ability to administer medication through a variety of routes and to identify responses that are deviations from the norm. The R.N. or institution-based emergency response team would demonstrate skill in age-specific airway management and emergency resuscitation through ACLS, pediatric advanced life support, neonatal resuscitation program or equivalent training. The R.N. would have completed a program in conscious sedation developed by the institution or an approved continuing education provider. "Institution" includes a hospital, ambulatory surgery center, physician office setting, clinic or any other setting in which conscious sedation is utilized. The program would be, at a minimum, four hours in length and would contain information on drugs used during conscious sedation, assessment and monitoring of the patient receiving conscious sedation and recognition of emergency measures.

JAPC opposed the inclusion of nurse anesthetists as qualified providers who would be authorized to execute an order to an R.N. to administer anesthesia medications. Existing law does not extend such authority to a nurse anesthetist; their authority is limited to the prescription of pre-anesthesia medications. Moreover JAPC objected that the rule would not require supervision of the R.N. unless the purpose is to control the patient's airway, such as rapid sequence intubation. JAPC questioned the rationality of requiring supervision of a nurse anesthetist but not an R.N. Lastly JAPC opposed the training requirements of an R.N. The comments expressed reservation that a four-hour program would be sufficient due to the acknowledged the complexity of the subject matter and that the proposal should list criteria for successful completion. JAPC, FSA and FMA all objected to the possibility that the program could be developed by any institution where the conscious sedation is administered.

Although the nursing board has not amended the conscious sedation rules to accommodate JAPC's comments, it is unlikely that the current proposal would survive judicial scrutiny based on JAPC's assessment.

Kentucky — Anesthesiologist assistants (AAs) in Kentucky are currently classified as physician assistants (PAs) who hold dual certifications from a PA program and AA program. S.B. 175 would delete the PA requirement so that an individual would only be required to have graduated from an approved AA program.

The World Federation of Societies of Anaesthesiologists

John R. Moyers, M.D., Secretary
World Federation of Societies of Anaesthesiologists

The World Federation of Societies of Anaesthesiologists (WFSA) was established at the first World Congress of Anaesthesiologists in The Netherlands in 1955. At that time, there were 28 member societies. Currently there are 116 from nations across the globe. ASA members are encouraged to visit the WFSA Web site at <www.anaesthesiologist.org>, where they will find information about the Federation, its member societies, WFSA committees and the WFSA newsletter. Anesthesiologists throughout the world convene every four years at the World Congress of Anaesthesiologists. It is anticipated that more than 10,000 anesthesiologists from more than 135 nations will attend the next Congress in Capetown, South Africa, in March 2008.

Worldwide Education

The WFSA Education Committee has, as usual, been very active throughout the year under the direction of its Chair, Angela Enright, M.B. (Canada). The committee endeavors to work cooperatively with other organizations in support of education for anesthesiologists from more than 40 counties in the developing world. Highlights are included below:

Rwanda has been the scene of much anesthetic activity over the past two years. Through Phillip O. Bridenbaugh, M.D., chair of the ASA Overseas Teaching Program, and Dr. Angela Enright, representative of the Canadian Anesthesiologists' Society (CAS) International Education Fund, ASA and CAS are cooperating in assisting the Rwandans to develop a training program in anesthesia for their physicians. This effort is now just under way and will be a long-term project for both societies.

First Pediatric Fellow

In September 2005, the first Fellow in Pediatric Anesthesia arrived in Cape Town from Nairobi, Kenya. This was the culmination of many years of effort, particularly by program director Adrian Bosenberg, Ph.D. The Fellows have the opportunity to take part in all aspects of anesthesia for children, including regional anesthesia and pain management. One Fellow, Zipporah Gathuay, M.D., has even had her first publication, a case report in the *South African Journal of Anaesthesia and Analgesia,* and was scheduled to present a poster at the South African Society of Anaesthesiologists (SASA) Conference in March 2006. She writes: "I am very honored to be the pioneer of this program. It is very useful training, especially for Africa, as the pathologies encountered and patient populations are very similar to what I will be practicing in Kenya." Charles J. Coté, M.D., ASA member on the WFSA Executive Committee, has been instrumental in the development of this and similar pediatric anesthesia training programs in Santiago, Chile and Vellore, India.

Success in Ghana

A real success story of "teaching the teachers," the program in Accra, Ghana, has been a cooperative venture of ASA and WFSA. All regional hospitals in Ghana have now been supplied with those trained in anesthesia. There is now also a Fellowship Program of the Ghana College, and more trainees are applying for those positions. Since its inception in 2000, the training program has 15 graduates from Ghana, one from Sierra Leone and two from Nigeria.

Flagship Bangkok Program

The Bangkok Anaesthesia Regional Training Centre (BARTC) continues to be the flagship training program, very ably led by Professor Thara Tritrakarn. The ninth class included physicians from Bhutan, Myanmar, Mongolia and Cambodia. All the trainees spend seven months in a university hospital and then rotate to a provincial hospital for three months to prepare them better for work in their home countries. They spend their final month back at the university and then sit for their exit examination. All of the trainees were successful this year.

Israel Training Center

The Training Center in Beer Sheva, Israel, led by ASA affiliate member Gabriel M. Gurman, M.D., since its inception, continues to flourish. Beer Sheva concentrates on trainees from eastern Europe. This year saw two from Slovakia, four from Bulgaria, one from Moldova, two from Romania and four from Macedonia spend a month each at Beer Sheva. The following is an excerpt from a letter written by one of the Moldovan trainees: "The experience we gained during this course through Intensive Care Unit and

John R. Moyers, M.D., is Professor, Department of Anesthesia, Carver College of Medicine, University of Iowa, Iowa City, Iowa. He is the ASA Director from Iowa.

Operating Room activities is very important to us…. We studied application of laryngeal mask airway and fiberoptic laryngoscopy to difficult intubation, and participated in the anesthetic assistance of craniotomies. The Operating Room activities and the tour of Intensive Care Unit facilities of the Soroka Medical Centre exposed us to the latest developments in anesthesiology and set new professional aims, which we must achieve."

Education Materials for All

During the past year, the WFSA Publications Committee, chaired by Iain Wilson, M.B., (United Kingdom), has worked together to improve access to educational material for anesthetists worldwide. *Update in Anaesthesia* is published in English and translated into French, Spanish, Chinese and Russian. Apart from the Spanish edition, the others were published in a paper format due to the lack of Internet access in the distribution areas. The English, Russian, French and Spanish editions also are available on the Internet. Over the past year, the Publications Committee has continued its work on journal and book exchanges, which has been led by Berend Mets, M.B., Ch.B., Ph.D., (United States). Those willing to donate literature are asked to register on the World Anaesthesia Web site, where their information is collated along with those requesting books or literature. The system is run electronically and is starting to gather momentum. For more information, see <www.world-anaesthesia.org>.

An Editorial Board has been established to run the "Tutorial of the Week." This is a Web-based tutorial that changes on a regular basis to provide straightforward education for its participants. Because many anesthesiologists cannot access the Internet but can receive e-mail, an electronic version of the tutorial in simple text files will be developed. This will provide a powerful educational tool and, in time, will allow the committee to develop a curriculum for many anesthetists working in isolation, but who at least have the ability to access e-mail.

A Well-Run Organization

Dr. Bridenbaugh is chair of the WFSA Foundation. WFSA has a record of minimizing administrative costs and placing funds into publications and educational activities, especially in the developing world. There is more to be done, though. Dr. Bridenbaugh is doing an outstanding job in structuring the WFSA Foundation to get information about all the wonderful WFSA publications and educational activities into the hands of potential donors. In accomplishing this, the WFSA Foundation also is sensitive to the need to avoid competition with the various foundations within each of the member national societies.

ASA can be proud of its past and continuing support of our colleagues throughout the world through WFSA. In a continuously violent and dehumanizing world, the scientific and cultural diplomacy aspects of WFSA are our hope for sanity and our path to safe anesthesia care for our fellow human beings.

Nation's Capital Officially Licenses Anesthesiologist Assistants

Another significant milestone has been accomplished by the anesthesiologist assistant (AA) profession. AAs are now officially licensed to work in the nation's capital. In 2002 the D.C. Board of Medicine decided that it was appropriate for hospitals there to employ AAs, and it issued appropriate guidelines. The law creating AA licensure was passed by the D.C. Council in 2004, and the regulations were written last year. The actual licensing was approved this year.

So far, seven AAs work in D.C. Frederick Finelli, M.D., President of the Medical Staff of Washington Hospital Center and Chair of the D.C. Board of Medicine, says they will fill a major need.

"We have had a shortage of anesthesia providers for awhile," Dr. Finelli said. "AAs are helping to alleviate that shortage."

AAs are now licensed to work in 10 areas (nine states and the District of Columbia). They also can practice in six other states under "delegatory authority," meaning they are specifically requested by hospitals or physician anesthesiologists.

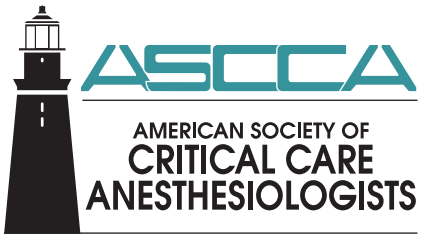
"States are recognizing our value as health care providers," according to Ellen Allinger, President of the American Academy of Anesthesiologist Assistants (AAAA) <www.anesthetist.org>. "This is because of our ability to fill the need for providers in a highly skilled manner as part of the Anesthesia Care Team. Our track record of safety speaks for itself as more states are welcoming us."

AAAA is a nonprofit association of graduates from accredited training programs specializing in the science and clinical practice of anesthesiology. AAAA establishes and maintains professional standards fostering and encouraging continuing education and research to all graduate AAs and enrolled students of accredited programs.

ASCCA: Supporting Critical Care at a Critical Time

Stephen O. Heard, M.D., F.C.C.M., President
American Society of Critical Care Anesthesiologists

Gerald A. Maccioli, M.D., F.C.C.M., President-Elect
American Society of Critical Care Anesthesiologists



The American Society of Critical Care Anesthesiologists (ASCCA) is a subspecialty organization within the greater ASA. ASCCA is the only professional association exclusively devoted to critical care medicine as practiced by anesthesiologists. Any anesthesiologist with an interest in care of the critically ill patient, however, is welcome to join.

Research

It is an exciting time to be an intensivist! Over the past decade we have learned that: 1) patients suffering from either acute lung injury (ALI) or acute respiratory distress syndrome (ARDS) when ventilated with a tidal value of 6 ml/kg ideal body weight will have reduced mortality and increased ventilator-free days compared to patients ventilated with a tidal value of 12 ml/kg ideal body weight;[1] 2) postoperative "tight" glucose control in intensive care unit (ICU) patients will reduce morbidity and mortality;[2] 3) treatment with human recombinant activated protein C (drotrecogin alfa activated) reduces mortality in patients with severe sepsis and septic shock whose APACHE II scores are greater than 25;[3] 4) elevation of the head of the bed in ventilated patients will reduce the incidence of nosocomial pneumonia;[4] 5) use of "stress" doses of hydrocortisone will reduce the duration of vasopressor support and mortality in patients with septic shock;[5] and 6) implementation of a multifaceted intervention program[6] and use of catheters impregnated with antiseptics or antibiotics[7] will reduce the risk of the development of catheter-related bloodstream infection. Anesthesiology-based intensivists were active researchers in a number of these seminal studies! Equally important, each of these studies affects the practice of operating room anesthesiology in some fashion.

" … one of the missions of ASCCA is the education of all anesthesiologists in caring for the critically ill."

Progress will continue in the care of our patients in the ICU. Much of that progress will come from basic science and clinical research. ASCCA is committed to providing support for ongoing research. With gracious financial means from Abbott Laboratories, ASCCA has partnered with the Foundation for Anesthesia Education and Research (FAER) to provide a yearly grant (ASCCA-FAER-Abbott Laboratories Physician Scientist Award) on a competitive basis to young anesthesiologists investigating issues of importance to the care of critically ill patients. Our most recent recipient is Pratik P. Pandharipande, M.D., from Vanderbilt University School of Medicine. The title of his grant is "A Randomized, Double

Stephen O. Heard, M.D., F.C.C.M., is Professor and Chair, Department of Anesthesiology, University of Massachusetts Medical Center and University of Massachusetts Medical School, Worcester, Massachusetts.

Gerald A. Maccioli, M.D., F.C.C.M., is ASA Director for North Carolina, and Chair, ASA Committee on Critical Care Medicine.

Blind Trial in Ventilated ICU Patients Comparing Treatment With an a2 Agonist versus a Gamma Aminobutryic Acid (GABA)-Agonist to Determine Delirium Rates, Efficacy of Sedation and Analgesia and Clinical Outcomes Including Duration of Mechanical Ventilation and 3-month Cognitive Status." Since it has been recently shown that delirium is an independent risk factor for death in the ICU,[8] Dr. Pandharipande's research plan is particularly timely. His research findings may well impact how anesthesiologists care for patients coming from or going to the ICU.

Education

"The Resident's Guide to the Intensive Care Unit" is an educational resource for anesthesiology residents that ASCCA developed more than a decade ago. It is now in the process of its third revision under the editorship of William E. Hurford, M.D., F.C.C.M. (University of Cincinnati) and Associate Editors Daniel S. Talmor, M.D. (Beth Israel Deaconess Medical Center, Boston, Massachusetts), Lawrence J. Caruso, M.D. (University of Florida) and J. Steven Hata, M.D. (University of Iowa). The goal is to change the guide to follow the new training requirements proposed by the Residency Review Committee for Anesthesiology of the Accreditation Council for Graduate Medical Education, e.g.: a) progressive curricula for residents and ICU fellows and b) have the document competency based. In addition the guide will ultimately be Web-based with hyperlinks to pertinent articles.

Membership

As noted previously, ASCCA welcomes any anesthesiologist for membership, not just intensivists. While the number of anesthesiologists practicing critical care medicine is in transition (see other articles in this *NEWSLETTER*), and the numbers are expected to grow, one of the missions of ASCCA is the education of *all* anesthesiologists in caring for the critically ill.

Advocacy

ASCCA is an active member of the Critical Care Workgroup (CCWG), which is a consortium of the six national specialty societies with interests in the practice of critical care medicine. The CCWG represents the economic interests of intensivists to the Centers for Medicare & Medicaid Services and the Relative Value Scale Update Committee.

Annual Meeting

The ASCCA Annual Meeting will be held on Friday, October 13, 2006, before the start of the ASA Annual Meeting. Program Co-chairs Louis Brusco, M.D., F.C.C.M., and Michael F. O'Connor, M.D., have posted the preliminary program at our Web site <www.ascca.org>. The meeting promises to be exciting and highly educational. Finally we are encouraging departmental chairs and program directors to sponsor one CA-2 resident to attend our meeting. Each resident who attends will be paired with a senior ASCCA member during the meeting to foster growth of our subspecialty.

References:

1. Ventilation with lower tidal volumes as compared with traditional tidal volumes for acute lung injury and the acute respiratory distress syndrome. The Acute Respiratory Distress Syndrome Network. *N Engl J Med*. 2000; 342(18):1301-1308.
2. van den Berghe G, Wouters P, Weekers F, et al. Intensive insulin therapy in the critically ill patient. *N Engl J Med*. 2001; 345(19):1359-1367.
3. Bernard GR, Vincent JL, Laterre PF, et al. Efficacy and safety of recombinant human activated protein C for severe sepsis. *N Engl J Med*. 2001; 344(10):699-709.
4. Kollef MH. Prevention of hospital-associated pneumonia and ventilator-associated pneumonia. *Crit Care Med*. 2004; 32(6):1396-1405.
5. Annane D, Sebille V, Charpentier C, et al. Effect of Treatment With Low Doses of Hydrocortisone and Fludrocortisone on Mortality in Patients With Septic Shock. *JAMA*. 2002; 288(7):862-871.
6. Berenholtz SM, Pronovost PJ, Lipsett PA, et al. Eliminating catheter-related bloodstream infections in the intensive care unit. *Crit Care Med*. 2004; 32(10):2014-2020.
7. Darouiche RO, Raad II, Heard SO, et al. A comparison of two antimicrobial-impregnated central venous catheters. Catheter Study Group. *N Engl J Med*. 1999; 340(1):1-8.
8. Ely EW, Shintani A, Truman B, et al. Delirium as a predictor of mortality in mechanically ventilated patients in the intensive care unit. *JAMA*. 2004; 291(14):1753-1762.

SVR, SGR and You: Why You Need the ASAPAC

Warren K. Eng, M.D., Senior Co-editor
"Residents' Review"

SVR versus SGR: Which is more critical to our future in anesthesiology? As we prepare for the 2006 in-training examination slated for Saturday, July 9, the systemic vascular resistance (SVR) equation, the arterial blood oxygen content equation and other formulae are among topics we must master in becoming successful practicing anesthesiologists.

However, one formula residents may not be aware of looms as a larger challenge to our future as anesthesiologists: Medicare's Sustainable Growth Rate (SGR) formula. The SGR system was meant to control the growth of Medicare's payments to physicians — yet in reality results in a 4-percent to 5-percent annual reduction in Medicare payments to anesthesiologists and other physicians, as it does not factor in increasing costs to provide services.

A complex formula based on gross domestic product, number of Medicare fee-for-service beneficiaries, input prices and various laws and regulations, the SGR has been criticized as flawed by ASA and other physician societies, the American Medical Association (AMA) and the Medicare Payment Advisory Commission. Its first implementation in 2002 resulted in a 5.4-percent reduction in physician payments.

Anesthesiologists in 2006 will not see their Medicare payments reduced — ASA and its allies have again successfully lobbied Congress this year to negate the cuts. Since 2003, Congress has passed one-year budget provisions restoring SGR-cut funds; however, these are temporary fixes that leave the SGR provision intact. Consequently, ASA, AMA and other physician groups are left to lobby representatives and senators on the same issue, every year.

What's a busy resident to do? Between clinical duties, reading, the in-training examination and family life, how do we defend our specialty against external threats such as the SGR formula and the Medicare Teaching Rule reimbursement policy (see the October 2005 "Residents' Review")?

Warren K. Eng, M.D, is a CA-2 resident at the University of North Carolina, Chapel Hill, North Carolina.

At a minimum, all residents should be aware of the ASA Political Action Committee (ASAPAC). ASA's voice in Washington, ASAPAC was founded in 1991 as a bipartisan lobbying body. ASAPAC is one of the top 100 PACs in Washington, D.C., and was instrumental in orchestrating negation of the SGR fee reductions for this year.

While one notes with pride that ASAPAC is among the top 100 PACs in Washington, it also is noteworthy that other top 100 PACs include the American Association of Nurse Anesthetists, the Association of Trial Lawyers of America and the American Hospital Association. Only 10 percent of ASA members donate to ASAPAC — while already loud, imagine how much stronger our voice would be in Washington if that participation was simply doubled to a measly 20-percent participation rate (or even higher)!

Membership in ASAPAC should not be a question! As we strive to become the best anesthesiologists possible, it is illogical to not sponsor a nonpartisan organization that ensures the continued viability of anesthesiology. For further information, go to the ASA Web site <www.ASAhq.org> and log in to the "Members Only" section.

The next level of resident participation might be the ASA Legislative Conference in Washington, D.C., from May 1-3. With various symposiums on pertinent regulatory/legislative issues and keynote speakers, the conference will culminate in congressional office visits on Capitol Hill. For more information, contact your state component or any ASA Resident Governing Council members at <www.ASAhq.org/asarc/index.html>.

New Residents and Procedures: A Tempest in a Teapot?

Michael S. Axley, M.D., Junior Co-editor
"Residents' Review"

Procedures are one of the things that make anesthesiology as a field so special — and they are an aspect of our specialty that can be a barrier to success, particularly early on.

Literature addresses proficiency in anesthesia procedures as well as the use of simulators and so on. I would like to approach the matter from the perspective of a CA-1 resident with roughly six months' training in anesthesiology.

During the first few months of our training, other first-year residents and I felt no small amount of anxiety surrounding even common procedures — I.V.s, arterial catheters, central lines — let alone more complex undertakings such are epidurals or regional blockade.

This happened despite heroic efforts by our residency director and our chief resident to ease the strain. Our chief resident was probably to the point where his wife could hear him mumble in his sleep: "It's O.K., don't worry about it — you're going to do plenty of those. It just takes time." Our director repeated a similar mantra: "I don't know of any resident who has failed to become a proficient anesthesiologist due to a lack of ability to perform procedures."

And yet, it was not all that comforting. A little, maybe, but I continued to miss lines. Why? Maybe because I had not done enough of them. Most of us have heard that it takes between 50 and 100 procedures of any one type to develop proficiency. One could posit that my anxiety regarding procedures was due to the fact that I had not yet ascended that part of the curve where things start to fall into place. Since this line of thinking deals with acquiring numbers, we might call it the "volume" hypothesis.

Enough procedures will, in the end, generate proficiency. But there may be a few things missing from this construct.

A recent grand rounds at our institution focused on issues surrounding the education of anesthesiology residents. The speaker, Karen J. Souter, M.B., suggested that research has identified different types of learners and that some types of learning may be better suited to anesthesiology than others.

For example she cited studies that defined differences between surface learning, or memorization to obtain rote knowledge, and the complex ability to respond to changing circumstances that is obtained by thinking through a particular objective in all of its permutations, preferably prior to an event. Another type of thinking was what she termed "strategic" — cram before the test, but compare and contrast multiple sources when there is less in the way of time pressure.

The point was it would seem that good anesthesiologists are going to demonstrate the latter two types of thinking. Furthermore it might be possible to usher residents out of one type of thinking style and into another more complex style, partly by teaching them about it.

What better way to get residents to concentrate more on effective thinking strategies than to apply those same strategies to our favorite activity?

Perhaps the way education takes place around procedures can be considered a surrogate for other types of education for the professionalism and attention to detail that we as residents very much want to acquire and that our staff is eager to instill.

So why not organize training for procedures early on? It is certainly reasonable to suggest that exposure to sheer volume is going to ultimately result in competent consultants. I would suggest that if we look at the procedures in their context, that is, as an integral component of a balanced anesthetic, we would like to have residents experience them with the same rigor and intellectual attention to performance that they bring, for example, to the preoperative interview. The difference here is that the preoperative interview, or H&P, has been coached, in an organized fashion, since the second year of medical school.

Am I suggesting that chairs and residency program directors should make room in their budgets for resident workshops dedicated to professionalism with regard to the different regional and anesthetic procedures? Why not? And there are side benefits as well.

For instance if surgeons clearly understand that we place real value on the systematic education of residents in the correct and timely procedures necessary to perform the appropriate anesthetic, perhaps they will be less inclined to agitate for changes that distance residents from those procedures.

I guess this could be considered a tempest in a teapot. I would submit, though, that the first year of anesthesiology training is quite a tempest, and there is no need for first-year residents to be grasping at their lines when the boat needs someone at the helm.

Michael S. Axley, M.D., is a CA-1 resident at Oregon Health and Science University, Portland, Oregon.

Announcement of Candidates for Elected Office

The ASA Board of Directors has approved regulations for the announcement of candidates for elected ASA office in the *NEWSLETTER*. The regulations are as follows:

1. On or before August 1, any candidate for ASA office may send to the Executive Office a notice of intent to run for a specific office.
2. The Executive Office shall prepare a list of candidates submitted to be published in the September *NEWSLETTER* and the Handbook for Delegates.
3. The announcement of candidacy does not constitute formal nomination to an office nor is it a prerequisite for being nominated.
4. Nominations shall be made at the Annual Meeting of the House of Delegates for all candidates as prescribed by the Bylaws.

Web Site Candidate Area

This area is to include the picture, brief curriculum vitae and statement of principle for each avowed candidate for the current year's election. ASA caucus chairs will be asked to review and approve the format of materials submitted by ASA officer candidates.

Nominations Sought for Media Award

Each year ASA accepts entries for the ASA Media Award, a distinction given to one or more outstanding media presentations that effectively inform and educate the public about the practice of anesthesiology.

The Committee on Communications encourages members to submit or nominate local media presentations from broadcast (television or radio) and print (newspaper or magazine) media and Web-based news site articles. Increased interest generated in this award will result in a greater number of presentations on the subject of anesthesiology.

The winner receives a plaque and the opportunity to attend the presentation ceremony during the ASA Annual Meeting. The 2006 Media Award will be presented on Sunday, October 15, at the ASA Annual Meeting in Chicago.

Deadline for the submission of entries is **June 1, 2006**, for media presentations released between June 1, 2005, and May 31, 2006. Any entries received after the deadline will be carried over to the next year.

2005 winners were Thomas Hayden of *U.S. News & World Report*, and producers Susan Kroll, Jane Derenowski and Tammy Filler of NBC's "Today."

Mr. Hayden received his award for an America's Best Hospitals feature published July 12, 2004, in *U.S. News & World Report*. The article, which was part of a series that highlighted "hidden" specialties, followed a day in the life of University of Chicago anesthesiologists Jeffrey L. Apfelbaum, M.D., Catherine R. Bachman, M.D., and Thomas W. Cutter, M.D.

Ms. Kroll, Ms. Derenowski and Ms. Filler created a live and taped piece that featured research by Cynthia A. Wong, M.D., which showed that women can receive an epidural early in labor without increasing the chances of a cesarean delivery. William R. Camann, M.D., participated in an on-air interview with "Today" show host Katie Couric to further explain the new findings and the procedure.

Up to four ASA Media Awards may be given each year for media presentations that inform and educate the public about the medical practice of anesthesiology.

All entries should be sent to Michael H. Entrup, M.D., Chair, Committee on Communications, American Society of Anesthesiologists, 520 N. Northwest Highway, Park Ridge, IL 60068-2573.

In Memoriam

Notice has been received of the deaths of the following ASA members.

Thomas E. Colletti, M.D.
Peoria, Illinois
November 26, 2005

Larry D. Crumpler, M.D.
Powderly, Texas
December 11, 2005

Peter P. Lynch, M.D.
Woodbridge, Virginia
May 4, 2005

Erwin C. Nolte, M.D.
Estero, Florida
December 14, 2005

Robert F. Schramm, M.D.
East Syracuse, New York
November 10, 2005

Warren G. Strout, M.D.
Orono, Maine
October 19, 2005

Anesthesiology in the News

Lethal Injection & Medical Ethics

California's recent lethal injection controversy resulted in numerous requests from domestic and international media for interviews with ASA officers and members on the subject of physician participation in capital punishment. Both ASA and the California Society of Anesthesiologists received numerous requests for comment from the media. In anticipation of inquiries, a statement addressing the issue was posted on the homepage of the ASA Web site under "What's New."

The following media outlets ran stories on this topic that included interviews with ASA members:

Miami Herald, January 31, and *Philadelphia Inquirer*, February 12 — David A. Lubarsky, M.D.

National Public Radio, February 21 — ASA President Orin F. Guidry, M.D.

ABC Affiliate KXTV 10, Sacramento — Jeffrey Uppington, M.D.

NBC Affiliate KNSD, San Diego — Edgar D. Canada, M.D.

Chicago Tribune, February 23, 2006 — Jeffrey L. Apfelbaum, M.D.

ASA Voices Concern Over 'Grey's Anatomy' Episode

ASA leaders and members were alarmed by the depiction of the anesthesiologist in the February 5, 2006, episode of "Grey's Anatomy." In the program, the anesthesiologist abandoned his patient during a "Code Black" and left a young paramedic alone in the operating room to care for the patient.

In a letter to the program's producer, ASA President Orin F. Guidry, M.D., pointed out the unrealistic features of this portrayal and provided accurate information on the conduct and capabilities of anesthesiologists. The letter, which was quoted in *Modern Healthcare*, can be found on the homepage of the ASA Web site under "What's New."

The following ASA members submitted personalized versions of the letter to the "Op/Ed" section of their local papers:

- Roger A. Moore, M.D., *Burlington County Times*, Medford, New Jersey (published)
- Robert E. Johnstone, M.D., *The Dominion Post*, Morgantown, West Virginia (published). *(Dr. Johnstone's letter received affirmation in a published response from an orthodontic professor.)*
- Michael C. Gosney, M.D., *Montgomery Advertiser* (published), *Florence Times Daily*, *Birmingham News*, *Mobile Press Register*
- Sorin J. Brull, M.D., *Jacksonville Times Union* (published)
- Gerald A. Maccioli, M.D., *Raleigh News & Observer*
- Charles D. Gregorius, M.D., *Lincoln Journal Star* (published)
- John P. Williams, M.D., *Pittsburgh Post-Gazette* (published)
- H.A. Tillmann Hein, M.D., *The Dallas Morning News*
- Alan P. Marco, M.D., *Toledo Blade*
- John F. Dombrowski, M.D., *Washington Post*, *Washington Times.*

Pediatric Anesthesia

The January 29 issue of the *Baltimore Sun* included an article on advancements in pediatric anesthesia. Five ASA members who are pediatric anesthesiologists at Johns Hopkins Hospital were interviewed for the story:

Donald H. Shaffner, Jr., M.D.
Myron Yaster, M.D.
Sabine Kost-Byerly, M.D.
Robert S. Greenberg, M.D.
Lynne G. Maxwell, M.D.

Anesthesiology as a Career

ASA member Sherman D. McMurray, M.D., was quoted in an article in the January 1 edition of the *Indianapolis Star*. The article gave an overview of the 20 best careers in the nation, with anesthesiology ranking 16th. In the story, Dr. McMurray, who works at Methodist Hospital in Indianapolis, described anesthesiology as a "great job."

The career of anesthesiology was also the subject of an article in the February 26 edition of the *San Antonio Express-News*. ASA members Randall W. Day, M.D., and

Paulette S. Bunton, M.D., described the role of anesthesiologists during surgery and their impact on patient care.

Cell Phone Study Results

ASA member Keith J. Ruskin, M.D., participated in broadcast interviews regarding a study of cellular telephone use in hospitals. Dr. Ruskin was the senior investigator of the study, which was conducted by the Yale University School of Medicine. The lead author was Roy G. Soto, M.D. The study, published in the February issue of *Anesthesia & Analgesia*, was based on responses from attendees at ASA's 2003 Annual Meeting.

The study results showed that cell phone use by hospital medical personnel *reduced* medical error due to more timely communication. The study was featured on MSNBC, NPR, CNN and WB affiliate WPIX TV-New York in January and February.

Smoking and Surgery

In its story regarding the Mayo Clinic's study on improved post-surgery recovery periods for nonsmokers versus smokers, United Press International quoted ASA member David O. Warner, M.D., as saying, "For people who have thought about quitting smoking, the time of their surgery is a good opportunity to do so."

According to the study, which was published in the journal *Anesthesiology*, surgery patients who are nonsmokers tend to have safer anesthesia and fare better in the recovery period. Dr. Warner was the study's lead author.

Member Shares 'Painful Truth' With Readers

ASA member Steven L. Blum, M.D., has a monthly column on pain management issues called "The Painful Truth" in the Chicago-area Pioneer Press newspaper chain. In his January column, Dr. Blum advised readers on how people with back issues can make their car ride more comfortable.

The ASA Communications Department is interested in hearing from members who have been quoted in the media. To let us know that you have been interviewed, or for assistance with media relations, contact Donna Habich in the ASA Communications Department at (847) 825-5586 or e-mail <d.habich@ASAhq.org>.

Critical Analysis of the Trauma ASA Difficult Airway Algorithm

Dr. William C. Wilson's algorithm for managing the airway in trauma patients (November 2005) includes successful oral tracheal intubation as a major option.[1] Accomplishing rapid intubation, however, is predicated on two questionable tenets. First, the algorithm assumes intubation, as currently practiced, maximizes the likelihood of achieving first-try endotracheal tube placement, and second, the anesthesiologist is able to selectively identify and avoid patients who will become "difficult intubations."

Historically, textbook intubation, being simple to learn and 85 percent effective, has by default become the gold standard for tracheal intubation. Inevitably the remaining failed attempts, usually attributed to abnormalities in patient anatomy, are conveniently categorized as "difficult intubations," a term justifying abandonment of standard intubation. This reasoning avoids the undeniable conclusion: Current intubation is marginal at best since it often fails during the critical period of "difficult intubation." The appropriate solution is inescapable: A novel technique is needed for all intubations, one that is straightforward for normal patients and yet remains equally effective when "difficult intubation" is encountered. The ability to intubate seamlessly, thereby reducing patients passing through difficult airway algorithms, is a goal worth pursuing. Does such a technique based on defined principles exist? Yes, it does.[2]

The second problem stems from an inability to reliably predict "difficult intubation" in a small group of normal-appearing patients. These individuals, encountered following trauma, will not benefit from repeated attempts using a technique proven ineffective for the situation. Recognizing the need for a system of intubation that enables the operator to improve first-try endotracheal tube placement under all circumstances is clearly an advantage to both patient and anesthesiologist.

Jan M. Stasiuk, M.D.
Yakima, Washington

References:

1. Wilson WC. Trauma: Airway management. *ASA Newsl.* 2005; 69(11):9-16.
2. Stasiuk RB. Improving styletted oral tracheal intubation: Rational use of the OTSU. *Can J Anaesth.* 2001; 48(9):911-918.

Changing Status of P2 and P3 Would Be a 'Plus'

The ASA Physical Status (PS) classification has been used for many decades as preoperative patient evaluation for predicting anesthesia and surgical risks and as a billing modifier. Among six classifications (ASA PS1-PS6),[1] the definitions of PS1, PS4, PS5 and PS6 are easily distinguishable: PS1 = normal healthy patients; PS4 = patients with severe systemic disease that is a constant threat to life; PS5 = moribund patients who are not expected to survive without the operation; and PS6 = brain-dead patients whose organs are being removed for donor purposes.

However, the definitions of ASA PS2 and PS3 are broader and less definitive: PS2=patients with mild systemic disease; PS3 = patients with severe systemic disease. We cannot always be certain whether a patient's disease is mild or severe. In addition, some patients have multiple mild systemic diseases. For such patients, the ASA Physical Status should not be simply PS2 but neither is it obviously PS4. Similarly, patients with severe systemic disease and several mild systemic diseases or with multiple severe systemic diseases are not exactly ASA PS3, nor are such patients obviously PS4.

I propose that such patients be classified as "PS2+" and "PS3+", respectively. Our cursory calculation on surgical patients over a three-month period at our university medical center revealed that more than 70 percent of patients were classified as ASA PS2 (1,616 patients, 36 percent) and PS3 (1,531 patients, 35 percent). Thus it is important to create ASA PS2+ and PS3+ as subdivisions of PS2 and PS3. This modification does not require expansion of the current six-point scale since PS2+ and PS3+ are subdivisions, not additional divisions.

Hiroshi Goto, M.D.
Kansas City, Kansas

References:

1. American Society of Anesthesiologists Relative Value Guide, 2005.

Giving to Support Your Profession — The Unmet Need

The breadth and scope of the Foundation for Anesthesia Education and Research (FAER) research program affects nearly every aspect of the practice of anesthesiology from pediatrics to geriatrics, from genomic research to PONV and most areas in between. In 2005, FAER received requests for funding support for 43 projects that would require a commitment of nearly $6.8 million. We were able to fund 10 of these requests for a total commitment of $2,035,000 over two years.

At FAER's most recent deadline for grant applications, February 15, we received 22 applications including nine Mentored Research Training Grants, eight Research Starter Grants, three Research in Education Grants and two Research Fellowship Grants. If all of these applications scored highly enough to be funded, it would cost our Foundation $3,285,000 over the next two years to fully fund them. It is most likely, however, that available resources will limit us to funding 15-20 percent of them at the most.

FAER's 2006 budget includes an expenditure of $2 million on grants, most of which will be directed to second-year funding from grants awarded in 2004 and 2005. The gap between the opportunity to fund new and fundable research and our ability to meet the financial commitment required by that funding is both vast and growing. We continue to seek new and innovative methods to raise monies to support anesthesia research as well as using established methods to secure funding.

FAER presently asks for support from many constituencies involved in anesthesia, including industry, individuals, private practices, ASA, component societies, subspecialty organizations and other public and private foundations. We are always open to suggestions for groups or other organizations to which we can make an appeal. Historically, FAER has relied heavily on the generosity and commitment of individual anesthesiologists who are inclined to give something extra back to advance their professional specialty. FAER's Annual Report, semi-annual note to ASA members through the ASA winter and summer mailings and our other communication pieces are filled with individuals who have already participated in supporting the Foundation. We encourage you to make a difference in the efforts of the researchers working with FAER as well as yourself and the patients you serve on a daily basis. We would like to take this opportunity to remind ASA members of the various ways to support FAER and the other ASA Foundations.

Your help in closing the gap is vital. Methods of making a difference include:

- **Direct gifts of cash:** ASA members and others can provide an immediate credit card donation to FAER via our secure Web site at faer.org or by mailing a check to our offices at FAER, 200 First St., S.W., WF-674, Rochester, MN 55976.
- **Donations of stocks, mutual funds and other income-producing assets:** If you have owned a security or other asset for the required time, you may be able to take advantage of favorable income tax provisions by securing a charitable donation to FAER.

Testamentary bequests can take many forms including:

- **Outright bequests:** A gift of a particular amount of money or item of property.
- **Residuary bequests:** The residue of an estate is the amount remaining after all specific bequests have been distributed. The exact amount may not be known and the residue may pass as a percentage of the final estate; e.g., "I give one-third of my estate to the Foundation for Anesthesia Education and Research."
- **Contingent bequests:** You can name a second beneficiary to receive property in the event the primary beneficiary declines or does not survive you.
- **Family trusts:** They provide a great opportunity to make creative use of your property either during your lifetime as a Living Trust or after your demise as a testamentary trust.
- **Life insurance:** Life insurance policy donations can be made by naming a charity as the primary or contingent beneficiary of the policy. Any life insurance policy can name FAER as a beneficiary; however, only certain types will allow for a current tax income deduction. Gifts of life insurance to a charity can help reduce any estate taxes payable.

ASA members should always seek tax advice before making any charitable gifts.

No matter how much you give to any charity or how much you give back to your profession through charitable contributions, the simple act of making a donation can be deeply gratifying. Your generosity will be greatly realized in multiple ways that will leave a lasting legacy in anesthesia research and education.