



AMERICAN SOCIETY OF ANESTHESIOLOGISTS



NEWSLETTER

SEPTEMBER 2003

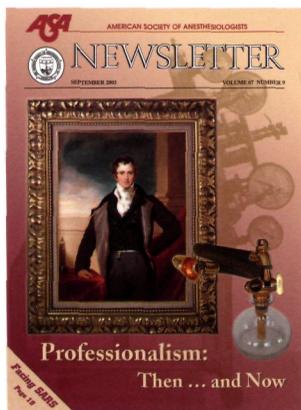
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Then ... and Now

Facing SARS
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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.

Since the days of anesthesiology's earliest pioneers, professionalism has required a commitment and devotion to quality, excellence and personal sacrifice. Professionalism rests on a solid base of education, experience and skill, but professionals — then and now — must always engender respect.

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Professionalism and the Anesthesiologist: I'll Know It When I See It

Professionalism — it's an elusive, intangible concept. Yet every career has a code of conduct, a prototypic look and a public expectation. When identified as a professional engaged in a certain career's activities, the public has a perception of that person's countenance, demeanor and knowledge. Restated in today's terms, people expect professionals to "look the look, talk the talk and walk the walk."

Society takes comfort in being serviced by professionals who meet their generally acceptable standards. Conversely, people are wary of individuals who do not look, act or talk like a professional. Imagine boarding a commercial airplane being greeted by a pilot in jeans, a flannel shirt and a baseball cap turned backward. I would suspect that a wave of uneasiness would overcome your mind. Now consider being introduced to a well-dressed politician, who when speaking, repeatedly used incorrect grammar and vulgar expressions. Finally, think about a conversation with your dentist, who was articulate, appropriately dressed, yet could not adequately explain why your wisdom teeth needed removal.

Professionalism is, therefore, a package of the right look, the right presentation and the correct knowledge to make the customer, client or patient confident that the best care or service is being provided. In the ASA monograph "Starting Out: A Practice Management Guide for Anesthesiology Residents," professionalism is defined as:

"... a set of values, attitudes and behaviors that focuses on commitment to service. Among the core attitudes and behaviors expected of medical professionals are integrity, availability, accountability and altruism."

Thus medical professionalism is more than a professional image, verbal articulation and a photographic memory. A medical professional, according to the esteemed surgeon Francis (Frannie) Moore, M.D., is summed up as follows:

"The fundamental act of medical care is assumption of responsibility ... complete responsibility for the welfare of the patient."¹

Dr. Moore went on to state that a good doctor "employs any effective means available [for the patients's welfare]."¹

In practice, professionalism is having respect for patients and families first and for one's self and colleagues second. Concepts such as compassion, honesty, commitment, respect, responsibility and preparedness embody the making of a true medical professional.

The doctors of yesteryear needed to overcome the skepticism of a society that experienced traveling medicine salesmen, quacks and inferior medical schools (a.k.a., the Flexner Report). Today, with medicine firmly established as a noble practice, some doctors must overcome perceptions of narcissism, greed, disinterest and unavailability. Despite the frustrations experienced by doctors in a changing health care environment, professionalism is the quintessential element for medicine's survival in society as we know it.

The Institute of Medicine (IOM) is continuing to strategize a new paradigm



Mark J. Lema, M.D., Ph.D.
Editor

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Of Mountains and Molehills: Big Picture Made Up of Little Details

*Gregory K. Unruh, M.D.
Assistant Secretary*

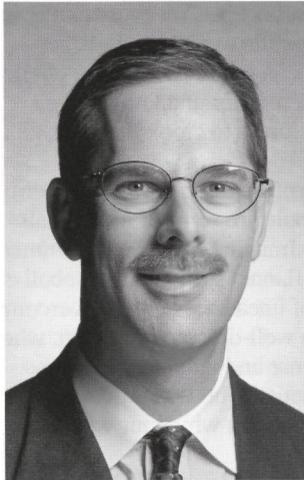
As the new ASA Assistant Secretary, I am struck by the enormity of the organization. I knew ASA was large and complicated, but as I work within it from a different point of view, I see the contrast between big and little being repeatedly played out: Big picture, little details.

The Assistant Secretary under the current organization is Chair of the Committee on Credentials. We assure the Speaker of the House of Delegates that the House is properly credentialed and seated. This year for the first time, we will not use credential cards to seat the delegates. This eliminates lost, forgotten or conflicting credential cards and will hopefully speed up the credentialing process so we can have everyone seated by the time ASA President James E. Cottrell, M.D., bangs the gavel to convene the House. Each step is a little one, but if the House is not properly seated and on time, it could create big problems.

In 2001, the House of Delegates approved many recommendations of the Task Force on Structure and Governance. Beginning with the 2003 House of Delegates, the Assistant Secretary will chair the Section on Representation that is comprised of eight standing committees. Officially the Bylaws charge reads, "The Section on Representation shall plan and coordinate the internal and external representational affairs of the Society." The eight are the committees on Representation to the American Medical Association; Anesthesia Care Team; Anesthesia Subspecialties; Professional Diversity; Residents and Medical Students; Uniformed Services and Veterans' Affairs; Representation to the World Federation of Societies of Anesthesiologists; and Young Physicians.

As you can see, these are vital committees to ASA. Some of them are the future of our specialty, and some are important to our current professional lives. Hopefully a little more communication will yield big results.

One of the pleasures of a new officer is serving on the Administrative Council. I knew that the senior officers face big tasks as they go about the business of leading the Society, but I have to admit that I was amazed at how big the tasks are. After attending some of the meetings, I am very impressed with the talents of the senior officers and the other members of the Council. They have incredible institutional memory and use it to make considered decisions about a host of topics. Little bits of information about peo-



Gregory K. Unruh, M.D.

ple, members, organizations, budgets, politics, the American Medical Association, Washington, D.C., and other anesthesia providers interplay with big ideas, approaches and controversies to yield the big decisions about how the Society should react or in which direction it should move.

Another pleasure of a new officer is increased contact with ASA staff. Over the years of working on committees and the Board of Directors, I have had the opportunity to interact with many members of this highly dedicated group. I am impressed with how they keep track of so many big and little details and push the agenda of the organization forward. They impact the Society in big ways, often with little thanks from us.

Member Services Manager Robert M. Wallace and his staff keep track of the membership. Can you imagine getting more than 38,000 members, most of whom are busy physicians and some (many?) of whom are procrastinators, to renew memberships and actually write a check and mail it in? This is unquestionably a big job and extremely important to the Society.

Director of Information Services Janice L. Plack and her staff oversee ASA's computer activities, including the Web site. They recently reported that the ASA Web site averaged 47,663 "hits" per day and totaled more than 4.4 million hits for the most recent quarter. During that same time period, the Web site was visited by more than 86,630 unique individuals. The top three most visited pages were the ASA homepage, the Clinical Information Page and the Publications and Services page. Visitors downloaded 134,000 documents from the Web site. The top three were all practice guidelines. It only takes one little click of the mouse to access a huge amount of information! What a great way to disseminate information, but what a big job keeping it up and running.

What continues to make the biggest impression on me about ASA is volunteerism. Watching the officers, committee chairs and members, task forces, directors, delegates and alternates all giving of their time, talents, efforts and monies to better ASA, medicine and the practice of anesthesiology is truly awesome. I served as Chair of the Committee on Clinical Forum for five years prior to becoming

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Conferees on Medicare Bills Begin Work, Project Completion by Mid-September

Michael Scott, J.D., Director
Governmental and Legal Affairs

House and Senate conferees on the Medicare prescription drug and modernization bills (H.R. 1 and S.1) wasted no time after their appointment in mid-July to begin work on reconciling the many differences between the two versions.

After two initial sessions and a July 23 meeting with President George W. Bush, the conferees announced substantial agreement on the several regulatory reform initiatives that had been dealt with similarly in the two bills as well as detailing the schedule for staff meetings on more complex subject areas during the August recess. Although the regulatory reform provisions were widely acknowledged to be the "low-hanging fruit" of the negotiations, conference leaders expressed optimism that they would produce a report by mid-September or a few weeks later.

A number of issues of particular interest to organized medicine remain to be resolved. Most visible, of course, is the issue as to whether final legislation will ameliorate the negative 4.2-percent cut in Medicare reimbursement for 2004 that was projected this past spring by the Centers for Medicare & Medicaid Services (CMS). As previously noted in this column, the House bill provides for a 1.5-percent increase in 2004 and 2005, but the Senate merely passed nonbinding resolutions expressing the need to deal with the issue.

Conversion factor increase. House Ways and Means Subcommittee Chair Nancy L. Johnson (R-CT) has told physician groups that no bill can be enacted that does not contain a positive reimbursement update for physicians, but this prediction must be

viewed cautiously in the context of the most recent Congressional Budget Office (CBO) estimates of the cost of the respective bills. Against a budget limitation of \$400 billion over 10 years, CBO has "scored" the House bill at \$408 billion and the Senate bill at \$462 billion, not counting the cost of two expensive, late-added amendments dealing with medical savings accounts (House) and disclosure of drug formularies (Senate) that almost surely will have to be dropped. Any positive reimbursement update for physicians will have to survive the cuts necessary to bring the final bill into budgetary compliance.

GPCI provisions. Particularly germane to this budgetary concern is the fact that both bills contain provisions designed to benefit physicians in rural areas by raising the physician work geographic practice cost index (GPCI) to, or close to, the current mean on a short-term basis and, in the case of the Senate, raising all GPCIs (work, practice expenses and professional liability costs) to the mean for 2005-07. The House bill grants the Health and Human Services (HHS) Secretary discretion not to implement the interim work increases if he determines there is no "sound economic rationale" for implementation and requires the General Accounting Office to issue a report on the GPCI issue. Concern has been raised that the cost of these proposals, especially the more generous Senate proposal, could serve to damage the chances for an overall increase in physician reimbursement in 2004 and 2005.

E-prescribing. Less visible but nonetheless of great significance to

physicians are the provisions of both bills dealing with the subject of electronic prescribing. The House bill would mandate that after development of appropriate standards and with limited exceptions, all prescriptions be written and transmitted electronically on or after January 1, 2006. The Senate bill would merely require development of necessary standards by that date and that all prescriptions written or transmitted in electronic form comply with those standards. Physician groups appear to be in strong agreement that the Senate version is preferable; of interest is the fact that ASA enjoys membership on the standards-accrediting committee of the American National Standards Institute, which almost certainly would review these standards.

ICD-10. Physician groups have expressed serious concern about the provision of the House bill that, in the event the National Committee on Vital and Health Statistics does not make a recommendation within a year, authorizes the HHS Secretary to adopt the ICD-10 (International Classification of Diseases 10th revision) data standard to replace the current ICD-9. The Senate bill contains no provision on the subject. Were HHS to apply ICD-10 to professional services, use of the Current Procedural Terminology-4TM coding system for description and billing of services would become obsolete, and the number of descriptive codes would increase to about 170,000. Of particular interest to anesthesiologists, ICD-10 contains no anesthesia codes. Of perhaps greatest concern to physician groups is the predictable cost of shifting to a new and more complex system.

Specialty hospitals. Both H.R. 1 and S. 1 contain provisions responsive to increasing concern about the impact of “specialty hospitals,” which allegedly “cream-skim” more lucrative cases from general acute care hospitals. The House bill merely calls for a study of the phenomenon within one year, focusing on issues such as excessive self-referral, quality of care, Medicaid utilization and uncompensated care. The Senate bill, however, after grandfathering specialty hospitals currently under development, would exclude specialty hospitals from the existing Stark II self-referral exception related to investments in whole hospitals. Organized medical groups have advocated adoption of the more deliberate House approach.

Whatever the resolution of these physician-related issues, the question still remains whether the conferees can produce legislation that can command majority votes in both houses of Congress. As reported last month, H.R. 1 passed by only one vote and only after the bill was sweetened to attract the votes of a number of conservatives who are anxious to push Medicare into competition with private insurers, a concept that is an anathema to most Democrats. By the same token, it is clear that \$400 billion over 10 years is not enough money to produce a truly meaningful drug benefit for seniors, and the question remains whether groups like AARP are, in the end, going to find an

agreed bill acceptable within those dollar limits. By the time this column is read, we should know much more about the success of the conference.

Senate HELP Committee Passes Patient Safety Bill

Acting by unanimous vote, the Senate Committee on Health, Education, Labor and Pensions (HELP) reported out the Patient Safety and Quality Improvement Act (S.720), under which physicians and other providers could report errors and near-misses on a confidential basis to

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CMS Proposed 2004 Rule Includes Teaching Change

Contrary to “inside the Beltway” rumors, the proposed CMS 2004 physician payment rule released August 8 continued to project a 4.2-percent negative reimbursement update for next year; CMS cautioned, however, that this number was likely to change as further data are compiled. The extent to which this negative update becomes a reality depends upon whether conferees on the Medicare reform legislation can reach an agreement and whether that agreement will contain the House proposal or something similar, assuring physicians a positive update in 2004. As this column is written, the jury is still out on both issues.

The proposed rule also contains two anesthesia-specific discussions. First, CMS notes that it is still await-

ing a requested recommendation from the American Medical Association/Specialty Society Relative Value Update Committee (RUC) on further changes in anesthesia work values as a result of the second statutorily required review of work values under the Medicare Fee Schedule. This statement is somewhat disingenuous in that CMS is well aware that the RUC does not intend to make further recommendations on this matter, but its notice at least serves to keep the matter officially alive.

Second, responding to the urgings of ASA and several members of Congress, the proposed rule seeks comments on the appropriateness of applying the nurse anesthesia teaching rule, adopted several months ago, to teaching of anesthesiology residents. Were this to occur, a

teaching anesthesiologist would be permitted to supervise two residents concurrently and be reimbursed base units for each of the two cases plus time units for time actually spent in the two rooms.

Presently the CMS teaching rule permits a teaching anesthesiologist to work with one resident only. ASA had suggested that this limitation be eliminated and that the anesthesiologists be required, like surgeons and other teaching physicians, to be present only for the key portions of a procedure, thus permitting some overlap of cases. ASA is currently analyzing the CMS proposal, in consultation with the Society of Academic Anesthesiology Chairs and the Association of Anesthesiology Program Directors, to determine its response to the CMS suggestion.

Professionalism and the Acquisition of Anesthesia's Antiquities

Lydia A. Conlay, M.D., Ph.D., Trustee
Wood Library-Museum of Anesthesiology

Anesthesiologists come in many forms as professionals—operating room anesthesia providers, pain medicine physicians, intensivists, educators and many more. Although our daily tasks may differ, many of us are increasingly challenged to do more, better, faster and cheaper. Given the demands of our busy practices, we may or may not have the opportunity in some cases to contemplate the very reasons we entered medicine in the first place. As most of you know, the September issue of the *ASA NEWSLETTER* is traditionally compiled by representatives of the Wood Library-Museum of Anesthesiology (WLM). This year's issue addresses just such a topic: professionalism in anesthesiology. In it, articles discuss the origins of professionalism, professionalism in anesthesiology today and distinguishing characteristics of anesthesiologists as professionals even outside the bounds of anesthesiology.

Some of our colleagues have chosen less traditional paths, as detailed in a piece this issue titled "ASA's World-Class Professionals," by George S. Bause, M.D. (page 11). Dr. Bause is a prime example of an individual displaying professionalism "off the beaten path" and of the highest order. Honorary Curator of the WLM and world-renowned expert in the acquisition and display of artifacts related to the history of anesthesiology, his 16-year experience at the WLM began in 1987 with an invitation to consult on the national collection of anesthesia apparatus. Dr. Bause was shocked to find that, following the death of WLM founder Paul M. Wood, M.D., the entire WLM gallery had been dismantled to make way for desks for ASA administrative personnel. There was not a single Copper Kettle or Draeger piece in the entire collection. Astonishingly, the priceless, original Cotton-Boothby Apparatus, the earliest to attempt to measure gas flow, had been flipped upside down to serve as a perch for a stack of wooden crates. Thanks to WLM Librarian Patrick Sim, other priceless items that had been relegated to the dumpster were saved.

One of Dr. Bause's early projects was the acquisition of a portrait of Sir Humphry Davy by Sir Thomas Lawrence (also known for painting "Pinkie" of "Blueboy and Pinkie" fame). Sir Humphry was a distant uncle of Dr. Bause's, who had described the medical properties of nitrous oxide, discovered sodium, potassium, barium, calcium and magnesium and invented the first electric light and miner's lamp. It may come as no surprise that Dr. Bause recognized Sir Humphry's portrait (aided no doubt by the inscription, "From Lady Davy") in an antique shop near

New Hope, Pennsylvania. Since a resident's salary could hardly support this acquisition, the family cashed in a life insurance policy to finance the purchase. Two Davy portraits were originally painted by Lawrence: the three-fourth's life-size is currently on display at the Royal Society in London, and the one-fourth life-size painting is on display at the WLM, courtesy of the Bauses.



Figure 1

Laennec's prototype stethoscope. Photo courtesy of the Wood Library-Museum of Anesthesiology.

It is not easy to imagine Dr. Bause in the dark, smoke-filled rooms of the underground antique world. Yet he has successfully "out-gunned" medical antique dealers worldwide to acquire a Laennec's prototype stethoscope [Figure 1] and personally traveled to Victoria, British Columbia, Canada, (by hydroplane) to obtain the Eric Webb Chloroform Bottle Collection. The Webb collection is significant for two reasons. First, it is the largest collection of chloroform bottles assembled in the New World. Second, it represents a significant geographical diversification for the



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WLM acquisition program since most items in the existing collection are from New England and the Midwest.

Dr. Bause's most recent and exciting acquisitions have been largely through Internet auctions such as eBay, where he has managed to develop a computer program which places, or "snipes," the final possible bid for medical artifacts. (Thus, rival bidders do not know in advance of the WLM's interest, which would no doubt lend authenticity and thus increase an object's value.) Dr. Bause also has formed a network of supporters (perhaps I should say, cartel) who help to locate interesting artifacts and who also may allegedly decline to bid on a particular item if they know of the WLM's interest.

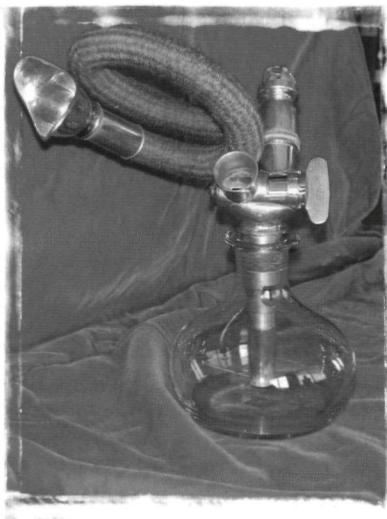
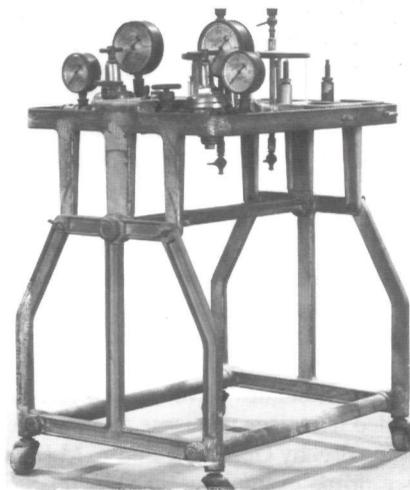


Figure 2

Charriere's apparatus. Photo courtesy of the Wood Library-Museum of Anesthesiology.

One of the most spectacular online acquisitions to date has been a Charriere's Apparatus, or early French version of a Morton's inhaler [Figure 2]. (You may recall that Charriere was first to use the "French" calibration for the sizing of tubes.) The inhaler was successfully purchased at auction for a fraction of its estimated six-figure cost. Dr. Bause then flew to Montpellier, France, at his own expense to inspect this purchase and successfully navigated French administrative and customs procedures so that it could legally be taken out of the country. Since the acquisition had not been included in the museum's budget (and rumor has it that the very frugal president of the WLM became positively apoplectic at the thought of excessive spending), the Bause family generously financed the purchase and

Cotton-Boothby apparatus, one of the earliest devices to attempt to measure gas flow. Photo courtesy of the Wood Library-Museum of Anesthesiology.



donated the inhaler to the WLM. Two of these devices are known to exist in the world today. One is in a museum in Paris, France; the other is now on display in the WLM.

Dr. Bause also has performed many other less glamorous tasks for the WLM. Perhaps least glamorous of all was initially installing all of the exhibits in the museum without help and without the benefit of air conditioning, which had been shut off over a weekend in July just prior to the dedication of the new building. He also recently, and again almost single-handedly, planned and delivered the WLM-East, a permanent exhibit of anesthesiology artifacts at the ASA Washington Office. This exhibit addresses the theme of American medical heroes who were also anesthesiologists and was designed to appeal to politicians and tourists visiting the building. Dr. Bause also has authored a CD-ROM virtual tour called "Explorations of Anesthesiology Through Time," scripted this year's tour-mate audio tour of the WLM and designed the WLM exhibits for every ASA Annual Meeting, including photographic exhibits titled "One Hundred Fifty Years of Obstetric Anesthesia," "Pediatric Anesthesia Artifacts" and "Monitoring During Anesthesia."

Of course, there are other individuals who have made

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The Development of Anesthesiology as a Specialty and a Profession

Donald Caton, M.D., Past President
Wood Library-Museum of Anesthesiology Board of Trustees

Like virtue, professionalism may be easier to identify than to define. Most dictionaries simply equate professionalism with specialization. Serious students of the subject take a different view, however. Among the characteristics of a “profession,” they include formal organization and work that is primarily intellectual in character and based on the theories from some branches of learning. Menke also emphasizes personal characteristics such as a dedication to public service and a relationship between the practitioner and client built on mutual respect.¹

As first practiced, anesthesiology had none of these characteristics. Dr. William T.G. Morton, who gave the first successful public demonstration of a surgical anesthetic, saw in his discovery a means to become rich and famous.² Few early practitioners made any attempt to understand the theoretical basis of the discovery. For many decades, in fact, anesthesiology was not even recognized as a medical specialty. As a technical adjunct to surgery, responsibility for its administration usually fell to the lowest ranking member of the operative team, a medical student, new house officer or nurse.

The Development of Anesthesiology as a Specialty

Technical innovations improved the quality of care, but they did not transform anesthesiology into a specialty. This process began when physicians recognized the necessity of formal training in anesthesia and a practice based on principles of chemistry, physiology and pharmacology. In England, J.F.W. Silk argued for a required course in anesthesia for all graduating students.³ Almost simultaneously, American physicians began their own campaign. In 1901 S.O. Goldan, M.D., called for anesthesia “properly taught by those competent to teach, not by any means the surgeon The anesthetist will not be considered a mere satellite of the surgeon but recognized as one of a distinct class.”⁴ Shortly thereafter a handful of American medical schools appointed the first anesthesiologists to their faculties: Thomas D. Buchanan, M.D., at Flower Medical School in New York; Orville J. Cunningham, M.D., at the University of Kansas; and L.W. Hardy, M.D., at the University of Iowa.

Of the early educators, many believe that Ralph M. Waters, M.D., had the greatest impact. Dr. Waters’ experience as a “self-taught” anesthesiologist in a small Iowa town convinced him of the need for formal training programs. In 1927 he had an opportunity to develop such a program when he was placed in charge of the anesthesia service at the new State Hospital in Madison, Wisconsin.



William T.G. Morton (1819 - 1868). Image courtesy of the Wood Library-Museum of Anesthesiology.

Dr. Waters became actively involved in research, often in collaboration with colleagues in basic science. He developed close ties with other anesthesiologists such as John S. Lundy, M.D., Paul M. Wood, M.D., and Francis H. McMechan, M.D., who also shared his views. They formed “Travel Clubs,” which later evolved into some of the professional organizations that sustain us today. Together they lobbied the Advisory Board of Medical Spe-



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cialties to develop an examining board for anesthesiology.^{5,6} In 1940 they won approval from the House of Delegates of the American Medical Association to become a section independent of surgery, thus giving anesthesiologists the opportunity to define the qualifications of a consultant, develop an approved curriculum of study and training and establish a procedure to evaluate the fitness of each candidate.

Most importantly, perhaps, Dr. Waters developed a program that set a standard for training, public service and professional conduct. His trainees, the "Aqualumni" as they called themselves, dispersed all over the world to establish their own programs modeled after the one developed in Madison by Dr. Waters. The 75th Anniversary of Academic Anesthesiology celebration in Madison, Wisconsin, on June 6-8, 2002, celebrated Dr. Waters' many contributions to the development of professionalism in our specialty.⁷

The Development of Anesthesiology as a Profession

Leroy D. Vandam, M.D., suggests that "professionalism in any field entails study with consequent progress, the teaching and recruitment of others, integration with the other branches of medicine and devotion to the kind of investigation that solves its own problems."⁸ During the past 50 years, many individual anesthesiologists contributed to this professional ideal through their own work.

It is noteworthy, however, that the profession as a whole also made such a commitment when members of ASA voted to form and then support its three "foundations." To the Anesthesia Patient Safety Foundation, the Foundation for Anesthesia Education and Research and the Wood Library-Museum of Anesthesiology, it assigned responsibility for the quality of patient care, improvements in research and education, the dissemination of information and the preservation of the history that makes our profession unique.

Dr. Waters and many others established the standards and traditions that made our specialty a profession. Our institutions preserve and transmit them. Ultimately, however, our specialty achieves and sustains its status as a profession through the work of individuals who accept these values and traditions and practice them. As Menke observes, a professional relationship exists when the physician understands and protects the needs of the patient and when the patient trusts and respects the physician believing in that person's mastery of the technical and theoretical aspects of practice and adherence to a high standard of personal conduct and public service.¹ In the current social and political climate, it is important to remember and to tell others about the core values of our profession.

References are available from the ASA Executive Office or on the ASA Web site <www.ASAhq.org>. 

Administrative Update: Of Mountains and Molehills

Continued from page 2

Assistant Secretary. In those five years of putting together 45 Clinical Forums for the Annual Meeting, only one person turned me down for moderating a forum. (That person was president of a subspecialty society that year and had countless conflicts; he personally arranged the moderator for me.) Leading a forum is a big job, and takes a great deal of work to recruit panelists, write the cases and lead the discussion. All of the people I asked were busy folks, like all of us; yet they did not hesitate to take on a big task and do something good for other members of the Society.

My message of big and little could go on with countless other examples. We all experience big and little every day in each of our individual interactions with patients. Maybe an anesthetic seems "routine" or "little" within the numbers of anesthetics we perform day in and day out, but each one is a "big" anesthetic to that patient. It also makes a big difference in the way they perceive the medical specialty of anesthesiology.

Did you make a big or little impact in your patients' lives today with a little extra kindness or care?

Professionalism in Anesthesiology Today

Norig Ellison, M.D.

The 29th edition of *Dorland's Illustrated Medical Dictionary*¹ defines "professional" as "1) Pertaining to one's profession or occupation; 2) one who is a specialist in a particular field or occupation." These are hardly illuminating definitions. My difficulty in defining professionalism has similarities to a 1964 U.S. Supreme Court decision in which Justice Potter Stewart, writing a concurring opinion on a case involving hardcore pornography, stated: "I shall not today attempt further to define [obscenity] ...but I know it when I see it."² Certainly, I suggest, each of us can recall professors and others who have served as role models and demonstrated professionalism consistently. For me, my mentor, Robert D. Dripps, M.D., typifies the true professional. The descriptors I apply to one who demonstrates professionalism include competence, confidence, compassion and integrity. Such individuals command the respect of others and often are consulted by them.

A professional appearance also counts. Remember, Hippocrates advised that the physician be "clean, well-dressed and anointed with sweet-smelling unguents." While the last is no longer required, a neat, clean appearance is desired by patients even in this era of more casual attire. Scrub suits should be clean and unstained, and a clean white coat over the scrub suit is essential outside the operating room.³

Progress toward professionalism in anesthesiology practice has been manifest in many ways, including, but not limited to, the encouragement and direct facilitation of scientific research and advances; improvements in relationships with and recognition by other physicians and their medical organizations; support of innovative contributions to medical education; constructive interaction with a variety of governmental bodies; encouragement of beneficial new advances in the delivery of medical care; and, especially, a widely recognized and lauded leadership in initiating innovations in the provision of effective quality control measures for the delivery of safe medical care.

Internet and literature searches indicate that the concept of professionalism is a hot topic in many fields. Articles dealing with professionalism have appeared recently in legal, engineering, computing and educational publications and in other medical specialty publications.

Within medicine a most ambitious program was introduced in 2002 by the American Board of Internal Medicine (ABIM) Foundation, the American College of Physicians-American Society of Internal Medicine (ACP-ASIM) Foundation and the European Federation of Internal Medicine. Together they have prepared a "Charter on Medical

Table 1

A Physician Charter on Medical Professionalism

A joint product of the ABIM Foundation, ACP-ASIM Foundation and European Federation of Internal Medicine.

Fundamental Principles:

- Primacy of patient welfare.
- Patient autonomy.
- Social justice.

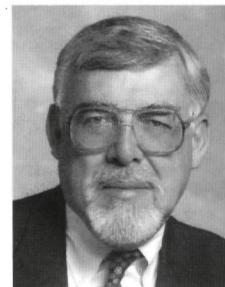
Professional responsibilities and commitments:

- Professional competence.
- Honesty with patients.
- Patient confidentiality.
- Maintaining appropriate relations with patients.
- Improving quality of care.
- Improving access to care.
- Just distribution of finite resources.
- Scientific knowledge.
- Maintaining trust by disclosing conflicts of interest.
- Professional responsibilities.

Professionalism" based on three fundamental principles and 10 professional responsibilities/commitments [Table 1].

This charter was created in response to many physicians "experiencing frustration as changes in health care delivery systems in virtually all industrialized nations threaten the very nature and values of medical professionalism."⁴

In anesthesiology the pressures to increase productivity in the operating room (e.g., decreasing downtime and



Norig Ellison, M.D., is Emeritus Professor of Anesthesia, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania. He was ASA President in 1996.

lengthening the day) to compensate for decreased reimbursement to both hospitals and physicians illustrate this threat. The explosive growth in day surgical centers — where there may be less time for preoperative evaluation, and postoperative follow-up is often reduced to a telephone call — is another potential threat. In such situations, the opportunity to establish true rapport with patients is decreased, if not eliminated. Anesthesiologists must respond to these pressures but must do so in a way that does not threaten “the very nature and values of medical professionalism.”

Interestingly the principles advocated in the charter are remarkably similar to three assumptions concerning anesthesia presented by then ASA President-Elect Peter L. McDermott, M.D., to the 1993 ASA House of Delegates, namely that we:

- Place service to patients and to society above personal gains;
- Are physicians first and anesthesiologists second; and
- View medicine as a profession, not an institutional service.⁵

In my 1995 President-Elect address, I added a fourth assumption:

- We are anesthesiologists first and subspecialists within the specialty of anesthesiology second.⁶

Collectively these assumptions apply the Charter on Medical Professionalism to anesthesiology. The unique feature not addressed in the charter is the assertion that anesthesia is not an institutional service. This is an issue

about which anesthesiologists have had to educate hospital administrators and boards for many years.

In providing care to patients, whether in the traditional mode of “rendering a patient insensible to the manipulation of the surgeon” (admittedly a woefully inadequate description) or one of the subspecialties (pain, critical care, obstetric anesthesia, etc.), we must conduct ourselves as physicians concerned for the entire patient (not, for example, just their airway). We must listen to the patient’s concerns, explain the therapeutic options honestly and openly and recommend an anesthetic plan. Equally important is the need to acknowledge patient autonomy in determining the treatment plan. By doing so in an honest and compassionate manner while administering care in a competent manner, we will be fulfilling our obligations as medical professionals.

This article began with a definition of a professional, but not professionalism. This was not an omission. “Professionalism” like “art” and “justice” are abstract concepts. Forget the dictionary definition and paraphrase Justice Stewart’s decision: “I may not know how to define professionalism, but I know it when I see it.” Professionalism starts with a commitment to achieve something more satisfying than immediate personal gain and requires a commitment and devotion to quality, excellence and personal sacrifice that goes beyond an eight-hour day. Professionalism must rest on a solid base of education, experience and skill and must encompass real respect for other professionals as well as patients.

References are available from the ASA Executive Office or on the ASA Web site <www.ASAhq.org>.



Washington Report: Senate HELP Committee Passes Patient Safety Bill

Continued from page 4

“patient safety organizations,” which in turn would use reported data to develop standards and other information designed to cut down on medical errors. The House passed its version of the legislation (H.R. 663) last spring.

It is expected that when the bill is debated on the Senate floor, Democrats will seek further refinements to

assure that the new system would not impede accountability for medical errors by providers. This issue has been a source of difficulty for passage of a Senate bill, going back to the last Congress when the committee was unable to report out a bill. It appears, however, that the chances for enacting a bill have never been more promising.

If the legislation becomes law, it will represent an opportunity for ASA to augment its analysis of closed-claims data with information directly reported by physicians. Development of necessary regulations by HHS, necessary for identifying qualified patient safety organizations, would probably require one to two years following enactment.

ASA's World-Class Professionals



Paul M. Wood, M.D. (1894 - 1963)

- ASA Secretary and Librarian-Curator
- Founder of the Wood Library-Museum
- Basal, Spinal and Geriatric Anesthesiology
- ASA Seal Designer

After returning from WWI ambulance service in Italy, Dr. Wood received his M.D. from Columbia University. He served as Secretary to the New York Society of Anesthetists, which eventually became ASA. Dr. Wood designed the ASA seal, featuring the lighthouse of knowledge and the motto, "Vigilance." Sidelined by heart trouble in 1933, Dr. Wood spent his final 30 years working as ASA's Librarian-Curator. Sadly, he died just months before the opening of the Wood Library-Museum.



New York
Society
of
Anesthetists



These ASA pioneers stand out as shining examples of professionalism, providing today's members with standards by which each of us can look to in our practices and lives.

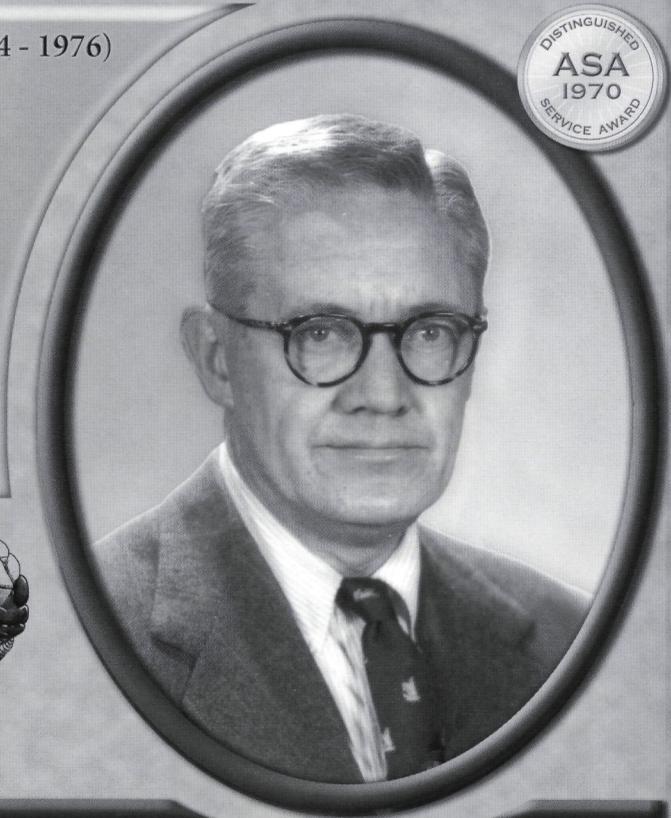
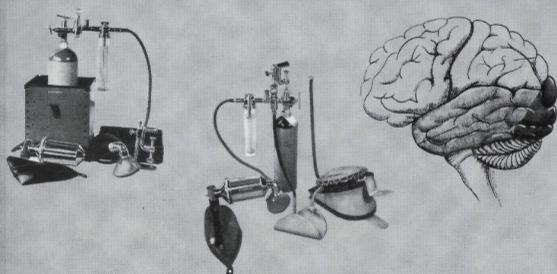
George S. Bause, M.D. is Honorary Curator of ASA's Wood Library-Museum of Anesthesiology and an Associate Clinical Professor at Case Western Reserve University, Cleveland, Ohio.



Henry Knowles Beecher, M.D. (1904 - 1976)

- USA's First Endowed Anesthesiology Chair
- Physiologist and Epidemiologist
- "Brain Death" and the Medical Ethicist
- Informed Consent Pioneer

Harvard professor Henry Beecher penned *Resuscitation and Anesthesia for Wounded Men* in 1949. Also a pioneer in medical ethics, patient consent, placebo use and clinical trials, he coined the term "brain death." Beecher directed Foregger in developing military apparatus like the safety-blow-off-valved Portable Anesthesia Apparatus and the Foregger Beecher Outfit so vital in WWII North African campaigns.



Virginia Apgar, M.D., M.P.H. (1909 - 1974)

- Assessing Newborns — The Apgar Score
- Columbia's 1st Female Full Professor
- March of Dimes Director
- Rapidfire Lecturer and Music Maker

Dr. Apgar earned her M.D. from Columbia University and her M.P.H. from Johns Hopkins University. Leaving surgery for general then obstetric anesthesiology, Dr. Apgar became Columbia's first female full professor. Her 1953 publication popularized the Apgar Score for assessing newborn health. From 1959-1974, Dr. Apgar directed the March of Dimes. An avid golfer and angler, Dr. Apgar was famous for lecturing rapidly. A skilled violinist and cellist, she actually fashioned her own musical instruments.

A Appearance
P Pulse
G Grimace
A Activity
R Respiration



Robert A. Hingson, M.D. (1913 - 1996)

- Epidural Anesthesia Pioneer
- Portable Cyclopropane and O₂
- Inventor of Jet-Injector Inoculation
- Founder of Brother's Brother Foundation

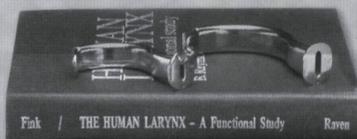
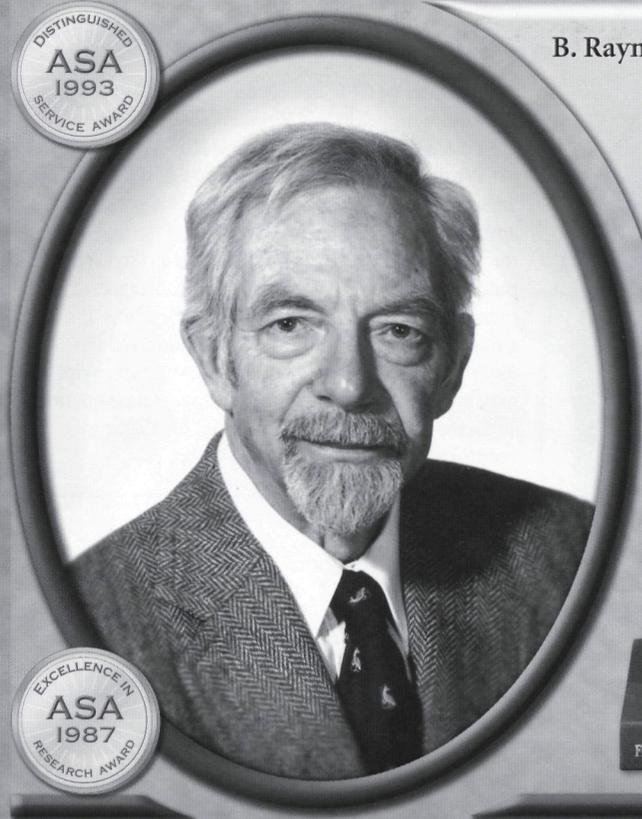
In obstetrics and in the field, Dr. Hingson's anesthetics used "lots of liquid" (like epidurals) or "bits of gas." The latter included spark-plug-sized cylinders of compressed gas. Dr. Hingson's Brother's Brother Foundation has distributed more than \$1 billion in aid to 40 million people in 110 countries. His "Peace Gun" jet-injector has immunized millions worldwide. After years of jet demonstrations on his own body, Dr. Hingson died from polymyositis and was nominated for the Nobel Prize.



B. Raymond Fink, M.D., F.F.A.R.C.S. (1914 - 2000)

- Valve, Blade and Airway Inventor
- Master Editor, Author and Translator
- Laryngeal Physiology and Evolution
- Medical Ethicist

Dr. Fink earned physiology, medicine and surgery degrees at the University of London. He invented the Fink valve, the Fink laryngoscope blade and the Fink airway. Lecturing in seven languages, Dr. Fink was a master editor, author and translator. An early voice against apartheid, Dr. Fink decried any use of data the Nazis recorded from human experimentation. His lifelong study of the larynx and speech convinced Dr. Fink that these helped to determine the course of evolution.



John J. Bonica, M.D., F.R.C.A. (1917 - 1994)

- Regional Anesthesia Pioneer
- Father of Pain Management
- Founder of IASP
- World Light Heavyweight Wrestler

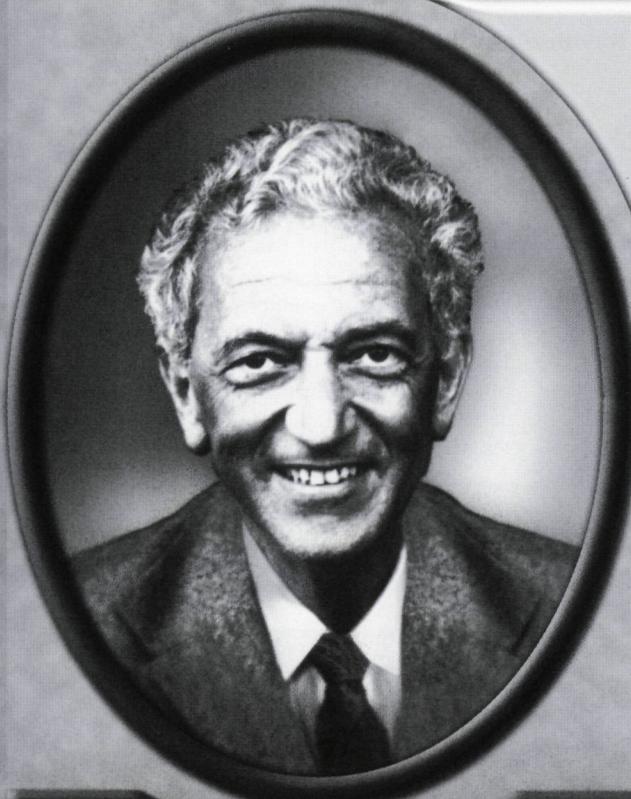
Dr. Bonica paid for his schooling by wrestling professionally, becoming the World's Light Heavyweight Champion. His interest in pain was personal: his own arthritic pain from professional wrestling and his wife's near-fatal obstetric anesthetic. *The Management of Pain*, his 1953 opus, is regarded as the bible of multidisciplinary pain management. Dr. Bonica also helped found the International Association for the Study of Pain (IASP).



Peter Safar, M.D. (1924 - 2003)

- Founder of CPR and CPRC
- Emergency Services Pioneer
- USA's First Medical/Surgical ICU
- World's First Multidisciplinary CCM Fellowship

Training the first personnel in the first modern ambulances, Dr. Safar brought Resusci-Anne and the ABCs of airway-breathing-circulation to cardiopulmonary resuscitation (CPR) and cardiopulmonary cerebral resuscitation (CPCR). Himself a master of resuscitation, Dr. Safar pioneered the nation's first ICU and the world's first multidisciplinary critical care medicine fellowship. An eloquent advocate of "titrated terminal care," Dr. Safar was nominated several times for the Nobel Prize.



**Airway
Breathing
Circulation**



What Do Our Residents Think of Us? A Survey of Current CA-2 and CA-3 Resident Perceptions of a Career in Critical Care Medicine

Robert M. Pousman, D.O.
C. Lee Parmley, M.D., J.D.

The health care industry's interest in improving quality of care without hindering efficiency applies to all medical specialties, and the subspecialty of critical care medicine (CCM) is not exempt. Continued focus on patient safety, length of stay, expenditures and outcomes is at issue not only in the medical media but the lay media as well. This is specifically apparent in the Leapfrog Group's recent initiative that requires a dedicated intensivist for intensive care unit (ICU) staffing models.¹ The impetus for an intensivist model has been spurred by evidence that such a model improves patients' outcomes, decreases their length of stay and reduces costs.²⁻⁵

Many ICUs in the United States are organized as an "open" model in which input from an intensivist is variable, if it is even given at all. The "closed" model imposes stricter controls on patient care, triage and admittance to the ICU mandating the patient's care transferred to the intensivist or critical care team. Recent data suggest decreased lengths of stay, improved outcomes, efficiency and resource utilization when ICU structure is changed from an open to a closed setting.^{6,7}

According to the American College of Critical Care Medicine (ACCCM), the definition of an intensivist encompasses the physician's credentials, focus of care and unencumbered immediate physical availability to the ICU. In addition the role requires expertise in managing multi-system insults while performing appropriate procedures/maneuvers and capacity for education and administrative responsibilities.⁸

Anesthesiologists, as hospital-based physicians, should make a good source of intensivists. Their training emphasizes recognition, diagnosis and manipulation of physiologic perturbations as they occur in real time in the operating suite, with patient acuity and equipment very similar to that of the ICU. In addition, because patients with virtually any disease process may need surgical intervention, the anesthesiologist's training requires experience with and understanding of a wide spectrum of acute and chronic illnesses.

Currently there are an estimated 10,244 intensivists in the United States, and of these, approximately 2,600 to 4,600 are actively practicing in an ICU with about 23 percent practicing CCM full-time.^{9,10}

Current estimates indicate a need for 33,000 intensivists to implement staffing models that approximate the Leapfrog Group's requirements. For 2002-03, there are a total of 333 CCM programs in the United States with 1,569 trainees enrolled.

Based on current trainee information, the Committee on Manpower for Pulmonary and Critical Care Societies (COMPACCS) estimates intensivist supply will meet demand until the year 2007, following which a shortage upwards of 20 percent will occur by 2020 and 35 percent by 2030. Approximately 80 percent of the critical care workforce is provided by physicians with a pulmonary medicine-based specialty. Of this group, only 23 percent of their clinical time is spent in the ICU while almost 70 percent is spent providing non-ICU pulmonary care.⁹ Therefore, a probable underestimate of supply exists when

"The concept of the anesthesiologist as a practitioner of perioperative medicine outside the operating room needs to be solidified ... "



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C. Lee Parmley, M.D., J.D., is Associate Professor and Chair, Department of Critical Care, University of Texas M.D. Anderson Cancer Center and University of Texas-Houston ACCM Program Director, Houston, Texas.

one considers the percentage of graduates each year who enter the job market and practice CCM. Compounding the problem is that by 2030, Medicare enrollment will increase by more than 50 percent, thereby placing a larger burden on the supply of intensivists.

Critical care training is provided in a multidisciplinary fashion, and anesthesiology is represented least well, supplying only 4 percent of the total trainee enrollment. According to the American Board of Anesthesiology (ABA), there are 1,030 board-certified critical care anesthesiologists in the United States, representing a mere 10 percent of the estimated U.S. intensivists. Presently anesthesiologists make up only 12 percent of the membership of the Society of Critical Care Medicine. Concerned about this disproportion in the face of excellent employment opportunities for the foreseeable future, we surveyed the current second- and third-year residents in all Accreditation Council for Graduate Medical Education (ACGME)-accredited U.S. anesthesiology programs. The purpose of this study was to gain insight into the perception(s) of CCM by anesthesiologists-in-training.

We created a 15-question survey that was distributed via e-mail to all program directors of ACGME-accredited U.S. anesthesiology training programs with instructions to dispense to all second- and third-year anesthesiology residents. We chose second- and third-year residents as they were more likely to have formulated an opinion about CCM based on their significant exposure to it. The responses to the questionnaire were collected over a three-month period from July to September 2002. All responses were obtained anonymously.

Results

There are a total of 1,326 CA-2 and CA-3 residents in ACGME-accredited anesthesiology training programs in the United States. From these we received 238 responses for a response rate of 18 percent, assuming all programs did in fact distribute questionnaires to all the residents. The responses to each question can be found in more detail on the ASA Web site. Forty-five percent of the respondents had completed three or more months in CCM of which the majority were spent in a surgical/trauma unit staffed by anesthesiologists 40 percent of the time.

To summarize our results, we found that almost 25 percent of residents chose anesthesiology for the procedure-related practice involved. Many also considered training in surgery, emergency medicine or internal medicine. Only 26 percent stated they will pursue an academic career.

Nearly all respondents considered themselves perioperative physicians. Fifteen percent considered CCM as a subspecialty, and almost all felt that their experience would impact their practice positively despite taking call two to three times per week. More than 80 percent stated that their CCM staff rotates in the operating room and are treated with equal if not more respect than their non-CCM colleagues. Nearly all believed a dedicated intensivist is beneficial.

Perhaps the most disturbing response is that 25 percent felt there is little market demand for CCM outside the academic setting, and 47 percent did not know.

Discussion

Our survey is limited by a small response rate; however, it does afford a revealing view of a misguided perception held by most of the respondents.

A common misconception of our respondents was that the demand and potential for intensivists is limited to academic practice, which we believe will not be true if the Leapfrog Group's initiatives are instituted. Anesthesiology residents in training are unaware of this and feel that there is little demand. This creates an enormous challenge for anesthesiology CCM fellowship training programs to recruit candidates as they must contend with this existing mindset and a perception that needs to be changed. A focus on changing this perception offers great potential in recruiting future intensivists into the subspecialty.

Thus the practice of anesthesiology lies at a crossroads with the number of applicants entering training programs showing an increasing trend and a proposed demand for a subspecialty it helped to create. If in fact the shortage experienced in the late 1990s is recovering, how do we capitalize on our new recruits?

Perhaps the most pressing question that needs to be addressed is why more of our residents do not choose to pursue fellowships in CCM. Is it because of a perception of poor market demand for CCM and an exceptional market for operating room practice? Is it the quality of the lifestyle that the private practice anesthesiologist is believed to lead? Perhaps their ICU experience was malignant?

An interesting contrast can be seen in comparing anesthesiology with pulmonary medicine, which is currently very well-represented by trainees in critical care programs. Pulmonary medicine training includes critical care certification, where anesthesiology requires formal fellowship training beyond the primary specialty program. Perhaps ABA

Continued on page 27

Special Research-Related Activities at ASA Annual Meeting: 'A Celebration of Research'

Michael M. Todd, M.D.
Editor-in-Chief, *Anesthesiology*

While science sometimes seems far away from our daily clinical activities and is seen by some as the domain of a small cadre of academic anesthesiologists and Ph.D.s working on complex and esoteric subjects, a small amount of reflection reveals that the status of our specialty is the product of such activities. Nearly everything we do today has been influenced by the research efforts of someone in the past — sometimes last month, sometimes half a century ago. It is difficult to imagine what our specialty would be like today without this work, or whether it would even exist at all as a respected, professional medical discipline. Moreover, who of us has not asked ourselves or a colleague, "I wonder why that happens?" or "I wonder if this is the best way to handle this problem?" or "I wonder what happens to ABC when I give this drug?" Yes, some research work is incredibly complex and difficult to understand. Nearly all of us have a small bit of the researcher inside us, however. It is simply called curiosity.

These comments also apply to the future. Without the creation of new knowledge and its eventual translation into practice in the operating room, the intensive care unit, the pain clinic and elsewhere in medicine, our specialty will stagnate. Without efforts to encourage and support new ideas being generated by new, young anesthesiologists, there will be no future researchers. If we only concentrate on our immediate practice problems, it is easy to forget or overlook these facts.

ASA clearly recognizes the importance of the science being done by our members, by anesthesiologists in other countries and by investigators in other disciplines. ASA, along with the Foundation for Anesthesia Education and Research (FAER) and through its journal *Anesthesiology*, is a major supporter of research and the dissemination of the results of that research. Since the first Annual Meeting, ASA has provided a forum for anesthesiology researchers to present their work, meet with each other and help others to translate their findings into clinical practice. However, it is time to reinvigorate that forum.

Under the guidance of ASA President James E. Cottrell, M.D., the Society is starting a major effort to enhance the quality and visibility of research activities at the ASA Annual Meeting. In keeping with that goal, a number of special lectures, symposia, scientific sessions, etc., have been organized for this year on October 11-15 in San Francisco, California. These are summarized below. In addition, there are more than 1,500 scientific papers being presented and many other scientific exhibits.

The Annual Meeting is very, very large and complex,

and trying to decide between Refresher Course Lectures, panels, workshops and poster sessions, etc., is often difficult. I urge you, however, to take some time from your busy schedule to attend one or more of the following sessions. You might be surprised at what you will learn.

Emery A. Rovenstine Memorial Lecture

This year's Rovenstine Lecture is titled "Postoperative Cognitive Dysfunction: The Next Challenge in Geriatric Anesthesia" and will be given by Terri G. Monk, M.D., University of Florida, Gainesville, Florida. As our society ages, more and more elderly patients are moving through our operating rooms and clinics. Many of these patients do not recover as quickly as the young, and it is apparent that anesthesia and surgery may have much longer-lasting effects than we once believed.

The Rovenstine Lecture will be held from 11:15 a.m. to 12:15 p.m. on Monday, October 13, in Room 134 of the Moscone Center.

Celebration of Research

The First Annual Celebration of Research is intended to highlight certain important ASA award winners and their activities. Speakers will include the 2003 winner of ASA's Award for Excellence in Research, Mervyn Maze, M.D., Ch.B., Imperial College, London, United Kingdom; and the winner of the First Annual Presidential Scholar Award, Peter J. Pronovost, M.D., Ph.D., Johns Hopkins University, Baltimore, Maryland. In addition, meet (and hear) the work done by our "next generation," the first-place winner of the Residents' Research Essay Contest.

The Celebration of Research will be held immediately following the Rovenstine Lecture from 12:30 p.m. to 1:45

Continued on page 18



Michael M. Todd, M.D., is Professor, Department of Anesthesiology, University of Iowa, Iowa City, Iowa.

p.m. on Monday, October 13, in Room 135 of the Moscone Center. Lunch will be available!

Third Annual FAER Honorary Research Lecture

FAER has supported the research activities of young anesthesiologists for several decades, and it represents one of the best sources of research funds for new investigators. Each year a prominent recipient of FAER funds presents an overview of his or her scientific career. This year's speaker will be Jeanine P. Wiener-Kronish, M.D., University of California-San Francisco, who will speak on "Critical Infections — From Genes to the Bedside."

The FAER Honorary Research Lecture will take place immediately after the Celebration of Research from 2 p.m. to 3 p.m. on Monday, October 13, in Gateway Ballroom 102 of the Moscone Center.

12th Annual Journal-Sponsored Symposium

For 12 years, *Anesthesiology* has organized and sponsored special symposia dealing with subjects on the cutting edge of our specialty. This year's topic is "Preconditioning Against Ischemia and Reperfusion Injury." Preconditioning is the phenomenon by which exposure of an organ (heart, brain, spinal cord, etc.) to some stimulus (e.g., brief ischemia) can result in a dramatic increase in the organ's tolerance to a subsequent severe ischemic result. We now know that certain volatile anesthetics are among the most potent preconditioning agents known, and we also know that this phenomenon has very real clinical importance. The symposium will include posters from more than 20 researchers from around the world and lectures by well-known experts in this area, including Stefan De Hert, M.D., Ph.D., University Hospital Antwerp, Antwerp, Belgium;

Garrett Gross, Ph.D., Medical College of Wisconsin, Milwaukee, Wisconsin; and Michael Zaugg, M.D., University Hospital Zurich, Zurich, Switzerland. The actual abstracts can be found on the CD-ROM mailed with the September issue of the journal or on the *Anesthesiology* Web site at <www.anesthesiology.org>.

The Journal Symposium will take place from 9 a.m. to 12:30 p.m. on Tuesday, October 14, in Gateway Ballroom 102 of the Moscone Center.

SOAP-*Anesthesiology* "Innovative Research in Obstetric Anesthesia" Oral Presentation Session

Anesthesiologists have been caring for women in labor since Sir James Simpson cared for Queen Victoria, and obstetrical anesthesia is one of our core subspecialties. This year the Society for Obstetric Anesthesia and Perinatology (SOAP) joined forces with the editors of *Anesthesiology* to solicit and select a series of eight papers covering what they believe to represent the most innovative work being done in this area today. This will be a completely *oral* scientific presentation with many members of our profession present to ask questions and provide commentary.

The actual abstracts can be found on the CD-ROM mailed with the September issue of the journal or on the *Anesthesiology* Web site.

The SOAP-*Anesthesiology* special session will take place from 2 p.m. to 4 p.m. on Tuesday, October 14, in Gateway Ballroom 102 of the Moscone Center.

Also remember that these activities are only a tiny piece of the scientific activities taking place at the ASA Annual Meeting. We hope to see you there.

Professionalism and the Acquisition of Anesthesia's Antiquities

Continued from page 6

extraordinary contributions of time, effort or objects to the WLM, no doubt an international treasure of our craft. Yet Dr. Bause's proficiency with medical artifacts and his energy, enthusiasm and generosity have served to preserve the history of anesthesiology in a way that will benefit our specialty for centuries to come. We owe

a genuine debt of gratitude to this true and extraordinary professional. (And some of us wish that we were in those shadowy back rooms with him!)

Thanks to Evan Bause for his contribution to this article.

SARS: Its History, Its Challenges

Robin A. Stackhouse, M.D.
ASA Task Force on Infection Control

Late last November, while the World Health Organization (WHO) was holding its annual flu vaccine conference in Beijing, China, it began hearing reports of an illness that was causing severe respiratory problems and deaths in the southern Chinese province of Guangdong. WHO requested tissue samples for testing but found them to contain only common flu strains. In retrospect, this was the early stage of an outbreak of a yet unknown disease later labeled severe acute respiratory syndrome (SARS) with a previously unknown human pathogen (SARS-related coronavirus, or SARS-CoV).

It would not be until mid-February, after several missed opportunities, that WHO had sufficient evidence of the unusual outbreak to begin questioning the Chinese government. During the remainder of February and early March, WHO and the Centers for Disease Control and Prevention (CDC) sent teams to China and attempted to obtain more data. The Chinese government did not allow them access to the necessary people or data, however. Then on February 21, a physician from Guangdong province checked into the Metropole Hotel in Hong Kong. He became ill with SARS and was hospitalized in Hong Kong but not before 10 other guests from the United States, Canada, Singapore, Ireland and Vietnam were exposed.

And so began the worldwide spread of the SARS virus. WHO issued a global alert on March 12, but the imminecence of the war with Iraq overshadowed this news. A more emphatic alert was issued on March 15 when it became apparent that the disease had broken out of China and the epidemic was spreading to other countries.¹ A dramatic pictorial representation of the explosive spread of SARS can be found on the CDC Web site at <www.cdc.gov/mmwr/preview/mmwrhtml/mm5218a1.htm#fig1>. Six months into the epidemic, there have been 7,864 cases of SARS in 28 countries with 643 deaths.²

The case definition for SARS [Table 1 on page 20] is based on clinical and epidemiological factors. This is a result of our current knowledge deficit on the duration of viremia and viral shedding during which time a direct viral test could be used for confirmation of the disease. It is also not known when sera can be tested for an acute or chronic phase antibody response. A negative laboratory test should not be used to rule out SARS-CoV infection until further data on viral testing is available.

SARS-CoV

There are currently three identified groups of coronaviruses. Groups I and II are known to cause human illness

One Canadian anesthesiologist gives a personal account of being stricken by — and surviving — SARS after the initial outbreak earlier this spring. See page 23.

but generally fairly mild upper-respiratory diseases. Group III is only known to cause animal disease.⁴ Based on recent sequencing data, SARS-CoV does not fit clearly into any of these three groups. In addition, it does not show evidence of being a recombinant of other known viruses. It is an enveloped, single-stranded RNA virus containing 29,727 nucleotides and is approximately 100-150 nanometers in size.⁵⁻⁹ Transmission is known to occur by close contact and large droplets but also may have airborne as well as fecal-oral spread. Symptoms begin from two to 10 days (importantly, not a firm outer limit) after exposure, with fever (100 percent), chills/rigors (73-90 percent), headache (20-70 percent), myalgia (20-83 percent) and malaise. This progresses in another three to seven days to respiratory symptoms (nonproductive cough and dyspnea) and is often accompanied by leukopenia, lymphopenia, increased creatine phosphokinase (CPK) and transaminases. Infiltrates on a chest X-ray (CXR) may not be present initially but generally begin as focal, become interstitial and then progress to involve multiple lobes. The period of infectivity is currently believed to start with the onset of symptoms and end within 10 days of the resolution of fever with the caveat that respiratory symptoms are



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Table 1: CDC Case Definitions

Suspect Case

1. A person presenting after November 1, 2002, with history of:

- High fever (>38° C)

AND

- Cough or breathing difficulty

AND

One or more of the following exposures during the 10 days prior to onset of symptoms:

- Close contact (having cared for, lived with or had direct contact with the respiratory secretions or body fluids of a suspect or probable case of SARS) with a person who is a suspect or probable case of SARS
- History of travel to an area with recent local transmission of SARS
- Residing in an area with recent local transmission of SARS

2. A person with an unexplained acute respiratory illness resulting in death after November 1, 2002, but on whom no autopsy has been performed

AND

One or more of the following exposures during the 10 days prior to the onset of symptoms:

- Close contact with a person who is a suspect or probable case of SARS
- History of travel to an area with recent local transmission of SARS
- Residing in an area with recent local transmission of SARS³

Probable Case

1. A suspect case with radiographic evidence of infiltrates consistent with pneumonia or respiratory distress syndrome (RDS) on chest X-ray (CXR).

2. A suspect case of SARS that is positive for SARS coronavirus by one or more assays.

3. A suspect case with autopsy findings consistent with the pathology of RDS without an identifiable cause.³

resolving. This outer limit of infectivity may not be accurate when steroids have been used in treatment or if the patient is immunocompromised for other reasons.⁴

Workup of patients suspected of having SARS should include a CXR, blood and sputum cultures, oxygen saturation measurements and tests for other viral pathogens as well as legionella and streptococcus pneumonia. Reverse transcriptase polymerase chain reaction (RT-PCR) can be done to test for the presence of viral antigens in specimens. The virus has been found in nasopharyngeal aspirates, blood, stool and urine. The timing of testing for the pres-

ence of the antigen in various sample types is still to be delineated [Table 2]. Therefore, a RT-PCR test does not rule out the presence of the disease. A positive test is a true positive as long as there has been no contamination during the conduct of the test.⁴

Antibody to SARS-CoV may be identified using one of three tests: immunoflorescent antibody (IFA), enzyme-linked immunosorbent antibody (ELISA) or a neutralization test. A serum specimen obtained greater than 21 days after onset of the illness should be used to test the convalescent serum for evidence of an IgG response to SARS-CoV.

Table 2: Analysis of Clinical Specimens of 20 Patients With RT-PCR Positive Nasopharyngeal Aspirates (NPA) and Seroconversion to SARS-Associated Coronavirus

Day after onset of symptoms	10	13	16	19	21
NPA (Positivity rate)	19/20 (95%)	18/20 (90%)	18/20 (90%)	15/20 (75%)	9/19 (47.4%)
Stool (Positivity rate)	20/20 (100%)	20/20 (100%)	19/20 (95%)	12/15 (80%)	10/15 (66.7%)
Urine (positivity rate)	10/20 (50%)	9/20 (45%)	7/20 (35%)	6/20 (30%)	4/19 (21.1%)

Peiris et al. www.who.int

Based on testing of greater than 1,000 individuals who have not had SARS, there is no evidence of immunity in the general population (consistent with a totally new disease); therefore, a positive antibody test is confirmatory of having had the disease. The CDC is now making the reagents for these tests available to many laboratories around the country, but until more is known about the optimal timing, sensitivity and specificity of these tests, the case definition of the disease will be based on clinical and epidemiological factors. Local and state health departments should be notified of any suspect or probable cases.^{4,10}

Current recommendations for treatment are predominantly supportive. Testing for the efficacy of many antiviral agents as well as drugs that are immune modulators is ongoing. There are no data at this time to recommend any particular drug therapy.⁴

Factors associated with severity of disease and fatality are under investigation. Age, coexisting disease and possible pregnancy¹¹ are adversely associated with outcome. The current estimates of fatality from SARS are subject to error for various reasons. If the method of taking the number of fatalities divided by the total number of reported cases is used, the number may be significantly inaccurate because there are thousands of patients who currently have the disease, but we do not yet know their outcome. Some

of the mortality estimates only include the subset of patients who were admitted to a hospital. It is unknown at this time whether exposure, followed by conversion to antibody positivity, can occur without the development of disease symptoms. If so, the denominator may be much larger. Another factor affecting the varying mortality rates from different countries is that in places where there have been relatively small numbers of cases, the affected population is not necessarily a random cross section of the population. In addition, all the data are not yet known from China where the vast majority of the cases have occurred to date.¹²

Infection Control

The principles for control of the spread of SARS are based on the known (contact, droplet) and suspected/possible (airborne, fecal-oral) mechanisms of transmission. Precautions include isolation, use of personal protective equipment, handwashing and disinfection of environmental surfaces.

Isolation

Whenever possible, patients should have a private, negative-pressure room with at least six to 12 air exchanges per hour. If this is unavailable, they should have a room with a high-efficiency particulate air (HEPA) filter. A designated nursing unit for SARS patients would be the third choice option. Doors and windows must be kept closed for the measures to be effective.¹³⁻¹⁶

Personal Protective Equipment

Respirators: Disposable, National Institute for Occupational Safety and Health-approved, fit tested N-95 or greater respirators should be used when in contact with patients. A surgical mask placed over the nose and mouth of the patient is sufficient to trap the large particles generated through coughing or sneezing. However, they are incapable of filtering the virus once the expectorated material dries and the virus becomes airborne as a droplet nucleus. N-95 masks attain a 95-percent filtration efficiency through mechanisms such as electrostatic filtration, sedimentation and diffusion.¹³⁻¹⁷

Eye protection, gowns, gloves: Goggles, disposable gowns and gloves should be worn when entering a patient's

room and during patient contact. When leaving the patient's room, gowns should be removed prior to gloves as one would do when scrubbing out of a surgical procedure to avoid self-contamination.¹³⁻¹⁶

Handwashing: Hands should be washed with soap (antimicrobial or plain) and water after patient contact regardless of whether gloves have been worn. Alcohol-based hand rubs may be used if there has been no visible soiling.¹³⁻¹⁶

Patient Care Equipment and Environmental Surfaces

When possible, patient care equipment should be left in the patient's room. Equipment and environmental surfaces should be disinfected with an Environmental Protection Agency-approved agent (such as a quaternary ammonium or phenolic compound) that is recommended for the particular item. Seventy-five percent ethanol, 2 percent phenol, hypochlorite (500 ppm available chlorine) and household detergent all have been shown to be effective disinfectants.^{13-16,18}

Recommendations for Practice

Patient triage: Any patient suspected to have SARS is advised to contact the health care facility prior to their arrival. Patients should put on surgical masks and be isolated from other individuals at the earliest opportunity.

Patient transfer: SARS patients should only be outside their room for required medical procedures. Elective procedures should be postponed until the patient is no longer deemed to be infectious. While outside their room, patients should wear surgical masks. Transport personnel should use full barrier protection.

Operating room: When surgery is required, efforts should be made to limit exposure of personnel and other patients. This may be accomplished by performing the procedure when the least number of people are present in the operating room (O.R.) and limiting those in the patient's O.R. to only those who are essential for the procedure. Operating rooms generally have positive pressure in relation to the outside hallways in order to decrease surgical infection risk. If available, O.R.s with antechambers are preferable for cases where the patient may expose personnel to infection risk. All unnecessary equipment should be removed from the room to prevent contamination.

Patients should be transferred directly to the O.R. in which the surgery will be performed. Everyone in the O.R. should use full precautions discussed earlier. Bacterial/viral filters should be used on both the inspiratory and expiratory limbs of the anesthesia machine. There are no recommendations on anesthetic technique. Care should be taken to avoid contamination of the anesthesia machine and cart, which may be accomplished by double-gloving and changing the outer pair of gloves after each patient contact. After the procedure, the patient must be recovered in isolation. This may require that recovery occur in the O.R. itself or the patient's isolation room. All personal protective equipment (PPE) should be removed prior to leaving the O.R. as it may be contaminated. New PPE should be put on for transport of the patient when leaving the O.R. There is controversy as to whether the N-95 masks should be reused. If adequate supplies are available, it is preferable to dispose of the masks after use as they are potential fomites for the transfer of infection. If there is a shortage of masks, one recommendation is to wear a surgical mask over the N-95 mask (not under the mask as this defeats the purpose of a tight seal that only allows filtered air inside the mask), thus decreasing gross soiling of the mask. The O.R. should remain vacant for a sufficient period of time to allow for 99.9 percent air turnover. For a room with five air changes per hour (ACH), 83 minutes would be required. At 10 ACH, this drops to 41 minutes and only 28 minutes for 15 ACH. All surfaces should be disinfected with an EPA-approved agent.¹⁹ The circuit and gas sampling line should be disposed. All trash should be properly bagged and disposed of per standard O.R. requirements. The tragically high infection rates of health care workers at the early stages of the epidemic makes it clear that these recommendations must be strictly adhered to in order to protect oneself and other health care workers.^{13-16,18}

Ongoing Areas of Investigation

Mechanisms of transmission:

- Does transmission of SARS occur by an airborne mechanism?
- Does transmission of SARS occur by a fecal-oral mechanism?
- How long does SARS remain viable on environmental surfaces?²⁰
- What is the infectious period?

Continued on page 25

Infected:

An Anesthesiologist's Personal Battle With SARS

The following is a personal account of a Canadian anesthesiologist's experiences with severe acute respiratory syndrome (SARS) during the height of the "SARS scare" earlier this spring. The doctor wishes to remain anonymous, and will only be referred to as Alan T. Much of the information here was taken from e-mail correspondences between Alan T. and friends and coworkers in the months of April-June 2003.

April 22, 2003

Thanks to everyone who wrote to wish me well, either directly or on the GASNet list. John O. phoned while I was still in isolation in the hospital and read me numerous e-mails. I'm just emerging from home convalescent quarantine and have finally regained access to my computer.

I have generally had a history of good health, and my only in-hospital experience was an overnight stay 20 years ago for minor elective surgery. I've never been as sick with anything before acquiring SARS, and it will be a few months before I'm back to my premonitory level of fitness.

On March 20, 2003, I came down quite suddenly with a high fever. I had intubated an elderly man with suspected "atypical pneumonia" in the intensive care unit on March 17, so I immediately contacted the infectious disease specialist. We were only just starting to learn about "SARS" at the time. I was advised to isolate myself in a separate room and was told that I'd likely just have a few days of flu-like illness, and that the severe cases with pneumonia were probably the extreme "outliers." I stayed in bed with fluctuating temps for a few days, but I went to the emergency room when I began to cough. By then they realized it was much worse than a flu-like illness.

Several other medical staff were coming down with this simultaneously. A wing of a respiratory hospital had been opened for us, and we were all (some 15 nurses, X-ray technicians, respiratory technicians and moi) transferred and admitted that night. I was told I had an "infiltrate" in the right middle lobe (RML) and also advised that transmission to family members was frequent. I was put on an antiviral regimen of levaquin by mouth 2 gm a day and intravenous (I.V.) rivaviri 500 mg four times a day. My chest X-rays progressed to an RML consolidation and some left-lung infiltrates. They remained confined to these areas with the remaining lung staying clear. I never needed oxygen, although I had furious bouts of dry coughing the first one and a half weeks that only gradually subsided as my lungs began to clear on X-ray.

After five days, they began to discontinue the antivirals.

As with most of us, I developed a hemolytic anemia as well as disordered liver enzymes and elevated bilirubin with visible jaundice. I was given several I.V. boluses of methylprednisolone to halt this. Within a few days, everything began to normalize.

"On March 20, 2003, I came down quite suddenly with a high fever. I had intubated an elderly man with suspected 'atypical pneumonia' in the intensive care unit on March 17, so I immediately contacted the infectious disease specialist."

Unfortunately my 14-year-old who had been very helpful bringing food and water to my room when I first took ill came down with the same thing four days after I was admitted. She had a quicker recovery and was sent home a week later, thus arriving here several days before me. Fortunately my 12- and 6-year-olds and my wife have been OK. Nonetheless they were in quarantine almost three weeks. It has been especially taxing to my wife who, until now, has had to worry about two convalescing people at home still dependent on her to make and bring us our meals. I lost more than 10 Kg from the illness and accompanying anorexia the first one and a half weeks of my illness. After that I quickly turned the corner and was sent home on the April 9. Upon exertion I found I was easily tired and got short of breath far faster than before the illness, probably from the anemia as well as muscle wasting, the antiviral treatment and prolonged inactivity. I am eating well and regaining some weight and have started to exercise and am able to increase my performance each day. I am allowed to go outside on my own property and have increased how much yard work I can do each day.

I haven't actually lost any income relative to colleagues since my hospital was at the epicenter of the SARS outbreak. Most area hospitals have had to operate on a greatly reduced scale or not at all this past month because of SARS and the efforts to contain its spread. I hope to return to work in a few weeks when it begins to reopen in stages.

I would warn anyone with a suspected SARS patient to be very cautious, particularly if intubating. When I came into contact with the virus, I was wearing a sterile gown, a

standard paper mask, gloves and an operating room hat — pretty standard at the time. I even went straight to the change room afterward to wash my face, arms, shoulders and armpits with antiseptic soap and water and change my scrub suit. In retrospect, I should have been double-gowned and gloved and worn a high-quality mask and goggles and perhaps even a plastic faceguard. I learned from the news that 25 percent of the 250 or so likely or suspected SARS cases in the Toronto area involve health care

“The garbage handlers who take the city’s trash are threatening now to inspect trash and ‘reject’ any with discarded masks and gloves.”

workers. In one instance, a difficult intubation requiring several attempts over a several hour period resulted in more than 10 suspected new infections in medical staff! Because of this, I don’t fault any unaffected country for stricter screening of incoming travelers. It’s especially important to be very suspicious and prepared for the first case that presents in the emergency room. I won’t feel offended if any of you choose not to visit the Toronto region in the near future.

OK, my arms and hands are getting a bit tired and shaky. I’ll be signing off now for a while. I have too much else to do after a month of this lying and sitting about than sitting at the keyboard! Best regards to all, Alan T.

April 23-27

From all indications, I’m the first anesthetist in Canada and indeed the non-Asian world to get SARS, although a general practitioner who first treated “patient zero,” as well as an internist who is her boyfriend, beat me to it by a few days as Canada’s first M.D.s. There were a cluster of other health care workers (nurses and technicians) who all fell ill the same time as I did. We were in many respects a group of guinea pigs, and I imagine we’ll furnish considerable material for clinical and academic publication in the coming months.

April 28

I was back for a follow-up again today, three weeks after my discharge from the hospital. Everything is coming along fine. There is still a bit of haziness in the RML

and left peripheral area, although it is considerably improved from the residual infiltrates two weeks ago. This is typical for a number of us at this stage. I’m ready to go back to work as soon as my hospital gets the green light, although my doctors have advised me to take another two to four weeks off. Another interesting piece of data: the 15 of us hospitalized had a total of 58 cohabiting family members when we took ill, and typically we remained at home the first two or three days with prodromal fevers. At the time, none of us was advised to wear masks or to be strictly quarantined. Only two of these 58 cohabitants got SARS — my 14-year-old daughter and a registered nurse’s daughter (I presume also a teenager or young adult). Initially the rate of transmission to family members was quoted as 50 percent to 100 percent.

[Here Alan T. corresponds with a friend from Calgary, Alberta, Canada, who was concerned about SARS spreading beyond Toronto.] When the epidemic started here, I assumed that there must have been a number of returning travelers from Hong Kong who carried the virus, but all indications were that it was only a single one that slipped by and triggered the “epidemic.” SARS is on the wane here, and it never escaped from the hospital or close-personal-contact-stage out into “the street.” It’s funny, the World Health Organization and the popular media are just now ramping up SARS paranoia. The garbage handlers who take the city’s trash are threatening now to inspect trash and “reject” any with discarded masks and gloves. My daughter and I both recently got out of convalescent quarantine at home, so heaven help us if they happen to open one of our trash bags, especially since I also discarded my junk mail and read-through magazines there!

April 30

Last evening I took my 15-year-old to the SARS assessment clinic near Markham-Stouffville Hospital where she was admitted for a week. The doctor there, with whom I am acquainted, compared notes with me for a few minutes. I noted the low incidence of infection to family members. He told me that among the smaller number of probable SARS cases at his hospital, there were much higher numbers of affected family members. (By the way, her follow-up chest X-ray had completely cleared up, and she was given the official OK to return to school.)

August 12

I have made a full recovery. My blood tests, stress cardiolute (Technecium) scan and pulmonary function are back

to normal. A bit of interstitial thickening in one spot in my lungs was reported on computed tomography scan of the chest where I had the densest infiltrates on chest X-ray while I was sick. I'm back to my usual levels of physical activity, including 2,000 meters of swimming at just over 30 minutes, three miles on the treadmill at eight miles per hour and 6,000 meters on a rowing ergometer at maximum resistance in just over 22 minutes.

Another death of a SARS patient in the ICU was reported during the third week of August, raising the Toronto area total to 44. There are still a few critically ill patients in the ICU; however, no doctors have so far died of the illness.

Sincerely, Alan T.

Editor's Note: Sadly, the next day, August 13, Nestor Yanga, M.D., a general practitioner at the Lapsley Family Doctors Clinic in Toronto, died after a four-month battle with the disease. He was the first, and so far only, North American physician to die from SARS. In Asia, however, Carlo Urbani, M.D., a World Health Organization communicable disease expert who was the first to tip the organization to the existence of SARS, died in Thailand on March 29.

SARS: Its History, Its Challenges

Continued from page 22

Reservoirs:

• Is there an animal reservoir for SARS? *The New York Times* recently reported that a coronavirus nearly identical to SARS-CoV has been identified in three species of animals sold in the markets where SARS is thought to have originated. The animals include the palm civet, raccoon dog and badger.²¹ It is not known whether the infected animals were farmed or wild. There have been unverified reports of the virus in other species as well. A reservoir of the virus in undomesticated animals would pose a far greater challenge to eradication.

- Can individuals be asymptomatic but transmit the disease?
- Will this virus be eliminated or become endemic?

Natural history:

- How will this virus mutate over time? Will it become more or less virulent?

- Will there be seasonal outbreaks as with the flu?
- Will people develop long-term immunity after exposure?

Treatment:

- What is the most effective treatment?
- Will there be an effective vaccine against the disease?

Resources:

Centers for Disease Control and Prevention Web site <www.cdc.gov/>.

World Health Organization Web site <www.who.int/en/>.

References are available from the ASA Executive Office or on the ASA Web site <www.ASAhq.org>. 

Information Management: Help Us to Learn How to Better Help You

Eric Werner, M.D.

Committee on Information Management

The Committee on Information Management (CIM) has completed a major revision of the membership demographic survey. The result is a more detailed questionnaire and one that will potentially yield more useful information for the Society and its members. This document is now available on the membership Web pages through the "Members Only" section of ASA's Web site <www.ASAhq.org>. Please visit this site soon to confirm and update your membership survey.

A demographic survey is important to any large organization as it provides the means to identify and contact its membership. Accurate contact information increases efficiency and allows rapid membership contact.

The Internet provides large organizations with an opportunity to realize significant improvements in the efficiency of and the costs associated with collecting member information. Members can update personal information by filling out an online form; when a member's personal or professional circumstances change, the appropriate information can be updated easily through a quick visit to the membership Web site. This technology promotes database integrity and improves ASA's efficiency. By avoiding the costs of paper surveys, including publishing, printing, mailing and processing, your Society can save money that can be put to good use on other projects. To that end, CIM strongly encourages you to complete the online survey.

In the past, your Society has primarily collected basic information such as membership status and home or office addresses. The new survey will continue to collect this basic information but will also inquire about hospital affiliations, academic appointments, administrative positions, legislative contacts and expertise in various aspects of anesthesiology.

This additional information will allow the Society to develop new survey tools, to aggregate practice information



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Site for Sore Eyes

In October 2002, ASA launched its revamped Web site. For those of you not yet familiar with the improvements of the site, a visit to <www.ASAhq.org> is in order. While there, please visit the "Members Only" section to update your membership profile.

The following instructions for accessing the membership pages assume a small degree of proficiency with using a personal computer:

- Obtain Internet access through any computer that is connected to the Internet and has browser software (e.g., Microsoft® Internet Explorer or Netscape® Navigator). Many hospitals provide medical staff access to terminals allowing Internet access.
- Type ASA's Internet address <www.ASAhq.org> into the browser Address Bar. Remember to press the Return key on the keyboard button.
- Use the mouse to click the "Members Only" button at the top of the resulting screen.

Members Only

- A page asking you to "log in" will open. To continue, you must enter a username and a password. This page contains information on usernames and passwords.

IMPORTANT: If using a public terminal (e.g., one in a hospital), please do not choose to save your username or password if given the opportunity. If necessary, you may look up your username by clicking on the Member Lookup button. Your password is your ASA membership identification number. You may choose to change it at a later time.

- The "Members Only" Web page will open.
- Click on the "Update Membership Information" text located on the left side of the page.

IMPORTANT: If using a public terminal (e.g., one in a hospital) please remember to "Log Out" by clicking the appropriate text when you are finished updating your membership survey.

Questions? Please contact Carol Krause at (847) 825-5586 or <c.krause@ASAhq.org>.

and to contact subsets of the membership. Additionally, the survey will allow ASA leadership to identify subsets of the membership for more in-depth queries. Examples of potential survey topics include practice management issues such as workforce/workload status, call-coverage arrangements, nurse anesthetist utilization and preretirement staffing strategies. Other potential uses include grassroots legislative and political activity, clinical research or various educational initiatives.

Because ASA will be better able to identify members for future surveys (e.g., departmental chairs or corporate presidents), the majority of Society members will be saved

the aggravation of extraneous contact. Simultaneously, the Society will conserve its resources and improve the quality of information it gathers.

Results of this demographic survey will eventually be available either in print, on the Web site or via direct request from ASA headquarters.

Again CIM encourages all ASA members to complete the revised online demographic survey. Doing so will improve the Society's ability to contact its members rapidly and to efficiently gather information germane to its members.

What Do Our Residents Think of Us?

Continued from page 16

might offer an optional certification for anesthesiology and critical care medicine by modification of training time and requirements of time spent in critical care environments rather than a formal fellowship.

Currently two months spent in CCM rotations is all that is necessary to fulfill requirements of ACGME-accredited anesthesiology training programs. Increasing the minimum time requirement in CCM rotations at the very least helps to promote the image and role of the perioperative physician, not to mention confidence in managing high-acuity patients. Another possibility to aid in recruitment of trainees is creating a "CCM track" for those residents interested in pursuing a career in critical care anesthesiology. More ICU time would be spent during the preliminary and clinical anesthesia training years, and if proficiency is validated, less post-graduate time would be necessary to fulfill board requirements. This may be an attractive alternative for those who consider pursuing subspecialty training but are reluctant when they can enter the job market and begin repayment of educational debt.

The concept of the anesthesiologist as a practitioner of perioperative medicine *outside* the operating room needs to be solidified and used to dissuade the common perception that anesthesiologists are physicians who provide a vital yet limited role in a patient's care. We need to not only change the mindset of the community

but also help to promote and garner the image in our residents' minds, encouraging them to think outside "the box" of the operating room.

ABA and ASA challenge the specialty to develop the role of anesthesiologists as perioperative physicians. The November 2002 *ASA NEWSLETTER* devoted an entire issue to the perioperative physician, and our survey respondents clearly believe that anesthesiologists are perioperative physicians. No other subspecialty can match our familiarity with airway management, physiologic and pharmacologic manipulation of the cardiopulmonary circulation, fluid management and resuscitation, mechanical ventilation and invasive monitoring techniques. To hone the skills obtained in CCM residency is only a natural progression from the operative suite to the ICU.

We should work toward staffing the very ICUs we helped to create with our fresh new recruits as well as forge new areas such as the hospitalist arena. It is our responsibility to reverse the misconception of a bleak market demand for critical care anesthesiologists. Rather than redefine ourselves, we need to regain our reputation now as perioperative physicians instead of achieving recognition "posthumously."

References and figures are available on the ASA Web site at <www.ASAhq.org/Newsletters/2003/09_03/pousman.html>.

Your Young Physicians Section

Roy G. Soto, M.D., Chair
Committee on Young Physicians

What exactly is a young physician? Well, I suppose it's a physician that's young! Of course the older I get, the younger I stay, so that is not an adequate definition. The American Medical Association (AMA) has defined a young physician as anyone 40 or under or within the first five years of practice. The AMA Young Physicians Section (AMA-YPS) was formed in 1986 specifically to increase leadership opportunities for young doctors and to train them for future leadership within organized medicine. Nearly 38 percent of the ASA membership is below age 45, and nearly 2,000 members changed from resident status to active status in the past four years.

State and specialty societies send representatives to the AMA-YPS, and ASA formed its own YPS in 1990. A delegate and alternate delegate from the ASA attend biannual meetings in conjunction with the AMA House of Delegates annual and interim meetings, and the delegate to the AMA-YPS serves as alternate delegate to the full House on behalf of ASA. I am currently the chair of the ASA-YPS and alternate delegate to the AMA-YPS, while Ronald L. Harter, M.D., is the current delegate. Unfortunately, Dr. Harter will "age out" and join the Middle-Aged Physicians' Section (doesn't exist, but sounds better than the Old Physicians' Section) in January 2004 after many years of youth and service. I will be moving up to the delegate position, and Tripti C. Kataria, M.D., will become the alternate.

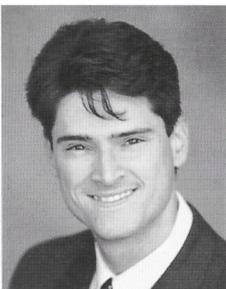
The ASA representatives to the AMA-YPS are not alone in representing our specialty to AMA. Multiple anesthesiologists representing state societies are active within YPS, and Michael B. Simon, M.D., an anesthesiologist representing New York, was named alternate delegate to the AMA House in June 2003. Others include Michael T. Flanagan, M.D., from Alabama, Dung D. Nguyen, M.D., from Indiana, and Gary J. Brenner, M.D., from Massachusetts.

In addition to leadership opportunities, the YPS exists to address issues that are of interest to newly practicing physicians. Much of AMA seems to be divided at times due to a wide disparity in practice location, type and size — how much can a young family practitioner and an old thoracic surgeon have in common, after all? Young physicians have age and "newness" in common, however, and YPS meetings are both informative and productive.

In addition to issues that affect all physicians (such as tort reform), YPS members face issues such as debt management, relocation and the challenges of setting up a practice and starting a family.

In addition to issues that affect all physicians (such as tort reform), YPS members face issues such as debt management, relocation and the challenges of setting up a practice and starting a family. Our representation is therefore strong within AMA, and an elected YPS member sits on the AMA Board of Trustees. The prospect of "shrinking" the AMA House by restructuring has been entertained over the past few years, and YPS has vigorously defended our right to be present and be heard. Finally, we support the medical student and resident sections of AMA, frequently co-sponsoring resolutions that affect us equally. We are the natural next step for those interested in continuing political involvement following training.

If you are "young" as defined above and would like more information, please send me an e-mail at <roysoto@yahoo.com>. Similarly, if you have issues you would like addressed through YPS, either to ASA or AMA leadership, let me know. I submit nominations for committee membership following the Annual Meeting and would love to hear from anyone interested in staying involved after residency or becoming involved now that you have graduated and become rich and secure! I look forward to seeing you at the ASA Annual Meeting in October and adding you to our "young" family.



Roy G. Soto, M.D., is Assistant Professor of Anesthesiology at the University of South Florida in Tampa, and is alternate delegate to the AMA Young Physicians Section.

Claiming CME Credit at the 2003 ASA Annual Meeting

Arnold J. Berry, M.D., Chair
ASA Section on Annual Meeting

Bruce F. Cullen, M.D.
Vice-President for Scientific Affairs

Attendees at the 2003 Annual Meeting should be aware that there will be a new procedure for awarding category 1 continuing medical education (CME) credit. ASA is required to follow the policies of the Accreditation Council on Continuing Medical Education (ACCME) and will no longer be permitted to issue global CME certificates but must institute a method for physicians to claim CME hours for educational sessions that were actually attended.

The 45 hours of CME credit noted on previous certificates from the ASA Annual Meeting represented the maximum that a physician could claim if he or she attended a

session offered in every time slot throughout the five-day meeting. The certificates issued at previous meetings specifically noted that physicians should claim only those hours of CME the physician actually spent in educational activities. This process is no longer acceptable to ACCME, and continuing this practice would jeopardize ASA's accreditation from ACCME and our ability to sponsor CME activities.

The new process will let physicians obtain CME credit by submitting a form indicating which sessions they

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Table for Determining CME Credit by Type of Educational Activity

Type/Name of Session	Credit Hours	Type/Name of Session	Credit Hours	Type/Name of Session	Credit Hours
Basic Science Review	1	Scientific Paper Poster Discussions	1.5	Fiberoptics	1.25
Breakfast Panels	1.25	Scientific Paper Poster Sessions	3	Handheld Computers	3
Celebration of Research	1.25	Workshops		Management of Critical Incidents and Team Interaction in Simulation	3
Clinical Forum	1.5	Acupuncture	3	Management of Patients Exposed to Weapons of Mass Destruction	3
Clinical Update	1	Advanced Cardiac Life Support Update	3	Neurological Examination for the Pain Physician	3
FAER Honorary Research Lecture	1	Cadaver (Full day)	8	Noncardiac Clinical Application of Transesophageal Echocardiography	3.5
Journal Symposium	2.5	Cadaver (Half day)	4	Ophthalmic Regional Anesthesia	3
Open Forum on the Writing of History in Anesthesiology	3	Computing	3	Peripheral Nerve Blocks	3
Panels	2	Communications	3	Transesophageal Echocardiography in Cardiac Surgery	3.5
Problem-Based Learning Discussions (PBLDs)	1.25	Considerations in Thoracic Anesthesia	3	Wright Memorial Lecture	1
Refresher Course Lectures	1	Difficult Airway	2		
Rovenstine Lecture	1	Difficult Pediatric Airway	3		
Scientific Exhibits	1				

Ventilations: Professionalism and the Anesthesiologist

Continued from page 1

for medical care in the next few decades and has outlined its plans in a brief summary document on its Web site.² IOM's aims are succinct and have been reported in a previous "Ventilations" article.³

According to IOM, health care should be:

- Safe
- Effective
- Patient-centered
- Timely
- Efficient
- Equitable

Throughout the treatise, a high degree of professional ethics is assumed.

In assessing one's attitudes and practices, walking the walk, talking the talk and looking the look must be applied to one's daily activity in order to be successful. After reading a number of articles on professionalism, I have honed down the information into a few suggested and albeit incomplete guidelines for being successful in becoming and being perceived as a true medical professional.

Improving One's Professional Image

1. Walk the Walk

- Strive to be the best physician you can be.
- When making patient care decisions, be empathetic.
- Always ask "should we do this?" not "can we do this?"
- Participate in professional society and hospital committee work.
- Remember that the practice of medicine requires lifelong learning.
- Be willing to accept responsibility for your patient's care.

2. Talk the Talk

- Provide patients with simplified, straightforward medical information.
- Be honest but consoling and respectful.
- Avoid talking about patients in public, especially if the comments are denigrating.

3. Look the Look

- Remember that you dress for your patients and your referring physicians.
- Being overdressed is almost as bad as being underdressed (one may look too "slick").
- Be aware of your actions, posture and tone of voice when in professional settings.
- Be a good citizen in your community by taking an active role in municipal projects or planning meetings.
- Your appearance is a nonverbal form of communication.

In summary, one should strive to be recognized as a compassionate, caring physician who provides excellent medical care. A simple daily check to see if you meet this ideal might be to:

- Put a large mirror on the door in your office.
- Stand in front of the mirror and think about what you intend to do for your patients on that day.
- Ask yourself, "Would I want someone to care for me who looks like me, doing what I intend to do and telling it to me in the way I would speak to them?"

If the answer is "yes," you have most likely met the challenge (or are hopelessly sadomasochistic!).

— M.J.L.

References:

1. Gawande A. Desperate Measures. *The New Yorker*, May 5, 2003:70-81.
2. Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. <www.iom.edu/includes/DBFile.asp?id=4124>.
3. Lema MJ. Anesthesiologists: Architects for bridging the quality chasm. *ASA Newsl.* 2001; 65(5):1-3.

In a May 2003 Advisory Opinion, the Office of the Inspector General (OIG) within the Department of Health and Human Services approved a proposed joint venture through which a hospital and its radiology group would own and operate a magnetic resonance imaging (MRI) facility. Although Advisory Opinions only immunize the specific transaction or arrangement addressed, the Opinion in question suggests how anesthesiologists may invest in surgical centers in compliance with the federal antikickback law.

The antikickback statute makes it illegal to knowingly and willfully offer, pay, solicit or receive anything of value in exchange for the referral of services or items reimbursable by Medicare, Medicaid or other federal health programs. The OIG looks closely at physicians' investments in medical facilities because it is concerned that:

"Distributions from the joint venture may be disguised remuneration paid in return for referrals. Like any kickback scheme, such arrangements can lead to overutilization of services, increased costs for federal health care programs, corruption of professional judgment, and unfair competition."

The difference between physicians who refer patients and those who do not. The MRI Facility Advisory Opinion is important to ASA members because it underscores the difference between anesthesiologists who, like radiologists, do not refer the patients for whom they provide services at a surgical or MRI center and physicians who do order such services, notably surgeons. Hospitals, surgical centers, MRI facilities and sometimes other physicians refer patients to the anesthesiology (or radiology) group, not vice versa. Anesthesiologists do not order the sedation; operating physicians do. The widespread ignorance of this basic fact comes as no surprise to anesthesiologists who have negotiated, or attempted to negotiate, hospital stipends for administrative services or trauma or obstetrics coverage.

Acute pain medicine services in the surgical setting are similar to anesthesia in that they are based on the surgeon's referral or request (reminder: postoperative analgesia is

OIG Approves Hospital-Physician Joint Ventures

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Assistant Director of Governmental
Affairs (Regulatory)*

considered part of the global surgical service, although the surgeon may refer the patient for pain management requiring special expertise). Chronic pain is another story, since pain medicine doctors do the referring for hospital or clinic services. See below.

Demonstrating that the intent is not to influence referrals even if an investor can refer. Other factors in the OIG's decision follow:

1. Less than 10 percent of the MRI facility's revenue would come from business generated by the hospital or its employed physicians.
2. In order to limit its ability to influence referrals, the hospital certified that it would:
 - a. "refrain from taking any action" to require or encourage affiliated physicians to refer patients to the MRI facility (note: the hospital and the radiology group would continue to operate a hospital-based radiology department serving inpatients and outpatients);
 - b. not track referrals made by its affiliated physicians to the facility; and
 - c. ensure that compensation to the affiliated physicians (from employment or personal service contracts) would not be related to the volume of referrals but would be consistent with fair market value.
3. Returns on the investment in the MRI center would be independent of the volume of referrals and would be directly proportional to the hospital's and radiologists' respective capital contributions.
4. Ancillary agreements between the hospital and the radiologists (for clerical support, an equipment sublease and assignment of the space lease) would be pass-through arrangements. Thus they would not generate any profits for the hospital providing the support or for the radiologists leasing the equipment and space and would not "appreciably increase the risk of fraud and abuse."

"Safe harbors" for predefined arrangements that the OIG will not investigate. The OIG also examined the applicability of the safe harbor for "small entity investments," one of more than 20 defined fact patterns that the government will not pursue for violation of the antikick-

HIPAA's Electronic Transactions Standards: Medicare Issues Guidance on the October 16 Compliance Deadline

Many medical practices and many third-party payers will not be able to transmit or receive electronic claims in the Health Insurance Portability and Accountability Act (HIPAA) format that will become mandatory on October 16. ASA's concern with the potential "train wreck," as it is now commonly called, led us to work with a coalition to urge the Centers for Medicare & Medicare Services (CMS) to announce a nonenforcement policy for a limited number of months.

On July 24, CMS issued its Guidance on Compliance with HIPAA Transactions and Code Sets After the October 16, 2003 Implementation Deadline <www.cms.hhs.gov/hipaa/hipaa2/guidance-final.pdf>. The Guidance was disappointing in that it allows, but does

not require, payers to process noncompliant claims after the deadline, without penalty, as long as they can demonstrate good-faith outreach and testing efforts. Enforcement will be complaint-driven. In deciding whether to extend a penalty-free period of time for the payer and the provider to come into compliance on a case-by-case basis, CMS will evaluate the compliance efforts of both parties.

Anesthesia practices should continue to press their practice management systems vendors, clearinghouses and payers to complete end-to-end testing. As this column has noted before, the only proof that these businesses are ready for October 16 is actual payment on a HIPAA-compliant claim.

back rules. The proposed MRI facility would be 100 percent owned by the hospital and radiologists, however, whereas the small entity investment safe harbor requires that interested investors own no more than 40 percent and generate no more than 40 percent of the facility's revenues. The safe harbor did not apply, but although the OIG saw some risk in the proposed joint venture, it concluded that "the safeguards put in place by the Requestors will make that risk sufficiently low that we would not subject the Proposed Arrangement to administrative sanctions in connection with the antikickback law."

The small entity investment safe harbor also was considered and found inapplicable in a second MRI center arrangement on which the OIG issued an Advisory Opinion in June. There the hospital and physicians who could refer patients for radiology services owned approximately 60 percent of the shares in a rural MRI facility. Nonreferring physicians, including radiologists and members of the general community, owned the other 40 percent but generated 60 percent of the center's revenues.

The first factor noted by the OIG in its decision approving the arrangement was the appearance of a bona fide business. Physicians and nonphysicians had received the opportunity to buy investment shares on identical terms and conditions for a fixed unit price. Returns on investment would continue to be proportional to the capital contribu-

tions. Less than 40 percent of the MRI center's revenue came from referrals by "interested investors."

The OIG also took into account the fact that the MRI center in this instance would have complied with an earlier proposed version of a safe harbor for rural entities (although not with the final version). Its status as sole local provider of imaging services for a rural population with many elderly or indigent patients was important to the outcome, although not a factor that the ambulatory surgical centers in which anesthesiologists typically invest will claim.

Chronic pain specialists and ambulatory surgical centers (ASCs). Anesthesiologists and other physicians who treat chronic pain are in a position to refer business to ASCs, hospitals, clinics, etc., in which they have an ownership interest. They can avoid (or at least minimize) OIG scrutiny if their arrangements fit within the ASC safe harbor, reviewed in this column in the February 2000 *NEWSLETTER* <www.ASAhq.org/Newsletters/2000/02_00/practmanag0200.html>.

Another 2003 OIG Advisory Opinion is instructive. The hospital in that case had formed a limited liability company with a large multispecialty group for the purpose of developing an ASC. The company had certified that the return on the ASC investment would be directly proportional to the capital contributed. It also had certified that

no employment-related remuneration to any of the group physicians would be independent of referrals or of the volume of surgeries.

Because the majority of the group physicians were primary care doctors and not surgeons, however, the arrangement failed to satisfy the conditions of the ASC safe harbor. When a group is the investor, each group physician must individually qualify so that the ASC is an extension of their primary place of service rather than a source of passive income. The primary care physicians were in a position to benefit from referring patients for surgical services provided by their colleagues. As stated in the Opinion:

“With respect to physician-investors, the safe harbor is carefully circumscribed to apply only to physicians who are unlikely to use the investment as a vehicle for profiting from their referrals to other physicians using the ASC. Accordingly, safe harbor protection is limited to physician-investors who actually use the ASC on a regular basis as part of their medical practices or who practice the same specialty as other physician-investors and are therefore unlikely to refer substantial business to ‘competing’ physician-investors when they can earn the fees themselves.”

The Opinion addressed only the applicability of the safe harbor and only to a multispecialty physician group. Single-specialty groups, to which anesthesiologists and pain subspecialists frequently belong, may find it easier to come within the safe harbor. It also is important to note that it is not necessary to meet all the requirements of a safe harbor in order to obtain a favorable opinion from the OIG or to survive an investigation. There can be no violation of the antikickback law without the *intent* to induce or receive referrals. A safe harbor grants a strong presumption that there is no such intent, but physicians can make the case through other means.

Source Material:

- OIG Advisory Opinion No. 03-12, May 2003, <www.oig.hhs.gov/fraud/docs/advisoryopinions/2003/ao0312.pdf>.
- OIG Advisory Opinion No. 03-13, June 2003, <www.oig.hhs.gov/fraud/docs/advisoryopinions/2003/ao0313.pdf>.
- OIG Advisory Opinion No. 03-5, February 2003, <www.oig.hhs.gov/fraud/docs/advisoryopinions/2003/ao0305.pdf>.

New Web Site Turns Shared Medical Errors Into Patient Safety Lessons

Launched last February, the Agency for Healthcare Research and Quality (AHRQ) and an editorial team at the University of California-San Francisco have created the nation’s first peer-reviewed, Web-based medical journal that will showcase patient safety lessons drawn from real-life cases of medical errors.

WebM&M, short for Morbidity and Mortality Rounds on the Web, is designed to provide an open and blame-free environment in which health care professionals can anonymously share cases of medical errors.

Authors of cases chosen for posting will receive an honorarium while retaining anonymity. Each month five interesting cases of medical errors and patient safety problems

will be posted in the categories of medicine, surgery/anesthesiology, obstetrics/gynecology, pediatrics and psychiatry. Each case will be followed by expert commentary and a forum for readers’ comments. Every month, one of these cases will be expanded as a “Spotlight Case” that features reader polls, quizzes and other multimedia elements, which may lead to continuing medical education credits.

For the first two months of the “Surgery/Anesthesiology” section, anesthesiologist Paul R. Barach, M.D., from the University of Miami, provides commentary on submitted cases.

The WebM&M site can be found at <www.webmm.ahrq.gov>.

ASA Exhibits at the National Conference of State Legislatures

S. Diane Turpin, J.D.

Associate Director of Governmental Affairs

ASA, with the generous assistance of the California Society of Anesthesiologists (CSA), once again participated in the Physicians Advocating for Patients exhibit booth at the National Conference of State Legislatures (NCSL) Annual Meeting in July in San Francisco, California. The exhibit booth included representatives of ASA as well as the American Medical Association, the American Academy of Family Physicians, the American Academy of Neurology, the American Academy of Otolaryngology – Head and Neck Surgery, the American Academy of Pediatrics, the American College of Cardiology, the American College of Obstetricians and Gynecologists and the American Society of Plastic Surgeons. This annual event provides an opportunity to show state legislators and staff that physicians are united on issues related to the quality of care for patients.

Anesthesiologists participating on behalf of CSA included M. Virgil Airola II, M.D., Thomas H. Cromwell, M.D., Patricia A. Dailey, M.D., Christine A. Doyle, M.D., Mary A. Grabowski, M.D., Mark A. Singleton, M.D., and R. Lawrence Sullivan, Jr., M.D. Anesthesiologists had an opportunity to talk with legislators on many issues, including the need for medical liability reform and continuing physician supervision of nurse anesthetists.

In addition to visiting exhibit booths, state legislators attended sessions on a variety of topics and adopted positions on some key issues. Most notable was the position

NCSL adopted with respect to federal medical liability reform. Not surprisingly state legislators with strong views as to the rights of state governments versus the federal government opposed federal efforts to address the medical liability crisis.

Specifically NCSL's policy opposes efforts to pre-empt existing state laws or state constitutional provisions, including laws that govern statutes of limitations, damage awards, the drafting of pleadings, introduction of evidence and attorneys' fees. Prior to the meeting, ASA joined other national medical specialty societies and state medical societies in cosigning a letter to selected NCSL committee members seeking

their support for federal medical liability reforms. Many legislators we spoke with recognized the severity of the crisis yet still held firm to the belief that each state is responsible to resolve its own problems.

According to a recent report by the American Tort Reform Association, 21 states have enacted some civil action tort legislation in 2003 with eight states (Arkansas, Georgia, Ohio, Oklahoma, Texas, Utah, Virginia and West Virginia) adopting some medical liability reforms. At least 17 additional states have considered or continue to consider medical liability reforms.

NCSL will convene in Salt Lake City, Utah, next July. ASA and other medical specialty societies will once again participate in this important event.

Prior to the meeting, ASA joined other national medical specialty societies and state medical societies in cosigning a letter to selected NCSL committee members seeking their support for federal medical liability reforms.

...Muscle Relaxants

James E. Caldwell, M.D.

It is unlikely that any new muscle relaxants (MRs) will be introduced in the foreseeable future. Consequently, this discussion will focus on the increasing awareness of the problems of residual neuromuscular block and a radically new pharmacology for reversal of neuromuscular block.

Problem of Inadequate Reversal of Neuromuscular Block

The most important problem in current clinical use of MRs is failure to achieve adequate recovery from their effect. Omitting pharmacologic reversal (e.g., neostigmine) is a common practice, and the clear consequence is inadequate recovery of neuromuscular function.¹ Even at two or more hours after a single endotracheal intubating dose of vecuronium, rocuronium or atracurium, the incidence of inadequate neuromuscular function, defined as a train-of-four (TOF) ratio < 0.7 , was 10 percent in patients who did not receive pharmacologic reversal.¹ This probably underestimates the true incidence of inadequate recovery of neuromuscular function.

Reassessing Standards for Adequate Neuromuscular Function

The gold standard for adequate recovery of neuromuscular function has been a TOF ratio of ≥ 0.7 .² A better standard is a TOF ratio ≥ 0.9 . The complex coordination of swallowing is disrupted by even minor degrees of neuromuscular block, with consequent risk of aspiration.³ Subtle changes such as unsteadiness sitting up in bed, a decrease in grip strength and diplopia are associated with small degrees of residual block, and these effects decrease "street readiness" for discharge from the recovery room.⁴ In the study by Debaene et al.¹ of patients not receiving pharmacologic reversal, the prevalence of a TOF ratio < 0.9 was 37 percent when measured more than two hours after a single dose of MR.

New Monitoring Techniques

Currently most clinicians cannot determine whether the TOF ratio is greater or less than 0.9. A novel technique, the tongue depressor test, may be useful. If the patient can grasp a tongue depressor between his or her incisor teeth and cannot be pulled out, the TOF ratio is likely to be at least 0.85.⁴ More objective monitoring techniques are becoming available, but they have not been validated.

Acceleromyography calculates the force generated by the adductor pollicis muscle from the acceleration of the thumb. Unfortunately TOF ratios measured with

acceleromyography and the gold standard mechanomyography may not correspond exactly.⁵ Phonomyography uses the low-frequency sounds generated by muscle contraction.⁶ There are insufficient data to validate this technique as a reliable measure of neuromuscular recovery.

Minimizing Doses of Muscle Relaxants

What can be done to decrease the risk of residual block? In the short term, the best strategy is to minimize the use of large and frequent doses of MRs. Tracheal intubation can be achieved without MR using large-dose opioid and propofol combinations. However, this may come at the cost of hypotension and bradycardia. The addition of a small dose of MR allows the doses of propofol and opioid to be decreased and quality of tracheal intubation maintained or improved.⁷ Rocuronium, 0.30 – 0.45 mg/kg, is the most appropriate drug for this because of its acceptable rate of onset (two to three minutes) even in such small doses.⁷ The smaller the dose of relaxant used, the greater the degree of recovery at the end of the case and the higher the probability of achieving adequate reversal.

Whenever a nondepolarizing MR has been used, pharmacological reversal should be administered.¹ A small dose of neostigmine in the range of 20 $\mu\text{g}/\text{kg}$, or edrophonium 0.3-0.5 mg/kg, should almost always be used if an MR has been administered in the preceding four hours.⁸

Cyclodextrins: A Revolution in Reversal

Cyclodextrin-mediated reversal of neuromuscular block is potentially the greatest advance in neuromuscular pharmacology in the last 20 years.⁹ Anticholinesterase-mediated reversal of neuromuscular block has limited efficacy and activates muscarinic receptors producing cardiovascu-

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ASA Resident Component 'Growing Up'

E. Olita Layton, M.D., Secretary

The ASA Resident Component (ASA-RC) was initiated in 1988 when a handful of residents worked with the Committee on Representation to propose an amendment to the ASA Bylaws, forming ASA-RC as a special component of ASA. As stated in the ASA Bylaws, the Society created this special component "to encourage resident participation, to develop young leaders with experience in organized medicine and to improve resident awareness of the role of ASA in the evolution of the specialty of anesthesiology."

Since then, ASA-RC has functioned by adapting to the ASA Bylaws. In 1990 ASA-RC held its first House of Delegates Meeting in conjunction with the ASA Annual Meeting with presiding Resident Component Chair Tim-

othy S. Smyth, M.D. At the upcoming 2003 Resident House of Delegates Meeting, ASA-RC's first constitution and bylaws will be presented in resolution style.

In addition to providing organization for our growing component, this document would widen the perspective of residents regarding the services of ASA. While a wide variety of the political and academic programs of ASA are well known to residents, ASA-RC, organized specifically to involve residents, is less visible. ASA-RC serves with the following objectives found in the proposed ASA-RC constitution: to give resident issues a forum for discussion, to teach residents how to participate effectively in organized medicine and to provide a support mechanism for resident members in their development as leaders.

There are some points of interest that you should take notice of when reviewing the bylaws. First, there would be the opportunity for subspecialty anesthesiology fellows to participate actively as delegates to one of seven ASA sub-

Figure 1: 1990 (Initial) Governing Council

<i>Chair</i>	Timothy S. Smyth, M.D.
<i>Chair-Elect</i>	Salvatore G. Vitale, M.D.
<i>Secretary</i>	Laura A. Foster, M.D.
<i>Delegate</i>	H. Jerrel Fontenot, M.D.
<i>Alternate Delegate</i>	Barbara J. Wilk, M.D.

thy S. Smyth, M.D. [Figure 1]. It is not unusual for a society to start off without bylaws until the limited meetings (due to the small number of participants) grow to include hundreds of participants. It is time to direct the progression of the ASA-RC while remaining within the construct of the

Figure 2: ASA Bylaw 1.79 Subspecialty Organization Designations

- American Society of Critical Care Anesthesiologists
- American Society of Regional Anesthesia and Pain Medicine
- Society for Ambulatory Anesthesia
- Society for Obstetric Anesthesia and Perinatology
- Society for Pediatric Anesthesia
- Society of Cardiovascular Anesthesiologists
- Society of Neurosurgical Anesthesia and Critical Care

specialty society designations [Figure 2]. At the initiative of Allan R. Escher, D.O., the American Society of Regional Anesthesia and Pain Medicine has had the only subspecialty delegate in ASA-RC. It would be invaluable to have a variety of subspecialty input in our decision-making. Second, the proposed bylaws encourage more focused group activities by providing guidance for ASA-RC project ideas. Currently ASA-RC organizes the annual American Medical Student Association Airway Workshop, which has been successfully inspiring medical students for three



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years. The Section on Projects also notes that an annual report from the Project committee is required in order to preserve continuity, facilitate officer turnover and inform residents of ASA-RC activities. Lastly, the proposed bylaws offer a venue for problem-solving with task forces, which are focused temporary committees used to solve time-sensitive problems (addressing imposing political issues) or tasks requiring manpower (updating the "Residents' Guide to the ASA").

If you are considering running for any of the prestigious ASA-RC positions, the duties of the Governing Council

and other officer positions listed in the proposed bylaws may be particularly helpful to you. It will also be important for future Governing Council members to focus on improving the bylaws and presenting them in an acceptable format to ASA. I will serve as adjunct member on the Committee on Bylaws to facilitate this process. Please review the file online at <www.ASAhq.org/asarc/bylaws.html> prior to the House of Delegates Meeting as it is an informative yet lengthy document. Feel free to contact me with any questions or suggestions.

Claiming CME Credit at the 2003 ASA Annual Meeting

Continued from page 29

attended. Physicians could still receive 45 CME credit hours if they attend a session at every opportunity. This procedure is similar to what is being used at other large medical meetings. The new process is described below and on the ASA Annual Meeting Web site: <www2.ASAhq.org>.

Procedure to Be Used to Claim CME Credit

Several weeks prior to the Annual Meeting, ASA will mail a documentation form and an attendance verification card, along with name badges and tickets, to individuals who have completed the preregistration process. On-site registrants will receive their documentation form at the time of registration.

To document attendance at the Annual Meeting and to receive a CME certificate, the attendee must:

- 1) Submit the attendance verification card in the registration area at the Annual Meeting.
- 2) Complete and sign the CME documentation form attesting to your participation in educational sessions. At the conclusion of the meeting, completed documentation forms can be dropped off in specially marked

boxes in the registration area and other locations throughout the Moscone Center, or forms can be mailed to ASA by **December 1, 2003**. No forms will be accepted after this deadline. Faxed forms and e-mails will not be accepted.

3) Only CME documentation forms containing the preprinted name of the meeting registrant will be accepted by ASA. No alterations to the preprinted name will be accepted.

4) Attendees who return the documentation form to ASA by November 1 should receive their CME certificates in late November. For forms returned by December 1, the certificates will be sent in late December.

5) The CME credit to be awarded for attendance at educational sessions will be determined as in the table on page 29.

The Section on Annual Meeting has planned many excellent educational sessions at the 2003 Annual Meeting in San Francisco and hopes that you will be able to attend.

ACGME Outcomes Project: A Challenge to Enhance Patient Care

Berend Mets, M.B., Ch.B., Ph.D., President
Society for Education in Anesthesia

We are currently in the second phase of the Accreditation Council for Graduate Medical Education (ACGME) Outcomes Project.

Acknowledgement of this endeavor is not only important to ASA members who are directly involved in resident education but also to practicing nonacademic anesthesiologists. This is because it is conceivable that tools used to assess anesthesiology resident competence may well form the basis for Maintenance of Certification (MOC) by the American Board of Anesthesiology in the future. (MOC has as one of its components the need to demonstrate practice performance.¹)

ACGME, in concert with the Institute of Medicine, the Joint Commission on Accreditation of Healthcare Organizations, the American Board of Medical Specialties and the Association of American Medical Colleges, is increasingly concerned about patient safety and assuring the public that practitioners are competent to practice their specialties.

Recognizing this accountability, ACGME, under the leadership of David Leach, M.D., refined and developed the Outcomes Project.

The essence of this project is an increasing emphasis on ascertaining improvement in *educational outcomes* (and so by extension, improvement in the health of patients and society in general) for both the trainee as well as the training program. This will be effected through the mechanism of program recertification.

Competency

ACGME recognized that residency programs were being evaluated and certified for their *potential* for training residents, rather than the *result* of this training, by stipulating the number of cases a resident needed to do or the number of procedures performed. After input from the

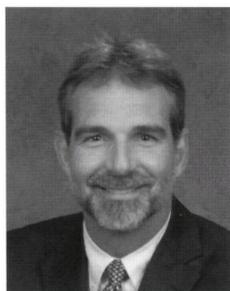


many stakeholders in medical education as well as a review of the existing research on general competencies for physicians, the Outcomes Project Advisory Committee defined six general competencies that were approved by ACGME in September 1999. These are:

- **Patient Care** that is compassionate, appropriate and effective for the treatment of health problems and the promotion of health;
- **Medical Knowledge** about established and evolving biomedical, clinical and cognate (e.g., epidemiological and social-behavioral) sciences and the application of this knowledge to patient care;
- **Practice-Based Learning and Improvement** that involves self-investigation and self-evaluation of patient care, appraisal and assimilation of scientific evidence and improvements in patient care;
- **Interpersonal and Communication Skills** that result in effective information exchange and teaming with patients, their families and other health professionals;
- **Professionalism**, as manifested through a commitment to carrying out professional responsibilities, adherence to ethical principles and sensitivity to a diverse patient population; and;
- **Systems-Based Practice**, as manifested by actions that demonstrate an awareness of and responsiveness to the larger context and system of health care and the ability to call on system resources effectively to provide care that is of optimal value.

In order to drive the process for residency training programs to adopt these concepts, ACGME has incorporated these concepts in the program and institutional requirements. Thus residency programs need to:

- Identify learning objectives related to ACGME's general competencies.
- Use increasingly more dependable (i.e., objective) methods of assessing residents' attainment of these competency-based objectives.
- Use outcome data to facilitate continuous improvement of both resident and residency program performance.²



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Recognizing that this process will take considerable education, adaptive thinking and capitalization on the ingenuity of the many medical educators that populate our residency programs, the ACGME leadership has instituted a timeline (Phase 1 through 4) for implementation of this project through 2011 and beyond. These phases are:

- **Phase 1** (7/01-6/02) *Forming an initial **RESPONSE** to changes in requirements.*
- **Phase 2** (7/02-6/06) *Sharpening the **FOCUS** and definition of the competencies and assessment tools.*
- **Phase 3** (7/06-6/11) *Full **INTEGRATION** of the competencies and their assessment with learning and clinical care.*
- **Phase 4** (7/11 and beyond) ***EXPANSION** of the competencies and their assessment to develop models of excellence.³*

For each of these phases, there are requirements for programs and Residency Review Committees (RRCs) that can be accessed at <www.acgme.org/Outcome/project/Timeline.pdf>.

We are currently in Phase 2. In the event that a residency program is about to be reviewed for reaccreditation, program directors will need to complete a specific addendum to the Program Information Form. This addendum tracks the assessment methods that have been employed to address the general competencies as well as one or two "improvements" that have been incorporated into the program to enhance competency instruction or assessment.

ACGME has provided a "toolbox" of assessment methods, which can be accessed readily at its Web site, that may form the basis for some of the required assessments. However, it is hoped that programs will use their collective ingenuity to develop novel tools to perform these assessments. To this end, a "clearinghouse" for novel techniques and program developments has been created on this Web site under the acronym RSVP (Recognize Success Via imPlementation) <www.acgme.org/outcome/implementation/rsvp.asp>.

In summary, the ACGME Outcomes Project is a long-term initiative by which ACGME is increasing emphasis on educational outcomes in the accreditation of residency education programs.

In its spring and fall national meetings as well as its ASA Breakfast Panels, the Society for Education in Anesthesia has focused increasingly on enhancing the awareness and knowledge of the importance and implications of the ACGME Outcomes Project.

References:

1. Kapur PA. American Board of Anesthesiology Update. *ASA Newsl.* 2003; 67(4):16-18.
2. Slide Presentation: ACGME Outcomes Project: Enhancing residency education through outcomes assessment. <www.acgme.org/outcome/project/OutIntro_fn11.htm>. 2000.
3. Working Guidelines, ACGME Outcomes Project. <www.acgme.org/Outcome/project/Timeline.pdf>. 2001.

What's New In... Muscle Relaxants

Continued from page 35

lar, gastrointestinal and pulmonary effects that must be blocked by atropine or glycopyrrolate.

The cyclodextrins take a radically new approach: they encapsulate (chelate) the MR and decrease its effective plasma concentration to zero. In theory, even profound degrees of block can be reversed.⁹ Neuromuscular recovery will occur rapidly and completely as the relaxant diffuses from the neuromuscular junction back into the plasma. Because cyclodextrins do not work through cholinesterase inhibition, they are free of muscarinic effects.⁹

A cyclodextrin is a doughnut-shaped molecule with a cavity that has high stereo-selectivity for the target drug. Cyclodextrins are known to have good biological tolerance.⁹ The compound ORG25969 is being prepared for Phase 3 clinical trials.¹⁰ This drug is optimized to encapsulate rocuronium. Barring unforeseen problems in the clinical trials, cyclodextrin-mediated reversal has the potential to revolutionize our practice.

References are available from the ASA Executive Office or on the ASA Web site <www.ASAhq.org>.

10 Candidates Announce for Elected Office

Ten ASA members recently have announced their candidacies for elected office. The anesthesiologists and the offices they seek are:

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The ASA Board of Directors has approved the following regulations for the announcement of candidacies for elected office:

1. On or before August 1, any can-

didate 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 issue of the *ASA NEWSLETTER* and the Handbook for Delegates.

3. The announcement for candidacy does not constitute a 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 ASA Bylaws.

As approved by the Board of Directors in August 2000, a Candidates' Forum is now available on the ASA Web site. ASA members can view candidates' curriculum vitae at <www.ASAhq.org/candidates>.

ABA Announces ...

ABA Recertification Examination Dates

The transition from a voluntary recertification examination program to maintenance of certification begins in January 2004. The recertification program will not remain open indefinitely.

Only American Board of Anesthesiology (ABA) diplomates certified before 2000 are eligible for the recertification program, and those who might have a future need to recertify should consider participating in the program before it closes in

2009 or 2010. Participation will not jeopardize diplomate status.

Eligible diplomates may take the examination by computer at more than 350 test centers during a two-week period during July 10-24, 2004. ABA will inform applicants of the test sites when the list is available. Diplomates may obtain an application on or after October 15, 2003, either on the ABA Web site <www.ABANES.org> or by writing ABA at 4101 Lake Boone Trail,

Suite 510, Raleigh, NC 27607-7506. Applicants may submit their application to ABA directly from the Web site or via ground mail.

The standard deadline for ABA to receive completed recertification applications is **December 15, 2003**. ABA will consider applications received by January 15, 2004, with payment of an additional fee for late filing. **The board will not consider applications received after January 15, 2004.**

Malpractice History Repeats Itself AMA: Clinging to a Bad Mother?

In response to the letter by John J. Overdyk, M.D., "ASA Needs to Bite the Bullet on Hired Gun Issue," in the May 2003 NEWSLETTER, I'm afraid that weeding out the bad apples among the experts would not be easy (or possible) to accomplish. Many of the hired guns I know are retired physicians, not always anesthesiologists and thus virtually untouchable. Furthermore, it's seldom that these people's testimony is *that* far out of line, however far it may stray from reality.

What I think would be a better solution is one that's been proposed for scientific testimony in the federal courts: a panel of experts from which the judge can draw. Rather than testifying for one side or the other, the experts testify for the court. This is much more likely to result in objectivity on both sides of the issue.

By the way, as a trial (not medical) lawyer pointed out to me recently, one of the major culprits in the malpractice crisis has hardly been mentioned. The increase in premiums is not (only) because of increased awards. It's the result of the fact that the insurers have to cover the losses from their bad investments during the 1990s. A similar thing happened during the 1980s, and when the investment picture improved, the crisis vanished. Until now.

Sanford M. Miller, M.D.
New York, New York

Editor's Note: *The trial bar's claim that increased premiums are the result of insurers' bad investments is open to serious question. The Health Coalition on Liability and Access, of which ASA is a member, reports that 85 percent of the assets of medical liability insurers are invested in virtually risk-free treasuries and that state insurance regulations strictly prohibit insurers from raising premium rates to cover past losses. In 2001 for each \$1 in premiums collected, medical liability insurers paid out \$1.53; this data strongly suggests that the problem is radically increasing awards, not bad investments.*

— M.J.L.

We recently received letters from our Society asking us to support the American Medical Association (AMA). The big question is why? What has AMA ever done to help us as physicians? They formulated the miserable DRGs, and they are a pathetic lobby that doesn't focus on our needs but rather their own needs. I would consider AMA more like AFLAC, a quacking duck that sells insurance, and they make sure I get an insurance flyer every month or so. An association is supposed to represent you and your needs and desires, not their own. AMA once represented medical doctors, but now I don't know what they represent, and I don't feel like giving them money. I think that AMA has progressed so far down the path of self-preservation that it is time to think of developing a new association to represent us, the medical doctors who originally made AMA. Nowhere is there an organization that represents medical doctors. Osteopaths and chiropractors have their own organizations and boards that we can't join, but there is nothing for us medical doctors. Why? I don't know. There are organizations that represent everything from rock climbing to stamp collecting. Are we not worthy of such an organization? Or is it that if we had our own organization that really represented us, we might actually have some power and influence and actually get something done?

AMA is not this organization, and it is time that it is dismantled and a new organization that represents us is created. Therefore, I realize that ASA feels it must "protect" its mother entity, AMA. But maybe it is time to sever the cord.

Scott M.W. Haufe, M.D.
DeFuniak Springs, Florida

Response to Dr. Haufe

There are many reasons why ASA, and more importantly, Florida anesthesiologists need AMA, but I will limit my response to only two issues.

First, it was the collective efforts of all specialty societies under the leadership of AMA that resulted in an average of \$3,800 of additional income for each Florida

The views and opinions expressed in the "Letters to the Editor" are those of the authors and do not necessarily reflect the views of ASA or the NEWSLETTER Editorial Board. Letters submitted for consideration should not exceed 300 words in length. The Editor has the authority to accept or reject any letter submitted for publication. Personal correspondence to the Editor by letter or e-mail must be clearly indicated as "Not for Publication" by the sender. Letters must be signed (although name may be withheld on request) and are subject to editing and abridgment.

physician this year and for the next 10 years. As powerful and successful as the ASA Washington Office is, this would not have happened without AMA.

Second, AMA has identified professional liability reform as the most important legislative issue for this year. In addition to the focus on a national solution, AMA is providing assistance to state medical associations. In the last year, AMA has sent its President, Donald J. Palmisano, M.D., along with Immediate Past President Yank D. Coble, Jr., M.D., and Trustee Cecil B. Wilson, M.D., to numerous medical society meetings, rallies, marches, editorial board meetings and major events to keep the focus on the need for liability reform in Florida. President Bush has prioritized the need for liability reform at the national level, but until it happens, AMA will continue to provide assistance to state medical associations to seek liability reform at the state level while seeking a national solution.

I would invite you to join with us, because together we will be even more successful in representing physicians.

Rebecca J. Patchin, M.D.
Trustee, American Medical Association
Riverside, California

There's No 'I' in 'Team' but There Should Be an 'AA'

As a practicing AA for 22 years, I was delighted that the March 2003 issue devoted much of its content to anesthesiologist assistants (AAs). However, we've come to accept over the years that there will always be those who misunderstand our profession. Such is the case with the writers of two letters to the editor in the June 2003 ASA NEWSLETTER.

"Trying to Keep Nonphysicians From Taking Our Jobs" is certainly an eye-catching headline for the letter by John C. Klick, M.D., but it couldn't be further from the truth. I don't believe the 600 or so practicing AAs in this country

have ever taken a job away from anyone, and that is not our purpose. I believe his characterization of us as a "quasi-health professional field" and "poorly trained nonphysician professionals" is totally unwarranted. He would find, if he took the time to investigate our profession and work with some practicing AAs, that we are knowledgeable and competent professionals and an asset to the anesthesia care team. In addition, Dr. Klick's assertion that "we are one of the only countries on the planet where medicine has actually allowed nonphysicians to perform anesthesia" is simply incorrect. There are some 31 member nations represented in the International Federation of Nurse Anesthetists, including Great Britain, France, Germany, Sweden and Taiwan, to name just a few.

Say what you will about nurse anesthetists and the American Association of Nurse Anesthetists (we have been fighting them for years on many different levels), but "... arrogance, greed and a complete disregard for patient safety by their demands for independent practice ..." does not describe the AA profession. AAs have been, are and should be a part of the anesthesia care team model of practice, a concept approved by the ASA House of Delegates in 1982. We are not a "Trojan horse" as Joel E. Colley, M.D., puts it in his letter, and we don't want to take over anesthesiology. Indeed those AAs who have already become Educational Members of ASA have signed a statement that we "agree with the 'Guidelines for the Ethical Practice of Anesthesiology' and subscribe to the Anesthesia Care Team statement" as approved by the ASA House of Delegates.

We are a relatively small group of allied health providers who have shown for more than 30 years that we are well-suited to be active and valued participants in today's anesthesia practice. We seek to work alongside anesthesiologists as part of the team, not as independent practitioners to replace anesthesiologists. Isn't that what the anesthesia care *team* is all about?

John W. Kimbell, M.M.Sc., AA-C
Atlanta, Georgia



FOUNDATION FOR ANESTHESIA

EDUCATION ■ RESEARCH

The Future of Anesthesiology Education, Part 3

This article represents the final installment of FAER's award recipients. Previous winners, Raymond A. Zollo, M.D., and Mark A. Gerhardt, M.D., Ph.D., were featured in the July 2003 ASA NEWSLETTER. Li-Ming Zhang, M.D., and Srinivasan G. Varadarajan, M.B. were featured in the August 2003 ASA NEWSLETTER.

Research Training Grant (\$175,000 for two years)

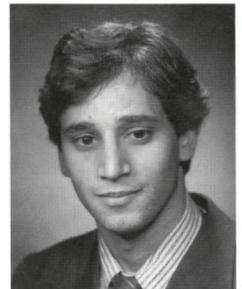
Ozan Akca, M.D., University of Louisville, Louisville, Kentucky: "The Role of Hypercapnia in Preconditioning of the Brain." **Mentor: Avitar Schurr, Ph.D.**

Exposure to hypercapnia may provide protection against subsequent ischemia in brain tissue. The goal of our project is to determine if this protection can be demonstrated in rat brain slices and explore possible mechanisms. Hippocampal slices will be exposed to hypercapnia or normocapnia and then to hypoxia. The percentage of neuronally functional slices will be determined after reoxygenation. Pharmacological blockers of K_{ATP} channels or nitric oxide synthase will be used to give indirect evidence of K channel and nitric oxide's mechanistic involvement. We hypothesize that 1) short-term application of mild and moderate hypercapnia preconditions hippocampal slices, 2) this preconditioning is mediated by nitric oxide and K_{ATP} channels, 3) metabolic acidosis also preconditions the slices to ischemic injury and 4) hypocapnia preconditioning worsens the outcome of ischemic injury. Inhalation anesthetics also protect against ischemia. We will therefore test the ability of hypercapnia and sevoflurane to synergistically precondition hippocampal brain slices. Finally we will test the hypothesis that in vivo hypercapnia induces preconditioning against cardiac arrest-induced cerebral ischemic damage. This research will be the first step in determining the important question of whether exposure to hypercapnia protects patients against future ischemic injury.



Eduardo N. Chini, M.D., Mayo Clinic Foundation, Rochester, Minnesota: "Role of the Accessory Protein FKBP12 in the Development of a Malignant Hyperthermia Phenotype." **Mentors: Gary C. Sieck, Ph.D., and Denise J. Wedel, M.D.**

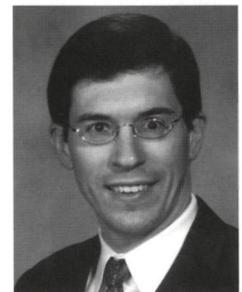
Malignant hyperthermia (MH) is a disease that is closely related to central core disease, which is characterized by muscle rigidity and abrupt increases in body temperature during general anesthesia. Furthermore, some evidence indicates that patients with muscular dystrophy and other muscle diseases are at increased risk for developing an MH crisis. The so-called ryanodine calcium channel (RyR) is clearly involved in the pathogenesis of this disease. The present proposal is to determine the role of the accessory skeletal muscle protein FKBP 12 on the development of MH. This protein is known to be associated with the RyR and regulates its function. The results of this project may lead to a better understanding of the pathogenesis of MH and to the development of new strategies for the treatment and diagnosis of MH and would benefit patients with muscular diseases, including muscular dystrophy and central core disease.



Research Starter Grant (\$85,000 for two years)

David P. Martin, M.D., Ph.D., Mayo Clinic and Foundation, Rochester, Minnesota: "Adrenergic Sweating in Painful Neuropathies." **Mentor: Phillip A. Low, M.D.**

Neuropathic pain poses a great challenge to patients and to the physicians who treat them. A lack of objective clinical diagnostic tests limits our ability to study and treat these conditions. While pain is inherently a subjective experience, sympathetic functions such as sweating and vasomotor tone can be measured objectively. Pain and sympathetic signals travel along similar small, nonmyelinated fibers in the periphery. We believe that patients with neuropathic pain may have parallel



abnormalities in their sympathetic nerves. Specifically we are investigating a phenotypic reversion of sweat gland innervation from normal cholinergic to abnormal adrenergic neurotransmission. This may explain the abnormal sweating seen in painful neuropathies and may be related to the mechanism underlying neuropathic pain. We hope that our studies will increase the understanding of neuropathic pain and may provide objective clinical tests that will assist in the care of patients with these painful conditions.

Eugene W. Moretti, M.D., Duke University, Winston-Salem, North Carolina: "Genetic Polymorphisms and Their Relationship to Sepsis in the Surgical Patient." **Mentor: Debra A. Schwinn, M.D.**

Sepsis syndrome results from an infectious cause that is associated with severe systemic inflammatory response and organ failure. There are 751,000 cases of sepsis annually in the United States, with an annual cost of \$16.7 billion. Approximately 35 percent to 45 percent of patients who experience sepsis will die. Our research is designed to identify those surgical patients at increased risk by identifying specific gene sequences that are associated with sepsis. This current study may enable us to more effectively risk-stratify our critically ill populations. These gene sequences could ultimately be used to define inclusion criteria for further clinical trials in sepsis. Genetic stratification may allow us to avoid treatment failure because of a poorly defined patient population; hence, experimental drugs may stand a better chance of providing clinical benefits by improving survival. Knowledge in this area may contribute to modulating the activity of the physiologic pro- and anti-inflammatory mediator systems.



Research Fellowship Grant (\$50,000 for one year)

Omid C. Farokhzad, M.D., Brigham and Women's Hospital, Boston, Massachusetts: "Nucleic Acid Ligands as Escort Molecules in Targeted Therapy." **Mentor: Robert S. Langer, Ph.D.**

Controlled-release polymer systems that can encapsulate drugs and release them in a regulated fashion are used in virtually all areas of medicine, including anesthesiology. The purpose of our investigation is to develop a technology to target the delivery of controlled-release polymers in a disease-specific manner. As proof of the concept, we intend to develop delivery vehicles to target prostate cancer cells using nucleic acid ligands (also known as aptamers). We will use a large, random oligonucleotide library (10^{15} oligos) and the Systemic Evolution of Ligands by Exponential Enrichment (SELEX), together with a novel selection/counter-selection screening approach using normal prostate and prostate cancer tissue-microarrays, to isolate aptamers that bind to prostate tumor-antigens specifically. Next, we will conjugate the aptamers to drug-encapsulated controlled-released nanoparticles (~200 nm) to generate nanoparticle-aptamer bioconjugates for prostate cancer therapy. Our novel screening strategy for isolating disease-specific aptamers, together with the technology to use aptamers for targeting control-release polymer systems, may be used to generate bioconjugates for treatment of other important human diseases.





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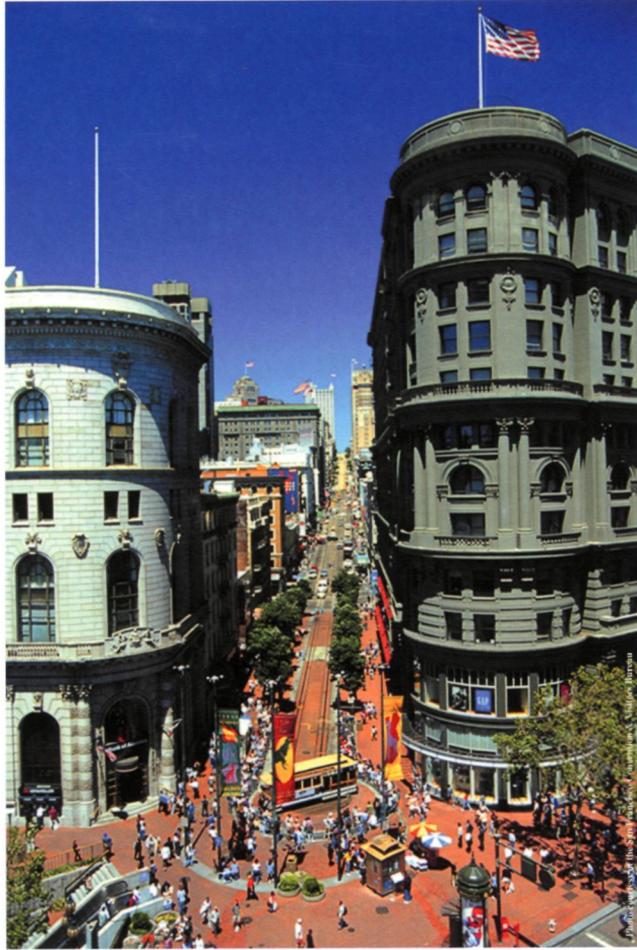
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