

Assessing the Past and Shaping the Future of Anesthesiology

The 43rd Rovenstine Lecture

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PRESIDENT Litwiller, officers of the American Society of Anesthesiologists (ASA), guests, friends, and colleagues. Forty-seven years ago, the United States Navy sent me to New York City to begin my postgraduate training. I met Dr. Emery Rovenstine at that time, but I did not appreciate the enormous impact that he had on anesthesiology. The list of his residents¹ and those of his teacher, Dr. Ralph Waters, is a "Who's Who" of the leaders of anesthesiology for their generation and the next. I subsequently met and interacted with many of Rovey's residents, who have had a profound impact on my life. I never dreamed that I would stand before you today to deliver a lecture in Dr. Rovenstine's honor.

Of the 41 persons who have delivered this lecture from 1962 to 2003 (List of Rovenstine Lecturers: 1962-2003; Patrick Sim, Librarian, ASA Wood Library, Chicago, Illinois, written communication, January 2004), 16 of them, and especially Emanuel M. (Manny) Papper, one of Rovey's residents, in one way or another, were mentors to me. They were never too busy to answer questions, give advice, or recommend me for once-in-a-lifetime appointments. Both Drs. Waters and Rovenstine instilled the qualities of and responsibility for mentorship in their students and colleagues like no one else past or present. It is critical that today we all remain dedicated, involved, and unselfish in mentoring others.

Another of Rovey's residents, Dr. Louis Wright, for whom there is also a lecture named at this meeting, taught me how to administer open drop ether anesthesia. We sat on two stools as he held my hand, and we dropped ether onto a mask he held on his knee. Several times he reminded me that to be successful with this technique, it was called open drop—not open pour. The next task was to find a suitable patient. As fate would have it, a 230-pound muscular marine sergeant, who was deathly afraid of needles, insisted on ether for his herniorrhaphy. I obliged and, much to my surprise, this was

one of the smoothest anesthetics I had administered. That day I learned the importance of patience, kindness, and compassion in administering anesthesia. And, yes, there is not only a science to administering a successful anesthetic but also an art.

My goal today is to recount some of the many contributions made to medicine and society by anesthesiologists and to express concern that, perhaps, we are becoming complacent. We must continue to explore the field of anesthesiology in the broadest sense and be sure that our contributions are understood and appreciated not just by the medical community but by the public in general.

Anesthesiologists long have questioned their proper place in the House of Medicine. I remember, as a resident, talking to Dr. Louis Orkin, another of Rovey's former residents, as he and others interviewed medical students and residents to determine why anesthesiology was not a more popular career choice. The ASA Preceptorship Program was an outgrowth of those interviews. At that time, even though few people over the age of 60 yr were operated on and complex procedures, like open-heart surgery, were seldom performed, the death rate attributable to anesthesia was approximately 1 in 2,500 patients.²

We monitored our patients by listening to their hearts with stethoscopes, feeling a pulse, manually inflating blood pressure cuffs, watching their color and, if one were extremely fortunate and arrived in the operating room very early, you could grab the one electrocardiograph machine in the operating suite for your patient. Yet, some at that time, but, fortunately, not all, were satisfied with the status quo except, perhaps, to find an anesthetic agent that would not explode, as did ether and cyclopropane, so that surgeons could use cautery rather than having to rely solely on sutures to control bleeding.

My American Board of Anesthesiology (ABA) certificate was granted in 1964; it is number 3218. At that time, many believed it was best for the patient when a physician personally administered their anesthetic. Others believed that certified registered nurse anesthetists (CRNAs) could safely administer anesthesia if they were supervised by an anesthesiologist. Many CRNAs, however, felt they should be able to administer anesthetics independent of physician supervision, as anesthesiologists were not always available in all institutions. In those cases, the surgeon was the

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supervisor of record, but frequently his knowledge of anesthesia was inadequate to be an effective supervisor and when trouble occurred, he was understandably distracted by the surgical procedure itself.

In the early-1980s, Mr. Michael Scott, legal counsel for the ASA in Washington, took me to meet Mr. Jay Constantine, then chief of staff for the Senate Finance Committee. The Committee was writing a bill to define what was required of physicians when supervising nurse anesthetists to qualify them for payment from Medicare. The law, as enacted, adopted the Ethical Practice Guidelines of the American Society of Anesthesiologists with minimal change.³ That was a tough sell not just by us, but by ASA presidents and others over approximately a 3-yr period of time. Mr. Constantine's reluctance to accept this solution was based on his knowledge of some cases in his home state where they could not document that an anesthesiologist was even in the hospital when a CRNA administered anesthesia.

Over the past 20 yr, there has been an ongoing dialogue with Medicare officials and insurance intermediaries as to what appropriate supervision and reimbursement levels are. Despite the best efforts of the ASA, reimbursement levels for anesthesiologists from Medicare have significantly decreased from 1991 levels. Currently, they are less than 40% of what is paid on average by private insurers; whereas the comparable figure for the rest of medicine is approximately 80% (Michael Scott, J.D., ASA Director of Legal Affairs, Washington DC, written communication, June 2004).

Anesthesiologists have been on the forefront in introducing new methods of treatment to improve patient care. The contributions made by James Jude, a surgeon, W. B. Kouwenhoven, an engineer, and anesthesiologists, James Elam, Joseph Redding and Peter Safar in regard to cardiopulmonary resuscitation are legendary. When I was a medical student, if a person's heart stopped, they were dead. Then through the efforts of these people, we were taught how to bring many of them back to life by applying cardiopulmonary resuscitation.

Emergency rooms seldom were manned by in-house physicians, and very few of those had specific training in handling life or death emergencies. There is some debate as to who the fathers of emergency medicine are but, certainly, one cannot discuss that specialty without mentioning Drs. Peter Safar and Eugene Nagel. From the efforts of these early anesthesiology pioneers, a new specialty of medicine evolved.

When the National Aeronautics and Space Administration first launched astronauts into space, it was equal numbers of anesthesiologists and surgeons who manned 21 ships to retrieve John Glenn when he orbited the earth. Although I could not swim, I was one of the

anesthesiologists on this mission. The frogmen assured me that if I had to go into the water to tend to the astronaut, they would rescue me but not until they retrieved Colonel Glenn. That was not very reassuring! However, it impressed upon me the importance of preparation and how, despite the expenditure of millions of dollars, the smallest detail could compromise the success of a mission. The safe administration of anesthesia is no different; there is no substitute for preparedness and vigilance.

Although many criticize the space program because of its cost, no one questions the extreme importance of that program in providing us with sophisticated monitoring capabilities. Anesthesiologists first introduced monitoring devices into the operating room, then into the recovery room and, subsequently, into intensive care units. No one questions the improved safety from routinely monitoring inspired oxygen concentration, end-tidal carbon dioxide tension, pulse oximetry, blood pressure, electrocardiogram, temperature, and neuromuscular transmission, and now brain waves and echocardiography in selected anesthetized patients. One can debate which study is most authoritative regarding the current incidence of intraoperative death attributable solely to anesthesia. However, many would agree with Eichhorn that, presently, in ASA physical status I and II patients, it is somewhere near 1 in 200,000⁴ despite the fact that we now anesthetize patients of advanced age and for extremely complex procedures. This represents an approximate 80-fold improvement in 40 yr.

Not only have improved monitoring, safer drugs, better understanding of our patients' physiologic responses to bodily insult, and more sophisticated equipment and techniques contributed to this improved safety record, but the inescapable fact is that improved safety has paralleled the increase in the number of anesthesiologists in this country. Since 1964, the population of the United States has doubled,[†] but the number of anesthesiologists that have been certified by the American Board of Anesthesiology has increased 11-fold! (American Board of Anesthesiology, Raleigh, NC, verbal communication, September 2004). Our efforts have not gone unnoticed, as the federal government has regularly commended anesthesiology and the Anesthesia Patient Safety Foundation for leading the way in improving patient safety and reducing medical errors.

In the early 1950s, research in anesthesiology was limited to only a few institutions. Few among us had formal training in research, and National Institutes of Health grants in anesthesiology were a rarity. To address these problems, Drs. Henry Beecher of Harvard, Manny Papper of Columbia, and Robert Dripps and Austin Lamont of Pennsylvania spearheaded the creation of the Association of University Anesthetists (AUA) in 1953.^{5,6} Furthermore, in the early 1960s, Manny Papper took a mini-sabbatical in Washington and convinced our

[†] United States Department of Labor Bureau of Labor Statistics Home Page. Available at: <http://www.bls.gov/home.htm>. Accessed December 22, 2004.

government to fund anesthesiology research centers, training grants, and research career development awards for promising young academic anesthesiologists. Many of us certainly have benefited from his pioneering efforts.

Critical care medicine also is primarily an outgrowth of anesthesiology. Dr. Thorkild Andersen and his colleagues in Copenhagen, Denmark, demonstrated that polio victims could be kept alive if they were intubated and hand ventilated by an anesthesiologist at the bedside. In Minneapolis, Drs. Fred Van Bergen, James Matthews, and Joseph Buckley treated polio victims with rocking beds, iron lungs and homemade mechanical ventilators. Drs. Henrick Bendixen, Henning Pontoppidan, Myron (Mike) Laver, John Hedley-White, and Lawrence Egbert in Boston and William (Bill) Hamilton, who ventilated farmers with tetanus in Iowa, established respiratory intensive care units. Dr. Peter Safar in Pittsburgh broadened this to all aspects of critical care and developed what arguably was the largest multidisciplinary critical care service in the world. When I started the intensive care unit at Jackson Memorial Hospital and the University of Miami in 1964, I called Bill Hamilton to seek his advice as to how to convince surgeons to entrust the care of their critically ill patients to me. Bill responded that you earn their respect and trust by your deeds, not by administrative directives. I have never forgotten that sage advice.

At the University of Florida, we incorporated 6 months of critical care medicine experience into the clinical base year of our residency in 1975. We were criticized by some who stated, "The place for the anesthesiologist is in the operating room." Others told us that the clinical base year was to be spent in departments other than anesthesiology and that if the critical care experience was in the Departments of Medicine, Surgery or Pediatrics, it would be acceptable to the Residency Review Committee, but as it was in the Department of Anesthesiology, it may be questioned. This was particularly puzzling because, at that time in our institution, the Department of Anesthesiology was responsible for patient care and education of all medical students and all residents in the Surgical Intensive Care Unit and Pediatric Intensive Care Unit and was responsible for the Critical Care training of the pulmonology fellows, who would then go on to develop the Medical Intensive Care Unit. I am delighted that in 2004, there is discussion by the ASA, Residency Review Committee, and American Board of Anesthesiology regarding reestablishment of the anesthesiologist's position in critical care medicine⁷ and that some people are recommending that all residents spend a minimum of 6 months in this subspecialty of anesthesiology.

Dr. Rovenstine is credited with starting the first pain clinic (then known as a "nerve-block clinic") in 1937.⁸ Who would argue the importance of Dr. John Bonica in

Washington State expanding on this concept and establishing a multi-disciplinary approach to pain or Dr. Henry Beecher at Harvard in Boston testing the conscience of medical researchers regarding appropriate ethical practice in human research?⁹ Both of these pioneering anesthesiologists spawned new disciplines, the first in pain management, which now embraces healthcare professionals from multiple disciplines, and the ethics of medical research, which is an important part of the curriculum of most medical schools, and insisted on by national review and funding agencies.

Drs. John Severinghaus and Thomas Hornbein were instrumental in our understanding of high-altitude physiology and its application to our patients. John's development of the carbon dioxide electrode also led the way for the clinical use of blood gases and Dr. Mike Laver's establishment of the blood gas lab at the Massachusetts General Hospital in Boston signaled the development of STAT labs all over the country.

Where would recovery room care (now known as postanesthesia care units) be without the enormous effort, commitment, and dedication of a fellow Floridian, Dr. Franklin McKechnie? Frank proved through his unselfish contributions and lifetime of dedication to patients and excellence that one did not have to be in an academic institution to make a major, life-saving contribution to our specialty.

I recall the day I visited Ralph Waters at his retirement home in Florida in 1970. He was fascinated with reading papers on uptake and distribution of anesthetic drugs by E. I (Ted) Eger II.¹⁰ We have always been in search of new and safer drugs to appropriately manipulate our patients' physiologic responses. The enormous breadth of drugs and equipment that are available to anesthesiologists today to alter bodily function and support life could never have been predicted in Dr. Rovenstine's time. Perhaps no single item of equipment had a greater immediate impact on anesthetic practice than the invention of the copper kettle vaporizer by Dr. Lucien Morris, who is in the audience today. This simple but remarkable device permitted us to vaporize liquid volatile anesthetic agents with precision.

We now have subspecialties in anesthesiology based on patient age and organ-specific surgery, such as pediatric, geriatric, cardiovascular, neurosurgical, obstetric, and transplant surgery, among others. Each of these areas led to new discovery regarding the physiology of the human body, the body's reaction to chemicals and injury, and the application of newer techniques to improve the quality of life and survival. Subspecialty societies have been created to provide a forum for people to interact with others who have similar interests. It is important, however, that these groups remain as part of the comprehensive anesthesiology community through membership in and commitment to the American Society of Anesthesiologists. After all, there is strength in

numbers that cannot be achieved by multiple, small competing groups.

It was anesthesiologists Drs. J. S. Denson (another of Rovey's residents), David Gaba, Michael Good, and Joachim S. Gravenstein who, with knowledge of engineering and/or vivid imagination, blended computer and engineering science with basic medical education to create lifelike, real-time human patient simulators. This permits one to learn the body's response to physiologic and pharmacologic trespass, the complexities of life-support procedures, and the administration of anesthetics with no risk to patients. Although simulators were first introduced to teach anesthesiologists how to respond to infrequent critical incidents,¹¹ these ingenious devices are now used to educate residents, medical students, veterinary students, nursing students, emergency medical technicians and paramedics, students in the health-related professions, and even high school students throughout this country and abroad.

Ladies and gentlemen, these are but a few examples of how anesthesiologists have made an indelible mark on the world in the short space of less than 50 yr. Contrary to the belief of many laypersons, anesthesiology is not limited to putting patients to sleep in the operating room. Rovey was concerned with this perception as early as 1935 and stressed the need for anesthesiologists to be complete physicians and make rounds with the surgeons on their patients both preoperatively and postoperatively.⁸ However, despite our efforts to date, what anesthesiologists have contributed to medicine and mankind sadly remains one of the better-kept secrets of the past century.

Much remains to be done. Patients still suffer complications from anesthesia. Just look to last year's Rovenstine lecture on postoperative cognitive dysfunction given by my colleague, Dr. Terri Monk,¹² which cries for detailed outcome studies and developing science to the point that anesthesia becomes a totally reversible process without even the remotest possibility of complications occurring. Also, it must be noted that the etiology of those undesirable outcomes may be related to factors in the perioperative period exclusive of the anesthetic *per se*.

And what about applying the computer technology utilized in developing anesthesia simulators to directly improve safety in patient care? We could develop software to integrate monitoring of a patient and a patient's response to anesthesia and surgery to develop an early warning system that alerts the anesthesiologist to impending disaster. If this were linked to an intelligence system and predictive process for developing differential diagnoses and treatment, human error in the administration of an anesthetic could all but disappear.

Exciting new avenues of research have been introduced recently that may indeed lead to discovering how anesthetics work, how bodily function can be sus-

pending in time without doing irreparable harm, and how pain can be mastered once and for all. Soon, utilizing newer techniques like nanotechnology, we will be able to be far more precise in the timing and site of drug delivery to maximize desirable effects and minimize side effects. Delivery systems currently under development will deposit drugs at the desired site of action, control their rate of release, and even bind and eliminate previously administered drugs to neutralize overdose.^{13,14} These all require a more extensive and intensive research effort than currently exists.

Yet, all too frequently, we hear that research time is being eroded by the need to deliver clinical service and by shrinking funds in many institutions. Review of the last couple of years of articles in the journal *ANESTHESIOLOGY* suggests that our colleagues overseas appear to be much more involved in research these days than are we. Many of these productive anesthesiology scientists obtained their research training in this country. We should be very proud of our former students, but we must not be left behind! Another factor to consider, however, is that many anesthesiologists are now involved with research that touches multiple fields and their work may be published in a vast variety of journals, which, of course, is a positive outcome.

Of intense interest and concern is that as of this spring, the National Institutes of Health funding of research grants in all departments of anesthesiology in the United States was less than it was in the departments of medicine in each of five different medical schools. Further, at this time, there are only three National Institutes of Health funded training grants in anesthesiology. Although anesthesiologists comprise 5% of the teaching physicians in United States universities, we currently have only 0.5% of the National Institutes of Health money (Philip G. Boysen, M.D., Professor and Chairman, Department of Anesthesiology, University of North Carolina, Chapel Hill, NC; President, Society of Academic Anesthesiology Chairs, written communication, August 2004). These numbers clearly suggest that National Institutes of Health fundable research is not a sufficient priority for anesthesiology today, or perhaps we have de-emphasized the type of training necessary for our faculty to successfully compete for such funding.

I believe much of this situation can be blamed on the erroneous conclusions reached in a manpower survey of 10 yr ago, when a surplus of anesthesiologists was predicted.¹⁵ This resulted in a downturn in the numbers of medical graduates choosing anesthesiology residencies—leading to a significant shortage of anesthesiologists. This caused many programs to be less selective in choosing resident candidates; thus, quality suffered as well. During times of personnel shortage, clinical job opportunities and stipend levels increased in the private sector, and it became more difficult to convince bright, young residents (many of whom had significant debt) to

extend their education to become well-trained scientists. This must be addressed if we are to restock our academic programs with the brightest and most creative minds possible.

Research need not be limited to the basic sciences, gene therapy or nanotechnology. There still is opportunity to make a positive impact with clinical research and without a huge research budget. My research career in anesthesiology began by studying and treating a single drowning victim in 1962¹⁶ and spending the next 40 yr trying to better understand how to prevent and treat this tragedy. Perhaps the most important research ultimately will be at the cellular and subcellular level. However, all anesthesiologists should be ever alert to making clinical observations that will lead to lifesaving discoveries.

I have given you a partial list of areas and disciplines where anesthesiologists have been "first." Yet, in many of these areas, we have turned over what we started to others. I will never forget some 25 to 30 yr ago, when pulmonary medicine fellows began rotating in our intensive care unit. The chief of our Division of Pulmonary Medicine, Dr. A. Jay Block, who now is editor of *CHEST*, the official journal of the American College of Chest Physicians, told me that anesthesiologists have done such a wonderful job of teaching others what they do in the areas of critical care and respiratory therapy that it will not be long before other disciplines take over the practice of those specialties. He observed that those areas were financially quite lucrative compared to the office practice of a pulmonologist but not compared to the anesthesiologist's practice in the operating room. Regrettably, I am afraid that, in many cases, his prediction has come true. We must not abandon the areas that we pioneered; rather our role should be expanded.

The public must be educated as to the breadth and depth of the specialty of anesthesiology. Likewise, we should strive to make our departments of anesthesiology full-service and provide all pertinent subspecialties for the communities we serve and not just emphasize areas of highest reimbursement or those that are less time consuming.

This is not a new concept but it was basic to why Rovey moved from the University of Wisconsin to become chief at Bellevue Hospital in New York for an annual stipend of \$5,000 on January 1, 1935.⁸ In one of his first letters to Waters on January 11, 1935,⁸ he wrote "If ever any place needed anesthesia - here it is - and if I ever get things going here, I will be repaid with the satisfaction it will be and—what an experience!" He went on to describe the status quo and the challenge for the immediate future. "I am expected to create and head a Bellevue Department of Anesthesia, eventually replace nurses, train interns and residents, and organize a service without respective divisions. These nurses are giving good anesthesia. They put a damp ring of gauze over the patient's face, leaving only the mouth and nose out, then

apply the Flagg mask, hold it loosely, give a couple of inspirations of air, turn on nitrous oxide 100% until cyanosis, then a little oxygen, also ether from the oil cup—there is no exhalation valve, the rebreathing bag refills but does not distend because of the pad over the face. Rebreathing is extreme, phonation common, cyanosis not rare but relaxation is good, pulse fairly constant, inductions rapid and recovery good." This was state-of-the-art 69 yr ago. Will our practice in 2004 be as startling to the future generation in 2073?

Anesthesiologists also have become important members of the medical administrative community. They are playing key roles in directing academic programs on a medical school-wide basis, and administrating hospital programs throughout the country. This is an extremely important role and brings further prestige to the specialty. However, the membership of the ASA must understand that despite their heritage, it is not always possible for these people to fulfill their broad new responsibilities in administration and still give preferential treatment to those who practice anesthesiology.

Currently, we are experiencing a crisis in liability insurance premiums and payments for alleged malpractice. Patients, lawyers, insurers, and physicians blame each other for these problems. The fact is that anesthesia is now safer than ever because of the contributions of anesthesiologists. Furthermore, physicians are subject to price controls and cannot recoup increased insurance premiums by increasing their reimbursement from patients. However, liability insurance premiums have increased approximately 100% over the past 3 yr, judgments and settlements continue to escalate, and attorneys' fees are not capped or regulated in most of our country. The end result is that, in essence, physicians are indemnifying insurance companies, patients, and attorneys from any financial downturn. Many physicians' incomes are dropping precipitously, and many are forced to move or retire. Unless tort reform is imminent, we will be faced with a shortage of physicians of crisis proportions. To correct this situation with state-by-state action is a lengthy process and has the potential for 50 different solutions. What is urgently needed is federal action on comprehensive, effective, and fair tort reform.

Support for our academic mission must be forthcoming from multiple sources. To look only to the Federal government for all of this support is naïve. The American Society of Anesthesiologists is to be commended for funding the Foundation for Anesthesia Education and Research, which was first led by Dr. Martin Helrich, another of Rovey's residents, and the Anesthesia Patient Safety Foundation, which was created from the dreams and hard work of Dr. Ellison (Jeep) Pierce. However, the monies available through these organizations are minuscule compared with what is needed. Every anesthesiologist and every manufacturer and distributor of anes-

thetic equipment, supplies, and drugs should contribute generously toward the continued growth and development of the science of our specialty. Charitable giving by alumni provides the financial stability for many of our most prestigious universities. Yet, I believe that contributions or creating endowments, whether in donations during one's lifetime or bequests for anesthesiology programs by former residents, represent, unfortunately, the exception rather than the rule. Our education provides us with the opportunity to have a lifetime of financial success. We have an obligation to give some back as an investment in the future. Just think! If every member of the ASA donated only eight-tenths of one percent of their income per year to tax-deductible education and research, it would exceed the total in grant support from the National Institutes of Health to all of the anesthesiology programs in this country. Eight-tenths of one percent!

It is unfortunate that tension exists between some CRNAs and anesthesiologists. And now we have a new member of the anesthesia care team, the anesthesiologist assistant. CRNAs and anesthesiologist assistants can play an important role in ensuring appropriate access to excellent anesthesia care. However, this clearly must be done under the immediate medical direction or supervision of an anesthesiologist to preserve and improve on our current safety record. I am not talking about token supervision or supervision from a distance or retrospective review of cases. I am talking about on-site supervision, and for that we, as anesthesiologists, must make a commitment that we will always be there for our patients, on the spot, in timely fashion.

Many of our academic institutions currently are facing a financial crisis. Academic anesthesiology departments are having difficulty meeting the payroll for their faculty, even as their stipend levels fall further behind those in the private sector. When I retired from the chairmanship of our department some 12 yr ago to assume other administrative roles in the College of Medicine, anesthesiology was a profit center for most medical schools, and its faculty contributed significantly through institutional taxes on its clinical revenues to the financial stability of the educational and research programs and the administrative structure of the institution. What has changed? The academic anesthesiology leadership of today is at least as knowledgeable, if not more so, in business management of their departments than was my generation.

In the early 1990s, Medicare changed its reimbursement policies for academic anesthesiologists, and payments today are almost 50% less than what they were then.¹⁷ To add insult to injury, until 2004, CRNAs have been paid at a higher level to supervise two nurse anesthetist students concurrently than have anesthesiologists who supervise two physician residents concurrently.

When these changes in reimbursement were being proposed, some of us in academia were very vocal about

the need for ASA to place this topic at the top of its political agenda for lobbying Congress. The ASA had other important priorities and, apparently, did not appreciate the enormous negative impact this would have on the future of our specialty. I am pleased to hear that our current officers recognize that our training programs represent an irreplaceable strength of our specialty and that they are committed to addressing this problem. Also, at the ASA Governmental Affairs Conference this spring, several elected officials and governmental administrators verbalized the need for change to occur and reimbursement for academic anesthesiologists to improve. Scores of them have signed on to letters urging the administration to address this problem before further erosion occurs. However, despite promises that this would be corrected in the Federal Register in July 2004 (Philip G. Boysen, MD, Professor and Chairman, Department of Anesthesiology, University of North Carolina, Chapel Hill, NC; President, Society of Academic Anesthesiology Chairs, written communication, August 2004), at the present time, this inequity of payments by Medicare between anesthesiologists and other teaching physicians continues to exist. Perhaps it is time that another leader among us steps forward to frequently visit or live in Washington and lead the charge for more favorable treatment for anesthesiology as did Manny Papper and Bob Dripps some 40 yr ago.

It is easy to agree on the importance of providing the best in patient care, performing cutting edge research, and furthering the specialty. But what about becoming involved in the political process? For the first 5 or 10 yr that I was an anesthesiologist, I thought of myself as a clinician, researcher and teacher and politics seemed totally irrelevant to what I did. Rapidly, however, I realized that without becoming involved in the politics of our society, and particularly of our states and country, someone else would determine what was right for us and for our patients. They may mean well but not always make the right decisions, perhaps because of conflicting priorities, misinformation, or just plain ignorance of the facts. But who is more knowledgeable in regard to the importance of what we do for our patients than anesthesiologists themselves?

If I had any doubts about this before, a recent experience certainly made it crystal clear. Last year I represented the ASA at a special hearing on antitrust before the Federal Trade Commission and the Department of Justice.¹⁸ With the able assistance of Mr. Michael Scott and Ms. Diane Turpin, we put together a learned presentation based on statistics, facts, and logic. The speakers for some of the nonphysician health providers came from a variety of backgrounds but they were primarily economists. One introduced himself as a self-proclaimed "futurist" and, in addition to presenting inaccurate data, made statements such as, "It is totally unnecessary to have nonphysician providers supervised by physicians

since anesthesia is so safe now and everyone knows that what a physician learns in medical school is obsolete and, therefore, useless 2 yr after graduation.”

This led to a discussion of what is an acceptable death rate? Do nonfatal complications really count in such statistics? Can we calculate a cost-benefit ratio for safety or put a price on a life to justify the cost of physician supervision of others who administer anesthesia? I found such discussions distasteful at best and irresponsible at worst. None of the participants, no matter how much they advocated that physician supervision was unimportant and too expensive for others, volunteered to have unsupervised nonphysician anesthesia for themselves or for their families.

Subsequently, in July, 2004, the Department of Justice and Federal Trade Commission issued a publication titled “Improving Health Care: A Dose of Competition.”¹⁹ In this document, they ignored all testimony regarding improvement in the level of care when physicians are involved and the health professionals are regulated and require licensure to practice. Instead, they stated that state licensure boards are primarily made up of licensed providers who have a vested interest in limiting the number and types of persons who are permitted to practice that discipline. They propose less restrictive criteria to permit others with lesser education or credentials to deliver independent health care, thus giving the consumer a greater choice and increased access irrespective of quality; not just for anesthesia but for multiple medical disciplines.

To me, this experience and its preliminary outcome speaks volumes about the necessity for our being involved in supplying accurate, logical information in language politicians and governmental bureaucrats understand as they contemplate new laws and regulations to govern our specialty. Clearly, we must consider those who make the laws and regulations of this great country as our students. We cannot afford for a single one of them to be swayed by emotion, pity for the perceived underdog, or misinformation. It is our responsibility to educate them so that they all pass the course with honors!

Regardless of your political affiliation, it is crucial that you support your elected officials with your time, your knowledge and, yes, even with your money. Unless you are active in support of candidates for public office, meet with them, and share your views and advice with them, they will never know that you exist, and you will not have input into the system.

The past 69 yr since Dr. Rovenstine moved to New York have been a remarkable success story because of the dedication, vision, and extensive contributions of anesthesiologists. Who among you can think of a medical specialty that has made more diverse and important contributions to healthcare? For those of us who have partaken of the wine of knowledge, discovery, involve-

ment, commitment, and compassionate service—it has not been a job but a marvelous trip through life with personal rewards beyond belief. However, we are at a critical crossroad. We can become complacent, place our heads in the sand, and expend all of our energies at keeping the status quo. If that is our direction, I predict that within my grandchildren’s lifetime, one will have to visit the Smithsonian Institute to appreciate what an anesthesiologist was.

Remember, it is not the technical things we do in the administration of an anesthetic nor how much we are paid that sets us apart from others. It is the creativity, discovery, and application of sound medical principles that entitles us to occupy the preeminent position we enjoy as anesthesiologists. If we take lessons from our predecessors and aggressively seize on the opportunities we have for discovery and accomplishments and lead the way for others to follow, the younger among us will find, as we have, that anesthesiology is a terrific way of life, not just an occupation. I look to you in the audience and the next generation of anesthesiologists to write the next chapter in the growth and development of the most diverse, challenging, exciting, and rewarding specialty in all of medicine. Let us all make a commitment to continue the legacy that Drs. Emery Rovenstine and Ralph Waters so unselfishly started. Remember, it is *you* in the audience, *your* compatriots, and *your* students that will make the difference as to whether anesthesiology will be remembered only for its past contributions or continue to exist and thrive as the most imaginative and creative specialty of all!

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References

1. Residents at Bellevue trained by Dr. E. A. Rovenstine. NYSSA Bulletin (Sphere) November-December, 1971, pp 56-57
2. Beecher HK, Todd DP: A study of deaths associated with anesthesia and surgery. *Ann Surg* 1954; 140:2-34
3. Tax Equity and Fiscal Responsibility Act of 1982. Pub L No. 97-248, 96 Stat 324, 26 USC et seq.
4. Eichhorn JH: Prevention of intraoperative anesthetic accidents and related severe injury through safety monitoring. *ANESTHESIOLOGY* 1989; 70:572-7
5. Dripps RD: The AUA 20 years after. Lecture at AUA Annual Meeting, March 16, 1973. San Francisco, California
6. Papper EM: The history of the development of research in anesthesiology in the US. Lecture at AUA Annual Meeting, May 3-5, 1990, Seattle, Washington.
7. Reclaiming Critical Care. *ASA Newsletter* 2004; 68:4-17
8. Cullen SG: Emery A. Rovenstine, The Genesis of Contemporary American Anesthesiology. Edited by Volpitto PP, Vandam LD. Charles C. Thomas, Springfield, Illinois, 1982, pp 71-87
9. Beecher HK: Ethics and clinical research. *N Engl J Med* 1966; 274:1354-60
10. Eger EI II: Respiratory and circulatory factors in uptake and distribution of volatile anesthetic agents. *Br J Anaesth* 1964; 36:155-71

11. Lamptang S, Gravenstein JS, Euliano TY, Van Meurs WL, Good ML, Kubilis P, Westhorpe R: Influence of pulse oximetry and capnography on time to diagnosis of critical incidents in anesthesia: A pilot study using a full-scale patient simulator. *J Clin Monit Comput* 1998; 14:313-21
12. Monk TG: Postoperative cognitive dysfunction: The next challenge in geriatric anesthesia. Emery A. Rovenstine Memorial Lecture, American Society of Anesthesiologists Annual Meeting, San Francisco, California, October 13, 2003
13. Morey TE, Varshney M, Flint JA, Rajasekaran S, Shah DO, Dennis DM: Treatment of local anesthetic-induced cardiotoxicity using drug scavenging nanoparticles. *Nano Letters* 2004; 4:757-9
14. Varshney M, Morey TE, Shah DO, Flint JA, Moudgil BM, Seubert CN, Dennis DM: Pluronic microemulsions as nanoreservoirs for extraction of bupivacaine from normal saline. *J Am Chem Soc* 2004; 126:5108-12
15. Estimation of Physician Workforce Requirements in Anesthesiology. Bethesda, Maryland, Abt Associates, Inc., 1994
16. Modell JH: Resuscitation after aspiration of chlorinated fresh water. *JAMA* 1963; 185:651-5
17. Final rule establishing the Medicare Fee Schedule. 56 Federal Register, page 59563 (1991)
18. Scott M: ASA Testifies at FTC Hearing on Nonphysician Practice Barriers. Speech transcription of Dr. Jerome H. Modell's testimony on behalf of the ASA for the Federal Trade Commission's Hearing on Quality and Consumer Protection, Market Entry on June 10, 2003. *ASA Newsletter* 2003; 67:3-5
19. Improving Health Care: A Dose of Competition. A report by the Federal Trade Commission and the Department of Justice. July, 2004