



AUA

Association of University Anesthesiologists

Update

Summer 2010

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ASA President Hannenberg Talks to AUA on ASA: Indispensable to the Profession

W. Andrew Kofke, M.D., M.B.A.
University of Pennsylvania
AUA Update Editor

ASA President Alexander A. Hannenberg, M.D. delivered the annual ASA president's speech during our Annual Meeting in Denver last April. He began by discussing the role of the ASA in the specialty of anesthesiology, beginning with an overview of the impact of the numerous foundations and organizations that have spun off from the ASA. Most recently is the formation of the Anesthesia Quality Institute, a 501(c)(3) IRS-labeled organization. AQI currently has 30 organizations enrolled in its practice enrollment, with over 150 inquiries. The institute is in an early growth phase and is seeking external funding presently to continue its efforts to improve outcomes in anesthesia.



Alexander A. Hannenberg, M.D.

Dr. Hannenberg said that the society is building a "new ASA." This includes efforts to improve accounting practices to now have industry-leading accounting practices, development of non-dues revenue sources, and a patient-friendly Web presence.

He reported that ASA has had over 50 percent of its revenue from dues but has changed this to now have a 26-percent increase in other revenue streams, thus allowing the society to tackle new tasks.

ASA felt a need to improve its messaging to the public, he reported. This need led to a new, significant webpage oriented

to patients and public outreach...an effort that has garnered awards in the field.

In the area of communications, in an effort to de-inundate members with ASA e-mails, ASA has consolidated key information now in the form of an e-mailed newsletter called "ASAP," which should decrease the e-mail load to members.

He reviewed the ASA budget, pointing out that 25 percent of the budget is directed toward education and is indispensable to the membership of some 44,000 members. Given this size, it is thus surprising that previously the ASA Education Department consisted of one member. This has changed, with major investments now being made in that area with a new director, Julie Hopkins, and the addition of six experienced team members recruited from diverse backgrounds.

ASA is also increasing investment in technology. The society now has a learning management system, an improved abstract submission portal, and has developed an improved distance learning capability, now using podcasts, webinars and other such new, high-tech methods. Moreover, ASA is seeking to determine member needs for improved educational offerings. Notably, the simulation education network is growing rapidly.

In the area of advocacy, ASA continues to be active, with the health care reform debate being foremost this year. What has been ASA's role in this? The society's overall aims included correcting several key shortcomings in American health care, but in a way that does not threaten the future of anesthesia providers and the medical specialty of anesthesiology.

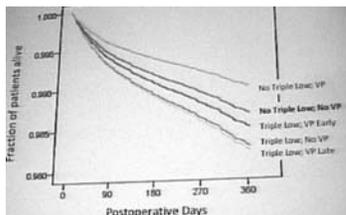
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AUA 2010 Meeting Highlights: SAB

Marie Csete, M.D., Ph.D.

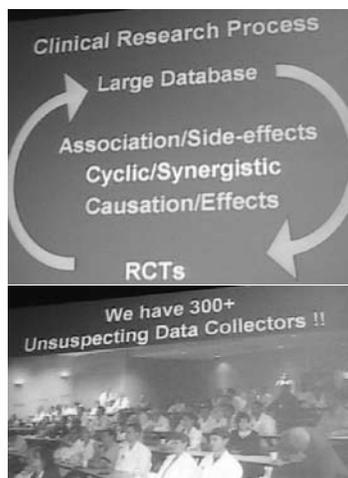
Chair, Scientific Advisory Board (SAB)

The SAB received 108 abstracts this year, with 40 percent clinical, 60 percent basic science, and oral sessions reflecting this mix of interests. The following highlights are just that — highlights — of a very rich meeting.



The first two talks in the oral sessions generated considerable audience response. First, Leif Saager, M.D., of the Cleveland Clinic, elaborated on retrospective analysis of a large number of surgical records showing that a combination of low mean arterial pressure, low BIS values, and low MAC during surgical procedures predict increased length of postoperative hospital stay and one-year mortality. Their analysis from the Cleveland Clinic database also suggested that early treatment of patients in the “triple low” risk group with vasopressin may decrease mortality in this group. Their analysis was adjusted for ASA risk level, age and BMI, but not for temperature, the use of nitrous oxide or opioids. Low MAC and low MABP were (together) also a strong predictor of mortality, but not as strong as the “triple low” phenotype. The group is planning a prospective study to confirm their findings — a plan which generated a lot of questions. The study design will include an alarm to alert anesthesiologists to the “triple low” scenario in their patients. Dr. Saager’s co-investigators were Scott Greenwald, Ph.D., Scott Kelley, M.D., Armin Schubert, M.D., Nassib Chamoun, M.S., and Dan Sessler, M.D.

Kevin K. Tremper, M.D., Ph.D. reviewed the progress and power in large anesthesiology databases in the context of the gold standard randomized, controlled, prospective studies. He pointed out that the studies are powered for results, not for side effects, and that controlled trials aren’t routine clinical practice. These weaknesses in the gold standard can be compensated for using large, retrospective databases — but the “controls” in these databases have to be considered carefully. Propensity scores are used to help control analyses of large databases so that the databases can be used to compare the effectiveness of different approaches. Groups in the database are defined, treatments mapped onto the different groups, and group differences analyzed. A “p” value is calculated for all patients who received the treatment and all those who did not to make a matched propensity score.



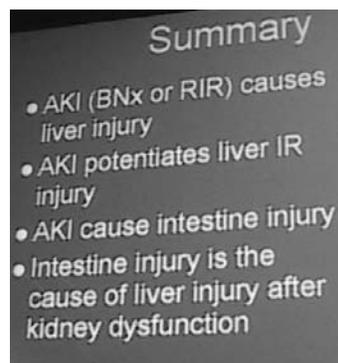
Dr. H.T. Lee’s (Columbia) presentation presented an entirely new player in the systemic response to acute kidney injury (AKI). He showed that AKI potentiates liver damage in the setting of hepatic ischemia (45 minutes), with rapid increases in blood levels of TNF-alpha, IL6 and IL17. The hepatic injury pattern is periportal necrosis with neutrophil infiltration appearing to arrive via the portal vein. This raised the question of gut involvement in the systemic inflammatory response that accompanies AKI. Dr. Lee and his lab then showed that within five hours of injury, gut vascular permeability is significantly increased, intestinal epithelial cells undergo apoptosis, and epithelial layers undergo necrosis.

Two poised presentations from recipients of the Resident Travel Award were certainly highlights of the SAB sessions. Sara Cheng, M.D., Ph.D., from the University of Colorado, described her study of post-surgical patients treated

Interest in large anesthesiology databases has grown quickly, and the Multicenter Perioperative Outcomes Group now has 35 centers as members. Dr. Tremper pointed out that anesthesiology H&P should be and has evolved to be a systematic risk stratification tool, especially as sophistication in collecting and analyzing complex perioperative datasets improves.

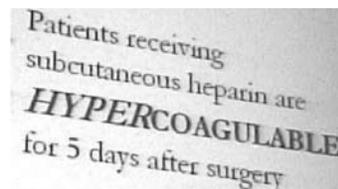


Marie Csete, M.D., Ph.D.



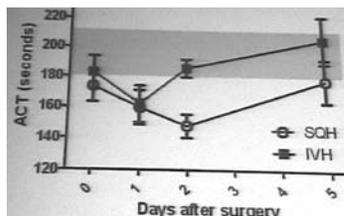
The gut Paneth cells then became a focus of Dr. Lee’s interest. Paneth cells are known to protect the gut against pathogens, and they require zinc for survival. After AKI, Dr. Lee showed Paneth cell degranulation. Using laser microdissection to capture Paneth cells, he showed that they are releasing TNF-alpha and IL-17 after AKI. Dithizone, a zinc chelator, was used to deplete the Paneth cells, resulting in decreased liver injury after AKI. Paneth cell knockout mice will be explored to look at the mechanisms of degranulation after AKI and to understand other details of this new connection between kidney and liver injury, via an understudied cell in the gut. Dr. Lee’s lab members contributing to the work were Drs. S.W. Park, M. Kim, S.W.C. Chen and K.M. Brown.

Patients receiving subcutaneous heparin are **HYPERCOAGULABLE** for 5 days after surgery



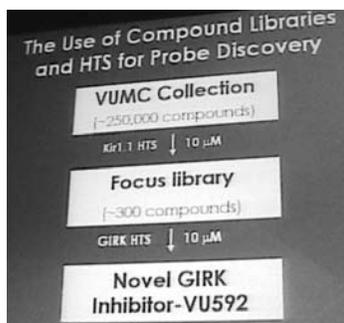
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with either I.V. (to keep PTT at 40-45 seconds) or SQ heparin prophylaxis in the ICU, for DVT prophylaxis. Dr. Cheng pointed out that current standard of care with SQ heparin in ICUs is based only on two

randomized trials, and these were not performed in surgical patients. Her hypothesis that SQ heparin is not well absorbed by patients with decreased peripheral perfusion was supported by the results of her study. Using Sonoclot and other measures of coagulation, she showed that post-surgical ICU patients are hypercoagulable for five days postoperatively. Those treated with SQ heparin showed no evidence of heparin activity in plasma and had persistent hypercoagulability, while I.V. heparin treatment brought coagulation studies into normal range. This prospective study suggests that the current standard of care based on SQ heparin for thrombosis prophylaxis in surgical ICU patients should be revisited. Dr. Cheng's co-investigators were Drs. Christine Hamiel, Kristen Nordenholz and Paul Wischmeyer.



Daniel Lonergan, M.D., from Vanderbilt University, reviewed his work on a high-throughput screening (HTS) assay to identify drugs that act on G-protein-activated inwardly rectifying potassium (GIRK) channels of the Kir3.x subfamily. The channels are well known for playing a role

in pain and arrhythmias, but no drugs are currently available to modify channel function. HTS has been a standard assay in the pharmaceutical industry to find some small molecules among thousands in large chemical libraries that act at a molecular target of interest. Only recently has HTS capacity come into academic centers. Dr. Lonergan's screen assayed for intracellular flux of the potassium congener, thallium, with a fluorescent readout. Compounds identified with potential activity in the screen were then subjected to voltage-clamp assays to confirm the screening results. The screen identified a novel GIRK channel inhibitor, and future work will focus on this and synthesized analogs of this inhibitor, with the goal of finding a potent, selective GIRK channel inhibitor therapeutic agent. Dr. Lonergan's co-authors from Vanderbilt's Drug Discovery and Pharmacology departments were Drs. Corey Hopkins, Rocco Gogliotti, Craig Lindsley and Jerod Denton.

This year, SAB awarded two prizes for outstanding posters in the session. The selected posters were presented by Li-Ming Zhang, M.D., from the University of Pittsburgh, and Jonathan Moss M.D., Ph.D., from the University of Chicago. Dr. Zhang's work, "Genome-wide Association Study (GWAS) of Ventilator-Induced Lung Injury (VILI) Using Dense Single Nucleotide Polymorphism (SNP) Maps in Mice," attempted to dissect a genetic basis for the wide range of susceptibility of patients to VILI. Dr. Zhang took advantage of deep genetic databases in 23 different mouse strains. They phenotyped ventilated animals based on severity of impaired vascular permeability, noting that strains differed widely in this assay. GWAS

is an unbiased approach, and the studies identified 18 potential genes with significant linkage to the phenotype of susceptibility to VILI, including genes with known function in cell-cell adhesion, GTP- and Wnt-mediated signaling, and cell death. Further study of these genes may help to identify risk factors for VILI as well as point to possible therapies. Co-authors on the poster were Huihua Li, M.D., George Leikauf, Ph.D., Pengyuan Liu, Ph.D., Ming You, Ph.D. and Bruce Pitt, Ph.D., all from Pittsburgh.

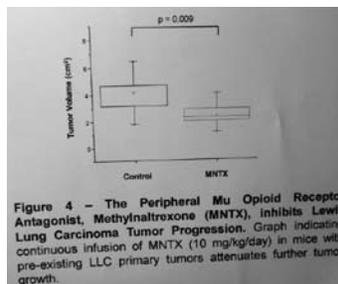


Figure 4 - The Peripheral Mu Opioid Receptor Antagonist, Methylnaltrexone (MNTX), Inhibits Lewis Lung Carcinoma Tumor Progression. Graph indicating continuous infusion of MNTX (10 mg/kg/day) in mice with pre-existing LLC primary tumors attenuates further tumor growth.

Dr. Moss initiated his study, "The Mu Opioid Receptor Regulates Lewis Lung Carcinoma Tumor Growth and Metastasis," based on his observation that some lung cancer patients treated with the peripheral mu opioid receptor antagonist, methylnaltrexone, had unexpectedly long survival after diagnosis.

Human lung cancer cells express the mu receptor. In this study, the Lewis lung carcinoma (LLC) line, which overexpresses the mu receptor significantly compared to lung epithelial cell lines, was used to investigate the phenotype of mu receptor antagonism in vitro. Treatment of LLC cells with either methylnaltrexone or siRNA against the receptor resulted in significantly decreased proliferation of the carcinoma cells and decreased invasive capacity in vitro. When the tumor was transplanted into mice, treatment of the animals with methylnaltrexone reduced the tumor growth and volume and metastases from the implant. These studies support a potential therapeutic anticancer role for methylnaltrexone in lung and other tumors that overexpress the mu opioid receptor. Co-authors on the study were Biji Mathew, Ph.D., Frances Lennon, Ph.D., Jessica Siegler, Ph.D., Lynnette Gerhold, Ph.D., Nurbek Mambetsariev, Ph.D., Liliana Moreno-Vinasco, Ph.D., Joe Garcia, M.D., Ravi Salgia, M.D., Ph.D. and Patrick Singleton, Ph.D., University of Chicago.



EAB Panels at AUA Annual Meeting

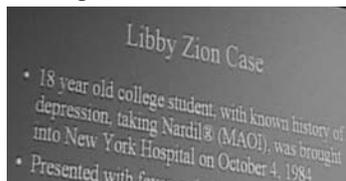
Robert E. Shangraw, M.D., Ph.D.

The Educational Advisory Board (EAB) presented two panels at the 2010 AUA Annual Meeting, which took place in Denver, Colorado on April 8-10. The first, moderated by Richard P. Dutton, M.D. of the Anesthesia Quality Institute (AQI), was titled “Limitations on Resident Work Hours: Is 60 the New 80?” The second, moderated by David J. Murray, M.D., of Washington University-St. Louis, was titled “Professionalism: Perspectives From Medical School to Specialty Practice.”



Limitations on Resident Work Hours: Is 60 the New 80?

The panel goals were to examine forces that have come to bear on whether limitations on resident work hours have been good and whether further restrictions are forthcoming.



Lee Fleisher, M.D., from the University of Pennsylvania, provided perspective for the Institute of Medicine (IOM) in forming the database on which resident work hour limits have been constructed.

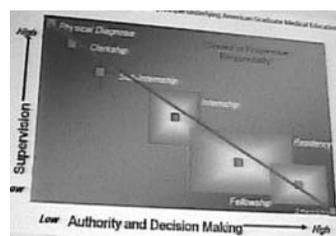
Dr. Fleisher referred to the IOM report from December 2008 titled “Resident Duty Hours: Enhancing Sleep, Supervision and Safety.” Analysis included a retrospective review of the effects of the 2003 rule known as the 80-hour work week. IOM recommended no further change in overall work, set at 80 hours/week averaged over four weeks. But it did fine-tune restrictions such that the averaging clause be discontinued for frequency of call (q 3 d), days off per week (1) and added that five days are off per month (up from four), of which at least two had to be consecutive. IOM added that night shift work should not continue for more than four consecutive nights, terminated by a 48-hour off period after three to four consecutive days. While the 2008 recommendations did not change the 2003 rule that designated 30 hours as the maximal duration of shift, it did tighten workload management such that only 16 of those hours (down from 24) could be continuous for admitting patients, with a new enforced five-hour sleep period to occur sometime between 10 p.m. and 8 a.m. and the remainder of time spent in “transitional and educational” activities. Perhaps the most complex new recommendation was to count external, in addition to internal, moonlighting in the 80-hour weekly limit.

Neal H. Cohen, M.D., from the University of California-San Francisco, reviewed how the ACGME is addressing the recommendations from the IOM. Dr. Cohen noted that the ACGME

task force charged with making recommendations to the ACGME board is reviewing the options. ACGME will release a proposal later this year and solicit public comment before changes are actually implemented. A major focus of the task force discussion has been on supervision, in addition to specific duty hour limitations. Dr. Cohen noted that the task force is considering recommendations related to, but not specifically addressed by, the IOM report. One area relates to differentiated duty hour limits based on level of training. Data indicate that the least experienced residents work the longest hours, leading the task force to consider whether to recommend stricter



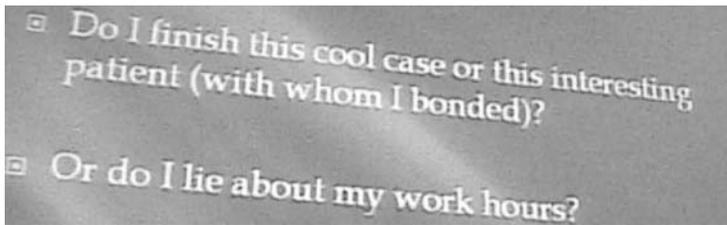
Robert E. Shangraw, M.D., Ph.D.



hour limits for interns (first-year residents) than for experienced senior residents. A sensible goal, Dr. Cohen said, is to develop a progressive system of graded duty hour restrictions and increase autonomy as a resident advances through

training. Provision of graded supervision and autonomy will require a structure and enforcement for ensuring appropriate supervision of trainee physicians. This may be less of a problem within anesthesiology training programs than in other specialties due to current staffing patterns, but it will introduce challenges, for example, in scheduling resident rotations and assigning individual cases. Graded responsibility is purposed to ensure that experienced residents can follow patients through a complete surgical procedure, to maximize continuity of care, while concomitantly minimizing potential for error due to trainee physician fatigue or inexperience. Another concern raised by those who oppose further restrictions on resident work hours is the impact of transfers (“handoffs”) of care on both quality and patient satisfaction. Dr. Cohen predicted that effect of handoffs on patient care will be more closely monitored by the Centers for Medicare & Medicaid Services, in particular, with respect to perioperative anesthesia care as well as all other clinical services. The electronic medical record may facilitate communication and optimize care during transitions, but this is unproven. Dr. Cohen concluded that better monitoring and enforcement are essential to testing the efficacy of using increased supervisory and decreased duty hours to fulfill their desired goals. Together, enhanced monitoring and the increased workforce dictated by duty hour limits will require additional resources, a funding source which remains unidentified and must be addressed as part of any change process.

Dr. Dutton, from the AQI, addressed the potential negative consequences of further restrictions on anesthesiology resident

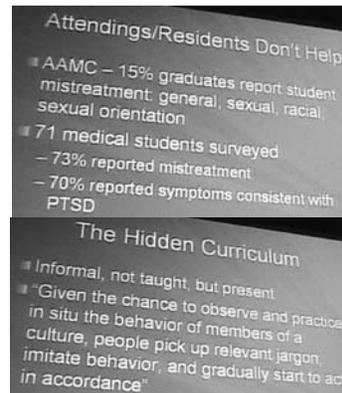


work hours. Dr. Dutton specifically mentioned the rumored decrease in resident work hours from the current 80 hours per week down to 60. He listed a series of anticipated complications of further reduced work hours, including decreased exposure to patients and cases, increased institutional costs associated with hiring more mid-level care providers, increased number of patient handoffs, a downstream generational conflict as graduating residents enter a professional world where work hours are essentially unlimited, creation of a bureaucracy without commensurate benefit, and paradoxical disruption of circadian rhythms. Dr. Dutton shared his data collected on human volunteers where performance over the course of a period of sustained wakefulness reaches a nadir at about 20 hours then recovers at 30 hours relative to baseline. The data indicated that impaired function is not a cumulative effect but is highly dependent upon where a subject is positioned in the course of his/her circadian rhythm that had the most impact, a feature that is not (or rarely) part of the assessment of a resident work hour environment.

The last panelist, Catherine M. Kuhn, M.D., from Duke University, discussed departmental coping strategies to deal with further putative limits on anesthesiology resident work hours. In her presentation, Dr. Kuhn took the example of European centers, including Britain, where work hour limitations are more stringent than those in the U.S. The European working time directive (EWTD) set maximal hours at 58 hours in 2004, ratcheted them down to 56 in 2007, and since 2009 lowered them to 48 hours/week. Consequences of the EWTD in Britain have been an increase in the number of trainees and substitutes without a commensurate increase in consultant posts, creating a career bottleneck. Although the length of training (longer than the U.S. at baseline) has not increased, trainees see fewer good teaching cases yet have responsibility for a greater number of patients. A longitudinal survey of (surgery) trainees found dissatisfaction due to worsened continuity of care (75 percent), decreased patient contact and teaching (90 percent) and dislike of the shift rotation (> 50 percent). Dr. Kuhn outlined the response at Duke to an acute loss of O.R. personnel to cope with long rooms while complying with the 10-hour day rule. The solution involved assigning trainees with an unscheduled next day, or those not assigned morning start cases to take over cases at the end of the day to allow 10 hours off between clinical activities. She concluded that all responses to decreased work hours will incur major costs, including educational opportunities, institutional culture and financial costs.

A spirited discussion among the audience followed, which reinforced many points raised by the panelists. Concern was raised about how CMS will respond to the issue of handoffs, since its initial implementation of the new teaching rule payments had prohibited any handoffs for CMS-funded patient cases. While

this payment restriction was subsequently reversed, it indicated that CMS is very aware of the handoff phenomenon, and it is likely that CMS will be examining the component quality of handoffs in the future.

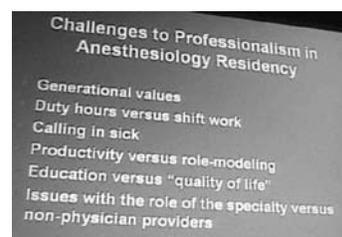


Professionalism: Perspectives From Medical School to Specialty Practice

The panel goal was to discuss challenges to professional behavior that affect people in our specialty from time of entry into medical school, through residency training and extending into one's career as an academic anesthesiologist. While not exhaustive, the

structure gave an overview and concentrated on problem examples. Robert R. Gaiser, M.D., from the University of Pennsylvania, discussed pressures imposed on medical students. These include academic intensity, growing educational debt burden, exposure to death and suffering, and personal stressors that can include personal illness (25 percent) or death of a family member (15 percent). Most problematic was student abuse or mistreatment, whether general, sexual or racial. One AAMC survey demonstrated a 15-percent incidence for experience of abuse/mistreatment, while different institutional questionnaires revealed more widespread abuse with what appeared to be symptoms consistent with PTSD. Responses to stress included substance abuse, depression and burnout leading to loss of empathy. A Jefferson Medical College survey showed that empathy reaches a nadir in the third year and never recovers to that in preclinical years. Dr. Gaiser talked about the "hidden curriculum" of medical education as described by Jha. The "hidden curriculum" is implicitly taught every day by superiors' actions and inactions, is not part of the educational syllabus, and has real negative consequences. A task for medical educators is to unveil the hidden agenda by overt discussions about expectations, and to eliminate it. A final issue raised by Dr. Gaiser was that the Internet, including Facebook and blogs, has generated serious new issues of professionalism concerning patient confidentiality, information about colleagues and inappropriate photographs.

John Tetzlaff, M.D., from the Cleveland Clinic, presented professionalism issues during anesthesiology residency. Key words in the definition of professionalism as applied in anesthesiology are punctuality, honesty, sharing, waste-avoidance, trustworthiness, commitment to learning and cost-effectiveness. Dr. Tetzlaff noted that professionalism is often examined via interactions with patients, surgeons, other anesthesia coworkers and support staff. He shared data from the Cleveland Clinic showing a strong positive correlation between performance in professionalism and in measures



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of patient care, learning improvement, communication, knowledge and systems practice. He showed a progressive increase in resident “professionalism” scores during advancement through the Cleveland Clinic residency, leading to the question of an effect by the curriculum. Dr. Tetzlaff concluded that challenges to professionalism during our specialty training include differences in generational values, perception of duty hours versus shift work, acceptability of calling in sick, productivity versus role modeling, education versus “quality of life” and features that should separate us from other anesthesia care providers.

Glenn Gravlee, M.D., from the University of Colorado, talked about professionalism exhibited by the practicing faculty anesthesiologist. His first example concerned a 62-year-old anesthesiologist who maintained practice despite not keeping current with the field. Dr. Gravlee showed evidence that ability to self-assess our clinical acumen is not particularly good, and that there may be a decrement later in one’s career in terms of medical knowledge

about patient care in internal medicine. The dilemma was – what should a supervisor do? The second example was a patient about to undergo cardiac surgery when the surgeon had been up much of the preceding night doing another case. What is the role of the anesthesiologist, and what should be said to the patient? Research data on fatigue’s effect on performance is equivocal. The third case was an 85-year-old woman with a small renal tumor scheduled for a laparoscopic nephrectomy with significant co-morbidities, including dementia. Should the case be done? What is the utilization pressure to do cases when the technology is available, whether or not it is the best option? Dr. Gravlee reviewed the evolution of American medicine as written by R. Stevens, distinguishing a profession (with a social contract and self-regulation based on trust) from a guild (skilled craftsmen self-regulating based on self-interest without necessarily advancing the public interest). He concluded with a quote from Mark Twain: “Always do right. This will gratify some people and astonish the rest.”

Group discussion at the end dealt with various solutions to the professionalism problems described by the panelists.

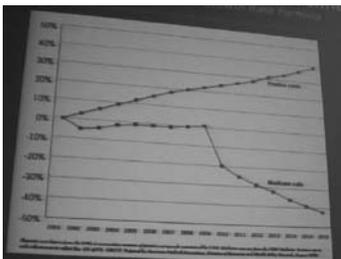
ASA President Hannenberg Talks to AUA on ASA: Indispensable to the Profession

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The health care bill has been signed into law. Much of the ASA efforts dealt with the complex negotiations that went on between the branches of congress. Dr. Hannenberg described H.R. 3590 as a bill that expanded health coverage to the uninsured, an element supported by ASA. The ASA also supported reform to the private insurance industry, including patient protections, but indicated uncertainty regarding provider protections from the abuses of private insurers. So, the ASA will be working to ensure that this is not neglected.

The financing for health reform is to be largely through provider cuts by a variety of mechanisms to produce billions of dollars toward the overall cost. Given the already marginal funding for uninsured patients, ASA finds this plan to be inconceivable as to how it can really work to pay for the bill. He pointed out that the new system in Massachusetts is demonstrating this fact, as now some years into the program, financial and service shortfalls are becoming apparent.

Dr. Hannenberg then overviewed Medicare reimbursement issues, showing data on the divergence of practice costs and Medicare reimbursements.



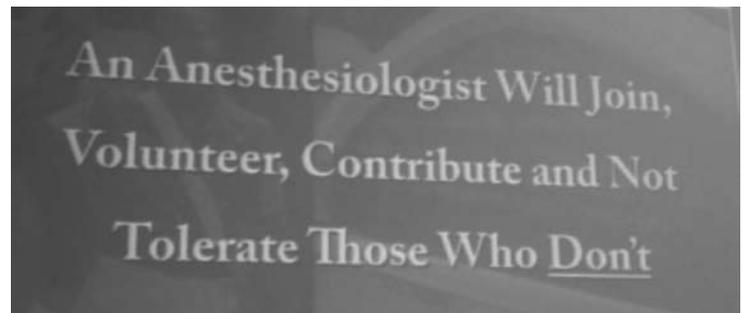
He indicated that a new health care system clearly cannot be sustained with such management. He also reported on the serial

brinksmanship under which the ASA and organized medicine have been operating with congress. This is related to the sustainable growth rate (SGR), formula being unsustainable.

Unfortunately, we are working in a generally inhospitable overall economic environment with a very expensive health plan being approved in the context of severe government deficit spending. This is creating much opposition from fiscal conservatives; and for the fiscal conservatives who are anesthesiologists, the conflict is between being a fiscal conservative and getting paid.

Dr. Hannenberg finished with a plea for good citizenship in the form of belonging to ASA and component societies, AMA, and contributing to the ASA Political Action Committee, the largest PAC in medicine.

Acknowledging the cadet honor code, he suggests that an anesthesiologist should join, volunteer, contribute and not tolerate those who don’t.

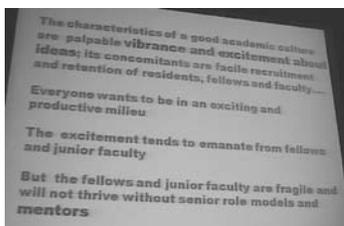


AUA President's Panel: Mentorship in Anesthesia

W. Andrew Kofke, M.D., M.B.A.
University of Pennsylvania
AUA Update Editor



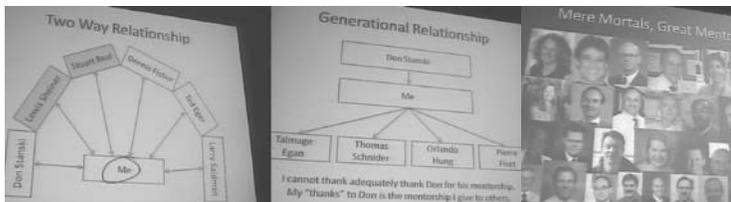
Ronald G. Pearl, M.D., then-AUA President, Stanford University, moderated a panel on mentorship in anesthesia. Panel participants were Alex S. Evers, M.D., Washington University; Richard J. Traystman, Ph.D., University of Colorado; Steven L. Shafer, M.D., Columbia University; and Roger Johns, M.D., Johns Hopkins University.



Dr. Evers presented the chair's perspective on mentorship. He reviewed the essential role of mentors in developing and maintaining an academic culture, indicating that mentors leading a core of some 20-30

percent of the faculty can create a viable academic culture. He moreover indicated that anyone experiencing such a culture will have some of the best memories of one's career. He indicated that there are two types of mentoring, one is the so-called natural mentoring, which tends to arise spontaneously, and the other is planned mentoring, a type of match-making. Dr. Evers' opinion is that the natural type tends to be the most successful. He further indicated, as did other speakers, that a successful mentor-mentee relationship is life-long, including scientific, career and personal discussions. Good mentors are rare and valuable. How does a chair go about populating his/her department with a cadre of such mentors? Dr. Evers indicates there are basically two ways: free agency, and your farm system or draft. That is, the chair recruits talented individuals from other departments, typically having to be able to offer not just remuneration but resources that will further the potential mentor's career goals; or the chair recruits residents or young faculty and then provides adequate nurture and resources, perhaps finding a mentor for such individuals outside the department, such that this individual becomes a departmental leader and mentor. Notably, the use of mentors outside the department is considered a perfectly suitable avenue for finding a mentor, although cultural/clinical mentoring may still need to be provided from within.

Dr. Traystman, a well-known mentor of numerous clinicians and basic scientists, presented issues related to mentoring nonphysician scientists. He made clear the difference in mutual needs and rewards



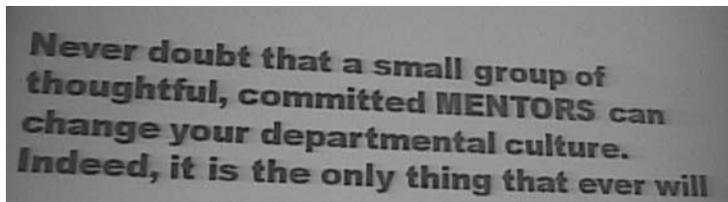
in mentoring pre-doctoral versus post-doctoral scientists. The mentor who takes on a pre-doctoral graduate student invests time and money (some of it tuition) early in their graduate years with a relatively limited time of academic productivity that arises as the student completes his/her dissertation. This contrasts with a post-doc who comes with ample training and alternate ideas. Both, however, require the mentor to take their career needs very seriously, which includes a need to demonstrate capability to future employers through publications in high-quality journals. He also listed many of his mentees over the years to indicate the wide array of interests and talents that may come to a mentor. The mentor is not trying to create clones of him/herself but rather is an enabler who enriches the mentee. His mentees have gone into physical sciences, to medical school and are in clinical practice, or they have continued in basic biological research.



W. Andrew Kofke, M.D., M.B.A.

Dr. Shafer, editor of *Anesthesia & Analgesia*, reviewed characteristics of good clinical research mentors. He indicated the need for adequate training in clinical research as a prerequisite and the importance of answering important questions. He cited his "Jedis" of clinical research who have a great track record of answering questions that change clinical practice. He also showed many examples of clinical mentors in anesthesiology, emphasizing the life-long relationship that often arises consequent to a successful mentoring relationship, and that the impact can span generations.

Dr. Johns overviewed activities of the Academy of Research Mentors in Anesthesiology (of which he is president), paying a special tribute to the role of John Kampine, M.D. as the first president of this organization and a great example of a very successful mentor. The academy invites members with a record of successful mentorship as evidenced by successful mentees and a history of successful acquisition of external funding for his/her research. Notably, nominations for membership are only accepted from past mentees. The academy presently has 43 members. The council of the academy is composed of several AUA members, including Keith A. Jones, M.D., David Warner, M.D., Jeanine Weiner-Kronish, M.D., and AUA past president Alex S. Evers, M.D. The academy now has an annual award for mentorship, meets annually at the ASA Annual Meeting, and organizes a mentoring panel at the ASA Annual Meeting.





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