AUA
Association of University Anesthesiologists

Update

Winter 2010

Contents

AUA President Delivers Rovenstine Lecture:
## Outcomes Research Comes to the O.R.

Kevin Tremper, Ph.D., M.D., AUA President, delivered the 2010 Emery A. Rovenstine Memorial Lecture at the 2010 ASA Annual Meeting. The topic was "Anesthesiology: From Patient Safety to Population Outcomes." The lecture will be published in more detail in Anesthesiology. A summary of what he presented is included below.

Kevin Tremper, Ph.D., M.D.
President, AUA

Over the past decade, outcomes research utilizing large databases has become "respectable." Historically, the most respected research was always prospective, randomized, controlled trials (RCTs), for they were the only studies that could prove cause and effect and therefore dominated with respect to changing our practice. In recent years, it has become clear that there are significant weaknesses in these prospective, randomized trials. Because of the cost of RCTs, they involve smaller groups of patients and more limited types of patients (strict entrance criteria and size determined by a power analysis). For these reasons, side effects of therapies were often missed because they were rarer and frequently the results of the prospective studies that were extrapolated well beyond the patient group of which they were studied. Glaring examples of these problems are Vioxx and Aprotinin. Over the past decade, large outcomes research involving administrative data (Medicare and Medicaid billing data) and clinical registry data (NSQIP, STS, and McSPI) have been found to be extremely valuable in determining the safety of therapies and identifying rare, but devastating, adverse events associated with therapies thought to be standard of care.
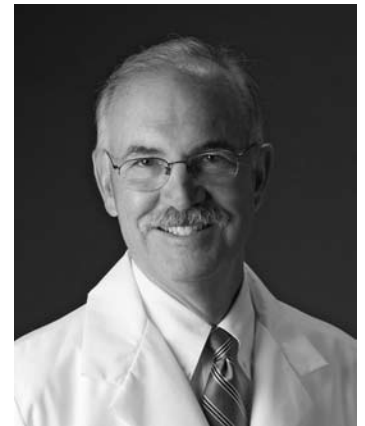
Kevin Tremper, Ph.D., M.D.

As we approach a new decade, the anesthesia information management systems (AIMS) have started to take hold. They have been available since the mid-1980s but have only been implemented in relatively few -- "the early adopters." The reasons for this are many. First of all the cost, and there was little obvious return on investment from the hospital's perspective. In addition, many of the companies involved were not financially viable. That picture has changed. The results of a survey I conducted this fall found that approximately 54 percent of academic centers have AIMS installed and another 14 percent expect to have them installed within 12 months. Additionally, at

SAB Report: The New NIH Grant and Scoring System

A Reviewer's Perspective

Marie Csete, M.D., Ph. D.
Chair, Scientific Advisory Board (SAB)
Member, NIA Study Group:
Cellular Mechanisms of Aging and Development (CMAD)

Several changes to the NIH grant review and scoring system ushered in over the last year were meant to ease the burden on both reviewers and applicants. Basically, the size of the RO1 grant application was cut in half, and reviewers were also given a template for their critiques meant to ease the writing burden and focus the critique more on the impact of the proposed research.

Was the reviewer's burden reduced? Obviously, it took less time to read a grant of 13 versus 25 pages, but the number of grants assigned seemed to increase over time on study section (one person's view), so each cycle was associated with the same amount of reading. The major change in the structure of the grants I saw after the transition was much less space devoted to details and minutiae of methodology — for which this reviewer was very grateful. More importantly, the (sometimes endless) discussions over methods virtually disappeared from our study sections. My impression was that reviewers did focus more on impact and significance—and NIH staff seemed invigorated in their reminders to stay focused on impact.

The reviewer's writing burden, if measured by the number of words in the written critique, seemed generally to go down in the new system. But for me, the time taken to THINK about what to write is significantly longer than the time taken to put the critique to paper, so again, overall, I did not experience a decrease in the amount of time needed to review the "pile" of grants per cycle. Some reviewers clearly used the template critiques to minimize the writing, and that trend raises some concerns. Before a study section gathers to meet in person, reviewers have access to the critiques of other reviewers who are assigned the same grants. And if there is a major discrepancy in the scores submitted before the meeting, the SRA will encourage the reviewers who are far apart to look at all the comments and try to come to some plan for consensus before the meeting. I saw a few critiques before meetings that were so brief that I really was not clear about the other reviewer's reasoning behind the scores. I also wondered when I saw these very short critiques whether the applicants would feel that they got sufficient feedback from the study section, an issue that is particularly important in light of the new policy that only one resubmission of a grant is allowed.

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

The new scoring system changed from a 5-point scale to a 9-point scale, partly in an effort to un-cluster the scores. It's worth looking at the new scoring system because it did change the nature of discussion during study section, since the SRA had been clearly instructed to remind reviewers of the descriptors attached to each scoring integer. So, for example, a common reminder from an SRA would be, "This discussion with all the concerns raised really does not sound like a grant that is 'extremely strong with negligible weaknesses,' i.e., a '2.'" Those reminders from SRAs to recalibrate scores in light of discussion certainly were heard before the new scoring system, but seemed to increase after implementation of the new scoring system, since the guidance descriptors for each score were posted in front of us, a constant reminder. With no data to support the following observation, it was my impression that our study section did spread scores more with the 9-point scale than with the 5-point scale.

Another change was that the scoring system had sub-scores for reviewers – for example, *impact* had a score, *research plan* a score, etc. The means of the sub-scores didn't have to be the same as the overall score. I think these sub-scores helped me

Impact	Score	Descriptor	Additional Guidance on Strengths/Weaknesses
High	1	Exceptional	Exceptionally strong with essentially no weaknesses
	2	Outstanding	Extremely strong with negligible weaknesses
	3	Excellent	Very strong with only some minor weaknesses
Medium	4	Very Good	Strong but with numerous minor weaknesses
	5	Good	Strong but with at least one moderate weakness
	6	Satisfactory	Some strengths but also some moderate weaknesses
Low	7	Fair	Some strengths but with at least one major weakness
	8	Marginal	A few strengths and a few major weaknesses
	9	Poor	Very few strengths and numerous major weaknesses

come up more easily with an overall score, but I was singularly uncomfortable giving a number (and its associated descriptor) to the investigator/applicant. It just felt plain uncomfortable to put down a number instead of a prose description of strengths and weaknesses of the investigator. (I mentioned this to my neighbors at study section, and many of them felt the same way — the number seemed a little brutal, and could be dispensed easily without impacting how grants are reviewed.)

The new system was also associated with a change in the order in which grants were discussed. In the old system, at the beginning of the meeting, the "triaged" applications were agreed upon — and thereafter they were not retrieved for discussion. "Triage" is not used anymore, grants are ND — "not discussed." At the beginning of the meeting, any reviewer could request discussion of a grant they thought deserved discussion (no matter what the initial scores), and the grant would be placed on the agenda for the meeting. In the new system, the discussion starts off with the highest scored grants (within a grouping, such as all RO1 grants) and reviewers work their way down to lower scores in order. Once about half of the grants in the category are discussed, reviewers are *then* asked at the end of the process (usually two pretty tiring days) if they would like any of the lower-scored grants to be discussed. Psychologically, depending on how the rest of the meeting went, some reviewers may be making moves toward their luggage while others are requesting that the discussion be prolonged. Obviously, the SRA tries to maintain order, but I think the timing of these requests to discuss grants in the low score group is a disincentive to bringing them up for discussion.

The clustering of early-stage investigator applications together in the meeting was a positive scheduling change and focused attention on the new investigators, for sure. In the old study section agendas, new and experienced investigator applications were not segregated, and even though there's a "New investigator" checkoff on the front page of the application, the primary reviewer often failed to highlight the new investigator status of the applicant sufficiently. The separate agenda items for new investigators meant that everyone in the room was immediately aware that the grants were from new investigators.

Submitters' Perspectives

David M. Eckmann, Ph.D., M.D.
Horatio C. Wood Professor of Anesthesiology and Critical Care
Professor of Bioengineering
University of Pennsylvania

The NIH has moved well into the first year of its new streamlined grant format, and there is no turning back. The application length has been slashed by more than half, from 25 pages down to 12 as part of a significant overhaul of the peer-review grant process. The shorter NIH form now challenges investigators to bring immediate focus to the essentials of their science while forcing the writing style to be concise, well organized and direct. Applicants can no longer describe all the minutiae of their experimental methodologies, but must instead stay on point regarding concepts, goals and scientific impact. This change in the level of detail works to the writer's advantage, since preliminary findings and prior publications should establish credibility for scientific ability to conduct the work. Another result of the shorter format is that fewer figures can be incorporated into the application due to space limitations. This may be problematic for presenting unpublished work and is likely to impact junior and new investigators more than established grantees. The tradeoff is that established investigators face a serious word limit not previously encountered; trimming grant jargon and verbage down to the sleek page number boundary now enforced is not an easy task. There are additional organizational and format changes in the new application as well. An added component of the application is a section titled "Innovation" inserted between the "Significance" and "Approach" elements. Investigators must define how their work is not only new, but how the research provides unique utility. Overall, careful forethought about the significance and impact of the science being proposed and the graphical content and logical organization of the way in which it is proposed are required to write a successful application. With this initial planning step in mind, the actual writing of grants in this shorter format is considerably simpler and faster. Overall, as an R01 grant submitter for the two recent deadlines (one new grant, one competing renewal), I found the new format better enabled me to focus on those aspects of my proposal that I wanted to convey to the reviewers as the most salient elements of my ideas, while minimizing distracting details. I highly prefer this new NIH grant format.

David M. Eckmann, Ph.D., M.D.

Marie Csete, M.D., Ph.D.
The short format also presented a significant challenge to me writing an SBIR and STTR in the last cycle. These grants have also been shortened down by half, just like the RO1s. David noted that the short format might be problematic for new investigators, and it was very problematic for me, trying to describe a completely new technology including very complicated hardware. I kept wondering if I had enough explanation for reviewers to "envision" our bioprinting process. Since there was no precedent for the technology, pictures were essential and limited the space alloted to background even further, giving me headaches about how to explain our process adequately. So not only new investigators but new industries in the SBIR series are challenged!

EAB Report
Education: How to Master One Component to the 'Triple Threat'

Robert Gaiser, M.D., M.S.Ed.
Professor of Anesthesiology and Critical Care
University of Pennsylvania

The "triple threat" is frequently referenced in letters of support for positions or promotion. When referring to the "triple threat," the person is describing an individual who is skilled in clinical care, research and education. While the value of the research component is frequently measured by the amount of funding and by the number of publications, clinical care and education are more difficult to measure. For educators, it tends to be the quantity of lectures as well as the evaluations from the lectures and from the residents in regard to intraoperative teaching. Although many argue about the subjective nature of these evaluations, they do serve a purpose of providing feedback with the goal of improvement and of faculty development.

When designing an evaluation, one must decide upon the appropriate qualities to measure. These qualities must reflect the desired goal for the education mission. It is not helpful to measure the frequency of small group discussions or the frequency of intraoperative breaks if this aspect is not a goal of the educational mission. The evaluation should be sent to the faculty so that they understand expectations. It is reasonable to substitute the term "expectation" for the word "evaluation," as an evaluation is one person's opinion of how well the expectation was accomplished.

Lombarts et al. provided a reasonable list of expectations for the education goal of an anesthesia department when they developed an evaluation system for the faculty.[1] Through factor analysis, the authors were able to identify five key characteristics for evaluation of a faculty member's teaching. These characteristics were then divided into several sub-items. It is these items that also provide a broad definition of appropriate goals for which each faculty member should strive [Table 1]. Of these factors, learning climate, evaluation of resident, and the provision of feedback are intuitive. It is the communication of goals that is probably the most difficult but also the most important to the resident. The reason for the difficulty lies in the typical approach to education.

When examining an approach to education, it is helpful to consider the usual way one prepares for the giving of a lecture. The first step is to review the literature, with the second and third steps being to create the slides and to hope that some information is conveyed. It isn't until the end (generally when the continuing medical education committee asks) that the goals for the presentation are created. This approach does not lead to understanding, rather it provides content and facts. The lecturer presents a lot of information with the hope that some fact will be remembered. A better approach is to outline the desired results prior to the design of the lecture or learning opportunity. By having clear goals, the material to be included as well as the material to be excluded becomes evident. Rather than designing the goals around the learning activity, the learning activity is designed around the goals. The likelihood of achieving understanding is greater using this approach. Rather than "covering" the material, the learner discovers new knowledge. It is helpful to include a means to assess whether the student understands and has achieved the goals. This assessment allows the faculty member to evaluate the effectiveness of the teaching.

Faculty members and departmental leaders were surveyed about the evaluation process.[2] The major complaints about faculty evaluation of teaching from these leaders included criteria that are vague or poorly defined and the failure to link evaluations to outcomes. Both of these issues may be addressed by using the criteria proposed by Lombarts. The one type of evaluation that provides the most benefit toward both improvement and faculty development is also the one that is the most critical. It does not come from the students, course director or chairperson - it is self-evaluation. After every teaching session, the faculty member should reflect upon the goals, the achievement of the goals and the experience. When performing self-evaluation, it is helpful to have guiding questions. It is also helpful to have reviewed the students'/residents' evaluations. A discrepancy between the self-evaluation and the written evaluation provides a great starting place for reflection.

The reason for performing these evaluations extends beyond faculty development and personal growth. There are other tangible benefits. When comparing performance of the self examination for Internal Medicine, students who worked with teachers who had higher ratings on teaching scored better than those students who worked with teachers who had lower ratings.[3] Furthermore, when medical students worked with attending physicians who were rated high in teaching, these students were more likely to choose the specialty than those who worked with attending physicians who were lower-rated.[4] Attending physicians are the role models for the medical students and the residents who will become the future leaders in the specialty.

The impact of effective teaching is more than the conveyance of knowledge. It provides the motivation to learn, the desire to improve and the drive to succeed. Effective teaching is rewarding to the faculty member. Consistent evaluation allows for faculty development and personal growth throughout one's lifetime. As one begins a career in academics and in the development of the "triple threat," becoming a great teacher is frequently the least emphasized, but also is the one that is certainly achievable.

Robert Gaiser, M.D., M.S.Ed.

References:

1. Lombarts KMJMH, Buck MJL, Arah OAA. Development of a system for the evaluation of the teaching qualities of anesthesiology faculty. *Anesthesiology*. 2009; 111:709-716.
2. Jones RF, Froom JD. Faculty and administration views of problems in faculty evaluation. *Academic Medicine*. 1994; 69:476-481.
3. Stern DT, Williams BC, Gill A, et al. Is there a relationship between attending physicians' and residents' teaching skills and students' examination scores? *Academic Medicine*. 2000; 75:1144-1146.
4. Griffith CH, Georgesen JC, Wilson JF. Specialty choices of students who actually have choices: The influence of excellent clinical teachers. *Academic Medicine*. 2000; 75:278-282.

Table 1. Key Factors for an Effective Faculty Evaluation

Learning Climate
> Encourages residents to participate in discussions
> Stimulates residents to bring up problems
> Teaches residents time management
> Keeps to teaching goals
> Motivates residents to study further
> Stimulates residents to read the literature
> Prepares well for teaching presentations
> Teaches postoperative care.

Professional Attitude
> Listens attentively
> Respectful
> Easily approachable on-call
> Easily approachable in clinic.

Communication
> States learning goals clearly
> States relevant goals
> Prioritizes learning goals
> Repeats learning goals frequently.

Evaluation of Residents
> Evaluates specialty knowledge regularly
> Evaluates analytical abilities regularly
> Evaluates application of knowledge to patient care
> Evaluates medical skills regularly.

Feedback
> Regularly gives positive feedback
> Gives corrective feedback to residents
> Explains why resident is incorrect
> Offers suggestions for improvement.

Based upon data from Lombarts KMJMH, Buck MJL, Arah OAA. Development of a system for the evaluation of the teaching qualities of anesthesiology faculty. *Anesthesiology*. 2009; 111:709-716.

Through the Eyes of the Pathologist

Background of Chronic Inflammation with Clusters of Suspicious Cells

AUA President Delivers Rovenstine Lecture: Outcomes Research Comes to the O.R.

this year's ASA Annual Meeting, the House of Delegates passed a resolution for the president to appoint a subcommittee to study the impediments to AIMS implementation for the purposes of facilitating AIMS adoption throughout all our practices. With the broader adoption of AIMS, a whole new type of clinical data are now available to investigate the perioperative period. These high-resolution databases, involving preoperative evaluation and intraoperative care, open an entirely new era of large database outcomes research. In August 2008, two outcomes efforts were initiated: the Multicenter Perioperative Outcomes Group (MPOG) and the Anesthesia Quality Institute (AQI). MPOG is a consortium of academic centers that have AIMS, which have joined together to pool their data from multiple vendor systems to form a large perioperative database from which faculty from all the contributing departments can request data for outcomes research: "freeware" for research. The membership for MPOG is not financial, but data, 10,000 completed cases. In this way, a wide variety of studies can be initiated, bringing in a large number of ideas from a large number of faculty and departments all accessing a huge perioperative dataset. Also in August 2008, the ASA initiated the funding for the AQI. The purpose of this institute is to form a large database to derive quality measures and quality reports to be available for all anesthesia practitioners. The ASA recruited Dr. Rick Dutton to head this effort, and he has formulated the initial database, which has recruited datasets for over 300,000 (and is rapidly accumulating more groups and cases). MPOG has developed the data adapters for four of the current AIMS (GE Centricity, Philips CompuRecord, iMDSoft MetaVision, and Picis Care Manager) with two more on the way by early 2011, (Epic and Cerner). Sachin Kheterpal, M.D., from the University of Michigan, has directed this effort. These high-resolution datasets involving all the intraoperative physiologic data, drugs, and treatment are now approaching 900,000 cases and will be open for the first studies in early 2011. Accumulating all these data on patients of all ages, both sexes, all degrees of health and sickness, will allow us to develop a large human phenotype and its response to the surgical "stress-tests." These databases will supplement the clinical registries and the large administrative database to allow us to ask questions and find rare events like never before.

In the spring meeting of AUA, three speakers will be describing each of these datasets, how they are used currently and in the future to advance knowledge, not only in anesthesiology, but in all medical practice. Dr. Jeffrey Silber will be discussing how large administrative datasets have been used in the past and will be used in the future to answer broad questions. Dr. Richard Dutton will do the same with respect to the development and uses of the AQI dataset. Dr. Sachin Kheterpal, the Research Director of MPOG, will update us on the progress of the high-resolution AIMS and beyond dataset and how these data may be used to answer fundamental questions regarding perioperative care and outcomes. Together, these three speakers will provide an exciting view into the future of outcomes research.
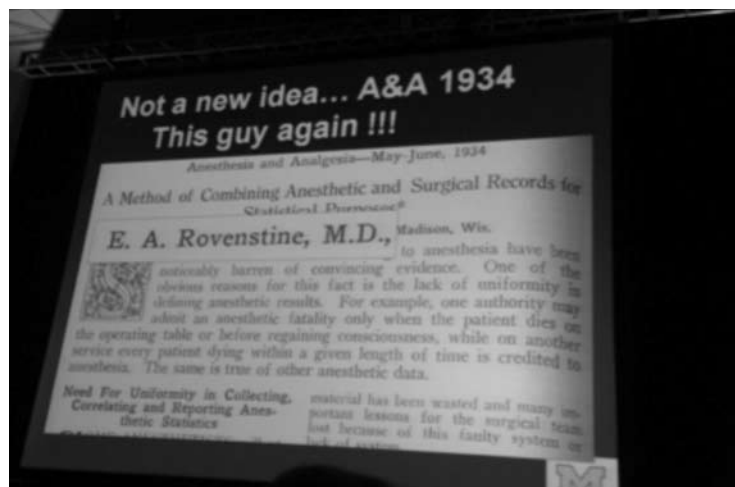
See you in Philadelphia in the spring!

Roger Johns, AUA Member, Elected to Institute of Medicine

This year, the IOM elected 65 new members. The inductees include Roger A. Johns, M.D., Professor, Department of Anesthesiology and Critical Care, Johns Hopkins University School of Medicine, Baltimore. The announcement from JHU follows:

Johns is a professor and former director of Anesthesiology and Critical Care Medicine and a professor of pulmonary medicine and critical care at the Johns Hopkins University School of Medicine. His research involves using genomic and proteomic approaches to diagnose and determine the cause of high blood pressure in the lungs. He also studies the molecular mechanisms of pain, anesthesia and analgesia. A recent Institute of Medicine Robert Wood Johnson Health Policy Fellow, Johns worked on Capitol Hill in the 109th Congress as a health policy adviser in the office of Sen. Orrin Hatch of Utah. His current policy interests concern health care reform, comparative effectiveness and coverage decisions for new medical technologies, and pathways for approval of biogeneric drugs.

New AUA Junior Faculty Program

Marie Csete, M.D., Ph.D.
Chair, Scientific Advisory
Board (SAB)

The AUA Council initiated a new junior faculty program for the AUA Annual Meeting, which will highlight the work of academic anesthesiologists at the beginning of their careers. Based on AUA's resident travel award program, junior faculty (within six years of appointment as a faculty member) are eligible to submit abstracts for review by the SAB. Two of the abstracts will be selected for oral presentation, and junior faculty will have a designated meeting with senior academic anesthesiologists from the Academy of Research Mentors in Anesthesiology. It is envisioned that the new program will familiarize junior faculty with AUA, getting them involved early on in their careers and giving them a better understanding of the functions and benefits of AUA membership. Applicants must have an AUA member sponsor to submit an abstract (analogous to the resident program). Sponsors may submit more than one abstract if they support a junior faculty abstract. Look for the application process for the junior faculty program on the AUA website, and please encourage your junior faculty to apply.

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

58th AUA Annual Meeting Program Schedule

May 12-14, 2011
Loews Philadelphia Hotel
Philadelphia, Pennsylvania

PROGRAM HIGHLIGHTS

Thursday, May 12, 2011
Welcome and Introductions
SAB Oral Presentations
Moderated Poster Discussion Session
Resident Meet and Greet Reception
Welcome Reception

Friday, May 13, 2011
EAB Program (Part 1) - Do Current "Innovative" Teaching Methods Improve Outcome in Anesthesiology Resident Education? A Pro/Con Debate
(An interactive session)
EAB Program (Part 2) - Proficiency-Based Credentialing: Current Evidence for Performance Measure Benchmarks
NIH Session
ASA President's Update
FAER President's Update
AUA President's Panel – Large Database Research Today and in the Future: AIMS and AQI
EVENING ON YOUR OWN TO EXPLORE PHILADELPHIA!

Saturday, May 14, 2011
Host Program
- From Dr. Kildare to House: Physicians on TV
- Emerging from the Crisis?
- World War II Military History
- Concierge Medicine: A Horse Named Barbaro

Moderated Poster Discussion Session
SAB Oral Presentations
Moderated Poster Discussion Session
SAB Plenary Session
Reception and Dinner at the Independence Seaport Museum

HOTEL INFORMATION

The host hotel for the AUA 58th Annual Meeting is the Loews Philadelphia Hotel, 1200 Market Street, Philadelphia, Pennsylvania, telephone (215)627-1200. The room rate is $209 for single/double occupancy.

Plan ahead and make your hotel reservations now at **http://www.loewshotels.com/en/Philadelphia-Hotel/GroupPages/aua**

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