

UPDATE

Association of University Anesthesiologists UPDATE | 2019 | Issue 1

PRESIDENT'S MESSAGE

A TIME OF FLUX AND OF OPPORTUNITY FOR THE AUA

Healthcare is experiencing a time of major flux, and, now more than ever, academic leaders in anesthesiology have the opportunity and obligation to provide direction to the field. There are several readily identifiable major concerns that are highly relevant to the AUA. The first is that there is currently a dearth of academic leaders in anesthesiology in the US. There are several reasons for this, including that during the period from about 1995 to 2005 very few highly accomplished medical graduates chose to specialize in anesthesiology. Fortunately, this has changed dramatically in recent years. But there remains a 'missing generation' of academic anesthesiology leaders in the US. Second, healthcare around the world is becoming too expensive. Academic leaders and researchers must consider how we can deliver better care at lower costs, with improved patient outcomes. Harnessing new technologies, including telemedicine and machine learning, are likely to be central in helping to accomplish these lofty goals. Third, we must address scientific questions that matter beyond



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the parochial interests of our specialty, and that contribute substantially to advancements in health and knowledge. Academic anesthesiology must pursue team science and ensure that we remain relevant in a broader context. Fourth, is a point that has been highlighted by several researchers, but has not appreciated in the medical community, by society or even by anesthesiologists. Surgery is very dangerous. In fact, it is estimated that

over 4 million people die annually in the early postoperative period. Elective surgery is one of the leading causes of major morbidity and mortality around the world. Academic anesthesiologists must ensure that this public health challenge is appreciated and that we lead the charge in addressing it.

Considering these and other challenges and opportunities, the AUA Council is proposing that the AUA update its Mission and Vision. The proposed new Vision of the AUA is "the furtherance of anesthesiology as a dynamic academic medical specialty, with a vibrant community of successful scientific, educational and medical leaders within the academic sector." And the proposed new Mission of the AUA is to bolster academic anesthesiology through:



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- deliberate mentorship of academic anesthesiologists, under the rubric of faculty development;
- programmatic and ongoing career development of anesthesiology researchers, educators, and academic leaders throughout their careers;
- the organization of an outstanding annual academic meeting;
- targeted provision of networking opportunities to academic anesthesiologists.

In keeping with this reconceptualization, one cardinal new goal that the AUA is embracing, is leadership development within our field. As part of this focus, the AUA is prioritizing the mentorship of rising academics in anesthesiology, and support of initiatives such as the early stage anesthesiology scholars (www.esashq.org). We hope as the AUA to make a meaningful contribution to the training of the next generation of academic leaders in anesthesiology.

One of the important services to our members, and the broader academic anesthesiology community, is the provision on an outstanding annual academic meeting, which is also an explicit mission-based objective. This year's meeting in Montreal has been thoughtfully planned to address several current research and educational priority areas. (<https://auahq.org/aua-annual-meeting/sessions/>) The host program includes talks on cannabis, music, pain, and the history of anesthesia in Montreal. Early stage investigators will feature in the president's lunch and throughout the meeting. The president's panel showcases research leaders from different backgrounds addressing the topic, "The Reproducibility Crisis in the Era of Precision Medicine." The Education Advisory Board has prepared outstanding sessions on self-regulation and on the science of effective feedback. And the Scientific Advisory Board has arranged high level presentations of new, cutting edge findings in anesthesiology science, as well as a compelling symposium on "Anesthesia and Consciousness." Finally, on Sunday afternoon there will be the second annual meeting for the "Initiative for Multidisciplinary Pragmatic Anesthesiology Clinical Trials (IMPACT)." The AUA is aligned to the Society of Critical Care Anesthesiologists (SOCCA) and International Anesthesia Research Society (IARS). These organizations' meetings will complement the AUA's program and many of their offerings are likely to be of

great interest to the AUA's members. All three meetings will offer excellent opportunities for AUA members to provide mentorship to early stage colleagues and to network with academic leaders from around the world.

Ultimately, whether or not we as a specialty will be successful in meeting the challenges we face will to a large extent depend on the vitality of the academic anesthesiology enterprise across the United States and internationally. The AUA is an honorific organization, which provides a home to leaders in academic anesthesiology. But the AUA should be so much more than just an honorific talk shop. The AUA must also be actively engaged in activities intended to safeguard anesthesiology as a dynamic academic medical specialty, with a vibrant community of successful scientific, educational and medical leaders. 

STAY THE COURSE

New evidence suggests that multiple, but perhaps not single, anesthetic exposures before age three are associated with behavioral and learning difficulties.

Considerable uncertainty still remains.

Investigators and funders need to stay the course by continuing to research longer and repeated exposures until they are fully understood.

Stay with us — stay the course — support our ongoing research at:

SmartTots.org/donate



SmartTots

Funding research to ensure pediatric anesthesia safety

 IARS
International Anesthesia Research Society

2019 Election Results and Candidate Diversity

2019 CANDIDATE POOL

Dear AUA Colleagues,

As you likely noticed, there was a striking lack of gender balance in the recent candidate pool for the 2019 elections. Members of the AUA have expressed concern, a concern we in AUA leadership all share. The AUA is committed to diversity in all of its forms and it is clear that we now must be proactive in recruiting diverse candidates to leadership positions. In order to understand and effect this change, we will be forming a Diversity Task Force. This task force will be composed of AUA members and will be charged with identifying barriers to diversity within the AUA leadership—or the AUA itself—and with providing recommendations for future action. Should you have a particular interest in this task force, please contact vabalama@iars.org. Women and those typically under-represented in academic medicine are especially encouraged to apply.

We look forward to working with you to ensure that the future of AUA leadership reflects the diversity of our specialty, our communities, and the patients we in anesthesiology serve.

—The AUA Council

2019 ELECTION RESULTS

Please welcome the following members to their new roles with the AUA.

COUNCILOR-AT-LARGE

Charles Michael (Mike) Crowder, M.D., Ph.D.

The Alan J. Treuer Endowed Professor and Chair Department of Anesthesiology and Pain Medicine, Adjunct Professor of Genome Sciences, University of Washington School of Medicine, Seattle, Washington

Dr. Crowder has been a member of the AUA for more than two decades and has served on the AUA Scientific Advisory Board as a member for eight years and as chair for five. During the last two decades Dr. Xie has been continuously funded by the NIH, first to study general anesthetic mechanisms and now, hypoxic cellular injury. For the last five years, he has served as chair of the Department of Anesthesiology and Pain Medicine at the University of Washington.

COUNCILOR-AT-LARGE

Zhongcong Xie, M.D., Ph.D.

Department of Anesthesia, Critical Care and Pain Medicine, Massachusetts General Hospital, Harvard Medical School, Charlestown, Massachusetts

Dr. Xie has been an active member of the AUA since 2008. Dr. Xie's research has been continuously supported by NIH T32, K12, K08, several R21s and multiple R01s, as well as other grants to perform the research in the investigations regarding perioperative neurologic dysfunction and the neurotoxic capabilities of anesthetics and surgeries. A member of the ASA international committee and the only ASA coordinator in the Chinese Society of Anesthesiology, Dr. Xie intends to accelerate the communication between the AUA and Chinese anesthesia organizations.

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TREASURER



Lena S. Sun, MD

E.M. Papper Professor of Pediatric Anesthesiology, Professor of Anesthesiology & Pediatrics, Executive Vice Chair of Department of Anesthesiology, Chief of Pediatric Anesthesiology, Columbia University, New York, New York

A member of the AUA since 1997 and AUA Councilor-At-Large since 2016, Dr. Sun's current research focuses on brain health in children who receive anesthesia and sedation in the OR and ICU. Nationally, Dr. Sun has held leadership roles in education and research and was appointed in January 2018 as the Medical Director of SmartTots, a public private partnership between FDA and IARS that is dedicated to promote research in children undergoing anesthesia and sedation. She also served as a board member of the Pediatric Anesthesiology Program Directors Association, is a founding board member of Wake Up Safe, and has been an active member of the Pediatric Anesthesia Leadership Council. At Columbia University Medical Center, Dr. Sun has served in educational and administrative leadership roles, which include program director of the ACGME-accredited pediatric anesthesiology fellowship program, Chief of Pediatric Anesthesiology and Executive Vice Chair of the Department of Anesthesiology.

CFAS REPRESENTATIVE



Robert Gaiser, MD, FASA

Professor and Chair, Department of Anesthesiology, College of Medicine, University of Kentucky, Lexington, Kentucky

As a Director for the ABA and a board member of the ACGME, Dr. Gaiser possesses a solid understanding of graduate medical education in Anesthesiology. He has served as the Chair of the Anesthesiology RC and, for the AUA, as the Chair of the EAB. Regarding the latter, Dr. Gaiser served for four years in this position and introduced a scientific approach to education through the EAB panels.

UPDATE YOUR INFORMATION IN THE AUA MEMBER DIRECTORY

Review your entry here:

<https://auahq.org/members/member-directory/>

If updates need to be made, please contact AUA
Member Services:

Phone: 240-646-7091

Fax: 240-846-6134

Email: AUA@iars.org

Scientific Discovery: The Heart of ASA's Mission and a Prominent Focus of ASA's Annual Meeting

Over the past several months, a group of prominent academic and research anesthesiologists have engaged in discussions regarding a perception that ASA has not adequately addressed the needs of the scientific and academic communities. This feeling is perhaps most pronounced in regard to the programming and structure of the ASA annual meeting.

As Chair of the ASA Annual Meeting Scientific Advisory Committee, with the assistance of George Kendall, ASA staff liaison coordinating communication between various academic groups and ASA, and the incredible support of many ASA member and staff leaders, I am pleased to announce the following enhancements to the 2019 ASA annual meeting:

- Adding top-tier printed poster sessions to the scientific program, which will allow for more co-mingling and facilitating interaction between people with complementary interests.
- Creating a centrally located "Research Corridor" near the printed poster presentation area.
- Creating a "Research Lounge" dedicated to networking and mentoring, with refreshments available.
- Establishing a clear quality standard for all abstracts accepted for the annual meeting, even if that means decreasing the number of abstracts accepted.
- Enhancing banners and signage to celebrate research accomplishments and to direct traffic to the research events.
- Providing physical space and scheduled times for moderated printed poster sessions on Saturday and Sunday to highlight the best science in our specialty. Just like at AUA meetings, those authors who are honored with an oral presentation will also be asked to present their work in the printed poster session *and* submit their poster on the electronic system so their work can be found by meeting attendees searching for particular research content.
- Electronic poster (eAbstract) presentations will be offered in moderated and non-moderated sessions this year. The new non-moderated session option will be available for authors who cannot or choose not to present in a moderated session. All eAbstracts will still meet a minimum quality standard, as poor-quality submissions will not be accepted.

We strongly encourage you to do your very best to attend the printed poster presentations to see the very best our specialty has to offer and also to provide feedback to the presenters. We



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American Society of
Anesthesiologists
Schaumburg, Illinois



**Jeffrey R. Kirsch,
M.D., FASA**

Oregon Health &
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understand that ASA annual meeting attendees are pressed for time, but we ask for your help to make research and discovery a prominent highlight and focus of the meeting.

ASA EMPHASIZING SCIENCE

Scientific discovery has always been and continues to be one of the ASA's strongest strategic pillars. ASA President Linda Mason wrote recently, "New science and cutting-edge research differentiate us from mid-level providers. We are the leaders in anesthesiology research" and "We will prioritize cultivation of partnerships with our academic communities in order to support scholarly academic productivity, to help promote more opportunities in terms of research grants and other resources, and to advocate for research funding at the NIH."

ASA is a member-driven organization, and it grows and changes in relation to the feedback it receives from its members. A strong contingent of the academic and scientific communities has brought their collective concerns to the ASA – and ASA is responding, both in the immediate term and in our long-range planning. In addition to the annual meeting, our commitment to science is underscored by so many of our initiatives and partnerships:

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Scientific Discovery: The Heart of ASA's Mission *continued from page 5*

Collaboration with the **Foundation for Anesthesia Education and Research (FAER)** has never been stronger. ASA contributes \$2 million per year to FAER to help nurture the next generation of investigators.

ASA continues to support **Anesthesiology** – one of the most respected peer-reviewed journals in medicine. *Anesthesiology* currently has the highest impact factor of any anesthesiology journal in the world.

Our collaborative effort with FAER and the International Anesthesia Research Society (IARS) is exploring ways to enhance research support and visibility in our specialty. An **IARS-FAER-ASA joint workgroup** will have its first summit at ASA headquarters this year, which will examine specialty-wide collaboration regarding support of fundraising, future summits and research at annual meetings.

One of ASA's most important functions is to **advocate for the specialty** in Washington, D.C., and beyond. The Perioperative

Brain Health Initiative has quickly become a leading voice in research on postoperative delirium and is helping to shape public policy in this important area. ASA is a member of the Ad Hoc Group for Medical Research, which supports increased funding for the NIH. Last year, ASA was a bronze sponsor of the Rally for Medical Research, which encourages congressional support for medical research.

These are just a few examples of ASA's recent activities aimed at improving the value of ASA membership for scientists. We are listening, and we are eager to do more, *but we need your support*. Please communicate with your research colleagues and urge them to become involved. Attend the scientific sessions at the annual meeting and provide feedback to the presenters. Be a mentor. Scientific discovery is the foundation upon which our specialty sits. We need your leadership and involvement if ASA is to fulfill its vision of enhancing the practice and securing the future of the profession for all. 

AUA CALL FOR MEMBER NOMINATIONS: NEW ONLINE NOMINATIONS FORM SUBMISSION DEADLINE EXTENDED TO APRIL 30!

QUALIFICATION FOR MEMBERSHIP:

ACTIVE MEMBERSHIP:

- An individual who occupies and has occupied a faculty position in anesthesiology in a medical school or its affiliated teaching hospital for at least twenty-four months, following completion of residency training in anesthesiology; or
- An individual whose work as an anesthesiologist, teacher, or investigator has demonstrated success in academic anesthesia or an individual who has shown a continued productive interest in and contribution to academic anesthesia.

AFFILIATE MEMBERSHIP:

- An individual who has made distinguished contributions to academic anesthesiology, but does not have a primary faculty appointment.

ASSOCIATE MEMBERSHIP:

- An individual who holds a faculty position in anesthesiology in a medical school or its affiliate teaching hospital and who has been approved for funding for a K or R-Type Grant from NIH, FAER, AHA, APSF, IARS, or non-U.S. equivalents.
- Must be nominated by a department chair.

NOMINATIONS FOR AUA MEMBERSHIP ACCEPTED ONLINE!

Steps to nominate a member using the online form:

1. Review the [AUA Nominations Guidelines](#) prior to submitting a nomination.
2. Write nomination letter and obtain nominee CV.
3. If nominating an Associate Member, obtain Current Research Funding information.
4. Complete the [AUA Nominations Form](#) and upload nomination letter and nominee CV.

NOTE: We are no longer accepting nominations via email to ensure we capture accurate information.

International nominees are welcome for all three membership types. To learn more about the nomination requirements, please see the [AUA Member Nominations Guidelines](#).

For questions or concerns, email Vivian Abalama, CAE, IOM at vabalama@iars.org

EAB REPORT: Anesthesiology Milestones 2.0 — An Update

BACKGROUND

The Accreditation Council for Graduate Medical Education (ACGME) introduced the concept of Milestones to the graduate medical education community in 2013. Milestones represent key developmental concepts that are used in resident and fellow outcomes-based assessment. The introduction of the Milestones was intended to help programs more effectively track resident and fellow performance over the course of their training. The Milestones also provided a concrete mechanism for programs to use performance outcome data as part of the annual program evaluation and improvement process. The Milestones are organized under the six general competencies of medical knowledge (MK), patient care (PC), interpersonal and communication skills (ICS), practice-based learning and improvement (PBLI), professionalism (PROF), and systems-based practice (SBP) that were originally introduced in 1999. Anesthesiology's specialty Milestones were implemented in 2014.

Since then, the graduate medical education community has been engaged in various types of research on the Milestones. A large number of validity studies have been carried out by several specialties. The ACGME is tracking the research and provides a bibliography of peer-reviewed articles, commentaries, editorials, and opinion pieces that specifically address the topic of the Milestones. The resources detailed in the bibliography are organized by National-Level Studies (Quantitative/Qualitative), Multi-Institutional Studies (Quantitative/Qualitative), Single Institution Studies (Quantitative/Qualitative), Medical School Milestones Studies (Quantitative/Qualitative), International Studies (Quantitative/Qualitative), and Commentaries/Editorials/Opinion Pieces. This bibliography is available on the Milestones webpage.

MILESTONES 2.0

At the onset of Milestone implementation in 2013, the ACGME committed to reviewing the process and content in three to five years. This review process, called Milestones 2.0, began in 2016. Anesthesiology has just started the process. The framework for the changes to Milestones 2.0 can be summarized into four areas. The four areas are: 1) selecting the Milestones Development Groups, 2) enhancing community engagement, 3) reducing complexity in the Milestones, and 4) providing additional tools and resources for program and sponsoring institution use. It is impossible to tell at this point the degree to which the Anesthesiology Milestones will change; the community will not know until the work is complete. As with most specialties, some components of the Milestones (e.g. subcompetencies), may stay the same and some of the specific language may change.

CHOOSING THE DEVELOPMENT GROUP

During the fall of 2018, Anesthesiology Program Directors and Coordinators received a communication from the ACGME announcing the start of the Milestone 2.0 process. This included information regarding an upcoming program director survey designed to elicit feedback on the anesthesiology Milestones, as well as a Call for Volunteers to participate in the review process. The communication contained links to a form for those who wish to volunteer to be a part of the Milestones 2.0 Development Group for Anesthesiology. The Development Group will still include representatives from the American Board of Anesthesiology, the Anesthesiology Review Committee, and the specialty Program Director organizations. It will also

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EAB REPORT:

Anesthesiology Milestones 2.0 — An Update *continued from page 7*

include individuals from a variety of regions, program sizes, and experience. The Development Group will also include a public member and at least one resident.

ENHANCING COMMUNITY ENGAGEMENT

The recent fall communication from the ACGME also included preparatory guidance for the Milestones feedback survey, which will be sent in January 2019. The feedback survey focuses on the current Patient Care and Medical Knowledge Milestones and will inform the Milestones Development Group during the review and revision process. The feedback survey is an important aspect of Milestones 2.0, as it is the primary mechanism for eliciting feedback directly from program directors. For each Patient Care and Medical Knowledge subcompetency there are six statements with responses for level of agreement (strongly agree, agree, disagree, strongly disagree). The statements include:

- (1) This set of Milestones represents a realistic progression of knowledge, skills, and behaviors;
- (2) The set discriminates between meaningful levels of competency;
- (3) The set should be edited;
- (4) The set should be deleted;
- (5) Additional content should be embedded in this set; and
- (6) I am able to evaluate my resident's skills on this set.

Data gathered from the survey will be used by the Development Group to determine which areas in the current Patient Care and Medical Knowledge subcompetencies need to be reviewed/revised.

REDUCING COMPLEXITY

The Anesthesiology Development Group will also be tasked with reducing complexity within the Milestones. Currently, Anesthesiology has 25 subcompetencies, many of which contain multiple developmental trajectories. To increase usability, the group will attempt to keep the number of developmental trajectories in each subcompetency to no more than three.

In addition, the Anesthesiology Development Group will be asked to incorporate the ACGME's newly-established "harmonized" Milestones for the remaining four competencies into the specialty Milestones. These harmonized Milestones were created by a multidisciplinary group and are available for use in Interpersonal and Communication Skills (ICS), Practice-based Learning and Improvement (PBLI), Professionalism (PROF), and Systems-based Practice (SBP). Through a process of

public comment conducted in early 2017, they were determined to be appropriate for all specialties. There are eleven sets of harmonized Milestones. ICS has three: Patient- and Family-Centered Communication (ICS1), Interprofessional and Team Communication (ICS2), and Communication within Healthcare Systems (ICS3). PBLI has two: Evidence-Based and Informed Practice (PBLI1) and Reflective Practice and Commitment to Personal Growth (PBLI2). PROF has three: Professional Behavior and Ethical Principles (PROF1), Accountability/Conscientiousness (PROF2), and Self-awareness and Help-seeking (PROF3). Lastly, SBP has three: Patient Safety and Quality Improvement (SBP1), System Navigation for Patient-Centered Care (SBP2), and The Physician's Role in Healthcare Systems (SBP3). Integrating the harmonized Milestones as a framework into the specialty Milestones will permit a meaningful review and understanding of some of the core principles of graduate medical education. Thus the second task of the Development Group will be to adapt the newly-integrated language of this framework into the Anesthesiology subcompetencies in order to meet the needs of the specialty.

TOOLS AND RESOURCES

The final addition to the Milestones 2.0 process will be new tools and resources that will be made available with the revised Milestones. The first resource will be a Supplemental Guide that the Development Group will create to provide programs with an explanation of the intent of each subcompetency, examples of what to look for at each level, appropriate assessment methods, and any other additional resources they think would be useful to programs. This will be made available online as a Word document so that individual programs can input their own assessment methods or examples to tailor it to their needs. Through the process of contextualizing the Supplemental Guide for each individual program, programs will also be creating a shared mental model that can be used by faculty and Clinical Competency Committees. An Implementation Guidebook is also being written to help with the transition to the revised Milestones.

Anesthesiology has just begun this work. The Development Group tentatively plans to meet up to three times during the process, which will take roughly a year to complete. Using that timeline, Anesthesiology programs can anticipate being able to review the draft version of the revised Milestones in late 2019; they will be finalized and ready for implementation during the 2020-21 academic year. The ACGME Milestones Team looks forward to working with the entire Anesthesiology community during this process. Any questions about the review and revision process can be directed to Milestones@acgme.org. 

SAB REPORT:

Galvanizing Neuroimmunity: Implication for Perioperative Neurocognitive Disorders

The nervous system connects to virtually every cell in the body, and regulates remote organ function via rapid and fine-tuned circuits. The vagus nerve, a major component of the bidirectional communication between the brain and peripheral organs, is one of the best-studied circuits for central/peripheral neuro/immune interactions (1). Tracey and colleagues were the first to describe the so-called “inflammatory reflex”, a vagally-mediated neuronal circuit that can provide information about the body’s inflammatory status to the brain in real time (2). The cellular machinery underlying this inflammatory reflex is complex, with several intermediate players including the celiac ganglion, splenic nerve axons, acetylcholine-releasing subset of T cells, and monocyte-derived macrophages (3). More specifically, acetylcholine released after vagus nerve stimulation (VNS) significantly inhibits pro-inflammatory cytokine release via mechanism(s) that require expression of the $\alpha 7$ subtype of nicotinic acetylcholine receptor ($\alpha 7$ nAChR) (4), and cytoprotective effects of VNS or cholinergic agonists have been demonstrated in a variety of acute and chronic inflammatory conditions including rheumatoid arthritis (5).

VNS is providing a selective and targeted approach to modulating inflammation including central nervous system (CNS) inflammation, or neuroinflammation, which contributes to many neurologic conditions (6). Mounting evidence implicates neuroinflammation in the pathophysiology of perioperative neurocognitive disorders (PND), which now encompass postoperative delirium and long-term postoperative cognitive dysfunction, especially as they relate to the acute-phase response to surgical trauma (7). PND has become a quintessential



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geriatric complication that affects up to 40% of older adults, and is associated with significant mortality and morbidity, reduced quality of life, and substantial healthcare costs (8). Patients with delirium and cognitive decline following anesthesia and surgery have high levels of inflammatory and neuronal damage biomarkers in different bodily fluids as well as increased neuroinflammation based on imaging of microglial reactivity (recently reviewed in (9)). Mouse models of PND have recapitulated similar changes in the (neuro)inflammatory response to peripheral surgery. Notably, using prophylactic agonists of $\alpha 7$ nAChR to harness cholinergic signaling prior to orthopedic surgery prevents trauma-induced neuroinflammation, endothelial dysfunction, and subsequent cognitive decline by inhibiting pro-inflammatory cytokine release and nuclear factor (NF)- κ B activation in monocyte-derived peripheral macrophages (10-13). Currently, minimally invasive approaches to VNS, such as ultrasound-guided needle electrode placement on the vagus nerve, are

also providing significant anti-inflammatory effects by modulating microglial morphology and delirium-like behavior in mice (14).

This is an exciting time for biomedical research when molecular medicine, bioengineering, neuroscience, immunology, and physiology are connecting to develop and implement technologies that can monitor and treat neuroinflammatory disorders. *Bioelectronic medicine* is rapidly establishing its footprint across different fields including anesthesiology and perioperative medicine (15). Mechanistically-driven studies to fully elucidate the translational potential for this growing discipline are needed, especially to better characterize neuro-immune interactions. For example, in addition to the well-defined actions of cholinergic signaling in regulating inflammation as part of the splenic anti-inflammatory reflex, acetylcholine is an important neurotransmitter that modulates synaptic plasticity processes involved in both hippocampal plasticity and memory. Neurons expressing choline acetyltransferase, an important enzyme in acetylcholine biosynthesis, play a role in controlling adult neurogenesis (16). Indeed, surgery can impair neurogenesis in different PND preclinical models. After orthopedic surgery in rodents, we found changes in synaptic plasticity and hippocampal long-term potentiation, with pain signaling being critically implicated in this response (17, 18). Recent evidence suggests that neurogenesis is also impaired in humans with Alzheimer’s disease; thus, its modulation in disease states may offer solutions to neurodegenerative conditions that do not yet have effective therapy (19). Since there are parallels between the pathologic features of neurodegeneration and



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AUA and FAER: Two Sides of the Same Coin

I've often heard it said that in research, "publications (or grants) are the currency of the realm." Currency in this phrase could be shorthand to mean a few things. The metric of value, for example. Or by how investigators are judged by promotions committees, our peers, and our specialty. Without grant support it's hard to envision a path for serious scientific contributions that will shape future understanding or clinical care in the specialty. And without sharing meaningful knowledge from research through peer reviewed publications, the work is wasted.

AUA and FAER provide a different kind of currency to a different aspect of the research realm, and we do so in such a complementary fashion that it is indeed as if we were two sides of the same coin. On the one side, AUA recognizes academic excellence, especially in research, and provides a community for discussion and sharing of exciting new knowledge and ideas with a goal to grow the size and impact of research in our medical specialty. As such, AUA elects new members annually and engages them through regular communications and at an outstanding annual meeting. AUA also impacts the specialty at large and all of medicine through informal and oftentimes formal participation in committees, task forces, and advocacy efforts of national societies and organizations seeking input from the academic research community.

On the other side of the coin, FAER also strives to grow the size and impact of research in our medical specialty, primarily by bringing new investigators to the specialty and providing support to the departments which are nurturing them at the beginning of their careers. As such, we support medical students to perform research in anesthesiology and offer both medical students and residents special sessions at the American Society of Anesthesiologists (ASA) annual



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meeting where they can learn more about research careers and present their own work. But primarily we support new investigators, partnering with their departments to provide protected time for 2 years and thereby helping them to establish, in a mentored environment, the tools and preliminary data to compete for extramural funding. If you will, FAER grants represent the currency in the realm of research career development while AUA membership represents the currency in the realm of research excellence in our specialty.

It's not surprising, then that AUA and FAER are so closely associated. For over 30 years, dating from FAER's inception, AUA has supported FAER monetarily, totaling nearly \$900,000 over this period. We are extremely grateful for this continued support. Individuals often play leadership roles in each organization. For example, the AUA President

for 7 of the past 10 years had previously served as a member of the FAER Board of Directors. Most years the Spring meeting of the FAER Board of Directors occurs on the day prior to the AUA annual meeting. Mentoring is a clear focus of both organizations and each sponsors scientific and mentoring sessions at national and international meetings.

The FAER Board of Directors embarked in 2016 on a strategic process to evaluate and update existing programs and establish new ones to better meet its mission. We began at the heart of FAER with a review of the Mentored Research Training Grant (MRTG), forming a task force which included several AUA members. The task force spent 5 months performing research and presenting the Board with a series of questions and possible answers based on the results. The Board made two fundamental changes. First, the amount of FAER support for the MRTG increased over 40% from \$175,000 to \$250,000 per grant. FAER recognizes that this still represents a minority

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of the total support for research resources and the guaranteed 75% protected time from clinical duties that is required for these clinicians. Nonetheless, the increased FAER funding for the MRTG it is now a larger minority of the total cost and we hope that this increased monetary support allows more departments to participate in this program. We are encouraged by the large increase in applications received for this award during the 2019 Spring cycle, to be reviewed in April 2019, and take it as a sign that this change was needed and may succeed in this aim.

FAER MRTG: Application numbers in the year before and first year of change in amount of grant support

	\$175,000 Award	\$250,000 Award
Fall Applications	10	14
Spring Applications	14	20

The second change to the FAER Mentored Research Training Grant approved by our Board was to take a page out of the AUA playbook. We recognized that AUA succeeds by creating a needed space that serves the academic community and that many other research career development granting organizations have fostered a similar community of awardees through a self-standing meeting. We interviewed leaders of such organizations, including the National Institute on Ageing, the Rita Allen Foundation, the Robert Wood Johnson Fellowship, and the Alzheimer’s Association, learning what has and has not worked for them. The FAER Board approved creation of an annual MRTG meeting beginning in July 2019 in Washington, DC. It will focus on creating a network which, like the AUA, may last for many years as individuals advance in their careers. The first meeting will be limited to the 20 currently active FAER MRTG awardees with the intent to evaluate and likely expand this program in coming years.

In 2018 the FAER Board used a similar task force-based process to review the medical student and resident programs and made several changes which go into effect this year. Most importantly, 50 medical students and a similar number of

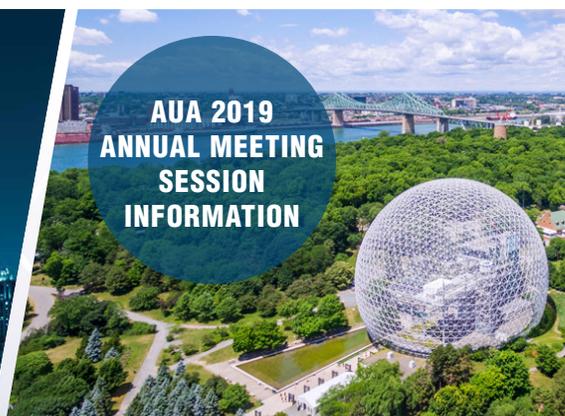
residents will present their own research as part of a day of research on Sunday at the ASA annual meeting. The morning will be devoted to early-career development discussions geared towards these FAER-supported individuals and the early stage anesthesia scholars (eSAS) group, who participated in creating the program. The afternoon will consist of PAPER poster presentations by medical students followed by an ice cream social break and then poster presentations by residents. We hope you will stop by throughout the day, but especially when these young individuals are presenting which, for many of them, will be their first scientific presentation and for many of whom will be doing so under mentorship of AUA members!

A Day for New Researchers: Schedule at a Glance

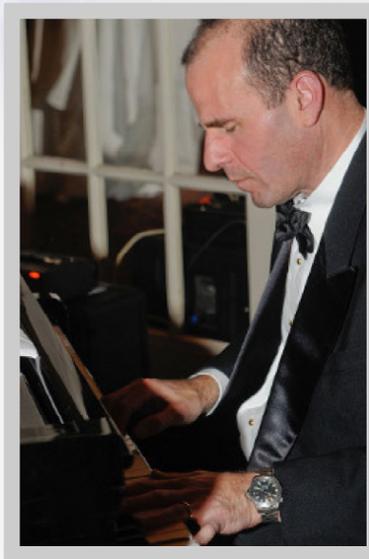
FAER/eSAS sessions.....	8:00am - 11:00am
Break.....	11:00am - 12:30pm
Medical Student Posters	12:30pm - 2:00pm
FAER/eSAS session	2:00pm - 3:30pm
Networking Coffee and Ice Cream Break	3:30pm - 4:00pm
Resident Posters.....	4:00pm - 5:30pm
Poster Awards	5:30pm - 5:45pm

We also decided to expand our medical student program by inviting up to 12 students performing a summer of research in anesthesiology departments through their institution’s NIH T35 grant and by attending the MD/PhD National Student Conference to present key research questions in our specialty.

So as you can see through all of our related activities, FAER and AUA really are two sides of the same coin. A key currency of the realm of research in anesthesiology. To learn more about FAER and what we are doing, visit www.FAER.org. 



The William L. Young Research Award – Remembering an Inspirational Anesthesiology Researcher and Mentor



WILLIAM L. YOUNG, MD
(1954 – 2013)

The Society for Neuroscience in Anesthesiology and Critical Care (SNACC) honors the legacy of William L. Young, MD with a research award for junior neuroscientists that bears his name. The award, which is presented annually, commemorates a groundbreaking clinician-scientist and role-model who was a longstanding active member of both SNACC and the AUA, and mentor and friend to many.

Dr. Bill Young was a pioneer of cerebrovascular research and world-renowned expert on arteriovenous malformations (AVM), who authored more than 340 peer-reviewed publications throughout his career. His ground breaking work transformed our understanding of the pathophysiology of neurovascular disease. He was a visionary who saw that complex questions are best answered by multidisciplinary teams and possessed the skill to bring together diverse groups of scientist bound by a shared passion. He partnered with experts in the fields of neurology, neurosurgery, neuroradiology, molecular biology, bioengineering, and genetics to target questions of cerebrovascular pathology throughout his career. Partnering with researchers from neighboring fields and creating spaces for them to exchange ideas was a pillar of Dr. Young's success as a scientist and as a mentor. Similarly, he did not allow himself to be bound by the traditional topics of anesthesiology research and dared asked big questions and propose bigger answers. While his early seminal work described the pathophysiology of reperfusion hyperemia after treatment of AVMs, he later expanded his pursuits to define the genetic underpinnings and environmental factors driving biogenesis of vascular malformations.

Identifying biomarkers to predict disease progression was a further step on his quest to target the disease itself, rather than improve its management.

Dr. Young attended medical school at Indiana University and completed clinical anesthesia training at New York University Medical Center. After completing clinical and research fellowship training he began his cerebrovascular research at Columbia University. He later moved to UCSF, where he was the James P. Livingston Endowed Chair and Vice Chair for Research in the Department of Anesthesia and Perioperative Care and founder and director of the Center for Cerebrovascular Research. Bill Young was President of SNACC 1996 – 1997. His friends and colleagues often described Dr. Young as a renaissance man, as he excelled at so many seemingly unrelated tasks. In addition to his many academic achievements, he was an accomplished jazz pianist who found time to perform throughout his busy career. Dr. Young served the larger scientific community as a peer reviewer and chair of multiple study sections for the National Institutes of Health and on the editorial boards of multiple journals, including *Stroke*, *Anesthesiology*, and the *Journal of Neurosurgical Anesthesiology*.

Dr. Young was continuously funded by the NIH throughout his career and held multiple independent awards and program project grants. As continues to be the case for many promising anesthesiology researchers, he received an early start with an award from the Foundation for Anesthesia Education and Research. The American Society of Anesthesiologists later honored him with the Excellence in Research Award (2009).

continued on page 13

The William L. Young Research Award *continued from page 12*

Dr. Young distinguished himself as a mentor and adviser to scores of anesthesiology trainees and junior faculty, many of whom went on to distinguished careers at universities throughout the US and worldwide. He was a mentor on multiple NIH K and American Heart Association scientist development awards and was recognized by the NIH for his substantial mentoring with a K24 award in 1999.

Bill Young believed that anesthesiologists should aim to study the diseases they encounter in order to eliminate them. The William L. Young Neuroscience Research Award established by SNACC in 2016 honors his legacy by supporting promising junior academic physicians and scientist and their projects across the breadth of Neuroscience in Anesthesiology and Critical Care. The inaugural award in 2016 went to Miles Berger, MD, Assistant Professor of Anesthesiology at Duke University, for his research focusing on postoperative cognitive dysfunction and delirium. Dr. Berger currently holds a K76 career development award from NIA for work related to neuroinflammation in postoperative cognitive dysfunction. Andrew E. Hudson, MD, PhD, Assistant Professor-in-Residence at the University of California Los Angeles, received

the William L. Young Award in 2017 to support his project investigating burst suppression in the cortical microcircuit. Dr. Hudson received a K08 award from NIGMS to investigate network perturbations: specificity of general anesthetic actions on interneuron subpopulations. The most recent William L. Young Award presented in 2018 supports Dr. Umeshkumar Athiraman, Assistant Professor at Washington University, for his investigation of anesthetic conditioning and secondary brain injury after subarachnoid hemorrhage. Dr. Athiraman has also receives research support from the Brain Aneurysm Foundation.

The fund supporting the William L. Young Neuroscience Research Award was initiated with a contribution by SNACC. It has continued to grow through individual donations. The initial awards were limited to \$5000 in research support for the recipient. We hope to be able to provide larger awards that offer more substantial support in future years, as additional donations expand the available funds.

Tax deductible donations to the William L. Young Neuroscience Research Award that will support future leaders in neuroscience discovery can be made through [SNACC](#). 

SAB REPORT:

Galvanizing Neuroimmunity: Implication for Perioperative Neurocognitive Disorders *continued from page 9*

delayed neurocognitive recovery, it is plausible for acute synaptic dysfunction, and perhaps loss of neurogenesis soon after surgery-induced neuroinflammation, to contribute to prolonged memory decline. Further studies are warranted to address these questions, and to determine whether bioelectronic approaches may be used to modulate these endpoints in PND. Recent data from elective surgical patients suggest that acetylcholinesterase activity is higher in patients with delirium, supporting the potential of altered cholinergic regulation in treating or preventing postoperative delirium (22). Further, patients in perioperative or critical care are, to varying degrees, unable to maintain homeostasis including body temperature, heart rate, blood pressure, and a wide range of other organ functions that regulate their internal physiology, due to combinations of therapeutic interventions (eg, surgery and anesthesia) and disease. Decreased vagus nerve activity is also evident in patients with acute inflammatory conditions (24, 25) as well as in older patients (26, 27). Thus, boosting cholinergic signaling within the vagal reflex pathway has the

potential to provide a novel strategy for reducing inflammatory conditions, including PND.

The possibility of regulating a predictable injury, such as aseptic trauma, is providing new frontiers for applying bioelectronic strategies to curtail excessive inflammation. The ability to tightly control the dose, intensity, and duration of electrical impulses via VNS holds promise for delivering better therapeutic anti-inflammatory outcomes that may be personalized to individual patient needs. The atmosphere is electric, and neuromodulation may soon provide more targeted treatments that are urgently needed for common perioperative complications. 

DISCLOSURES:

Part of this work in the Terrando laboratory is funded by the National Institute of Aging. NT is Associate Editor for Bioelectronic Medicine, Springer-Nature publishing.

Dr. Simon Gelman: A Person of Integrity and Honor, a Mensch



DR. SIMON GELMAN

Dr. Simon Gelman was born in Leningrad, Russia in 1936. His family lived under the rule of Joseph Stalin until 1953. Despite dealing with the difficulties of World War II, his Jewish family faced their own difficulties in a communist country. The reality of discrimination was a common thread that entwined and shaped Gelman's life.

Before the Russian Revolution in 1917, Jewish people were segregated into small towns and villages in the western Soviet Union, "shtetls". As a result of the Russian Revolution, cities were left desolate. Jewish people could, and many did, including Gelman's parents, who were very young then, move to Leningrad. During the 1920s-1930s, capitalism was frowned

upon in the Soviet Union. Because Gelman's grandparents were small business owners and had others working for them, their children, Gelman's parents, were not given the same opportunities in education as was others.

Just before World War II, government sponsored anti-Semitism began, after Hitler and Stalin signed an agreement. This agreement was accompanied by a secret joint agreement that would lead to the extermination of the Jews. This agreement was never openly published or recognized by the Soviet or even later Russian governments. Stalin conducted extreme

anti-Semitism despite the WW2 agreement and had planned complete displacement of the Jews to Siberia. Calculation at that time suggested that half of them would die from cold on the way. The last event, 1952-1953, was the trial of Jewish doctors "murderers in white coats" they were called. However, Stalin's death on March 5 saved them.

Though education was available to all individuals in the Soviet Union, it was limited by quotas. Thus, in areas with a larger Jewish population only a small percent were given the opportunity for an education. Education in engineering was considered prestigious and often difficult to obtain for those who were Jews. Medicine was a position of servitude with very limited resources. Despite this adversity, Dr. Gelman was able to receive an education with medical training at St. Petersburg State Medical School.

In medical school, he met his now wife of 60 years, Maria. As is true for all residents of the Soviet Union, after receiving a government sponsored education, one is expected to provide three years of community service. Gelman, because he was Jewish, was sent to a community west of the Ural Mountains, surrounded by concentration camps, Syktyvkar. Syktyvkar was on the westside and Siberia was on the eastside of the Ural Mountains. His devoted wife, life companion, went with him. They were there from 1959-1962.

While in Syktyvkar, Maria was instrumental in helping her husband overcome his speech impediment, stuttering. Overcoming his insecurities, related to his speech impediment, transformed Simon Gelman. The once insecure introvert became a confident extrovert. Though Gelman was wanted as a surgical officer by the Chairs in both the Departments of Surgery and Departments of Obstetrics and Gynecology in 1959; these positions were not approved though, because he was Jewish. After completing his three years of government service, Gelman could not find a job as a surgeon in 1962. In 1963, Gelman pursued a career in anesthesiology, which at the time was a part of the Department of Surgery.



**Maria Gelman and
Dr. Gelman in Japan in 1990**



**Dr. Gelman at three years
old with his grandfather
Joseph Gelman**



**Lisa Wise-
Faberowski,
MD, MS, FAAP**
Stanford University
Stanford, California

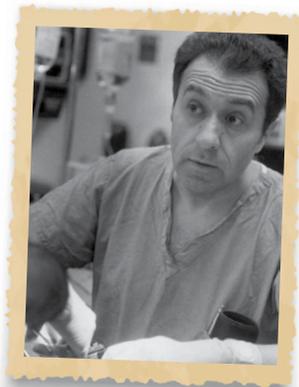
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In 1973, during the Yom Kippur War, he immigrated with his wife to Israel. In 1976, he was recruited to Case Western University, Cleveland, Ohio by Dr. Edward Ernst. He repeated his anesthesia training at Case Western University in Cleveland, Ohio. However, Dr. Ernst was recruited to be the Department Chair at the University of Alabama in 1977. Gelman followed Dr. Ernst and completed his anesthesia training at the University of Alabama, Birmingham in 1979. His perseverance, despite adversity, is not withstanding. It was a steep learning trajectory for Dr. Gelman, as English was not his native language and the process of research funding in the United States differed from the Soviet Union. In the Soviet Union, research funding came from the president of the medical school.

In his 14 years at the University of Alabama, he became Professor of Biophysics and Anesthesiology, published several manuscripts in transplantation, the effects of aortic cross-clamping and liver disease. He was NIH funded as a principal investigator from 1985-1990. Gelman was also the Vice Chairman of research. According to NIH printout at that time, he brought the level of departmental NIH funding to second in the nation (\$2,000,000), Johns Hopkins being first (\$5,000,000) in anesthesiology. In 1989, when Dr. Ernst resigned, Gelman became the Chairman of the Department of Anesthesiology at the University of Alabama. During his 3 years as Chair, he faced difficulties in the recruitment of scientists as The University of Alabama was an isolated institution.

Through a national search in 1992, Dr. Simon Gelman became the first Covino-Vandam chair of anesthesia at the Brigham and Women's Hospital. The Brigham and Women's Hospital Department of Anesthesiology had a long succession of Chairman, who have made a significant impact to the specialty of anesthesia. Dr. Leroy David Vandam was chairman from 1954-1978 and Dr. Benjamin Gene Covino was chairman from 1979-1991. The contributions to the specialty of anesthesia by these two individuals led to the establishment of the first endowed Chair of Anesthesia at Brigham and Women's Hospital. Though, the endowed chair provided some seed money, the hospital provided a large share of the funds which allowed Gelman to recruit young bright scientists.

Adapting to the elite culture of Boston was not difficult, though not as straight forward as Alabama. Brigham and Women's was part of the Harvard teaching system. Harvard was one of six medical schools within the state. There was a lot of competition for funding with little assistance from the state of



Simon Gelman, M.D., Ph.D., F.A.N.Z.C.A., in the mid-1980s conducting an experiment.



This portrait was contracted by the BWH and the Department of Anesthesiology, Perioperative and Pain Medicine at the time Dr. Gelman stepped down from the chairmanship in 2002. The portrait was painted by his very good friend, well recognized artist, Marc Klionsky, and published in a book about Mr. Klionsky. In the background of the portrait is Dr. Gelman's grandfather, who lived in a shtetl and worked in a mill; a reminder of Dr. Gelman's roots.

Massachusetts. Physician salaries were low and competition with higher salaries that could be achieved in private practice was difficult. During his tenure, ending in 2002, Dr. Gelman was the first to conceptualize translational research in a Department of anesthesia. Gelman was able to bring basic science into a clinical reality through a collaboration of basic scientists with anesthesia clinicians. With his participation came the formation of the Brigham and Women's Physicians Organization and a merge with Massachusetts General to form Partners Healthcare.

Dr. Gelman is the third largest lifetime donor to the Foundation for Anesthesia Education and Research (FAER). His dedication is a reflection of not only of his belief in the pursuit of excellence in anesthesiology research, but also his humble beginnings. At the age of 82, he is a devoted husband, father of two sons and the grandfather to six grandchildren. Though he has more than a 130 visiting professorships and more than 200 publications, he continues working full-time. He has been the editor of several well-known anesthesia journals and has a named lecture and fellowship at the Brigham and Women's Hospital. Both at the University of Alabama and the Brigham and Women's Hospital has a named endowed chair.

Most of all he remains the humble man, the Mensch, who either directly or indirectly has influenced the lives of many of us in the field of anesthesiology and medicine. 

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CALL FOR ARTICLES FOR ISSUE 2 OF AUA UPDATE 2019



If you have an idea for an article, an announcement, or an opinion on a recently published article, please submit your proposal/article to Dr. Lisa Wise-Faberowski, MD, lwf1212@stanford.edu before June 21, 2019. If your article is selected, we will contact you for editing and formatting.