

UPDATE

Association of University Anesthesiologists UPDATE | 2019 | Issue 2

PRESIDENT'S MESSAGE

The Association of University Anesthesiologists (AUA) is an honorific organization, which provides a home to leaders in academic anesthesiology. Although it is honorific, then AUA is also 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. 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 (eSAS).



Michael S. Avidan, MBBCh

President, AUA
Washington University
School of Medicine
St. Louis, Missouri

For anesthesiology to continue to flourish as a vibrant medical specialty, it is essential that as a field we contribute meaningfully to science and knowledge generation; that we help train tomorrow's academic leaders and scientists; that we are trailblazers in the education of medical students, residents, fellows and other clinicians; that we deliver outstanding, innovative and efficient preoperative assessment and optimization, perioperative care, pain management, critical care, and peripartum care; and that we collaborate with leaders in other specialties in transforming healthcare and in driving

innovation. Within the context of the challenges and shifting priorities in medicine, the leadership of the Association of University Anesthesiologists held a strategic planning session at which we revisited the Vision and Mission of the AUA, and mapped out the priorities for the AUA over the next few years.

I presented the suggested new Vision and Mission Statements of the AUA at our business meeting in Montreal

this year, and there was fruitful discussion and constructive suggestions. Several AUA members subsequently helped to refine these Statements further. It was agreed at the business meeting that the modified Vision and Mission Statements of the AUA would be included in a newsletter and would also be presented to the AUA membership for endorsement via an electronic ballot. We plan to follow these steps.

The proposed Vision and Mission Statements of the AUA are presented below. Many AUA members have helped to craft these, and I believe that they capture both the spirit of our association as well as the zeitgeist in academic medicine and healthcare. I hope that all AUA members will enthusiastically endorse and embrace these Statements.

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AUA ANNUAL MEETING 2019 PICTURES



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AUA Task Force Survey

In an effort to increase representativeness among our members, to promote diversity and inclusivity, and to engage members across the academic community, AUA leadership initiated earlier this year a task force on diversity and inclusivity. The task force members met during the annual AUA meeting in May 2019 and discussed next steps.

As a result of that meeting, we will be conducting a survey of the current AUA members to gather insights and feedback on the society, its offerings, and on ways to increase membership diversity and inclusivity. In the next few days, you will receive an email with a link to complete the online, anonymous survey.

The results of this anonymous survey will be discussed during the AUA task force meeting at the upcoming ASA annual conference in October 2019.

We kindly ask that you take the time to complete the survey and provide us with your input. Your participation is key to the success of our mission.



PRESIDENT'S MESSAGE *continued from cover*

The Vision of the Association of University Anesthesiologists (AUA) is the advancement of academic anesthesiology as a dynamic specialty that makes substantive contributions to medicine, science, and society.

The Mission of the AUA is to promote excellence in academic anesthesiology through

- mentorship of academics in anesthesiology;
- promotion of diversity and inclusion in academic anesthesiology;
- facilitation of professional growth throughout the careers of educators, academic leaders, and researchers in anesthesiology;
- organization of an outstanding annual meeting and provision of networking opportunities to academics in anesthesiology.

Apart from drafting new Mission and Vision Statements, we discussed strategic priorities and elaborated action items that should be implemented in order for us to progress meaningfully towards our aspirational goals. These items are summarized as follows:

1. The AUA membership will vote on the proposed updated Vision and Mission Statements.
2. The EAB and SAB should look at how the meeting furthers the revised mission of the organization. The meeting should be reconceptualized according to our new Mission and Vision.
3. The AUA should solicit input from academic anesthesiology Chairs to define key attributes and skills of a leader in academic anesthesiology, in order to inform changes in the meeting that will cater towards leadership development.

4. There should be a leadership meeting including the IARS, AUA, and FAER. The purpose for such a meeting would be to consider how these organizations can best collaborate and provide complementary service to academic anesthesiology.
5. The AUA Council will create a working group with representation from the Council, eSAS, EAB, SAB, and also "LAB" (Leadership Advisory Board) for 2020.
6. The council will revisit the associate membership requirements and will add an associate member to the council. An associate member will also be added to the meeting planning groups.
7. The Council needs to clarify criteria for educational admittance to the membership. There should be well defined and publicized criteria for educational scholarship.
8. The Council will explore developing relationships with other comparable honorific organizations in other medical specialties.

I believe that there is today tremendous energy, excitement and opportunity in academic anesthesiology. This is an important time for the AUA to provide leadership and to inspire and mentor tomorrow's leaders. I hope that many of you will embrace the challenges and will work with us to strengthen anesthesiology as a vibrant scientific specialty. I sincerely thank all members of the SAB and EAB, as well as the hard working and dedicated AUA Council members for your time and contributions. I look forward to seeing you all at the AUA meeting on May 14th, 2020 in San Francisco.

Facilitate
Education and
innovation

Huge benefit
to our smallest
of patients

Make anesthesia
and sedation
safer for children
around the world

inform future
pediatric
anesthesiology
endeavors

immediate &
positive impact
to public health

Timely
communication
of scientific
findings

Latest findings
straight to the
public domain

Bridge
pre-clinical/
clinical research
gaps

Leverage
resources, expertise,
best practices and
know how

donate today at
smarttots.org

SmartTots

 IARS
International Anesthesia Research Society



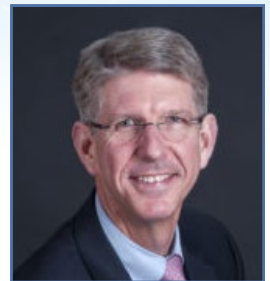
AUA ANNUAL MEETING 2019

EAB REPORT

The Educational Advisory Board (EAB) was delighted with the 2019 AUA/IARS/SOCCA annual meeting held in Montreal, Canada this past May. Numerous features contributed to the success of the meeting.

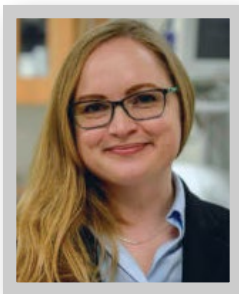
EAB MEMBERSHIP

The EAB welcomed 4 new members from the AUA membership (Drs. Edward Nemergut, Barbara Jericho, Cynthia Lien and Susan Martinelli) and a new Early-Stage Anesthesiology Scholars (eSAS) representative, Dr. Lara Crock. At the same time, we appreciate the contributions and leadership of Drs. Bob Gaiser, Tony Anderson, May Pian-Smith and Matt McEvoy who have helped lead the EAB and whose terms have ended. We are extremely grateful for their contributions to the EAB over these past years. This summer we extended a call for membership with the goal of adding 4 new members, each to serve a 3-year term. Our current membership, including the Chair and eSAS representative is 50% female. 📖

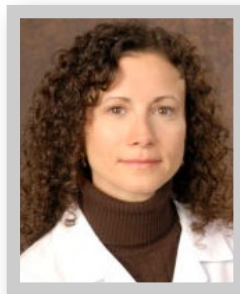


**Keith Baker,
MD, PhD**

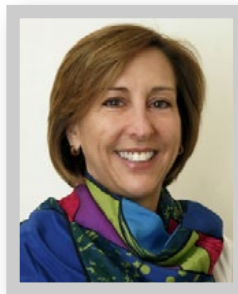
Chair, Educational
Advisory Board
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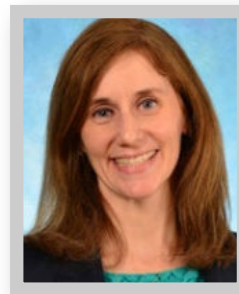
Lara W. Crock MD, PhD
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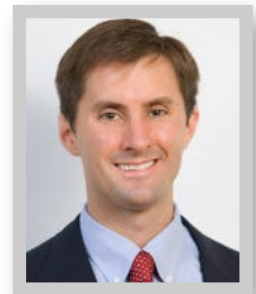
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THANK YOU FOR YOUR SERVICE



**Robert Gaiser,
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**T. Anthony Anderson,
MD, PhD**
Harvard Medical
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Boston, Massachusetts



Matthew McEvoy, MD
Vanderbilt University
Nashville, Tennessee



May Pian-Smith, MD
Massachusetts General
Hospital, Harvard
Medical School
Boston, Massachusetts

EAB Panels from the 2019 AUA Annual Meeting

The EAB is striving to bring evidence-based education and up-to-date science about education to the AUA membership. This year we had two outstanding panels that delivered on that goal. The morning panel, **“Self-Regulation and Its Role in Education and Performance”**, featured 3 presentations.

Daniel Saddawi-Konefka, MD, MBA, Massachusetts General Hospital, presented **“Self-Regulation: What Is It, and How Does It Help Education and Performance?”**. The take home messages from the presentation were that unless we exert self-control, all our behaviors are produced by habits (automated responses to situational cues) and impulses. Furthermore, self-control is a limited resource. When self-control is depleted, we are more likely to resort to habit and impulse. To preserve self-control, we can pre-plan alternative responses to situational cues: “If [situation], then I will [thought/action]”. These “If situation-then-action” couplings are known as “implementation intentions”, these strategies have been empirically shown to increase goal-directed behaviors and goal attainment.

Sara Goldhaber-Fiebert, MD, Stanford University School of Medicine, presented **“The Interaction between Psychological Safety and Self-Regulation”**. The take home messages from the presentation were that psychological safety is a shared belief that the team is safe for interpersonal risk taking. This group-level concept of psychological safety is often the top predictor that differentiates expert teams, correlating with key outcomes across many industries for improved safety, efficiency, employee wellness, customer satisfaction, and

profits. While individuals have a limited supply of self-regulation, their group level of psychological safety can help by acting as an enabling ‘step stool’ – e.g. inspiring them to ‘speak up’ in a safe setting, or it can harm – e.g. requiring huge individual effort (self-regulation) to ‘speak up’ in an unsafe setting. To increase psychological safety on your teams, leaders can take simple actions to invite input and genuinely thank people for their input – even if they disagree! A team of (individual) experts does not necessarily form an expert team, and therefore a group of experts is often insufficient for ensuring optimal healthcare for patients. Team-members’ perspectives are like different views of a 3D cone. The anesthesiologist may see a triangle (side view) while the surgeon and nurse may both see similar versions of a circle (top and bottom views). By combining our viewpoints, we can ‘reconstruct’ the real situation which is none of these flat shapes but rather a 3-dimensional cone.

Keith E. Littlewood, MD, University of Virginia School of Medicine, presented **“Managing and Reducing Cognitive Load for Better Education and Performance”**. The take home messages from the presentation were that metacognition is a neglected topic in most of our curricula for medical students and residents. Tomorrow’s physicians need to learn how they learn and better understand how they think. Cognitive load theory includes a model of the cognitive architecture that includes a very limited working memory. This is an important limiting resource in our cognitive function. There are three types of cognitive load. Intrinsic load is innately required by the task for the level of learner, extrinsic load is unnecessary

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EAB Panels *continued from page 5*


and non-productive, and germane load is that which results in revision, reinforcement, construction and/or automation of schema. Germane load leads to learning. We do not become experts by expanding our working memory, but by creating a single element (schema) from what had been many individual elements that required attention as a novice. Much of cognitive load theory may be intuitive yet parts are surprising. For example, asking a learner for a few likely diagnoses is associated with less cognitive load for the learner than asking for the specific solution.

The afternoon panel, **“The Science of Effective Feedback”**, featured 3 presentations.

Rebecca D. Minehart, MD, MSHPEd, Harvard Medical School; Massachusetts General Hospital, presented **“Goal-Oriented: Construing Feedback as Useful”**. The take home messages from the presentation were that a learning orientation is the goal of improving one’s performance using the self as the comparison (personal improvement) and a performance orientation is the goal of improving one’s performance compared to others. Holding a learning orientation is associated with deeper learning and less burnout. Leaders can help their teams become more learning oriented if they set the example of responding to setbacks with a learning or mastery orientation where they focus on personal growth and not on comparisons to others.

Aranya Bagchi, MD, Harvard Medical School, presented **“The Neuroscience of Negative Feedback and Why We Can Become Deaf to It”**. The take home messages from the presentation were that we need feedback to improve

performance. Effective feedback points out shortcomings that we are often unaware of, and thus is essential to the development of expertise in a field. An awareness of the processes of thought (or metacognition) is important to allow identification of maladaptive thought patterns and enable their correction. However, we have a deep seated “optimism bias” that may have strong biologic underpinnings, that make us less receptive to feedback that disagrees with our (generally positive) view of ourselves. Recent research has provided evidence for the involvement of specific neurotransmitters that influence our optimism bias, as well as the role of discrete areas in our brain that appear to be important in maintaining this bias. To aid in the development of true expertise, both the provider and recipient of feedback need to be aware of these hardwired patterns of thought.

Douglas E. Raines, MD, Massachusetts General Hospital, presented **“So, Your Paper Was Rejected: A Practical Example of Managing Negative Feedback”**. The take home messages from the presentation were that rejection is common with high impact journals which have rejection rates as high as 90%. The key is not to be discouraged by rejection and to let the negative emotions subside after reading the rejection letter but before responding to the reviewer’s comments. He recommends reading the review letter to determine whether you can adequately respond to the reviewer’s comments. If so, be courteous and respond to all the comments. If not, he also recommends that authors use the reviewer’s comments to improve their manuscripts and resubmit to another journal comforted by the knowledge that many initially rejected manuscripts are ultimately published. 

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

AUA ANNUAL MEETING 2019

SAB REPORT

AUA Symposium: Anesthesia and Consciousness

AUA SYMPOSIUM

Anesthesia and Consciousness: How Investigations of the Anesthetized State Shape Current Concepts of Consciousness

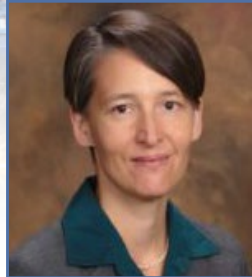
Moderated by Ines P. Koerner, MD, PhD, Oregon Health & Science University, AUA Education Chair

Once again, AUA sponsored a science-focused, well-attended symposium at the IARS annual meeting. This year's symposium "Anesthesia and Consciousness", which was presented in Montreal on May 18, 2019, brought together an outstanding panel of experts to discuss how investigations of the anesthetized state inform our understanding of the nature and substance of consciousness. Audience members were treated to reviews of the cortical correlates of consciousness and of sensory awareness, learned about the neurobiology of arousal, and were introduced to the use of network motifs to assess awareness in disorders of consciousness.

The Controversial Correlates of Consciousness

George A. Mashour, MD, PhD, University of Michigan Medicine

George Mashour, Professor of Anesthesiology, Neurosurgery and Psychology and Founding Director of the Center for Consciousness Research at the University of Michigan, began the symposium with a discussion of the neural correlates of consciousness. He reviewed the current understanding that an anterior cortical network ignites the conscious brain, while anesthetics inhibit the functional connectivity between frontal and parietal brain regions. Dr. Mashour's group uses reverse microdialysis of cholinergic agents to probe the contribution of cholinergic pathways to consciousness and arousal. Acetylcholine levels are reduced in both the prefrontal and posterior parietal cortex during sevoflurane anesthesia. Introducing the mixed cholinergic agonist carbachol into the prefrontal cortex of rats anesthetized with 1 MAC sevoflurane increases cerebral acetylcholine levels and recovers the animals' righting reflex (a measure of arousal), while carbachol does not have the same effect when introduced into the posterior parietal cortex. Systemic application of a sub-anesthetic dose of ketamine during isoflurane general anesthesia increases acetylcholine levels in the prefrontal and paradoxically accelerates emergence from anesthesia, as



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MD, PhD**

Chair, Scientific
Advisory Board
Oregon Health &
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defined by return of righting reflex, despite more animals achieving an EEG burst suppression pattern, which further supports that cholinergic transmission in the prefrontal cortex facilitates emergence from anesthesia.

Consciousness, Sensory Disconnection and Anesthesia

Robert Sanders, MBBS, PhD, FRCA, University of Wisconsin School of Medicine and Public Health

Dr. Robert Sanders, Assistant Professor of Anesthesiology at the University of Wisconsin, next discussed sensory disconnection and awareness. He defined disconnected consciousness, or sensory disconnection, as a state of conscious

experience that is not driven by the external world, as is experienced during dreaming. Dr. Sanders emphasized that unresponsiveness during anesthesia is not necessarily equivalent to unconsciousness, but rather may represent sensory disconnection. He suggested that disconnected consciousness, i.e. dreaming, may be acceptable during general anesthesia as long as there is no awareness of the patient's surroundings. Interestingly, patients may not necessarily expect complete lack of awareness during general anesthesia, as long as they do not remember: While 96% of survey respondents expected to be unconscious during general anesthesia, about 40% would accept awareness if there were no recall later. Dr. Sanders employs the isolated forearm technique to assess awareness during general anesthesia. This technique uses a tourniquet to prevent neuromuscular blockade of a forearm during a balanced general anesthesia and then asks the patient to squeeze the examiner's hand while anesthetized and indicate whether they experience pain. Dr. Sanders' work suggests that episodes of awareness without recall may happen in up to 5 – 35% of general anesthetics while 6% of patients in this highly controlled setting can recall being asked to do things while anesthetized. In contrast, spontaneous occurrence of awareness with recall after anesthesia is much less frequent, affecting only 0.1 – 0.2% of all general anesthesia cases. Current monitoring techniques are not able to reliably detect awareness or predict recall. The anesthetized state e.g. during propofol anesthesia is reliably characterized by a frontal alpha/delta EEG pattern, yet awareness can at times

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SAB REPORT *continued from page 7*

be detected using the isolated forearm technique when this pattern is present. A better understanding of the anesthetized state and the role of sensory disconnection is thus necessary to present awareness. Dr. Sanders' group is working to identify techniques that can differentiate sensory disconnection from unconsciousness. EEG response to transcranial magnetic stimulation (TMS) appears a promising tool, as TMS-evoked alpha activity is reduced in states of sensory disconnection.

A recurrent theme of the symposium, emphasized by both Drs. Mashour and Sanders, was the importance of differentiating the content of consciousness, i.e. the conscious processing of one's self and surroundings, and the ability to reflect on them, from the level of consciousness, i.e. the ability to be aware. The latter is more easily investigated, including in animal studies, and is a prerequisite for the former, while the former may be the more clinically important endpoint.

Subcortical Arousal Systems and Emergence from General Anesthesia

Ken Solt, MD, Harvard Medical School;
Massachusetts General Hospital


The third speaker Dr. Ken Solt, Associate Professor of Anesthesia at Harvard, focused on the distinct role of subcortical arousal systems for emergence from anesthesia. Dr. Solt first reviewed subcortical arousal pathways and their neurotransmitters, such as dopamine, serotonin, histamine, acetylcholine, orexin, and norepinephrine and shared data suggesting that mechanisms of arousal may be specific to the anesthetic agent involved. Tapping into these arousal pathways, Dr. Solt's group is testing an array of currently available drugs for their potential as anesthesia reversal agents. He shared promising pre-clinical data using methylphenidate (Ritalin), which enhances subcortical arousal pathways by blocking reuptake of dopamine and norepinephrine, to accelerate emergence from general anesthesia. Surprisingly, this finding was not reproduced in the group's recently completed phase II clinical trial, in which intravenous application of methylphenidate towards the end of a balanced general anesthetic for prostatectomy did not reduce time to extubation. Dr. Solt discussed possible explanations related to dosing or timing of drug application, or to confounding effects of a balanced anesthetic as opposed to the sevoflurane monotherapy used in preclinical studies.

Arousal pathways appear specific to the anesthetic agent, as for example dextroamphetamine, a potent enhancer of adrenergic and dopaminergic pathways, can reverse sedation by dexmedetomidine, but not ketamine.

Using Anesthesia to Probe Disorders of Consciousness

Stefanie Blain-Moraes, PhD, McGill University

Finally, Dr. Stefanie Blain-Moraes, Assistant Professor at the School of Physical and Occupational Therapy at McGill University discussed how anesthesia can be used to study disorders of consciousness. Remnants of consciousness can be detected by functional MRI and EEG in patients with unresponsive wakefulness syndrome (UWS), with some awareness being present in up to 40% of patients examined. To aid in identifying patients that may have retained consciousness, Dr. Blain-Moraes developed a high-intensity EEG study protocol that assesses network motifs during induction of anesthesia and emergence from the anesthetic state. Dissecting the topography of network motifs observed during loss and return of consciousness in healthy individuals and those with disorders of consciousness, she was able to identify characteristic motifs that, when preserved in patients with disorders of consciousness, may predict remnants of consciousness and possibly recovery. Her report highlighted a patient who, despite being diagnosed with UWS retained some normal motifs during anesthesia induction, and started to interact with the environment in the weeks following the study.

There was rich discussion in the Q & A session, pondering questions such as whether traditional frontal EEG monitoring can be considered valid, whether there are different qualities of burst suppression, philosophical reflections on whether emergence from anesthesia or restoration of the righting reflex are equivalents of consciousness, and how the return of executive function can be modeled in animals. Similarly, there was discussion on the difference between states of altered consciousness and the limitations of data derived from the anesthetized state, as the affected pathways are so specific to the anesthetic agent. The use of network motif analysis to predict prognosis in coma is a very exciting new therapeutic possibility. Participants left the symposium looking forward to future updates on these exciting topics. 

SAB Panels from the 2019 AUA Annual Meeting

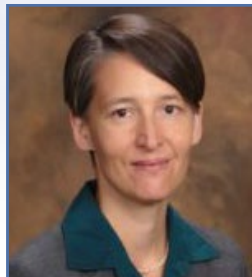
The morning session on May 16 was moderated by SAB Chair Ines Koerner, MD, PhD, Oregon Health & Science University and Richard Levy, MD, FAAP, Columbia University and featured two presentations.

Nidia Quillinan, PhD, University of Colorado, presented “**Posterior Cerebellar Strokes in Mice Cause Memory and Hippocampal Synaptic Plasticity Impairments.**”

Gary Fiskum, PhD, University of Maryland School of Medicine, presented “**Hyperoxic Resuscitation Following Canine Cardiac Arrest Increases Cerebellar Purkinje Neuronal Damage and Inflammatory Microglial Activation.**”

During the last few decades, Dr. Gary Fiskum and his colleagues from the University of Maryland School of Medicine Department of Anesthesiology have accumulated considerable evidence from animal research that normoxic resuscitation following cardiac arrest results in better hippocampal neuronal survival, less neuroinflammation, and better neurologic outcomes than those observed following hyperoxic resuscitation. His recent work with Ms. Bin Da Lee, a second-year medical student at Maryland, extends these findings, demonstrating that survival of cerebellar Purkinje neurons is also better following normoxic compared to hyperoxic resuscitation. These results taken together with those from increasing clinical studies support the AHA ACLS guidelines that supplemental oxygen following cardiac arrest should be titrated to the minimum level necessary to maintain an arterial oxygen saturation of $\geq 94\%$, thus reducing the risk of oxygen toxicity.

The afternoon session was moderated by Meghan Lane-Fall, MD, MSHP, Perelman School of Medicine, University of Pennsylvania; Leonard Davis Institute for Health Economics, University of Pennsylvania, and Christine Sang, MD, MPH, Harvard Medical School and featured Stephen Ellison, MD, PhD, Duke University Medical Center, presenting “**Novel Circulating Metabolic Markers Improve Discrimination of**



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Chair, Scientific
Advisory Board
Oregon Health &
Science University
Portland, Oregon

Metabolic Health Independent of Weight.”

Traditional tools for assessment of metabolic health rely heavily on BMI and the clustering of cardiometabolic risk factors seen in metabolic syndrome, but they do not predict risk of adverse cardiovascular events well. Evolving technologies of “liquid biopsy” such as metabolomics have enabled a more granular assessment of dysregulated biochemical processes and thus may themselves serve as better markers of metabolic health. Recent studies in our lab using metabolomic profiling have identified a variety of biomarkers that are associated with obesity, insulin resistance, DM, CVD, and response to interventions. Therefore, we sought to determine if novel cardiometabolic disease biomarkers improve traditionally defined metabolic

health in predicting risk of adverse events independent of weight and across BMI categories. We found that four novel metabolic biomarkers including NMR-derived lipoprotein parameters, LP-IR (lipoprotein-insulin resistance), GlycA (a novel inflammatory biomarker that is an aggregate measure of enzymatically glycosylated acute phase proteins), HMSP (the sum of medium and small chain HDL particles), and SCDA (short chain dicarboxylacylcarnitines) predict risk of adverse events in a cardiovascular cohort and improve upon traditionally defined metabolic health measures across all BMI categories. As such, these novel biomarkers may serve as better markers of metabolic health than our current traditionally defined metabolic health measures and thus may serve as biomarkers for identification of those individuals at highest risk of major adverse cardiovascular disease event regardless of weight.

The morning session on May 17 was moderated by Lucy Chen, MD, Harvard Medical School and Jae-woo Lee, MD, University of California San Francisco and featured three presentations.

Dusan Hanidziar, MD, PhD, Massachusetts General Hospital, presented “**A Systems Immunology Approach to Characterize Lung Immune Response to Hyperoxia.**”

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SAB Panels *continued from page 9*

Jae-woo Lee, MD, University of California San Francisco, presented **“Therapeutic Effects of Hyaluronic Acid in E.coli Bacterial Pneumonia in the Ex Vivo Perfused Human Lungs.”**

Khoa Nguyen, BS, University of Central Florida, presented **“Ventilator-Induced Lung Injury in a Rat Model of Pulmonary Fibrosis is Influenced by Disease Severity and Tidal Volume.”**


The afternoon session was moderated by Niccolo Terrando, PhD, Duke University Medical Center and Paul Garcia, MD, PhD, Columbia University Medical Center and featured three presentations.

Thomas Bunning, BS, Duke University Medical Center, presented **“The INTUIT Study: Investigating Neuroinflammation Underlying Postoperative Neurocognitive Dysfunction and Delirium in Older Adults.”**

Viola Neudecker, MD, Columbia University Medical Center, presented **“GFAP Expression in the Visual Cortex is Increased in Juvenile Non-Human Primates that were Exposed to Anesthesia during Infancy.”**

There is a concern that infant anesthesia exposure is neurotoxic and results in long-term neurodevelopmental impairments in children. Two years after exposure to anesthesia during infancy, gliosis (increase in GFAP) was found in the brain of non-human primates. The novel finding indicates that there are long-lasting histopathological changes associated with infant anesthesia exposure that can be related to neurodevelopmental deficits.

Mervyn Maze, MB, ChB, University of California San Francisco, presented **“Dexmedetomidine Prevents Lipopolysaccharide (LPS)-Induced Neuroinflammation and Cognitive Decline through an α 2 Adrenoceptor Mechanism in Mice.”**

Clinical studies have shown that dexmedetomidine ameliorates cognitive decline in both the postoperative and critical care settings. Preclinical studies suggest that the benefit provided by dexmedetomidine is mediated through unique mechanisms in these different settings with the imidazoline receptor-mediated inflammation-resolution being pre-eminent in the postoperative setting and α 2 adrenoceptor-mediated anti-inflammatory action dominating in the setting of administration to optimize the management of patients who are at risk of developing hospital-acquired cognitive decline. 

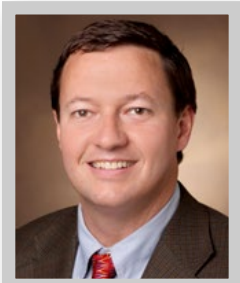
SAB REPORT: SAB Welcomes New Members

The Scientific Advisory Board requested applications earlier this year for new members to fill four open positions. We were honored to receive a record number of outstanding applications in response. The SAB is proud to welcome the following new members, who start their three-year terms this summer:



T. Anthony Anderson, MD, PhD, is a pediatric anesthesiologist at Lucile Packard Children's Hospital at Stanford University. His research interests include the use of non-opioid pharmacologic agents and regional anesthesia to improve pediatric and adult patient analgesia and safety. More specifically, he is interested in the use of novel technologies and pharmacologic

agents to reduce acute pain and the risk of chronic pain after surgery. He is further interested in understanding the impact of perioperative care on pediatric patient outcomes.



Frederic T. (Josh) Billings IV, MD, MSc, is associate professor of anesthesiology and medicine in the division of anesthesiology critical care medicine in the Department of Anesthesiology at Vanderbilt University. His research program focuses on mechanisms of surgery-induced organ injury, specifically the impact of perioperative oxidative damage on kidney, brain, and heart

injury, and developing new therapy for perioperative organ injury in humans. He is Director of the B.H. Robbins Scholars Program, the Department's physician-scientist development program, and clinically cares for patients undergoing cardiothoracic surgery and attends in the cardiovascular ICU.

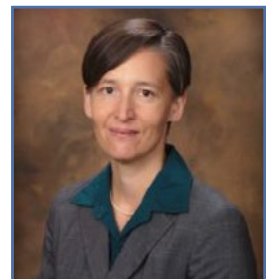


Christina Pabelick, MD, is a board-certified anesthesiologist (specialized in pediatric anesthesia) with longstanding research interests in airway biology. As a physician and physiologist, her research interest has been airway biology in health and disease with a special focus on lung development and the aging lung.



Jean-Francois Pittet, MD, DEAA, is the David H. Chestnut Professor of Anesthesiology at the University of Alabama at Birmingham. He was the Vice Chair/Director of the Division of Critical Care and Perioperative Medicine until January 2016 when he replaced Steve Shafer as the new Editor-in-Chief of Anesthesia & Analgesia. Dr. Pittet's research activity supported by the National

Institute of Health and the Department of Defense is focused on the mechanisms of acute lung injury after sepsis and trauma and on the mechanisms of posttraumatic coagulopathy.



Ines Koerner, MD, PhD

Chair, Scientific Advisory Board
Oregon Health & Science University
Portland, Oregon

A very warm welcome to our new SAB members, and a heartfelt thank you to the many highly accomplished AUA members who submitted their CVs, but were not selected this year. I truly appreciate their commitment and contributions, and encourage everyone to please reapply next year. 📖



AUA ANNUAL MEETING 2019

President's Lunch and Panel

PRESIDENT'S LUNCH:

The President's Lunch featured Bruce Biccard, MD, University of Kwazulu-Natal, South Africa, on "The Innovation of ASOS"; Julie K. Freed, MD, PhD, Medical College of Wisconsin, on "Fundamental Scientist in Anesthesiology"; Jessica Spence, MD, McMaster University, on "Clinical Outcomes Scientist in Anesthesiology"; and Phillip Vlisides, MD, University of Michigan Medicine, on "Translational Scientist in Anesthesiology."

"Fundamental Scientist in Anesthesiology"

Changing demographics will lead to a drastic increase in heart disease within the United States. This lab focuses on microvascular dysfunction which precedes the formation of coronary artery disease. Using strategies to study human microvascular function in vitro, it investigates how sphingolipids—a group of biologically active lipids—can promote or prevent vascular dysfunction. In addition to examining human vascular reactivity in vitro, this novel technique is now being used to improve vascular function and functional capacity in frail, elderly cancer patients prior to surgery.

"Clinical Outcomes Scientist in Anesthesiology"

Historically, research in anesthesiology has focused on physiologic phenomena occurring in the immediate perioperative period. Recently, there has been a recognition that researchers in perioperative medicine need to study outcomes of greater importance to patients, as well as the long-term consequences of surgery and anesthesia. This has resulted in studies with larger sample sizes that focus on outcomes like major morbidity and mortality within 30-days of and up to one year after surgery. However, as patients of older age and with greater co-morbidity are advanced for surgery, it is becoming increasingly important to understand not only the consequences of surgery and anesthesia on major morbidity and mortality but also functional outcomes like cognition, mobility, and daily self-

care. Currently, there is limited knowledge as to the prevalence and predictors of, risk factors for, and interventions that can prevent perioperative cognitive and functional decline. The program of research is focused on addressing this knowledge gap through several large multi-center cohort studies as well as a large, multi-center, randomized cluster crossover trial.

"Translational Scientist in Anesthesiology"

Perioperative caffeine may serve as a candidate, neurobiologically informed intervention for improving postoperative neurologic recovery. Basic science data from the University of Michigan demonstrate that caffeine may provide acute analgesic benefit while also minimizing postoperative hypersensitivity for up to one week after surgery in a rat model. These findings align with clinical data to suggest that caffeine may serve as an effective adjuvant analgesic across different surgical populations. Interestingly, recent translational evidence from the University of Chicago also suggests that caffeine may accelerate emergence and neurocognitive recovery following general anesthesia. Overall, these clinical-translational lines of investigation suggest that caffeine may improve postoperative recovery by mitigating postoperative pain and neurocognitive dysfunction. A large-scale clinical trial is warranted to test the effectiveness of these preliminary findings.

PRESIDENT'S PANEL

The AUA President's Panel—"The Reproducibility Crisis in the Era of Precision Medicine"—was held during the afternoon and was moderated by Michael Avidan, MBBCh, Washington University School of Medicine, AUA Council President. Presenters included David Mazer, MD, University of Toronto, on "Conflict Between Evidence and Practice: Why It Exists"; Regina Nuzzo, PhD, Gallaudet University, on "How We Scientists Can Stop Fooling Ourselves"; and Philip Payne, PhD, Washington University School of Medicine, on "Precision Medicine: The RCT is so Passé." 

Host Program Report from the 2019 AUA Annual Meeting

HOST PROGRAM PANEL I

University of Montreal

The first host program was moderated by Pierre Beaulieu, MD, PhD, FRCA, University of Montreal, and included “The Analgesic Power of Music” by Isabelle Pertez, PhD, University of Montreal, and “Computerized Clinical Decision Support for the Management of Critically Ill Patients” by Philippe Jouvett, MD, PhD, FRCA, University of Montreal.

“Computerized Clinical Decision Support for the Management of Critically Ill Patients”

In intensive care, the standardization of care with protocols improves patient outcomes and the more detailed the protocol is, the best the standardization of care is. Computerized clinical support systems (CDSS) are made of a set of standardized rules, with detailed explicit instructions based on dynamic patient-specific parameters and available at the point-of-care. CDSS are usually developed in open loop where a recommendation is displayed and an active intervention by the clinician is required to apply this recommendation. After a validation phase, CDSS can be implemented in closed loop, for example for ventilation management where ventilator settings are dynamically adjusted to a patient’s condition according to the CDSS recommendations without caregiver intervention. This presentation detailed how to create and validate CDSS in an intensive care environment.

HOST PROGRAM PANEL II

McGill University

The second host program was moderated by Thomas Schrickler, MD, PhD, McGill University, and included “History of Anesthesia in Montreal: 1847 to 1955” led by Daniel Chartnund MD, PhD, FRCA, Montreal Neurological Hospital, “Genetics of Pain” by Luda Diatchenko, MD, PhD, McGill University, and “Pain in Mice and Man: Ironic Adventures in Translation” by Jeffrey S. Mogil, PhD, McGill University.

“History of Anesthesia in Montreal: 1847 to 1955”

In January 1847, anesthesia research had already started in Montreal. Dr Horace published the first Canadian anesthesia research article in May 1847. Later in the 19th Century, Sir William Hingston, President of the Canadian Medical Association and Honorary President of the British Medical Association, wrote several articles about anesthesia. He was hoping that some doctors will devote themselves solely to the practice of anesthesia...In 1906, Dr. Hingston’s dream became a reality when Dr Charles Larocque became the first anesthesiologist in Quebec. Dr. Larocque will become a President of the first Canadian Society of Anaesthetists and was an important link with the rest of North America. When he died in 1932, the IARS paid him tribute with a beautiful bronze plate.

In 1907, Dr. Francis W. Nagle became the first anesthesiologist at McGill. He published several articles and was a leader of “modern” insufflation anesthesia. In 1917, he became the President of the American Association of Anesthetists, but he unfortunately died on that same year. Leadership in academic anesthesia was then taken over by Dr. Wesley Bourne. Dr. Bourne was a founder of the first Canadian Society of Anaesthetists in 1922 and of the actual Canadian Anesthesiologists’ Society in 1943. In 1926, he was the “Builder of Bridges” who created the “Associated Anesthetists of United States and Canada” which will merge with the IARS in 1941. In 1942, he became the only non-American President of the American Society of Anesthesiologists. Later he became the first Chairman of the Department of Anesthesia at McGill University (which is also the first academic anesthesia department in Canada).

After introducing the use of curare for surgical procedures in 1942, D.r Harold Griffith became the first President of the Canadian Anesthesiologists’ Society in 1943. In 1948, he became President of the IARS and also Vice-President of the ASA. He was involved in the IARS Board of Trustees from 1948 to 1961 and, participating in the creation of the World Federation of Societies of Anesthesiologists, he became the Founding President of the WFSA in 1955.



2019 Award Winners

JUNIOR FACULTY RESEARCH AWARD

Behrouz Ashrafi, MD, University of Miami

Total Intravenous Anesthesia with a Novel Formulation of Isoflurane Perfluorocarbon-based Nano-emulsion: Safety, Efficacy and Toxicity in Dogs
(pictured left)



JUNIOR FACULTY RESEARCH AWARD

Seshadri Mudumbai, MD, Stanford University

Implementation of a Distributed Research Network Virtual Data Warehouse for a Multi-Center Observational Study

JUNIOR FACULTY RESEARCH AWARD IN PERIOPERATIVE MEDICINE

Dustin R. Long, MD, University of Washington

Epidemiology of Surgical Site Infection in Spinal Fusion Surgery and Patterns of Discordance with Surgical Antibiotic Prophylaxis: A Retrospective Case-Level Analysis

JUNIOR FACULTY RESEARCH AWARD IN PEDIATRIC ANESTHESIA

Emmett Whitaker, MD, University of Vermont

The Electroencephalographic Signature of Spinal Anesthesia in Infants: A Multi-center Pilot Study

RESIDENT TRAVEL AWARDS

Jacob Basak, MD, PhD, Washington University School of Medicine

Bacterial Sepsis Increases Fibrillary Amyloid Load and Neuroinflammation in a Mouse Model of Alzheimer's Disease Pathology

MICHAEL P. SCHNETZ, MD, PHD, UNIVERSITY OF PITTSBURGH

Response to Inhaled Anesthetics Measured by the Triple Variable Index Reveals Population-specific Patterns of Intraoperative Hypotension Exposure

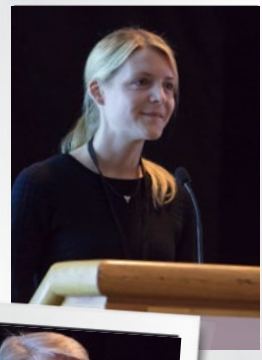
MARGARET WOOD RESIDENT RESEARCH AWARD

Ming Ann Sim, MBBS, National University Hospital Singapore

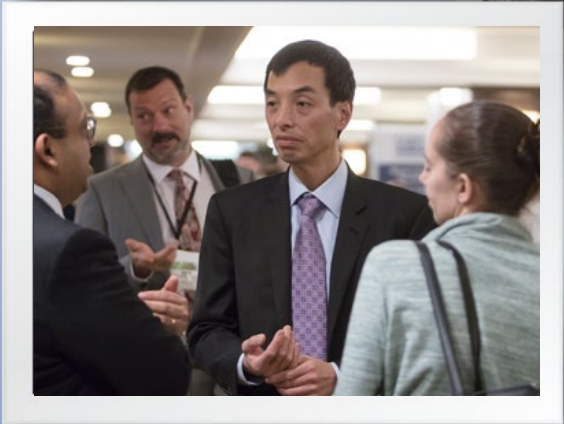
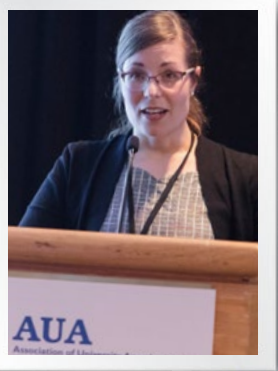
Sustaining the Gains—A 6-year Follow-through of the Impact of a Hospital Wide Patient Safety Strategy on Global and Anesthetic Patient Safety Outcomes



AUA ANNUAL MEETING 2019



More photos from the AUA Annual Meeting here!



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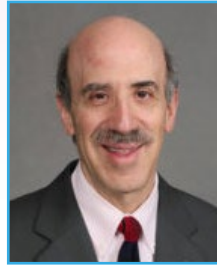
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Visit meetings.iars.org for more information

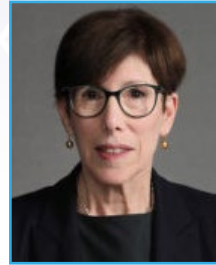
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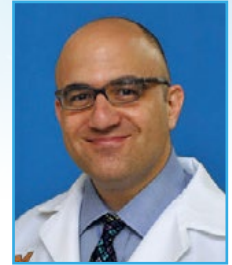
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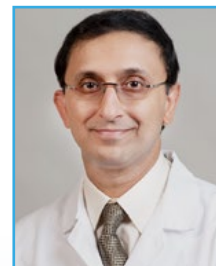
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If you have an idea for an article, an announcement, or an opinion on a recently published article, please submit your proposal/article to Dr. Lisa Wise-Faberowski, MD, lwf1212@stanford.edu before November 7, 2019. If your article is selected, we will contact you for editing and formatting.