AUA
Association of University Anesthesiologists

Update

Spring 2014

CONTENTS

We're All in This Together!

Jane C.K. Fitch, MD ASA President

The future of our specialty has never faced so many challenges, and out of those challenges come many opportunities for partnerships. It will truly be a team effort in order for us to survive. I would like to use the acronym TEAM to focus our dialogue – Together Everyone Achieves More. We truly are all in this together!

What will our clinical practice look like? As we move to the perioperative surgical home model of care, we will need to retool our training programs. This will require a team effort involving our Residency Review Committee (RRC), The American Board of Anesthesiology (ABA), Association of University Anesthesiologists (AUA) and the Society of Academic Anesthesiology Associations (SAAA), for starters. Yes, we will also need to help retool many of our colleagues already in practice. It is our specialty society that will play a critical role in this endeavor. What role will nonphysicians play in this brave, new world? What will be the impact of disruptive technologies like J & J's Sedasys machine?

What will be the role of our academic mission going forward? How will our education and training programs evolve? Our new accreditation system, in addition to the advent of milestones, will significantly change both our timelines and our processes.

Our incredible track record in patient safety has been made possible by the time, energy and efforts of our physician scientists, leading to improved drugs, equipment and techniques. Drastic cuts to research funding and academic time threaten the advancement of the science of anesthesiology. So how can the ASA, our national specialty society, support all of our 52,000 members going forward? Several products

enrich our clinical practice, including our journal as well as all of our standards, guidelines and statements. In fact, our ad hoc committee is working towards e-journals, as well as perhaps other forums for communicating information to our members. Stay tuned to the work of that ad hoc committee. Much work has been done on drug shortages, a problem that is not sustainable for our patients, our practices or our healthcare system. Our Anesthesiology Quality Institute (AQI), with it several registries, is rapidly becoming a wealth of information, thus allowing us to take a critical look at what we do and ask how can we do it better? Partnering closely with our Health Policy Research (HPRI) Institute, ASA is finally able to take a proactive stance in order to help lead and guide our future.

Our pain medicine practices are facing significant challenges now, as are all of our affiliated VAs (Veterans Administration Hospitals). ASA is working tirelessly on your behalf in order to make these practices viable in the future.

The manner in which we are all paid for our services is changing with the repeal of the Sustainable Growth Rate (SGR) and replacement with Merit-based Incentive Programs (MIPs) and Alternative Payment Models (APMs). The role of specialty societies in defining metrics and measures has never been more critical.

Continuing Medical Education (CME) and MOCA education activities are available from our various meetings, such as our annual meeting, our conference on Practice Management, our Legislative Conference and our new Anesthesia Quality meeting. There are also many products, such as Anesthesia Continuing Education (ACE), the American Society of Anesthesiologists' Self-Education and Evaluation (SEE), Society for Airway Management (SAM), Pt Safety Modules, the American Society of Anesthesiologists' Simulation Education Network (SEN),

We're All In This Together!

Continued from page 1

Practice Performance Assessment and Improvement (PPAI), Anesthesia Advanced Circulatory Life Support (A-ACLS), and Cervical Block Anesthesia (CBA). Hopefully you will take advantage of a customized learning center that serves as a central repository for all of your education activities. We have a new education endeavor called "When Seconds Count…". This resource is geared towards educating our patients, the public and policymakers, about who we are and what we have to offer.

Our unique structure and governance allows for any member to develop an idea, have it properly vetted and ultimately become ASA policy. That is an incredible privilege that many take for granted. What a great way to get junior faculty involved in ASA committee structure! What a perfect opportunity for any of our academic related organizations, like AUA, to influence the direction of ASA!

ASA is delighted to have played a critical role in the formation of our Foundations and related organizations. In order for these relationships to survive and thrive going forward, we have an ad hoc committee doing a detailed analysis of all aspects of these relationships, due at our August BOD meeting. Their charge includes evaluating structure and governance, bylaws and APs, as well as funds flow. In addition, we also have an ad hoc committee focusing on subspecialty society relationships, which has allowed for a more detailed focus on the relationships between the two, whether for input into the committee appointment process, CME activities, meeting locations, etc.

So just as we all strive to promote our multiple missions within our own departments, so too must ASA strive to serve all of our members. That being said, there is nothing more important than training the next generation of anesthesiologists, and that cannot occur without the help and support of all of our related education subspecialties, such as AUA, SAAA, Society for Education in Anesthesiology (SEA) and Foundation for Anesthesia Education and Research (FAER). There can be great synergy between ASA, as the national specialty organization representing anesthesiology, and all of our subspecialty societies and our related organizations. The challenges of our future call for all of us to work together in order to survive and thrive – our patients deserve nothing less and our specialty is depending on all of us in order to bring it to fruition. Many thanks for all you do for our specialty!

To the Editor:

DAVID M POLANER, MD, FAAP
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I couldn't help but notice that the cartoon in the Winter AUA newsletter 2013 has a bit of truth to it. I was in Cambridge this spring for the Association of Paediatric Anaesthetists (APA) and Pediatric Anesthesia editorial board meetings and took this picture at the Eagle, a pub in Cambridge, England.

From the Winter 2013 Newsletter:

Cambridge, 1953. Shortly before discovering the structure of DNA, Watson and Crick, depressed by their lack of progress, visit the local pub.

Subspecialty News

Editor, Alan Kaye MD

Society for Neuroscience in Anesthesiology and Critical Care

Kristin Engelhardt, President
Gutenberg-University, Mainz, Germany

The mission of the **Society for Neuroscience in Anesthesiology and Critical Care (SNACC)** is to *advance the art and science of the care of neurologically impaired patients.* SNACC was founded in 1971 by a handful of academic neuroanesthesiologists/ neurosurgeons who were interested in experimental and clinical neuroscience and the society's first name was the **Neuroanesthesia Society (NAS)**. One of the major purposes of this society was to foster the basic and clinical science of neuro(patho) physiology. The influence of anesthetic agents on the brain and the mechanisms of secondary brain injury were and continue to be perpetual core topics. Many of the SNACC Past Presidents have been important and outstanding researchers in this field (Michenfelder, Albin, Warner, Young, Brambrink, among many others). In 1973 the first annual SNACC meeting took place. Since these early activities SNACC has grown in multiple areas. The annual meetinghas evolved to now represent a perfect platform for international anesthesiology clinical and basic neuroscientists to discuss their most recent findings with other international experts. In 1989 the first issue of the official journal of SNACC, the **_Journal of Neurosurgical Anesthesiology (JNA)_** was published with the assistance of an international editorial board largely composed of SNACC members. The abstracts of the annual meeting, the SNACC meeting reports, and the SNACC clinical guidelines, and scientific reports are published in JNA. In recent years a basic neuroscience session has been organized on Thursday afternoon before the meeting. This session provides for an intensive scientific discussion of the latest neuro-related topics, like "CNS Inflammation" which was discussed last year. This is a unique opportunity for anesthesiologists interested in neuroscience to congregate and discuss research in a forum without the distractions seen in larger meetings like the ASA and SFN. Due to its great success this session is now a fixed part of future programs.

SNACC is also supporting young researchers by organizing a mentoring workshop, awarding travel grants, and the "John D. Michenfelder New Investigator Award" for the best scientific poster. At the International Anesthesia Research Society (IARS) meeting SNACC donates the "SNACC Abstract Award" for the best neuro-related poster. The poster sessions at the annual meeting of SNACC are directed to basic neuroscience, clinical neuroscience, and perioperative care of neurosurgical patients. After the death of Bill Young, one of the outstand-ing leaders of SNACC, the society decided to further increase SNACCs dedication to neuroscience and established a task force to develop the **"William L. Young Research Award".**

From the beginning SNACC was also actively involved offering education for neuroanesthesia and neurocritical care. The day before the SNACC meeting multiple workshops are offered to intensify knowledge. During the meeting state of the art presentations are mixed with vivid discussions on controversial topics and future aspects of neuroanesthesia and neurocritical care. In addition to its own annual meeting, SNACC is also organizing breakfast panels, PBLD, and neuro-based simulation workshops at the annual meetings of the ASA and IARS and is supporting many international meetings like the EuroNeuro or the ISNACC. SNACC is generating clinical guidelines, most recently on management of the stroke patient undergoing thrombolysis in interventional radiology and also on perioperative stroke prevention.Moreover, SNACC is a sponsor of the "Neurocritical Care Program" of the United Council for Neurologic Subspecialties. In a next step SNACC plans to develop a fellowship program for neuroanesthesia. SNACC also offers many educational contents at its website like the annually updated "Bibliography," the "Chat with the Author," and the "Case Discussion". Annually SNACC is also awarding the "Teacher of the Year Award" for the educational work of an outstanding and passionate teacher in neuroanesthesia and neurocritical care. For those who would like to actively contribute to SNACC, different committees and the so-called "Special Interest Groups (SIG)" exist. The work of these members are fundamental for the great success of SNACC during the last 43 years.

The unique contributions of SNACC to clinical neuro-anesthesia and neuroscience is reflected by the success of its members. Notwithstanding the relatively small size of this society (about 400), two SNACC members have delivered the prestigious "Rovenstine Lecture" at the ASA and two members also received the highest award of the ASA the "ASA Distinguished Service Award." Four SNACC members received the "ASA Excellence in Research Award", and two SNACC members have been recognized with the "ASA Presidential Scholar Award." Two SNACC members have been editor-in-chief of *Anesthesiology.* These and many other important achievements have been reached by the members of SNACC, a unique and international group of people who have one thing in common: to improve the treatment of neurologically impaired patients by excellent basic and clinical research and outstanding contributions to education.

Editor note: More information on SNACC can be found at **www.snacc. org** *and a full history of the evolution of SNACC was recently published: Kofke WA: Celebrating Ruby—40 years, NAS→SNANSC→SNACC→SNACC. J Neurosurg Anesthesiol, 24(4):260-280, October 2012.*

SAB Report: Big Data Meets Big Pain: Overcoming Intrinsic Challenges in Postoperative Pain Prediction?

Patrick J. Tighe, M.D., Department of Anesthesiology, University of Florida, Gainesville, Florida, and daughter Maggie.

Timothy E. Morey, M.D., Professor of Anesthesiology (with tenure), Interim Chairman, Department of Anesthesiology University of Florida Gainesville, Florida

Historical Approaches to Postoperative Pain Prediction

The quest for accurate postoperative pain prediction has now been underway for over a century[1]. The statistical analyses of Kalkman (2003) and Sommer et al. (2010) demonstrate the prototypical modern approach for investigating perioperative factors associated with postoperative pain[2,3]. In each study, postoperative pain scores formed the outcome against which logistic regressions on approximately two dozen variables were performed to determine which perioperative factors were associated with severe postoperative pain. Although traditional logistic regression-based project designs similar to Kalkman and Sommer et al.'s highlight potential risk factors for severe postoperative pain, these approaches are limited. For instance, such approaches are unable to incorporate the rapidly expanding sets of available clinical data with the advent of electronic medical records, let alone the genetic, proteomic, and metabolomic data expected to be available for clinical decision support systems in the near future.[4-10] Pragmatically, such approaches also require regular, manual data review and model updating to remain relevant to current practice, rather than offer a more autonomous approach to data preparation, variable selection, model development, and validation.

(Machine) Learning about Postoperative Pain

The addition of machine-learning classifiers, with their ability to autonomously integrate and learn from highly complex clinical datasets with many hundreds of variables, may offer one solution to the vexing challenge of predicting postoperative pain. Machine learning refers to a set of analytic methods, in the form of algorithms, that "gives computers the ability to learn without being explicitly programmed".[11] These algorithms have the potential to outperform logistic regression because of the variety of mathematical approaches possible, many of which are more computationally efficient and accurate than traditional non-regularized regression-based approaches to classification when processing very large datasets with complex, non-parametric distributions.[12-16] Machine-learning classifiers have already been successfully applied to many complex problems in other far reaching disciplines, including crime prevention, handwriting recognition, fraud detection, and email spam filtering.[17-20] Clinically, machine-learning classifiers have been used to improve the classification accuracy of clinical outcome models based upon complex data structures such as functional magnetic resonance imaging and genomic signatures.[21-25] Such complex data structures are no longer restricted to purely research-based enterprises. Rather, the recent focus on the meaningful use of electronic medical records has led to massive clinical datasets comprising variables collected by healthcare providers during the course of a patient's hospitalization.[26-28] Machine-learning approaches have the potential to leverage this clinical "Big Data" to create more accurate and automated predictions of postoperative pain.

Our work has recently explored the use of machine-learning algorithms to predict postoperative pain outcomes in a retrospective cohort of 8,071 surgical patients using a field of 796 clinical variables. This investigation compared the performance of traditional logistic-regression–based classification systems with a variety of machine-learning algorithms, including Least Absolute Shrinkage and Selection Operator (LASSO), gradient-boosted decision tree, support vector machine, neural network, and k-nearest neighbor. Our work thus far suggests that for postoperative day (POD) 1, the LASSO algorithm with the aforementioned highly dimensional array of variables yielded the highest accuracy with an area under the receiver operating curve (ROC) of 0.704 on a test set of subjects not used for model training or validation. This was followed by the gradient-boosted decision tree with an ROC of 0.665 and the k-nearest neighbor algorithm with an ROC of 0.643. For POD3, the LASSO algorithm again had the highest accuracy, with an ROC of 0.727. It is important to note that, for outcomes on POD1 and POD3, the traditional logistic regression approach to prediction of postoperative pain offered an ROC of only 0.5, whether using a highly dimensional dataset or a more standard stepwise-loading of variables into the test model. These preliminary results suggest that machine-learning algorithms, when combined with highly dimensional datasets developed from clinical data repositories, offer substantial improvements in accuracy over the tested logistic regression-based approaches to classification of acute postoperative pain outcomes. Notably, these results may still suffer from a significant shortcoming: their reliance on static postoperative time points.

Looking Toward the Future ... Literally!

Remarkably, there have been no structured investigations of the dynamic nature of acute postoperative pain, let alone

the interactions of pain, analgesia, and activity level over time. Until recently, postoperative pain was generally presumed to gradually decrease in the days after surgery. However, even this heuristic endorsed notable exceptions such as in the thoracotomy population, where 50% of patients were noted to suffer from chronic postthoracotomy pain. The modern era of tracking acute postoperative pain's dynamicity began with Chapman's publication on the acute pain trajectory of 502 surgical patients.[29] Chapman prospectively followed a mixed surgical cohort for 6 days after surgery. Each day, the research team inquired about the patient's average pain score. Each individual's pain trajectory was then plotted using a hierarchal mixed model. Surprisingly, over one-third of surgical patients had a pain trajectory that was neutral or positive in slope. Post hoc comparisons suggested that there were differences according to age, sex, and the type of surgery.

Chapman's work was verified and extended upon by Althaus et al.[30] In that study, 199 surgical patients were investigated using a latent growth curve analysis for 5 days following surgery. Covariates included preoperative pain, the Hospital Anxiety and Depression Scale, age, gender, and level of education. Pain scores were again collected as daily averages. In keeping with prior findings pertaining to the effect of sex on postoperative pain, being female was associated with higher initial postoperative pain scores.[31] However, the effects of age and gender did not extend to differences in the slope of the acute pain trajectory. Notably, anxiety and depression offered opposing effects on pain resolution; anxious patients had a more negative postoperative pain trajectory, whereas depressed patients suffered from impaired pain resolution. In addition to investigating acute postoperative pain trajectories, Althaus et al. also included a 6-month follow-up to investigate how the linear pain trajectory, again comprising daily pain averages, influenced the risk of prolonged postoperative pain. Their results suggested that years of education, initial pain scores, and the slope of the acute pain trajectory were each independently associated with the risk of prolonged postoperative pain six months after surgery.

Together, the work of Chapman et al. and Althaus et al. suggests widespread interpatient variability in the trajectory of acute postoperative pain. However, these findings have yet to elucidate how patients transition from one pain score to the next throughout their hospitalization. Our lab has recently initiated early explorations on this transition by deriving a Markov chain from 476,613 postoperative pain score observations.[32] Our results suggested an irreducible and aperiodic transition matrix, where all states could be encountered via a random walk, and no pain state was absorbing (Figure 1). While these results presumed the Markovian property, they nevertheless offer a framework for expanding postoperative pain prediction research into the realms of simulation and temporal dynamics.

On measuring postoperative pain trajectories, the works of Chapman et al. and Althaus et al. offer a framework for examining how postoperative pain influences not just acute and chronic pain outcomes, but other patient-centered outcomes such as patient functional status, the risks of complications from analgesic interventions, postoperative cognitive outcomes, and more. Predicting postoperative pain has long been an active area of research, with the hope that accurate prediction would lead to safe and effective prevention. The above findings overturn over a century of methodology in this area of investigation by suggesting that prediction of a pain outcome at a given static time point does not necessarily reflect the remainder of the patient's acute postoperative pain experience, let alone the simultaneous effects of pain on analgesic risk and patient functioning. The application of probabilistic graphical modeling methods, such as our elementary work with Markov chains, builds on these recent and exciting developments and may eventually permit the simultaneous consideration of pain, analgesia, and patient functioning in choosing optimal personalized interventional strategies to improve surgical recovery.

References:

1. Ip HYV, Abrishami A, Peng PWH, Wong J, Chung F. Predictors of Postoperative Pain and Analgesic Consumption. Anesthesiology. 2009 Sep;111(3):657–77.

2. Sommer M, de Rijke JM, van Kleef M, Kessels AGH, Peters ML, Geurts JW, et al. Predictors of Acute Postoperative Pain After Elective Surgery. Clin J Pain. 2010 Feb;26(2):87–94.

3. Kalkman CJ, Visser K, Moen J, Bonsel GJ, Grobbee DE, Moons KGM. Preoperative prediction of severe postoperative pain. Pain. 2003 Oct;105(3):415–23.

4. Yip KY, Cheng C, Gerstein M. Machine learning and genome annotation: a match meant to be? Genome Biology. BioMed Central Ltd; 2013 May 29;14(5):205.

5. Okser S, Pahikkala T, Aittokallio T. Genetic variants and their interactions in disease risk prediction – machine learning and network perspectives. BioData Min. 2013;6(1):5.

6. Menden MP, Iorio F, Garnett M, McDermott U, Benes CH, Ballester PJ, et al. Machine learning prediction of cancer cell sensitivity to drugs based on genomic and chemical properties. PLoS ONE. 2013;8(4):e61318.

7. Korman A, Oh A, Raskind A, Banks D. Statistical methods in metabolomics. Methods Mol Biol. 2012;856:381–413.

8. Bessarabova M, Ishkin A, JeBailey L. Knowledge-based analysis of proteomics data. BMC …. 2012.

9. Pakhomov SVS, Buntrock JD, Chute CG. Automating the assignment of diagnosis codes to patient encounters using example-based and machine learning techniques. J Am Med Inform Assoc. 2006 Sep;13(5):516–25.

10. DeLisle S, Kim B, Deepak J, Siddiqui T, Gundlapalli A, Samore M, et al. Using the electronic medical record to identify community-acquired pneumonia: toward a replicable automated strategy. PLoS ONE. Public Library of Science; 2013;8(8):e70944.

11. Simon P. Too Big to Ignore: The Business Case for Big Data - Phil Simon - Google Books. 2013.

12. Breiman L. Statistical Modeling: The Two Cultures (with comments and a rejoinder by the author). Statistical Science. 2001 Aug;16(3):199–231.

13. Hall M, Franke E, Holmes G, Pfahringer B, Reutemann P, Witten I. The WEKA data mining software: an update. SIGKDD Explorations. 2009;11:10–8.

SAB Report

Continued from page 7

14. Witten I, Frank E. Data Mining: Practical Machine Learning Tools and Techniques. 2nd ed. Morgan Kaufmann. San Francisco: Morgan Kaufmann.

15. Lee S-M, Abbott P, Johantgen M. Logistic regression and Bayesian networks to study outcomes using large data sets. Nurs Res. 2005 Jan 1;54(2):133–8.

16. Steyerberg EW, Eijkemans MJ, Habbema JD. Stepwise selection in small data sets: a simulation study of bias in logistic regression analysis. J Clin Epidemiol. 1999 Oct 1;52(10):935–42.

17. Li J, Huang K-Y, Jin J, Shi J. A survey on statistical methods for health care fraud detection. Health Care Manag Sci. 2008 Sep 1;11(3):275–87.

18. Bolton R. Statistical fraud detection: A review. Statistical Science. 2002.

19. Labusch K, Barth E, Martinetz T. Simple Method for High-Performance Digit Recognition Based on Sparse Coding. IEEE Trans Neural Netw. 19(11):1985–9.

20. Zorkadis V, Karras DA, Panayotou M. Efficient information theoretic strategies for classifier combination, feature extraction and performance evaluation in improving false positives and false negatives for spam e-mail filtering. Neural Netw. 2005 Jun;18(5-6):799–807.

21. Brown JE, Chatterjee N, Younger J, Mackey S. Towards a Physiology-Based Measure of Pain: Patterns of Human Brain Activity Distinguish Painful from Non-Painful Thermal Stimulation. PLoS ONE. 2011 Sep 13;6(9):e24124.

22. Mani S, Chen Y, Arlinghaus LR, Li X, Chakravarthy AB, Bhave SR, et al. Early prediction of the response of breast tumors to neoadjuvant chemotherapy using quantitative MRI and machine learning. AMIA Annu Symp Proc. 2011;2011:868–77.

23. Duong C, Greenawalt DM, Kowalczyk A, Ciavarella ML, Raskutti G, Murray WK, et al. Pretreatment Gene Expression Profiles Can Be Used to Predict Response to Neoadjuvant Chemoradiotherapy in Esophageal Cancer. Ann Surg Oncol. 2007 Sep 26;14(12):3602–9.

24. Donovan MJ, Khan FM, Fernandez G, Mesa-Tejada R, Sapir M, Zubek VB, et al. Personalized prediction of tumor response and cancer progression on prostate needle biopsy. J Urol. 2009 Jul;182(1):132.

25. Mackey SC. Central neuroimaging of pain. The journal of pain: official journal of the American …. 2013.

26. Furukawa MF. Meaningful use: a roadmap for the advancement of health information exchange. Isr J of Health Policy Res. 2013;2(1):26.

27. Lai M, Kheterpal S. Creating a real return-on-investment for information system implementation: life after HITECH. Anesthesiol Clin. 2011 Sep;29(3):413.

28. Blumenthal D, Tavenner M. The "meaningful use" regulation for electronic health records. New England Journal of Medicine. 2010 Aug 5;363(6):501–4.

29. Chapman CR, Donaldson GW, Davis JJ, Bradshaw DH. Improving Individual Measurement of Postoperative Pain: The Pain Trajectory. The Journal of Pain. 2011 Feb;12(2):257–62.

30. Althaus A, Arránz Becker O, Neugebauer E. Distinguishing between pain intensity and pain resolution: Using acute post-surgical pain trajectories to predict chronic post-surgical pain. Eur J Pain. 2013 Aug 27;:n/a–n/a.

31. Fillingim R. Sex, gender, and pain: women and men really are different. Curr Rev Pain. 2000 Jan 1;4(1):24–30.

32. Sheskin TJ. Markov Chains and Decision Processes for Engineers and Managers. CRC PressI Llc; 2010. 1 p.

2014 Candidate Nominations for the AUA Council Announced

The AUA Nominating Committee will present the following slate of candidates to the AUA membership at the AUA Business Meeting during the AUA 61st Annual Meeting on Friday, April 25, 2014, at Stanford University School of Medicine, Stanford, California.

AUA 2014 Candidates

AUA members will vote to elect a President-Elect (2-year term), a Secretary (3-year term), and a Councilor-at-Large (3-year term).

President-Elect:
Jeanine Wiener-Kronish, M.D.

Secretary:
Michael Avidan, M.D.

Councilor-At-Large:
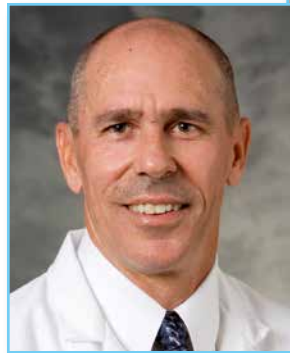Aman Mahajan, M.D., Ph.D.
Robert Pearce, M.D.

To learn more about the 2014 candidates, please visit the AUA Candidate Nominations page at **http://bit.ly/AUAcand**.

Michael Avidan, M.D.

Jeanine Wiener-Kronish, M.D.

Robert Pearce, M.D.

Aman Mahajan, M.D., Ph.D.

Preliminary Program

AUA 61st Annual Meeting

April 24-26, 2014
Stanford University School of Medicine
Stanford, California

Stanford University School of Medicine designates this live activity for a maximum of 11.0 AMA PRA Category 1 Credit(s)™.

A Continuing Medical Education Conference presented by the Department of Anesthesia at the Stanford University School of Medicine

Sponsored by the Stanford University School of Medicine in collaboration with

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AUA
Association of University Anesthesiologists

Thursday, April 24, 2014

10:00 am – 11:30 am	Registration – **Sheraton**
12:30 pm – 4:30 pm	Registration – Li Ka Shing Center for Learning and Knowledge (LKSC), Stanford University School of Medicine
1:00 pm – 1:15 pm Meeting –	Introduction and Welcome to the 61st Annual **LKSC** Ronald G. Pearl, M.D., Ph.D.
1:15 pm – 1:20 pm*	SAB Program Introduction Charles W. Emala, M.D.
1:20 pm – 3:00 pm*	SAB Oral Session (Part 1) • Junior Faculty Presentation (1) • Resident Presentation (2) • Member Presentations (5)
3:00 pm – 4:30 pm*	Moderated Poster Discussion Session
5:00 pm – 8:00 pm	Registration – **Sheraton**

5:00 pm – 8:00 pm Resident Meet and Greet Reception Sheraton Palo Alto Hotel

6:00 pm – 8:00 pm Welcome Reception – Sheraton

Friday, April 25, 2014

6:30 am – 5:30 pm	Registration – **LKSC**
7:00 am – 8:00 am	Continental Breakfast – **LKSC**
8:15 am – 9:45 am*	EAB Program (Part 1) – **LKSC** Research and Research Career Outcomes: Anesthesiology Education Grants

Moderator: Cathy Kuhn, M.D.
• Introduction/Background
  FAER Education Grant

Panelists:
• An Efficacy Study of Simulation-Based Training on Practicing Anesthesiologists' Acquisition of Ultrasound-Guided Perineural Catheter Insertion Skills
  Edward R. Mariano, M.D., M.A.S., Education Grant Recipient 2011

• Regional Anesthesia Education in Infants: A Novel Computer Based Visual Learning Technique to Improve Confidence and Performance in Anesthesia Residents
  Santhanam Suresh, M.D., Education Grant Recipient 2008

• Teaching Residents to Question and Challenge: An Experiential Approach
  May C. Pian-Smith, M.D., M.S., Education Grant Recipient 2004

• Acute Care Skills in Anesthesia Practice: A Simulation-Based Performance Assessment
  David J. Murray, M.D., Education Grant Recipient 2005

9:45 am – 10:15 am	Break/Poster Viewing and Discussion – **LKSC**
10:15 am – 11:45 am*	EAB Program (Part 2) Evidence, Economics, and Outcomes in Educational Methodology: Is Face-to-Face Learning in a Classroom Model Obsolete?

• Introduction, Background, AUA Survey Results
  Randall M. Schell, M.D., M.A.C.M.

• Evidence and Economics
  Manuel C. Pardo, Jr., M.D.

• Practical Implementation and Learning Management Systems
  Larry F. Chu, M.D., M.S.

• Panel Question and Answer

11:45 am – 1:00 pm Luncheon – LKSC

1:00 pm – 3:00 pm*	Plenary Session Lung Injury, Remodeling and Repair

Symposium Sponsor:
The American Journal of Physiology:
Lung Cellular and Molecular Physiology

Symposium Organizing Committee:
Sadis Matalon, Ph.D., Dr.Sc. (Hon.)
Charles Emala, M.D.
Y. S. Prakash, M.D., Ph.D.

Symposium Moderator:
Sadis Matalon, Ph.D., Dr.Sc. (Hon.)

1:00 pm – 1:40 pm*	Symposium Keynote Speaker: Novel Pro-Resolving Mediators & Mechanisms in Inflammation: Immunoresolvents Prof. Charles N. Serhan, Ph.D.
1:40 pm – 2:00 pm*	Speakers: • IL-8 and cAMP-stimulated Alveolar Epithelial Fluid Transport in Acute Lung Injury: Why **did the Multicenter NIH/ARDS Network and BALTI-2 Trials with β2-adrenergic agonists Fail?** **Brant M. Wagener, M.D., Ph.D.**
2:00 pm – 2:20 pm*	• Cell-Based Therapy for Acute Lung Injury Jae Woo Lee, M.D.
2:20 pm – 2:40 pm*	• Platelet function and ARDS pathogenesis: A path to prevention? Daryl J. Kor, M.D.
2:40 pm – 3:00 pm*	• Panel Discussion Moderator: Sadis Matalon, Ph.D., Dr.Sc. (Hon.)
3:00 pm – 3:30 pm	Break/Poster Viewing and Discussion – **LKSC**
3:30 pm – 5:00 pm	President's Panel • Genomics and Personalized Medicine Michael Snyder, M.D., F.A.C.S.

• What Big Data Can Teach Us About Human Behavior
  Jure Leskovec, B.Sc., Ph.D.

• Pitfalls in the Analysis of Published Data
  John Ioannidis, M.D.

5:00 pm – 6:00 pm	AUA Business Meeting – **LKSC**

6:30 pm – 8:00 pm Stanford University School of Medicine Reception, Stanford Stadium Skydeck

AUA 61st Annual Meeting Schedule, continued

*ONLY agenda items denoted with an * are eligible for
AMA PRA Category 1 Credit(s)™*

Saturday, April 26, 2014

6:30 am – 5:00 pm	**Registration – LKSC**
7:00 am – 8:00 am	**Continental Breakfast – LKSC**
8:00 am – 12:00 pm	**Host Program Introductions – LKSC** Ronald G. Pearl, M.D., Ph.D.
	Host Program **Silicon Valley and the Role of** **Stanford University** John L. Hennessy, Ph.D.
	Who Bleeds? Who Pays? **Rethinking the Modern American Military** David M. Kennedy, Ph.D.
	The Secret Life of Elephants Caitlin E. O'Connell-Rodwell, Ph.D.
	New Strategies for Early Cancer Detection Sanjiv Sam Gambhir M.D., Ph.D.

10:00 am – 10:30 am	**Break/Poster Viewing and Discussion**
Noon – 1:30 pm	**All Attendee Luncheon – LKSC**
1:30 pm – 2:00 pm	**ASA President's Update** Jane Fitch, M.D.
2:00 pm – 2:10 pm*	**SAB Session #2 Introduction** Charles W. Emala, M.D.
2:00 pm – 3:30 pm*	**SAB Oral Session (Part 2)** • Junior Faculty Presentation (1) • Resident Presentation (1) • Member Presentations (6)
3:30 pm – 5:00 pm*	**Moderated Poster Session**
6:00 pm – 10:00 pm	**Social Event Reception and Dinner** **Frances C. Arrillaga Alumni Center**

Opportunities for Q&A will be provided at the conclusion of each presentation.

Special Events

Thursday, April 24 • 5:00 pm – 8:00 pm
Resident and Junior Faculty Meet and Greet Reception
Sheraton Palo Alto Hotel
(Included in the Resident/Fellow registration fee)
The Resident and Junior Faculty Meet and Greet Reception gives residents and fellows an opportunity to meet their peers and the AUA Council Members in an informal setting.

Thursday, April 24 • 6:00 pm – 8:00 pm
Welcome Reception
Sheraton Palo Alto Hotel
Mingle with your colleagues and peers at a reception to kick off the AUA 61st Annual Meeting.

Friday, April 25 • 6:30 pm – 8:00 pm
Stanford University School of Medicine Reception
Stanford Stadium Skydeck, Stanford University • 601 Nelson Drive
Join the Stanford University School of Medicine at a special reception for all attendees. Guests should enter the Stanford Stadium at Gate 4.

Saturday, April 26 • Noon – 1:30 pm
Resident Luncheon
Li Ka Shing Center
(Included in the Resident/Fellow registration fee)
At the All Attendee Luncheon, tables will be reserved for residents, fellows and their sponsoring chair. Members of the AUA Council will be present to meet with these future academic anesthesiology leaders.

Saturday, April 26 • 6:00 pm – 10:00 pm
Social Event Reception and Dinner
Frances C. Arrillaga Alumni Center, Stanford University • 326 Galvez Street
Join your friends and colleagues for a perfect ending to the 61st Annual Meeting. This Saturday event offers an opportunity to unwind and relax. This is an ideal opportunity to catch up with friends and colleagues and enjoy live jazz entertainment.

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EAB Report:
Changing The Education Paradigm for Residency: New Opportunities for Fostering Academic Careers

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The countdown to the end of residency and fellowship often begins in earnest at this time of year. This can result in a diminished focus on the acquisition of new knowledge and skill by residents. In our time-based education paradigm, this "lost" time can add up, particularly when the countdowns associated with the end of medical school, residency, and fellowship are summed together. In the changing education paradigm for residency with new milestones, programs are now required to adopt a more focused competency–based approach. Residents should be able to take a more active role in achieving well-defined performance benchmarks. This could lead to a variety of program changes including a residency duration that might differ among a residency's complement with some residents meeting their competency-based milestones earlier than prescribed in our current time-based residencies. For departments and residency programs, this will require yet another major adjustment in how residency programs approach postgraduate medical education.

In this new resident education paradigm, methods to develop an academic career will also need to evolve. In recent years, a few departments have created innovative continuums of training and/or "scholars" programs in order to optimize the training and research opportunities for residents wishing to pursue a career as a clinician-scientist. Over the past few years, there has been more interest in these programs among resident applicants. Our Washington University Department of Anesthesiology has matched 8 candidates into our 5-year (60-month) continuums of training.

The American Board of Anesthesiology provides residency programs with pre-approved templates for research during training. Residents interested in research can spend approximately 25% of their time in an advanced (3-year) or categorical (4-year) program conducting mentored research. Trainees willing to commit to a 5-year continuum of training can spend 38% of their time or 23 months in research endeavors. Few training programs currently take advantage of these templates though their existence provides a relatively simple means to develop research tracts or "Scholars" programs in their departments (Table 1).

Table 1. ABA Research Templates for Anesthesia Residency

Training Period (Months in research)	Research in CBY	Research in CA 1-2 Years	Research in CA-3 Year	Research in CA-4 Year
36 months (9 months)		3 months	6 months	
48 months (11 months)	2 months	3 months	6 months	
60 months (23 months)	2 months	3 months	6 months	12 months

With this new education paradigm, program directors and faculty will probably need to commit the majority of their time and effort to remaining compliant with program and documentation requirements, including the integration of the competency milestones into their curriculum and assessment processes. Hopefully, one goal of these upcoming efforts will be to provide more transparent and achievable requirements that could serve as the foundation for a "true" competency-based residency. From the learner's perspective, residents would have a better "road map" to achieve specialty and subspecialty practice requirements. An additional advantage of this competency-based approach is that residents could more easily stop and restart their clinical training. For those residents with an interest in research, education, or administration, the focus on competence should make pursuing these interests easier to plan and accomplish. This type of career development opportunity could improve the breadth and depth of future faculty in academic anesthesia departments. For many residents that have a background in basic or clinical research or prior training in engineering, technology, education or business, a "diversion" in area of interest that may also advance the specialty could stimulate their interest in an academic career. Our specialty's emphasis on minimizing the time away from clinical training in the residency continuum has not likely helped

with the recruitment, development, and retention of academic faculty. This education paradigm assumes that residents will be able to retain most of their acquired competencies. However, programs will also need to identify and reassess the skills that are more likely to become extinguished over time.

We now need more focused and creative exploration of how residency programs could use the "detail" in the core program requirements to customize the education for any given resident. One concern with this "road map" is that the route does not become more tortuous, prescriptive, and longer than our current training continuum. Any further lengthening of residency will have a detrimental impact on the debt load of our residents and fellows. The financial sacrifice associated with long training continuums should be addressed in order to keep talented future academicians focused on developing their careers rather than their debt. Creative debt reduction and loan repayment programs as well as education stipends should be considered. Perhaps our new developmental milestones will provide momentum to move forward with true competency-based education with incentives for the motivated resident to excel and take advantage of new opportunities that programs are able to provide them.

Some departments have fostered the development of a more investigative culture within their residency programs through the establishment of formal mentorship programs and the formation of resident scholarship oversight committees to provide added guidance and support for their residents. The ACGME currently ask residents in training programs to perform an "academic project." This requirement should be considered an invitation to provide residents with a career-changing project, which could open the door to developing skills as a researcher, educator, or administrative leader. Moreover, assigning an accomplished faculty mentor with shared interests to a trainee who has similar career aspirations may provide the formative experience needed to launch the career of a future academic anesthesiologist. There is now growing recognition that robust mentorship programs with inspirational role models are needed to ensure there is a successful start to a young faculty's academic career.

Our specialty is ideally positioned to develop leaders in basic, translational, as well as clinical outcomes research. Our information management systems and clinical venues provide unparalleled opportunities to conduct meaningful and timely research. Our clinical laboratories include our preoperative clinics, operating rooms, postanesthesia care units, critical care units, and pain clinics. We must continue to be good stewards of these clinical research assets by identifying young physicians who can thrive as academic anesthesiologists and will benefit most from more formal research and mentorship programs. "If we take advantage of our current opportunities as we explore and create new programs in this new resident education paradigm, our specialty will be better able to attract and keep some of our "best and brightest."

Imperatives for the Future of Anesthesiology — A Perspective from FAER

Denham S. Ward, MD, PhD

Several years ago, I designed a required four-week basic science course for senior medical students. I knew it probably wouldn't be the most popular course in the medical school curriculum, but I took it on as a mission to help students understand the role of research in medicine. I named the course "Process of Discovery,"[1] inspired by a quote from a paper in *The Lancet* by David Horrobien.[2]

"Confronted with an illness of whatever type or severity, a doctor has two ethical imperatives. The first is to ensure that a specific patient receives the best available current medical care. The second is to develop new treatments so that the patient and others with the same problem can be treated completely, easily, and economically."

It was this second "imperative" on which I aimed the course because although I believed that the medical school (and residency) curriculum did an outstanding job of meeting the first imperative, I thought it was lacking in giving students the tools to meet the second.

Beyond courses in medical school, what can we do to meet this second imperative? In order to continue developing new treatments and improve patient care, anesthesiologists should not only encourage medical students and residents to pursue research in their careers but also should ensure we provide the opportunities (time, resources and funding) that set them up for success when they do.

Defining "Success" in a Research Career

Although there are many markers of "success" in a research career, such as winning the Nobel Prize, research publications, perhaps with their quality measured by a citation bibliometrics,[3] and grants are most commonly used. For grants, NIH funding has long been taken as an essential marker of research success. For instance, academic promotion is often partly based on whether the faculty member has NIH funding. And on a larger scale, it is useful to examine the amount of funding anesthesiology receives from the NIH compared to other medical specialties. (See Figure 1)

Although we should widen how we define success for a physician-scientist beyond NIH funding, it is important now to consider that the NIH is experiencing tough times. Federal research and development investments have declined continuously since 2004 in both constant and actual dollars. From 2010 to 2013, federal support of research decreased 16 percent, and cuts to biomedical research were even greater. The NIH budget has now fallen by almost $6 billion in constant 2003 dollars.[4] In 2001, the overall success rate for grant applications
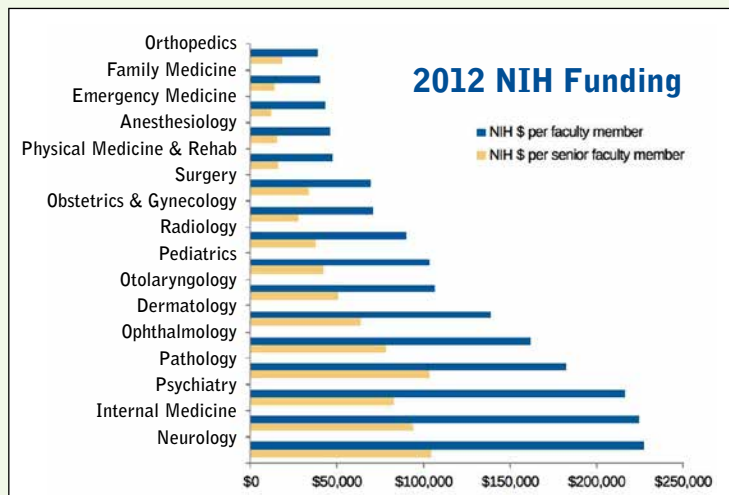

Figure 1   2012 data from AAMC data book (faculty numbers) and Blue Ridge Institute for Medical Research (NIH funding). There are a lot of caveats with this data (e.g., medical school level funding does not include hospitals and some institutions do not specify the department). Recent data is essentially unchanged for 2013 and anesthesiology still ranks 13-14.* Surgery includes plastic surgery, neurosurgery and urology.

to NIH was 32%. By 2008, it had fallen to 22%. In 2013, it fell further to 17%.[5]

In addition to the decline in funding, and despite the many discoveries yet to be made in anesthesiology, NIH funding for anesthesiology languishes near the bottom of all specialties. As Figure 1 shows, in 2012, it ranked 13 out of 16 medical specialties for the amount of NIH funding per faculty member, ahead of only emergency medicine, family medicine and orthopedics.[6] Obviously, if anesthesiology is to receive more NIH funding, we need to have a motivated group of junior faculty, strong mentoring and research funding that will help prepare early investigators to submit competitive NIH grants.

Encouraging Research and Anesthesiology

Perhaps even more unsettling than the current situation with NIH funding is the decline in the number of physicians reporting research as their major professional activity. It has dropped nearly 20% over the past 30 years, from 16,773 in 1982 to 13,577 in 2011.[7] This could be attributed to a few factors: the increased demand on clinical care (resulting in less protected time for research), and the number of medical students and residents choosing careers in research.

Dual-degree MD-PhD programs are designed to help medical students with an interest in research pursue academic careers. But a study by Paik et al.[3] indicates that students who pursue an MD-PhD are less likely to pick anesthesiology than students who pursue only MDs (Figure 2).

How can we reverse this trend? The first step is to identify students who are interested in research careers, including MD-PhD candidates. The second step is to show these students
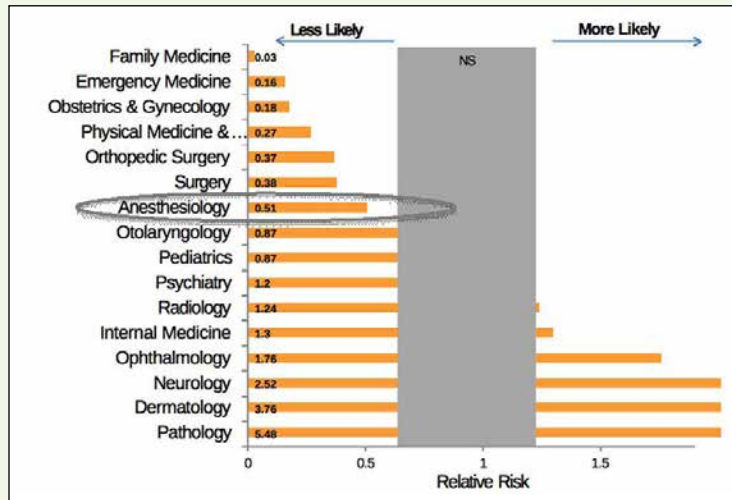
Figure 2 Comparison of the "Relative Risk" of an MD-PhD student picking anesthesiology as a specialty. Redrawn from Paik et al.[6]

- Resident
  - Insufficient interest
  - Limited time availability
  - Lack of research skills

- Departmental
  - Paucity of mentors
  - Limited faculty time
  - Absence of research curriculum

- External
  - Inadequate extramural funding

- Financial
  - Maintaining faculty income
  - Resident debt

**Figure 3** Obstacles to research during residency.

anesthesiology is a career choice that will provide a wealth of interesting and challenging problems to solve.[7] Third, we need to provide opportunities so medical students can start research during medical school. Foundation for Anesthesia Education and Research (FAER) is helping facilitate this through summer and year-long anesthesia research fellowships.

For our residency programs, we need to continue to advocate for the time and infrastructure for residents to obtain a meaningful research experience. Rothberg[8] has described the many obstacles to research during residency (Figure 3), but with effort more departments should be able to provide such an experience. Although there is little reason to make research mandatory for all residents, there should be research tracks in residency programs that will help recruit and retain residents who have a strong desire for a research career.[9] FAER supports these beginning research efforts through our Research Fellowship Grants.

The research opportunities (time, resources and funding) we can provide to our anesthesiology trainees at the medical school and residency levels will ultimately help us meet the imperative task of developing new treatments that will advance anesthesiology and provide better care for all our patients.

References

1. DiGiovanni B, Ward DS, O'Donnell SM, Fong CT, Gross RA, Grady-Weliky T, Lambert DR. *Process Of Discovery: A Fourth-Year Translational Science Course.* Medical Education Online. December 2011;16 (doi 10.3402/meo. v16i0.8443. Epub 2011 Dec 5.)

2. Horrobien DF. *Effective clinical innovation: an ethical imperative.* The Lancet 359:1857-58, 2002

3. Pagel PS, Hudetz JA. An analysis of scholarly productivity in United States academic anaesthesiologists by citation bibliometrics. *Anaesthesia* 2011; 66: 873-8.

4. Johnson, JA. Brief History or NIH Funding: Fact Sheet. Congressional Research Service (www.crs.gov), Dec 23, 2013.

5. NIH Data book. Report.nih.gov/nih_funding.aspx (accessed 2/4/13)

6. Paik JC, Howard G, Lorenz RG. Postgraduate choices of graduates from medical scientist training programs, 2004-2008. JAMA. 2009 Sep 23;302(12):1271-3. doi: 10.1001/jama.2009.1355.

7. Fleisher LA, Evers AS, Wiener-Kronish J, Ulatowski JA What are we looking for? The question of resident selection. Anesthesiology. 2012;117:230-1

8. Rothberg MB. Overcoming the obstacles to research during residency: what does it take? JAMA. 2012;308(21):2191-2192

9. Wood M. Maintaining and fostering the future success of academic anesthesia: recruiting and training the next generation of academic anesthesiologists. Anesth Analg 2013;116:1–3
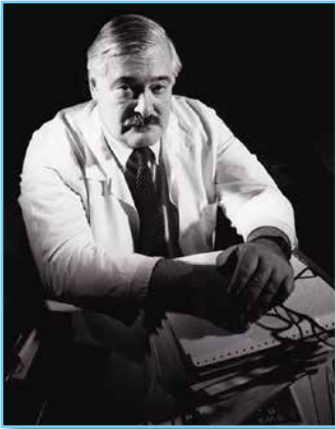
Distinguished AUA Member Interview: John Kampine, M.D., Ph.D.

Lisa Faberowski M.D.
Stanford University

John M. Kampine, M.D.
Medical City Hospital, Dallas, Texas

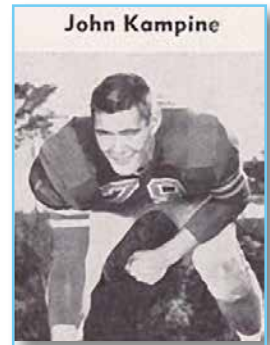John P Kampine will be celebrating his 80th birthday on October 4, 2014. He retired from his career in Anesthesiology at the age of 74 after serving as Chairman of the Department of Anesthesiology at the Medical College of Wisconsin for 26 years. He served as an ABA examiner for 25 years. Among his many accomplishments are 340 scientific papers, the legacy of training over 500 residents and fellows, and being former President of the following society's: Association of University Anesthesiologists, Association of Academic Chairs, Medical College of Wisconsin Faculty Academy and Wisconsin Heart Association. He is the cofounder of the Society of Academic Mentors for the Foundation of Anesthesia Education and Research. Dr. Kampine has an honorary membership to the Faculty of Anesthetists of the Royal College of Surgeons of Ireland, has received the American Society of Anesthesiologist's Excellence in Research Award and was inducted into the Institute of Medicine for Distinguished Service. More importantly, he has been married to his wife Susan for 58 years and is the father of 5 children and grandfather to 10 grandchildren. He currently resides with his wife Susie in West Palm Beach, FL.

He was born in Marathon, Wisconsin, which currently has a population of about 1100 within its 33 square miles. His mother was Irish and his father German. Marathon was a farming community in which his family had a big white house on Main Street. The home was also where his father practiced medicine. Early in his life, John saw the compassion of his father in caring for individuals within the community. His father was well known and respected in the community and was committed to serving others and never took a vacation. It was a good life for the young John Kampine growing up. He went to St. Mary's Grade School, had one brother and three sisters. He spent his free-time rafting and fishing on the Rib River in Marathon in addition to occasionally getting himself into trouble.

He came from a family of very devoted Catholics; in fact, he initially went to St. Bart's Seminary School and had plans to become a priest. After

two years in Seminary, John Kampine had a passion to play football, though he had never played football before. John Kampine was of good stature and by all appearances, he would make a great football player and indeed, he did. Marty Crowe recruited him to Columbus high school in Marshfield, Wisconsin to play football. Marshfield was 40 miles away from his hometown of Marathon. Even at a young age, Dr. Kampine was well accomplished. He played offensive tackle and made All State and All Conference in football more than once. He received a full scholarship to play football at Notre Dame. Concerned about not getting enough playing time, he later transferred to Marquette University. He lettered in football and wrestling. It was at Marquette that he met his wife, Susan. He was biology major and the two met in a chemistry lab.

John Kampine continued with his education at Marquette University and received his degree in Medicine at Marquette University, as did his father. It was also at Marquette where he received his PhD under the mentorship of JJ Smith. JJ Smith was a physiologist, however, Dr. Kampine was more interested in autonomic receptors and baroreceptor reflexes. John had hoped to continue his training as a post-doctorate at the NIH under the mentorship of Dr. Sarnoff. Dr. Sarnoff's lab was in cardiovascular research specifically the myocardial tension-time index. However, after a series of heart attacks, Dr. Sarnoff needed to close his lab; so instead, he continued his training as a post-doctorate at the NIH under the mentorship of Dr. Roscoe Brady. Dr. Brady studied storage diseases. Dr. Kampine worked in Dr. Brady's lab for two years, where he developed a diagnostic test for Niemann Pick and Gaucher's disease. Unexpectedly, there was a need for him to return home to his family in Wisconsin; his father had a stroke.

A friend of his, Peter Kot a pulmonary physiologist, who knew of John's father's illness, was at Georgetown and introduced John to Dr. Ernie Henschle. Dr. Henschle travelled to Washington D.C. to meet the young Dr. Kampine. It was this fortuitous meeting that brought Dr. Kampine

Distinguished AUA Member Interview: John Kampine, M.D., Ph.D.

back to Milwaukee, Wisconsin. Kampine was initially interested in internal medicine because he was interested in cardiology. However, he saw Anesthesia as an emerging specialty with a large potential for research. It was at the Medical College of Wisconsin that he would spend his entire medical career. At that time, training in medicine was similar to being in the military. You would receive an attending's salary if you agreed to pay back the time in which you were paid. Dr. Henschle also negotiated housing at the VA for Dr. Kampine. With four children at the time, these benefits were welcomed.

The anesthesia department at the Medical College of Wisconsin was a small group of 25 individuals that were clinically adept. There was not much research at the time, so Dr. Kampine's task was to build the research portion of the division. It was an easy transition, because he was well liked and he found good collaborators in the physiology and pharmacology departments. As a young faculty member, he was interested in baroreceptor reflexes and blood pressure control. His initial NIH grant was about sympathetic afferents and circulatory control. In reflection, his cherished publications were his on the effects of anesthesia on the autonomic nervous system and the baroreceptor reflexes. This series of publications is amongst his 340 publications during his career. Dr. Kampine was funded by the NIH and Veteran's Administration Merit Review Grants for over 15 years for his research in neuroregulatory-control and cardiorespiratory effects of anesthetics.

It was in the Department of Anesthesia that he developed a close relationship with what he would call his third mentor. The first being JJ Smith and the second being Roscoe Brady. Dr. Henschle shaped Dr. Kampine's career in anesthesia. Dr. Kampine also had a joint position in the Department of Physiology at the medical College of Wisconsin. For 41 years he gave a block of lectures to the medical students on the physiology of the heart. He delivered these lectures with intense passion because out all of his academic efforts, this was most enjoyable to him. He took pride in the fact that the students remembered him and his lectures. Most importantly, he valued that he may have encouraged some of them to go into Anesthesiology. Dr. Kampine also cherishes those individuals who came from foreign countries to work in his lab and later obtained their Visa's and pursued a career in medicine. He was very influential in a number of individual's lives, many of whom, still today, stay in contact with him and make visits to see him in West Palm Beach, Florida, where he currently resides.

His clinical area of expertise though to some extent guided by Dr. Henschle was also a niche he fit into very well. "John, you have to do heart and lungs" It was to some extent a game of tag you are it. He began in the cardiac anesthesia group and soon learned he was in charge. According to Kampine, himself, "he learned fast and soon others would look at him because he could discuss the mechanisms of cardiac interaction." Kampine, indeed, was a leader.

Ernie Henschle was a great role model and mentor for John Kampine. However, Dr. Henschle had a series of unfortunate events and losses. He lost his son and daughter in a boating accident. He sustained injuries from a skiing accident and was subsequently diagnosed with lung cancer. It was difficult for Kampine to see someone who was once his own strength, suffer through such difficulties. One of Herschel's many accomplishments, besides bringing John Kampine into the Department, was making the Anesthesia Department independent of the Surgery Department, under a tough Head of Surgery.

He succeeded Dr. Henschle as Chairman of the Department of Anesthesia at the Medical College of Wisconsin. He served as Chairman for 26 years and stepped down as Chairman at the age of 74. He spent one additional year in the Department and officially retired at the age of 75. During his tenure the faculty grew from 25 to 100 faculty members. When asked what was most difficult about being chair he said, "It was dealing with personnel issues and individuals who were not quite measuring up." Though his achievements were many, in his mind, his success was the success of those he trained.

What can't be overlooked is John Kampine's contribution to ST segment monitoring in the operating room. It was John Kampine's idea and his ability to bring people together to make an idea happen. He had the expertise of Gary Connor at the VA and the ear of Marquette Marketing Representative, Michael Cudahy. Using the idea of stress testing in the cardiac physiology labs and integrating electrocautery suppression into a workable model that was free from artifact and accurate, led to a product distributed by Marquette Medical that made over $800,000 within its initial 8 months of marketing.

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16   AUA *Update*

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