



AUA

Association of University Anesthesiologists

Update

Fall 2011

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2012 59th AUA Annual Meeting in Cleveland

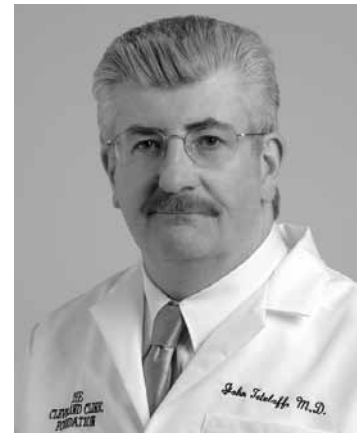
David L. Brown, M.D.
 Professor of Anesthesiology
 Chairman, Anesthesiology Institute
 Cleveland Clinic

John Tetzlaff, M.D.
 Anesthesiology Institute
 Cleveland Clinic

The Anesthesiology Institute of Cleveland Clinic is proud to host the AUA Annual Meeting on May 17-19, 2012. We welcome the AUA to Cleveland, home of the Rock and Roll Hall of Fame, and to the campus of Cleveland Clinic. The Cleveland Clinic has a distinguished record of achievement and a unique role in the



David L. Brown, M.D.



John Tetzlaff, M.D.



modern medical world. Founded in 1921 by four physicians, Dr. George Crile, Dr. Frank Bunts, Dr. William Lower and Dr. John Phillips (three surgeons and an internist), the Clinic opened in February of 1921 modeled in part after a military hospital (all four founders served in WWI) and also in part after the Mayo Clinic that had been founded by friends. A unique element of the founding was a commitment to a physician-run group practice, a model that persists in the present. After a distinguished start fueled by generous philanthropy, the survival of the Clinic was threatened by the radiology fire and explosion of May 15, 1929, which killed 123 people (staff, nurses, patients, and visitors) and injured 50 others. The personal fortunes of the founders, notably Crile and Lower, combined with generous philanthropy from the community allowed the fledgling medical entity to survive and, ultimately, thrive. Notable achievements followed in hypertension, cardiovascular surgery and solid organ transplantation.

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2012 59th AUA Annual Meeting in Cleveland

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Dr. Crile's Innovation

The beginnings of anesthesia at Cleveland Clinic had a distinguished place by virtue of the work of Dr. Crile. In addition to his skill as a surgeon, he had a Ph.D. in physiology and studied hemorrhagic shock in dogs. This work led him to conclude that a complete anesthetic was part of achieving a good outcome after surgery. He demonstrated that prevention of pain or "anoci-association" reduced the shock he observed after surgery in dogs, and more importantly in human patients during his battlefield experiences during WWI. This led Crile to advocate that all surgery should be conducted with a multifaceted anesthetic (ether, nitrous oxide, morphine, and local anesthetic infiltration or neural block whenever possible). His book, *Anoci-Association* was published in 1914 (Full text on line: George Washington Crile - 1914 - 253 pages - Free Google eBook books.google.com) several years after oral presentation at the Boston Medical Society. This monograph presented the approach and justification for what could be seen as a precursor to modern balanced anesthesia and an early contribution to pain medicine. Crile had numerous other achievements, including the creation of the first hospital-wide nitrous oxide delivery system at Lakeside Hospital (re-created in France during WWI) and the performance of the first blood transfusion in the city of Cleveland.

First Physician Anesthesiologists

The first physician anesthesiologist at Cleveland Clinic was Dr. Donald Hale, who joined the Clinic in January of 1946 after service in the Pacific theatre of WWII. Hale had surgery and anesthesia fellowship at the Mayo Clinic prior to Naval Service. He established the role of physician anesthesia at Cleveland Clinic, created an anesthesia fellowship and had numerous technical achievements, including creation of the first ventilator used in Cleveland and a paper-free EKG machine to use in the O.R. during early cardiovascular surgical procedures. Another

Cleveland Clinic milestone was the first aortocoronary bypass procedure performed by Dr. Renee Favolaro.

AI: A Full-Service Group

The current Anesthesiology Institute (AI) is a diverse group of over 225 physicians and up to 750 total employees, under the direction of institute chair, and past president of the AUA, Dr. David L. Brown. Organized into six departments, The AI provides the full spectrum of anesthesia services in an academic model with 110,000 anesthetics, 180 critical care beds and over 100,000 pain medicine visits. The Department of General Anesthesia provides 50,000 anesthetics for all surgery except cardiothoracic and critical care at four sites. The Department of Cardiothoracic Anesthesia provides anesthesia and critical care for the highest-volume cardiothoracic surgery program in the U.S. The Department of Pain Management provides a very high volume of diagnostic and therapeutic care in the rapidly expanding world of pain medicine at 22 different sites. The Department of Regional Practice Anesthesia provides anesthesia services away from main campus, including 10 hospitals and surgical centers. The Department of Outcomes Research headed by AUA member Dr. Dan Sessler conducts an array of outcome trials producing and impressive volume of impact publications.



Residency

The Institute sponsors a four-year anesthesiology residency with 26 residents per class, four accredited fellowships (cardiothoracic anesthesia, pediatric anesthesia, pain management, and anesthesiology critical care) and three non-accredited fellowships (obstetric anesthesia, neuroanesthesia and regional anesthesia) as well as Outcomes Research fellowships. The AI played an important role in the creation of the Cleveland Clinic



Lerner College of Medicine of Case Western Reserve University, including sponsorship of an anesthesiologist as the first Dean (Dr. Lindsey Henson). The AI is an important provider of continuing medical education (CME) within the anesthesiology world. The AI sponsors three unique courses per year, including a survey course (32 contact hours), a pain medicine course (more than 40 contact hours, including a full array of cadaver workshops), and a full-scale board review (more than 50 contact hours). The institute co-sponsored a course in Beijing, China that was one of the first to grant U.S. CME contact hours. For 2010-12, the AI has provided the activity director for the Middle East Anesthesia Conference, part of Arab Health, the largest medical education entity in the Middle East.



Cleveland Rocks!

Cleveland is the heart of Northeastern Ohio and a hub of Midwestern culture. Cleveland sponsors five professional sports (baseball, football, basketball, hockey and indoor soccer) with three major league sports arenas a short distance apart in downtown. Downtown Cleveland is home to **Tower City**, an indoor shopping mall created within the historic railroad center for Cleveland. Downtown is also home to the Great Lakes Science Museum with hands-on exhibits and the OmniMax theatre, sharing an eastern property boarder with the world-famous **Rock and Roll Hall of Fame (RRHOF)**. AUA members will have a unique opportunity to enjoy the RRHOF at the Reception/Dinner Friday night, where members will have access to the exhibits as part of the evening's entertainment. The east side of Cleveland features **University Circle**, where the **Botanical Gardens, Natural History Museum, the Auto Museum, the Art Museum, the Children's Museum, and Severance Hall**, home of the Cleveland Orchestra, are found. The cultural diversity of University Circle, including numerous restaurants with a wide array of styles. is less than a mile east of the Cleveland Clinic campus. The meeting is being held in the beautiful **InterContinental Hotel and Conference Center**. Opened in 2005, the site features deluxe accommodations, a unique fusion Asian restaurant (Table 45), and the state of the art Bank of America Conference Center, with classroom seating for 550 people.

We are looking forward to seeing everyone at AUA 2012 in Cleveland.



Accountable Care Organizations Spur Perioperative Medicine

Robert E. Johnstone, M.D.
Professor of Anesthesiology
West Virginia University

Six years ago the ASA Task Force on Future Paradigms in Anesthesia Practice, chaired by Ronald Miller, M.D., urged anesthesiology training programs to expand their focus beyond operating rooms to include perioperative management and critical care.¹ The taskforce concluded that “anesthesia could be the dominant leader in tertiary care hospitals, both clinically and administratively, with emphasis on through-put and outcomes.

“Since this report, academic departments and training programs have continued their diversification outside the surgical suite, now frequently running preoperative clinics, expanded pain medicine programs and critical care rotations, as well as using robust quality improvement programs that include patient outcomes and measures of satisfaction. The Accreditation Council for Graduate Medical Education has included in its definition of anesthesiology the “supervision, teaching, and evaluation of performance of personnel, both medical and paramedical, involved in perioperative care.”² Many programs provide residents extensive education in practice administration and give senior residents experience in managing the surgical suite schedule.

This investment in perioperative medicine and practice administration could help anesthesiologists meet a growing demand from healthcare reformers - to better coordinate patient care by working together to improve efficiency and quality of care and to reduce costs.³ Donald Berwick, M.D., Acting Administrator of the Center for Medicare and Medicaid Services (CMS), has stated that “the hallmarks of the care system that we need are integration, cooperation, and seamlessness.”⁴ CMS will thus pay physicians in 500 demonstration projects to coordinate the chronic care of patients to “test the effectiveness of doctors and other health professionals working in teams to improve care for up to 195,000 Medicare patients.”⁵ Still unsettled is how to coordinate better the care of hospitalized patients, and who will do this.

Accountable care organizations (ACOs) are new care models, proposed in the Affordable Care Act (ACA). They envision networks of doctors and hospitals that band together and use computerized medical records to eliminate duplication, improve quality and cut overall costs. The ACA proposes financial incentives for ACOs, the sharing of Medicare cost savings with the ACO as long as quality measures are met, with the final rules set for release this fall. The need of healthcare reformers and ACOs to improve hospital care efficiency seems close to the expertise of anesthesiologist operating room directors, who are generally responsible for operating room efficiency, productivity, and cost containment. This is an important area because two-thirds of hospital costs involve surgical care.

Anesthesiologists who expand their director responsibilities to include the pre-operative and post-operative processes would meet the need of ACOs.

The American Society of Anesthesiologists has developed a statement on the perioperative home, a patient care concept similar to the medical home model for chronic care. (This document can be found at www.asahq.org/For-Members.aspx, then clicking “Advocacy,” then “Legislative Conference” and finally “ASA Perioperative or Surgical Home Concept Paper.”) Through perioperative homes “anesthesiologists can help hospitals and other healthcare organizations meet the aims and priorities of the National Quality Strategy.” By expanding the roles of anesthesiologists, perioperative homes “would help healthcare entities earn additional funds made available through the new Partnership for Patients initiative.” Academic centers with integrated clinical services and already planning ACOs could easily transition to perioperative homes. What is needed now is for some academic anesthesiology departments to establish perioperative home demonstration projects. Conventional wisdom has been that payments drive practices. In the perioperative home practices may beget payments, and fulfill the future paradigm taskforce vision of anesthesiology dominance.



Robert E. Johnstone, M.D.

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Wall Street Journal Publishes Article: 'Mistakes in Scientific Studies Surge,' August 10, 2011

Marie Csete, M.D., Ph.D.
Chair, Scientific Advisory Board

We are all, physicians and patients alike, damaged when fraud is uncovered in the scientific literature. Recent cases in our field have shown just how easy it is to fabricate entire clinical studies, even to the point of making up raw data that passes muster with experienced editors who also happen to be sophisticated statisticians. Alas, there will always be fraud. But two points raised in the *WSJ* article deserve comment:

- “Most researchers accept findings published in peer-reviewed journals” I think we (academics) have not done a good job at communicating our ability to be critical of the published canon. Journal clubs tear high profile articles to shreds, our internal antennae are always on the lookout for reasons to be cautious, but what the public sees instead is more black and white. For example, direct advertising of pharmaceuticals to the public would make one think that patients with terrible arthritis spend their days cavorting in fields of flowers (while in the background a mantra of possible side effects is muttered at warp speed). Whenever we talk about the science of medicine in public, we should inform, but we should include information about the gray areas being an inherent feature of complex medical problems.”

- “Journals don’t have adequate resources to investigate misconduct” is true since editorial boards are a largely voluntary activity. But our field has done a great job of late investigating

and appropriately responding to horrifying discoveries that whole series of human studies were fabricated. Led by Steve Shafer, Editor in Chief of *Anesthesia & Analgesia*, many editors of the journal put in enormous time to plow through the work of the offending researcher. But these editors also critically analyzed the journal’s past response to related work, and did a superb job reassessing the ‘true knowledge’ base in light of the fraud. The entire editorial board got a lesson in how to be better reviewers. Will we be able to prevent similar episodes of published fraud in the future? Unlikely. But will re-examination of the literature prove a valuable rediscovery of the essence of truth? Perhaps. Patients will be hurt by unethical researchers, but we can reduce a possible epidemic of harm by applying healthy and rigorous skepticism to the latest literature, and more importantly, to our own research.”



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

SAB Call for Nominations

The AUA Council would like to invite AUA members to nominate another member or apply themselves for service on the Scientific Advisory Board (SAB). The SAB determines the scientific content of the Annual Meeting program and provides input to the AUA Council on issues pertinent to the scientific mission of AUA. SAB has three responsibilities:

1. Grade abstracts for the AUA Annual Meeting and organize accepted abstracts into sessions; 2. Attend the AUA Annual Meeting to help poster and oral discussion sessions and attend the SAB working luncheon for discussion of issues relevant to the SAB; and 3. Contribute a 500- to 1,000-word article to the AUA newsletter once during the three-year term on the SAB. Articles might be short reviews of some recent scientific advance or pertinent topic, a meeting review or an opinion piece.

To nominate a member or to apply for service on the SAB, please e-mail curriculum vitae by Monday, February 27, 2012 to: Marie Csete, M.D., Ph.D., SAB Chair at mariecsete1@gmail.com. The AUA Council and the SAB chair will choose two candidates who will then be contacted to confirm their willingness to serve. The three-year term begins after the AUA Annual Meeting, May 17-19, 2012 in Cleveland.

SAB Report: Optogenetics: An Innovative Approach for Studying Brain Function

Zhiyi Zuo, M.D., Ph.D.

Robert M. Epstein Professor

Professor of Anesthesiology, Neuroscience and Neurosurgery
University of Virginia

Innovative technologies/approaches have played a critical role in advancing our knowledge of biology and medicine. Electrophysiology, polymerase chain reaction, nanotechnology and RNA interference are just a few examples. A newcomer that belongs to this group of technologies is optogenetics.

An Emerging Field

Optogenetics is an emerging field that combines optical and genetic technologies to determine the functions of individual groups of neurons in neural circuits *in vivo* with great temporal resolution (millisecond timescale). The first experiment to show that this approach can achieve activation of a selective group of cells under *in vitro* condition was published in 2002 by Miesenböck et al. who used cultured rat hippocampal neurons in the study.¹ Miesenböck's group was also the first to use optogenetics *in vivo* (2005) with proof of concept experiments showing that the behavior of *Drosophila* could be regulated by photostimulation of various groups of neurons.² The term "optogenetics" was formally adopted by Deisseroth et al in 2006.³ Since then, this approach has been featured many times in both *Nature* and *Science*.

The Basis of Optogenetics

The basic components of optogenetics include expressing light-activated ion channels or other proteins in a selective group of neurons and then stimulating these proteins with a precisely controlled light source, allowing for precise temporal resolution. One of the first opsins used in optogenetics is the microbial channelrhodopsin 2,⁴ a light-activated cation channel. After neurons are transfected with the channelrhodopsin 2 gene *in vivo*, light from a slim fiberoptic probe in the brain is used to activate locally expressed channels, and thereby, excites neurons. Other opsins whose activation excites or inhibits the corresponding neurons have been produced and used in animal studies. Fusing opsins to G-protein coupled receptors has been used to regulate intracellular messengers, such as cAMP.⁵ These opsins or fusing proteins can be expressed selectively in a target group of neurons by using various well-established genetic and molecular biology techniques. For example, a cell type-specific promoter can be used to direct the expression of these proteins only in a specific group of cells. When light is shone in a

brain region, only those cells that express light-activated channels in the region are activated or inhibited.

Four Steps

There are four basic steps in performing an *in vivo* optogenetic study. First, an expression cassette that contains codes for a light-activated protein and a promoter to control the expression of the protein is constructed. This expression cassette is then inserted into a viral plasmid to prepare virus. In the second step, virus is injected into a selective brain region. In the third step, optrode, a fibre-optic cable with electrode, is inserted into the brain region or an area near the region. Finally, excitation or inhibition of selective neurons is induced by light and the results, such as animal behavior, are observed. The third step can be omitted in small animals, such as flies, because external light sources can penetrate and reach their brain tissues.



Zhiyi Zuo, M.D., Ph.D.

"It is hoped that optogenetics will help improve our understanding of neurobiology in healthy animals as well as neuropathology of various human diseases, such as Parkinson's disease."

Widening Use

The use of experimental optogenetics is increasing rapidly. It has been successfully used not only in flies but also in small mammals, such as mice and rats. Its use in large animals, such as monkeys, has been attempted in recent years.⁶ Obviously, optogenetics is a great technique for studying functions of individual groups of neurons. It provides cell-specific information with millisecond timescale resolution, two features that cannot be achieved by pharmacology or conventional genetic and molecular biology techniques. The application of optogenetics is now not only used to excite or inhibit neurons but also extended to study functions of various proteins, such as G-protein coupled receptors. It is hoped that optogenetics will help improve our understanding of neurobiology in healthy animals as well as neuropathology of various human diseases, such as Parkinson's disease.

Benefits of Anesthesiology

Optogenetics is very relevant to anesthesiology. It has been used to determine the groups of neurons/brain regions that are involved in the sleep and wake cycle.⁷ As anesthetic status is a

dynamic process, optogenetics may become a critical technique to ultimately reveal anesthesia mechanisms and target sites for general anesthetics to induce anesthetic effects in the brain. Various other anesthesiology fields, such as pain research, may also benefit tremendously from this highly innovative technique.

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Editors note: Go to the AUA webpage members only section and look for the PDF of the poster presented by Singaram et al. at the 2011 meeting. Optogenetic methods were described in a C. Elegans anesthetic sensitivity study.

Plan to attend the 2012 AUA Annual Meeting hosted by the Anesthesiology Institute of Cleveland Clinic

AUA 59th Annual Meeting

May 17-19, 2012

InterContinental Hotel Cleveland – Cleveland, Ohio

To make your room reservations at the InterContinental Hotel go to:
[www.ichotelsgroup.com/intercontinental/en/gb/dates-preferences/
CLEHA?groupCode=RBB](http://www.ichotelsgroup.com/intercontinental/en/gb/dates-preferences/CLEHA?groupCode=RBB)

Abstract Submissions for the 2012 AUA Annual Meeting

Abstract submission site will go live:
in December 2011
Abstracts due: February 6, 2012



EAB Report: Is Automation of Anesthesia Inevitable?

Kirk H. Shelley M.D., Ph.D.
Professor of Anesthesiology
Department of Anesthesiology
Yale University

Modified with permission from: Kirk Shelley, Is the automation of anesthesia possible or even desirable? *Current Opinion in Anaesthesiology*. 2008, 21:748-749

The year is 2365. The patient, lying on the operating room table, is awaiting his procedure. He has been reassured the procedure is routine and will be complication free. An individual dressed in futuristic red OR dress approaches the patient, places a small metal disc, a “neuro-calibrator”, on the patient’s forehead. Reaching over to a panel, the person presses a button and the patient closes his eyes. He is now ready for surgery.

The patient is Captain Jean-Luc Picard of the starship, Enterprise. The procedure is the replacement of his artificial heart. The TV show is Star Trek, the Next Generation. This scene is from the 43rd episode named “Samaritan Snare”, first aired May 15, 1989. I was a second year anesthesiology resident when I first saw this episode. I remember wondering, “How many units can you bill for pushing a button?”

The episode poses the questions, what will anesthesia look like in the future and what will be the role of the anesthesiologist? As Alan Kay, of Atari and Apple fame, is quoted “The best way to predict the future is to invent it”. This leads one to ask, where should our technology research efforts be directed? I ran for president of the Society for Technology in Anesthesia (STA) in 2006. My candidate’s statement ended with...

“I believe we are on the verge of a remarkable era of research with the final outcome being the automation of anesthetic care. I expect our society not only to be present for such an evolution but to lead the way.”

“I believe we are on the verge of a remarkable era of research with the final outcome being the automation of anesthetic care. I expect our society not only to be present for such an evolution but to lead the way.”

I guess it should come as no surprise, I lost that election. No one wants to vote for a person committed to putting them out of work. Putting aside the question of gainful employment, one is left with three issues. First, is automation of anesthesiology possible? In other words, is there something intrinsic to anesthesia care that makes it impossible for some combination of computer technology and robotics to practice anesthesiology? Second, if it is possible, what technical and intellectual breakthroughs would be needed? Third, is this something we, as academic anesthesiologists, want to pursue and help bring into reality?

The above paragraphs were written in the summer of 2008. Moving forward to the present day, I once again ran and this time won the election to become the STA president for 2011. Beyond this change in my political fortunes, has anything else changed in the subsequent years? There have been an increasing number

of studies coming mostly from Europe demonstrating the effectiveness of closed loop systems. The typical system consists of a combination of hypnotics and narcotics (i.e. propofol and remifentanyl) infusions guided by EEG computer analysis (i.e. bispectral index). In addition, there has been a growing interest in patient controlled sedation systems which incorporates elements of automation. This has resulted in the creation of a FDA sponsored workgroup designed to study this entire issue. The reports from this multi-year taskforce promise to be most interesting and could have a significant impact on the field of anesthesiology for years to come.

Before moving forward into the future, it is good to see where we have come from. When anesthesiology started in the 1800’s there was not much in the way of technology. The essence of the practice of anesthesia consisted of using one’s eyes, brain and hands.

Stepping through each aspect:

Eyes: The practicing anesthesiologist is above all a vigilant creature. We take a wide variety of information; ranging from comments made by the surgeon and inspection of the surgical field, to

studying the numbers and waveforms from our monitors. While computers, at present, have a difficult time handling the sights and sounds of our world, numbers and electronic inputs come very naturally to them. The trend in anesthesiology technology has been towards more monitors. While it has been argued patient outcome has not changed dramatically by this new technology, it is clear the anesthesiologist’s workload has been reduced. Complex situations are being reduced to a simple numeric equation. The automated systems of the future will likely start as a consolidation of those numbers and waveforms. In this case we are left with a question. Can the patient’s condition be reduced to a series of numbers or is there some qualitative element that will defy being reduced to a computer input?

Brain: The intelligence of our mechanical anesthesiologist of the future will likely start as closed feedback loops. The linkages of physiological parameters to systems that vary dosages of medications, both intravenous and inhalational are under constant development. Researchers at McGill University have recently announced the development of such a system, “McSleepy”. The researchers have been quick to reassure the



Kirk H. Shelley M.D., Ph.D.

anesthesiology community that this innovation is more akin to an “automatic transmission”, rather than a replacement for the anesthesiologist, but the trend is clear. The component that seems to be missing is the “story” generator. It is not enough to treat tachycardia with beta blockers, one needs to generate a hypothesis as to why the patient’s heart rate is racing. Is it fear, pain, hypovolemia or a cardiac arrhythmia? This can only be done by integrating a wide range of information. Next, responses to interventions need to be evaluated and the hypothesis refined. As any anesthesiologist can tell you this is a nontrivial task. I believe this is the reason an anesthesia residency lasts for three years. It takes time to be exposed to enough clinical situations to recognize the underlying patterns.

Hands: While I am the first to admit that the function of the anesthesiologist is more than a dispenser of medications, and turning of dials, it is an important starting point. The anesthesiologist has a vast array of pharmacological agents available. There are up and down regulators of virtually every physiologic receptor system known to mankind. However, I suspect it will be a long time before an intubation robot will be developed that is both capable and cost effective. For the foreseeable future it is most likely that a person will have to ‘set-up’ the patient (intubate and place lines) for our automated anesthesiologist.

Now that we have outlined some of the characteristics required of our automated colleague, we can ask the question; are they achievable? While these are daunting tasks, I would not bet against the increasing processing capability of our silicon competitors. It was not that long ago people claimed that a computer would never play a convincing game of chess. Now, world chess champions are beaten on a regular basis. The recent Jeopardy (TV game show) win by IBM’s Watson against the best human player was an impressive display of natural language processing.

Ultimately, it comes down to our power to predict the future. There is a growing body of technically minded individuals that envision not a linear and orderly progression of advancement but an exponential increase in our capabilities. This was first hinted at in 1965 by Gordon Moore, co-founder and Chairman Emeritus of Intel Corporation. He predicted that every two years the number of transistors that could be placed on an integrated circuit would double. This trend has continued for more than half a century and is not expected to stop in the foreseeable future. This advancement accounts for the increase in computer processing capability that we have all experienced.

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EAB Call for Nominations

The AUA Educational Advisory Board (EAB) helps to develop programs for the Annual Meeting. These programs are oriented toward the educational mission of our specialty. The EAB also contributes articles to the AUA newsletter. The full committee meets during the AUA Annual Meeting (May 17-19, 2012 in Cleveland, Ohio).

Committee members are expected to attend the AUA Annual Meeting and the EAB committee meeting as well as actively participate in all committee activities. AUA members who are interested in serving on the EAB, who plan on attending AUA Annual Meetings and who are willing to help undertake the work of the committee are encouraged to submit their names and a brief CV. Alternatively, AUA members can submit the name of another member along with a brief CV. Nomination materials should be sent by Friday, December 2, 2011 to: David J. Murray, M.D., EAB Chair at murrayd@notes.wustl.edu.

The AUA Council and the EAB chair will choose three candidates who will then be contacted in the winter to confirm their willingness to serve. The three-year term begins at the 2012 AUA Annual Meeting in Cleveland.



Denham S. Ward, M.D., Ph.D.
President, Foundation for Anesthesia Education and Research

As I mentioned in my column last month, the spring FAER board meeting is always just prior to the AUA meeting; at the board meeting, decisions are made regarding grant funding. The list of grantees is posted on our website and will be listed in our ASA Newsletter column. In this newsletter, I would like to highlight two of the grants in more detail. This is not to say that the ones that I don't have space to feature are any less deserving. Our Mentored Research Training grant funds both basic science and clinical/translational research. The grants I would like to briefly discuss here are both clinical and use research methods that are not so traditional within anesthesiology research.

Daryl Kor, M.D., Assistant Professor at the Mayo Clinic, will study post-operative acute lung injury. Respiratory complications are the most frequent cause of morbidity and mortality following major surgery; risk assessment and prevention of this complication is an important clinical approach to this problem. The most severe post-operative respiratory complication is acute lung injury (ALI), which leads to acute respiratory distress syndrome. Although there have been dramatic improvements in the care of these patients in the ICU, truly effective treatments are still lacking. Dr. Kor's research is thus going to focus on the development of effective prevention strategies. He has identified two critical knowledge gaps: "an inability to reliably identify high-risk patients early" and "an incomplete understanding of the mechanisms involved in postoperative ALI." An important aspect of this work is the use of a large data base from the United States Critical Illness and Injury Trials Group which has developed a scoring index of ALI risk. Dr. Kor will validate and extend this score using a multi-center clinical database. The use of such databases is an important resource for clinical outcomes research and I expect that studies using data 'mining' of a variety of large clinical and administrative databases will become essential research tools in anesthesiology research.

The second grant I would like to highlight is also a clinical research grant that illustrates the broad nature of anesthesiology clinical practice and research. Rebecca Askalson, M.D., Assistant Professor at Johns Hopkins, will be doing research on the use of palliative care interventions in the SICU. As you

may know holders of primary anesthesiology certification from the ABA are eligible for subspecialty certification in palliative care, further cementing our role as peri-operative physicians. She will be bringing to bear rigorous qualitative research methods (e.g., ethnographic methods) that are perhaps not in the usual set of anesthesiology research tools. However, if we are going to continue to broaden the reach of our specialty, this type of research must be encouraged. Dr. Askalson will conduct audio-taped semi-structured interviews with long-term SICU patients and their families, as well as interviews with SICU clinicians. In these types of qualitative studies, the data analysis is "constant and iterative", with coding schemes developed on an initial cohort and revised with the addition of new data. These studies are hypothesis-generating rather than hypothesis-testing. Her ultimate goal will be to develop a "feasibility trial of the palliative care intervention pilot followed by formal clinical trials to determine intervention efficacy and effectiveness."

These are but two examples of the research that is being funded by FAER to help the careers of junior investigators. For Anesthesiology to continue as the vital and vibrant specialty that it is today, we must continue to innovate and improve the care of our patients both in and beyond the operating room. The membership of the AUA, as the established leaders in academic departments, is one of the main constituencies for FAER. As I begin my term as President, I plan to visit many departments to learn more about the academic environments that are the most conducive to developing investigative academic careers. I hope to learn more about how FAER can best facilitate and extend these environments to many departments. Please do not hesitate to contact me at the FAER office – your input is invaluable in helping FAER continue in its role. And FAER cannot do its job without your help and support – both collectively with the generous donation that the AUA annually gives to FAER, and also your generous individual donations.

FAER - advancing medicine through education and research in anesthesiology.



Denham S. Ward, M.D., Ph.D.



Idea for this cartoon from an Etherway blog post by Michael O'Connor (<http://mkeamy.typepad.com/anesthesiacaucus/2010/04/long-time-no-post.html>) and adapted from In "The Hostile Hospital," from the Lemony Snicket "Series of Unfortunate Events" books.

EAB Report: Is Automation of Anesthesia Inevitable?

Continued from page 9

This remarkable and exponential trend has caused people to speculate as to the ultimate outcome. Singularity has become an important concept (first introduced by Vernor Vinge in 1993 in an essay entitled "The Coming Technological Singularity") and even a social movement popularized by the inventor Ray Kurzweil. It predicts a time of radical opportunity, born of the convergence of four technologies (information technology, robotics, nanotechnology and genetics). The term "Singularity" is used to liken the changes produced by these technologies to that of a black hole. There is an exponential increase in acceleration and the inability to see beyond the "event horizon". In other words, our ability to predict the outcome of this ever accelerating technical advancement is negligible.

So where does this leave us with our theoretical automated colleague? Clearly with our present technology he/she/it is not ready to offer us a coffee break. Fifty years from now, I am not as convinced of the impossibility of technology performing the required activities. Given the possibility, I hope, too, that academic and industrial communities are able to see this potential as the opportunity it is.

Returning to 2365, it should be noted that John Luc's surgical procedure does not go as planned. He develops "hemocyclic declination" which can only be treated by the very human, Dr. Pulaski located back on the starship Enterprise. It is reassuring to know that even three hundred years in the future the human touch is still needed. However with a bit of effort, maybe they will be able to invent an automated hemocyclic declination treatment.



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Association of University Anesthesiologists

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