AUA
Association of University Anesthesiologists
Update
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AUA Member Runs for Congress…

From the Labor Floor to the Floor of the U.S. House of Representatives: *A Journey*

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Early in the spring of 2013, an article ran in the *Philadelphia Inquirer* stating that my Congresswoman, Allyson Schwartz, was almost certainly going to run for governor of Pennsylvania. If she did, she would vacate her congressional seat. The following morning, my phone rang off the hook with friends and colleagues urging, "You should run."

Eight months later, I am now a full-time candidate running for the U.S. House of Representatives in Pennsylvania's 13th Congressional District. I face a competitive primary that will take place on May 20, 2014. Because I live in a very gerrymandered district, a win in the primary greatly increases my chances of securing the general election in the fall. I have been asked by my friend and colleague, Andrew Kofke, to describe what this experience has been like.

The origins of this journey go back to 1999, when I assumed the Chairmanship of the Department of Anesthesiology at what is now Drexel University College of Medicine. The system had suffered through a bankruptcy in the late 1990s, and I chaired a department in a medical school facing similar budgetary challenges. At the same time, my patients (pregnant moms on the labor floor) were facing increasing challenges in their own lives – ones that were impacting their health and the health of their pregnancies. Seeing more and more patients fall through the cracks of a broken system inspired me to make a difference outside of the clinical realm. In 2004, I moved across town to the University of Pennsylvania to continue my clinical work, and returned to school to obtain a Masters in Public Health with a focus in U.S. health policy from Johns Hopkins Bloomberg School of Public Health.

Getting my MPH helped me to clearly understand the complexities that impact the health of both an individual patient as well as a community. In the spring of 2007, I joined the Board of Directors of a non-profit organization known as the National Physicians Alliance (NPA). The NPA is committed to finding a sustainable path to ensuring that all people have access to quality, affordable care as well as supporting policies that will improve the overall health of our country.

Soon after joining, I quickly became the point person for the organization's work on health care reform – arriving at the same time the issue entered the national conversation. Our work included traveling to Washington one to two days each week, working with a large coalition of organizations to help craft the legislation that eventually became the Patient Protection and Affordable Care Act.

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AUA Member Runs for Congress...

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Click on above image for video presentation.

While passing the Affordable Care Act was a considerable achievement, I was troubled by the scarcity of physicians, and other members of the medical community, to take the lead as members of Congress. Equally noteworthy, I was alarmed by how reliable data and evidence were often side-stepped during policy development. I believe having a more diverse Congress—one that includes representatives with varying life experiences beyond politics—would greatly enrich the legislative process.

Running for federal office requires high-level multi-tasking—a skill set I have honed by balancing the roles of clinician, researcher, teacher, department chair and mom. Since officially launching my campaign in March, I have raised, at the time of this writing (November 2013), over $800,000, opened a campaign headquarters, hired 6 full-time employees, and met hundreds of my future constituents. The demands of the campaign trail resemble the demands of being on-call at night with two Level 1 traumas running, and then getting the call for the stat GA C-section on L&D several floors away. There is constant tension and trade-off between te time needed to raise money (about 30 hours/week on the phone), and my passion for meeting people in my district and learning about effecrive strategies to improve the health and well-being of my community.

Despite the crazy schedule, I have loved every minute of this journey so far. I am honored, humbled and inspired on a daily basis by the generosity of my family, friends, colleagues, new friends, and supporters that I have yet to meet in person. Our amount of support is only growing, with contributions from 46 states at last count. Our anesthesia community has been steadfast, starting with my Department Chairman at Penn, Lee Fleisher, who enabled my smooth transition to a leave of absence while still maintaining my faculty appointment. I was very proud to receive the endorsement of the American Society of Anesthesiologists and the American Congress of Obstreticians and Gynecologists. One of our ASA representatives in Washington, D.C., Manuel Bonilla, deserves special recognition for his unceasing efforts to introduce me to the numerous medical organizations in Washington. It is the efforts of so many that make the journey worthwhile and an election won!

If you would like to follow along with me on this journey you can visit www.valarkoosh.com. And, if anyone reading this is inspired to run for office at any level, please give me a call!

Editor note: Val can be reached at varkoosh@gmail.com or 215-694-0885.

Anesthesia Patient Safety Foundation
Announces a *NEW* Procedure for Submitting Grant Applications

Letter of Intent (LOI) Process for APSF Grant Applicants in 2014

In consideration for an invitation from APSF to submit a formal grant application (maximum award $150,000 for a study conducted over a maximum of 2 years to begin January 1, 2015) applicants are being asked to initially submit a LOI for review by APSF.

- **Deadline to receive a LOI is Monday, March 3, 2014 (5 PM EST)**
- **Invitations to submit a formal grant application based on the LOI will be sent electronically by APSF on Thursday, May 1, 2014**
- **Deadline for receipt of a completed grant application based on the LOI will be Friday, August 15, 2014 (5 PM EST)**

Please contact Steven K. Howard (howard@apsf.org), Chair, APSF Committee on Scientific Evaluation for guidelines to submit a LOI.

Welcome to Stanford—Host of the 2014 Association of University Anesthesiologists' Annual Meeting

By Larry Chu, MD, MS (BCHM), MS (Epidemiology) | Associate Professor, Stanford University School of Medicine

We are extremely excited to host the AUA 61st Annual Meeting in Palo Alto, California, April 24-26, 2014. The Department of Anesthesiology, Pain and Perioperative Medicine at Stanford, under the leadership of chairman Ronald G. Pearl, MD, PhD, is proud to host this annual event at the Li Ka Shing Center for Knowledge and Learning on the campus of the Stanford University School of Medicine.

We look forward to welcoming you to our campus in Northern California, located 20 minutes south of San Francisco and nestled in the rolling foothills at the base of the Santa Cruz mountains. Our location in the heart of Silicon Valley has fostered a local culture of innovation that readily embraces new ideas and technologies. Our School of Medicine operates at this nexus of innovation, often sparking new advances in the biomedical sciences through interdisciplinary collaborations with the Schools of Engineering and Computer Science.

Anesthesia Research at Stanford

Our department's research questions have explored interlocking themes: mechanisms, safety and toxicity, physiology, clinical pharmacology, monitoring technology, simulation training, and, more recently, the merger of neuroscience, pain, immunology, molecular biology, and genetics. Over the next decade, our biomedical research will use new data-intensive tools—computational genetic mapping, haplotype mapping, and pharmacogenetics—to study how genetic variation affects disease susceptibility and drug response.

Anesthesia Education at Stanford

Our anesthesia residency program welcomes 26 new trainee physicians each year and is the foundation for the educational programs in the department. Our department is also only one of two in California that offers all four ACGME-approved fellowships (pediatrics, cardiac, pain and critical care) in addition to fellowships in OR management and anesthesia informatics.

One of the hallmarks of the department's educational efforts is the work of the Anesthesia Informatics and Media (AIM) lab that aims to explore how thoughtful use of technology can be used to enhance medical education and training. Our residents benefit from an array of educational tools produced by the lab including a year-long online course designed to prepare them for the transition from internship to anesthesia residency training (START), an online basic science curriculum designed to help residents achieve competency for the new ABA Part 1 Exam taken at the end of the CA-1 year (STARTprep), recording and online access to all lectures given during the course of a three-year anesthesia residency, an iPad initiative providing tailored mobile learning content for anesthesia trainees, and much more (see **http://aim.stanford.edu** for additional details).

Anesthesia Clinical Care at Stanford

Our department has seen consistent growth in our anesthesia clinical services over the past decade at Stanford Hospital, including dramatic growth in pediatric anesthesia services provided at the Lucille Packard Children's Hospital at Stanford. Our over 200 faculty (including 57 women) practice in three hospitals (over 100 operating rooms and procedural suites), five intensive care units, four pre-operative assessment clinics and three pain management centers.

We are tremendously excited at the opportunity to give you a window into our department and the Stanford University School of Medicine at the AUA 61st Annual Meeting in April 2014. As the host institution, our chairman, Ronald G. Pearl, MD, PhD, and a cadre of staff and faculty including Jane Duperrault, Sean Mackey, MD, PhD, Monique Chao, David Clark, MD, PhD, Myer Rosenthal, MD, Alex Macario, MD, MBA and others including myself are working very hard to ensure you will find your time with us at Stanford educational, engaging and enjoyable.

EAB Report: Anesthesiologist Assistants: Training, Certification, and Scope of Medical Practice

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Anesthesiologist assistants (AAs) are non-physician anesthesia providers that function as integral members of the anesthesia care team (ACT) under the medical direction of an anesthesiologist. Today, there are roughly 1,800 AAs practicing in 17 states, the District of Columbia and the Veterans Affairs system. Yet, many anesthesiologists remain poorly educated about AA training, certification, and scope of medical practice, especially as it compares to that of nurse anesthetists (NAs).

Anesthesiology Assistant History

In the 1960s, the U.S. faced a shortage of qualified anesthesia professionals. This shortage prompted Drs. Joachim S. Gravenstein, John E. Steinhaus, and Perry P. Volpitto to evaluate NA educational pathways. Specifically, they felt a new educational track was needed and set out to train a new type of non-physician anesthesia provider, the AA. Unlike NAs, AAs were to have premedical background, so the individual would be eligible for upward mobility into medical school. Second, AAs would always remain under the medical direction of an anesthesiologist. Their early efforts resulted in the establishment of two AA programs: Emory University, Atlanta, GA and Case Western Reserve University (CWRU), Cleveland, OH. Today, there are now ten accredited AA programs in the U.S., and 100% of practicing AAs still work solely under the medical direction of an anesthesiologist.

Anesthesiology Assistant Certification and Scope of Practice

Currently, AAs practice within the ACT via one of two mechanisms: statutory licensing as defined by the state legislature or delegatory authority provided to physicians through the State Medical Practice Act. The AA scope of medical practice is further determined both by hospital credentialing and anesthesia departmental policy. However, in contrast to NAs, AAs provide care only when medically directed by an anesthesiologist. There is no provision for AA practice under a non-anesthesiologist physician or any mode of independent practice.

The National Commission for Certification of Anesthesiologist Assistants (NCCAA; **http://www.aa-nccaa.org/**) certifies AAs, and includes seven AAs and six anesthesiologists on its governing board. Graduates from an accredited AA program must sit for an initial certification exam, submit 40 CMEs every two years, and take a recertification exam every six years to maintain national certification. The National Board of Medical Examiners (NBME) administers the initial and recertification exams.

In the medical direction model, payment for AA services is the same as a NA. A study of over 46,000 anesthesia cases by University Hospitals in Cleveland, OH did not find a difference in patient outcomes between NAs and AAs. Additionally, professional liability insurance carriers treat AAs and NAs equally; there is no difference in risk when insuring the two providers for performance in the ACT. Furthermore, no state has amended its state law to limit the scope of practice of an AA due to safety concerns. In fact, states have increased the AA supervision ratio (the current norm among payers in states in which AAs work is that an anesthesiologist may direct up to four AAs). Because AAs work under the supervision of an anesthesiologist, patients will always have an anesthesiologist involved in their care. As a result, the Code of Federal Regulations (CFR) recognizes AAs as qualified anesthetists for both the U.S. Department of Veterans Affairs and the Centers for Medicare & Medicaid Services (CMS).

Anesthesiology Assistant Program Accreditation

The Commission on Accreditation of Allied Health Education Programs (CAAHEP; http://www.caahep.org/arc-aa) accredits programs upon the recommendation of the Accreditation Review Committee on Education for the Anesthesiologist Assistant (ARC-AA). The ARC-AA derives its identity from the policies of CAAHEP and its collaborating sponsors, the American Academy of Anesthesiologist Assistants (AAAA; **http://www.anesthetist.org**) and the American Society of Anesthesiologists (ASA). Currently the ARC-AA Board is chaired by an anesthesiologist and is made up of four AAs from the AAAA and four anesthesiologists from the ASA.

AA programs must have both a board certified anesthesiologist medical director and a nationally certified AA program

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director. AA educational programs must also be affiliated with a medical school accredited by the Liaison Committee on Medical Education (or its equivalent). Graduates of AA programs are awarded a master's degree.

Anesthesiology Assistant Student Prerequisites

Although each AA program has slightly different pre-requisites, applicants must successfully complete the pre-medical school core curriculum, and take the Graduate Record Exam or the Medical College Admission Test (MCAT). Programs require significant additional coursework such as microbiology, biochemistry, statistics, anatomy and physiology.

Half of all AA programs require the MCAT and report competitive or average MCAT scores for AA program matriculants in the 50-55th percentile of all MCAT takers. At CWRU, the AA program matriculants' average GPA is 3.52, with an average science GPA of 3.63. This compares to all U.S. medical school matriculant's average GPA of 3.67, with an average science GPA of 3.61. In addition to maintaining undergraduate GPAs competitive with medical school matriculants, AA applicants are often previous healthcare providers (e.g., dentists, physician assistants, perfusionists, nurses, respiratory therapists, and paramedics).

Anesthesiology Assistant Education and Training

There are currently ten AA programs in six states and the District of Columbia. AA programs are between 24 and 28 months in duration, and are housed in a medical school, anesthesiology resident program, allied health school or some combination thereof. Each program has three distinct but coordinated components: didactic, simulation, and clinical education.

The didactic portion of the program is partially completed within anesthesiology residency programs, allied health schools and affiliated medical schools, alongside residents, medical students, and physician assistant students. This portion of the program often includes participation in basic science and other resident learning conferences. AA programs use anesthesiologists, non-anesthesiologist physicians, medical and allied health school faculty, and certified AAs as course instructors. Course work includes basic sciences such as anatomy, physiology, pharmacology, instrumentation and monitoring, as well as specialty courses including anesthesia non-technical skills, ECG interpretation, anesthesia clinical decision making, physical and chemical principles of anesthesia, medical writing, and advanced airway management.

AA programs have also embraced simulation technology as an integral part of training. Programs have significant and innovative simulation components. Simulation modules include such skill sets as ACLS, arterial line placement, ultrasound-guided central line placement, difficult airway management, and regional anesthetic techniques. AA programs also use high-fidelity simulation scenarios to challenge students with crisis management both in the operating room and perioperative period.

AA clinical education begins with an introduction to anesthesiology and perioperative medicine, followed by a focus on basic anesthetic management, advanced anesthetic management, and sub-specialty training. AA students are always supervised in a 1:1 ratio by a qualified preceptor (either a staff anesthesiologist or AA) and are never used in lieu of qualified providers. Programs provide a broad range of clinical experiences encompassing patients of all ages, all levels of acuity, and most types of surgical sub-specialties, including obstetrics, pediatrics, trauma, cardiothoracic, vascular, neuro-surgery, bariatric, outpatient surgery, and intensive care. AA graduates amass a total of 2000-2700 clinical hours throughout training. In comparison, according to the American Association of Nurse Anesthetists, NA students average only 1,700 clinical hours before graduation. Indeed, it is because of the AA educational program's solid foundation in basic and clinical sciences, as well as varied clinical experiences, that graduate AAs serve as a valuable member of the ACT by demonstrating sound and appropriate clinical judgment.

Conclusion

Anesthesiologists brought the AA profession into being. Anesthesiologist involvement is not only mandated for the accreditation and administration of AA educational programs, but the ASA plays an integral part in AA legislative, regulatory and credentialing processes. Moreover, the AAAA subscribes in practice philosophy and training to the ACT model. In over 40 years of existence, AAs have never pushed for independent practice, and work exclusively under the medical direction of anesthesiologists. The AAAA believes that the practice of medicine remains the domain of physicians, and that the entry-level doctorate degree for the practice of medicine is the MD/DO. In the interest of patient safety and provider transparency, the AAAA does not endorse an entry-level doctoral degree for AAs. AA educational programs have also not co-opted physician language using the terms resident, fellowship, and residency when referring to AA students and AA training programs.

In sum, AAs come from a strong pre-medical science background shared with anesthesiologists and train in a culture that emphasizes the ACT model in concordance with anesthesiologists. As educational members of the ASA, AAs have been appointed to 10 ASA committees, and the ASAPAC Executive Board. Indeed, if AAs were an ASA state component society in 2012, they would be the sixteenth largest donors to the ASAPAC. Anesthesiologists are embedded in the genetic code of the AA profession, and with the rapidly evolving environment of healthcare reform and nursing politics, AAs remain a key component of the ACT and perioperative home models.

Editor note: see the AUA newsletter Fall 2006 (http://www.auahq.org/Fall2006.pdf) for more information about anesthesiology assistants.

SAB Report: Present and Future of Ventricular Assist Devices: New hope?

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Cardiovascular Anesthesia Consultants of Las Vegas

The gold standard treatment of end-stage heart failure continues to be cardiac transplantation with its greatest limitation represented by the number of donor hearts available. The new era of growing patient population with end-stage heart disease commands alternative therapies, either transitory or permanent, to promote survival and improved quality of life. As a result, new technology in the area of implantable mechanical circulatory devices (MCD) has experienced a significant growth over the past two decades.

The current common strategies for implementing mechanical circulatory support (MCS) are divided into 3 classes: (1)bridge to transplant (BTT), (2) destination therapy (DT), bridge to recovery (BTR) and (3) rescue therapy (RT).1 Beginning with 2006, the Interagency Registry for Mechanically Assisted Circulatory Support (INTERMACS) has been collecting data on the patients receiving ventricular assist devices (VAD). INTERNACS represents a useful tool for assessing the state of VAD usage and VADs outcomes. Not surprisingly, there has been a steady, significant growth in the annual rate of patients receiving VAD support. (Fig 1) [2]

Historically, long-term LVAD support has proven to be superior to optimal medical treatment in patients with end-stage HF who are not candidates for heart transplantation.[3] *Indications* for VAD support for DT include: 1) Class IV New York Heart Association (NYHA) symptoms for at least 60 days in spite of optimal medical therapy 2) LVEF≤ 25%, 3) peak oxygen consumption < 12 ml/kg/min, 4) contraindication to heart transplantation due to age greater than 65 years or co-morbidities, and 5) inappropriate body size. The more recently developed INTERMACS scale is a useful classification to categorize advanced heart failure patients and predict outcomes before MCS implantation. Risk levels 1- 5 fall into NYHA class IV levels 6-7 correspond to NYHA class III. (Table 1)[4]

Table 1: INTERMACS levels[4]

Level[a]	Hemodynamic Status
1 "Crash and Burn"	Persistent hypotension despite rapidly escalating inotropic support and eventually IABP, and critical organ hypoperfusion.
2 "Sliding on Inotropes	Intravenous inotropic support with acceptable values of blood pressure and continuing deterioration in nutrition, renal function, or fluid retention.
3 "Dependent Stability"	Stability reached with mild to moderate doses of inotropes, but demonstrating failure to wean from them due to hypotension, worsening symptoms, or progressive renal dysfunction.
4 "Frequent Flyer"	Possible weaning of inotropes, but experiencing recurrent relapses, usually fluid retention.
5 "Housebound"	Severe limited tolerance for activity: Comfortable at rest with some volume overload and often with some renal dysfunction.
6 "Walking Wounded"	Less severe limited tolerance for activity and lack of volume overload. Fatigue easily.
7 "Placeholder"	Patient without current or recent unstable fluid balance NYHA Class II or III

IABP, inra-aortic balloon pump; NYHA, New York Heart Association.
[a]Life-threatening arrhythmias or active ischemia may be the primary limitation to function at any of these stages of disease, thus, modifying the INTERMACS level, in which mechanical circulatory support allows the intensification of other therapies, such as ß-blockers.

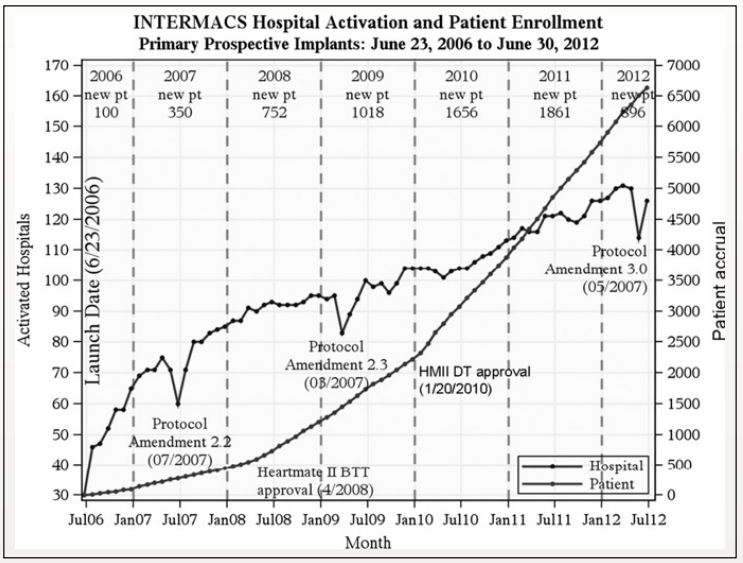

Figure 1: Time of cumulative hospital participation and patients entered into the Interagency Registry for Mechanically Assisted Circulatory Support (INTERMACS) database. Between June 23,2006 and June 30,2012, 145 hospitals participated in INTERMACS, and 131 of these hospitals actively contributed information on 6,633patients. Cumulative patient accrual and the number of participating hospitals over this time period are displayed. BTT, bridge to transplant; DT, destination therapy, HMII, HeartMateII.[2]

Currently there are various cardiac assist devices available for both short- and long-term support. Based on the device-related blood flow characteristics, VADs could be classified as *continuous flow or pulsatile*. (Table 2) When the site of implantation is taken into account mechanical assist devices could be categorized as *extracorporeal* or *intracorporeal*. Most of the extracorporeal devices, continuous flow and pulsatile, are now used for short to medium-term support. Continuous flow devices were designed with either *centrifugal* or *axial flow* pumps. Axial flow pumps present the advantage of being small, silent, with no valves, fully implantable; they work in concert with the heart and improve the position of the left ventricle (LV) on the Frank-Starling curve. HeartMate II (HM II) has been FDA approved for implantation as BTT in April of 2008 and for DT in January of 2010[5] which has led to a dramatic shift toward implantation of continuous flow devices, which was associated with changes in device strategy from DT to BTT and BTC.[1]

Outcomes of VADs

Historically, the landmark REMATCH study showed superior survival for patients supported with the HeartMate XVE

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Table 2: Types of ventricular assist devices (VADs)

Type	Device	Length of Support	Position	Ventricular Support	Drive Mechanism
Pulsatile	Abiomed BVS 5000	Short-term support	Extracorporeal	LV, RV, BV	Atrial and ventricular chambers pneumatically driven
	Thoratec VAD	Short- to medium-term support	Extracorporeal	LV, RV, BV	Pneumatically driven sac
Nonpulsatile e	Thoratec CentiMag (centrifugal flow)	Short-term	Extracorporeal	LV,RV,BV	Electric
	Tandem Heart (centrifugal flow)	Short-term	Extracorporeal	LV	Electric
	Impella (axial flow)	Short-term	Extracorporeal	LV	Electric
	Jarvik Flowmaker (axial-flow)	Long-term support	Intracorporeal	LV	Electric
	HeartMate II (axial- flow)	Short-term	Intracorporeal	LV	Electric

IP-implantable pneumatic, VE-vented electric, LV-left ventricle, VAD ventricular assist device, TAH-total artificial heart

Table 3: Third generation of VAD technology that is undergoing pre-clinical and clinical testing

Device Name	Manufacturer	Intended Use	Pump Type/Characteristics	Status
HVAD	HeartWare International, Inc	Long-term support for DT and BTT	Centrifugal, magnetic and hydrodynamic bearing	International BTT trial completed 2006; US BTT trial started in 11/2008
Synergy	CircuLite, Inc., Saddle Brook, NJ	Long-term support with subcutaneous placement; and Pediatrics	Axial, centrifugal and orthogonal flow. Magnetic and hydrodynamic levitated rotor	European trial ongoing; first implant 6/2007
HeartMate III	Thoratec Corp., Pleasanton, CA	Long-term support for DT and BTT	Centrifugal, magnetically levitated impeller	Pre-clinical studies

Abreviations: DT, destination therapy; BTT, bridge to transplant; RVAD, right ventricular assist device; CPB, cardiopulmonary bypass.

(HM XVE), in particular for those patients ineligible for heart transplantation, over medical therapy.[3] The authors found one-year survival rate of 52% in the device group versus 25% in the medical therapy group, while at 2 years, survival was 23% and 8%, respectively. Subsequently, Lietz et al described improved one-year and 2-year outcomes compared to the REMATCH study.[6] More recently, HM II was found to double the 2-year survival rate over that of the HM XVE and was also shown to significantly improve the probability of freedom from stroke and device failure at 2 years when used as DT.[5,7] In addition, LVADs were found to decrease fixed pulmonary hypertension in cardiac transplant candidates.[8] These results support Lientz's previous findings of high percentage (17%) of patients who qualified for heart transplantation while being supported with LVADs.[6] Superior survival rates for LVAD were also reported by Kirklin.[1] The authors found that primary LVAD therapy almost doubled survival, particularly when used as BTT, compared to REMATCH study. An important reduction in the rate of adverse events was also noted with the use of continuous flow devices.[1]

New VAD Systems in Clinical Trials

The third-generation of VADs are smaller in size and have the frictionless movement of a rotor or a diaphragm. They present the advantage of being implanted through a less invasive surgical approach, they can support smaller patients, and their reduced surface area is associated with fewer complications related to thromboembolism and infection. The new third-generation VADs present optimal biocompatibility and enhanced durability due to their hydrodynamic and magnetic bearings design, which minimizes generation of heat from and reduces wear of components. The latest VADs are in different stages of development (Table 3). The HeartWare HVAD, and HeartMate III LVAD are similar in design and are designed to provide long-term support. These LVADs are implanted within the pericardial space or an abdominal pocket and they pump blood from the LV to the ascending aorta. The CircuLite Synergy is a small blood pump which is placed into a chest wall pocket similar to a pacemaker. Inflow cannula is placed into the left atrium. The pump outflow graft is anastomosed to the subclavian artery and provides cardiac output up to 3 L/min that can be used for chronic partial circulatory support.

Expanding VAD Therapy

An important step toward more efficient and centralized clinical trials was made with the initiation of INTERMACS VAD registry. Participation in this registry is now mandated by Centers for Medicare and Medicaid Services for all centers implanting VADs for DT. Based on the hemodynamic status of patients who are candidates for VAD therapy, INTERMACS developed a scale to predict the complications and mortality

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Table 4: Destination Therapy Risk Score[6]

Patient Characteristics	Weighted Risk Score
Platelet count < 148 x 103/μL	7
Serum albumin < 3.3 g/dL	5
International normalization ratio > 1.1	4
Vasodilator therapy (nesiritide, nipride, hydralazine, nitrates)	4
Mean pulmonary artery pressures < 25 mmHg	3
Aspartate aminotransferase > 45 U/mL	2
Hematocrit < 34%	2
Blood urea nitrogen > 51 U/dL	2
No intravenous inotropes (unable to tolerate)	2

for patients undergoing VAD placement.[4] (Table 4) Destination Therapy Risk Scores are also used to predict operative risk and survival.(Table 4) Currently, there is a large gap between the predicted number of end-stage HF patients in need of LVAD support for DT and the actual number of patients receiving LVAD for DT.[5] Limited public awareness and clinician reluctance to consider DT earlier in the course of the disease account for this discrepancy. With the new clinical trials and recent VAD outcomes demonstrating better survival and better quality of life of VAD/DT versus current medical therapy, we could only expect a shift toward a more liberal use of DT for INTERMACS levels 3 and 4 HF patients with a cumulative DT risk scores less than 16.[5,6]

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Reinvigorating Academic Anesthesiology in 2014 – Opportunities from FAER

Denham S. Ward, MD, PhD

A new year is upon us, and this time often represents a period of reflection and resolution, of recuperation and reinvention. Considering all of the possible transformation, I'd like to add another word into the mix: reinvigorate. This is particularly important in the current rapidly changing healthcare environment.

Think to yourself: How can I reinvigorate my career this year? What can I do to infuse new energy into academic anesthesiology? How can I help someone generate more strength or gain more experience in the field?

The only way forward is to take action.

Thus, as we kick off 2014, I encourage you to take action, to find a way to support academic anesthesiology or participate in academic endeavors that will infuse the specialty with energy, strength and discovery.

Here are a few opportunities FAER is offering through which you can take action this year.

1. Apply for FAER Research Grant Funding (or Encourage a Colleague to do so) — Deadline is February 15

Last year, FAER awarded $2.4 million in research grant funding to 17 anesthesiologists – the second highest amount ever awarded in a single year. In 2014, we are aiming to invest even more. But the level of research funding we award depends on the number of quality proposals we receive, so submit an application or encourage a colleague to do so.

The application deadline for grants is February 15, 2014. Funding opportunities for 2014 include:

- The **Mentored Research Training Grant – Basic Science (MRTG-BS)** is a two-year $175,000 grant that provides funding for research and training in basic science research to faculty members who are within 10 years of having completed their core anesthesiology residency. The MRTG-BS requires 75 percent research time.

- The **Mentored Research Training Grant – Clinical or Translational (MRTG-CT)** is a two-year $175,000 grant that provides funding for research and training in clinical or translational research to faculty members who are within 10 years of having completed their core anesthesiology residency. The MRTG-CT requires 75 percent research time.

- The **Mentored Research Training Grant – Health Services Research (MRTG-HSR)** is a two-year $175,000 grant that provides funding for research and training in health services research to faculty members who are within 10 years of having completed their core anesthesiology residency. The MRTG-HSR requires 75 percent research time.

- The **Research in Education Grant (REG)** is a two-year $100,000 grant available to faculty members of all ranks. The REG is focused on developing innovative techniques for anesthesia education. The REG requires 40 percent research time.

- The **Research Fellowship Grant (RFG)** is a one-year $75,000 grant available to anesthesiology trainees after CA-1 year. The RFG is awarded in conjunction with clinical training in an anesthesiology residency or fellowship program. The REG requires 80 percent research time.

To learn more about FAER research grants, visit www.FAER.org/research-grants.

2. Nominate a Colleague or Mentor for the 2014 Mentoring Excellence in Research Award

By recognizing the accomplishments and contributions of another, you ensure that the leadership and mentorship that breed success will continue into the future.

FAER's Mentoring Excellence in Research Award recognizes an outstanding mentor in anesthesiology and the value of mentorship in the specialty. Each year, the FAER Academy of Research Mentors in Anesthesiology presents the award at the ASA annual meeting during the Celebration of Research.

If you know an anesthesiologist who is actively engaged in anesthesiology mentorship and has a sustained record of mentoring anesthesiologists over time, nominate him or her for the award. The award is based on the training experiences and successes of the nominee's protégés, not solely on the mentor's personal career achievements.

Anyone who is a protégé or a colleague of a successful anesthesiology mentor may submit a nomination. Nominators must have personal knowledge of the nominee's mentoring efforts. Protégés should be actively involved currently in research, teaching, mentoring or other leadership activities.

The recipient of the 2013 FAER Mentoring Excellence in Research Award was Harriet W. Hopf, M.D., Professor and Vice Chair of Anesthesiology, and Associate Dean of Academic Affairs at the University of Utah.

The deadline to submit nominations for the FAER Mentoring Excellence in Research Award is March 31, 2014. Please submit a nomination form, three letters of recommendation, the nominee's curriculum vitae and a completed mentor table. Nomination forms and more information about the nomination process are available at FAER.org/mentor-award.

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Reinvigoration Academic Anesthesiology

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3. Become a FAER Visiting Professor

Nearly every anesthesiology department hosts visiting professorships each year. They do this because visiting professors provide excellent education and new insights and perspectives to faculty, especially junior faculty members and residents. One way to add even more value to a visiting professorship is to transform the standard visiting professor honorarium into a charitable contribution to FAER.

If you have a visiting professorship on your calendar for this year or next, consider enrolling as a FAER Visiting Professor and, working with the host department, directing your honorarium to FAER. Or, if you are involved in planning your department's visiting professorship, you might consider providing the option for your visiting professors to direct their honorariums to FAER. For more information, visit FAER.org/visiting-professor.

Thanks to the following anesthesiologists who have already enrolled in the FAER Visiting Professor Program by offering to donate all or part of their honorariums from visiting professorships to FAER:

Daniel Cole, M.D. (Mayo Clinic Arizona); **Jesse Ehrenfeld,** M.D., M.P.H. (Vanderbilt University); **Martin H. Dauber,** M.D. (University of Chicago); **Paul Garcia**, M.D., Ph.D. (Emory University); **Simon Gelman**, M.D., Ph.D. (Brigham and Women's Hospital); **Howard Gutstein**, M.D. (MD Anderson Cancer Center); **Warren S. Sandberg**, M.D., Ph.D. (Vanderbilt University); **Thomas F. Slaughter**, M.H.A., C.P.H., M.D. (Wake Forest School of Medicine); **Michael M. Todd**, M.D. (University of Iowa); **Arthur W. Wallace**, M.D., Ph.D. (University of California San Francisco); **Denham S. Ward**, M.D., Ph.D (University of Rochester)

New! Margaret Wood Resident Prize for Research Excellence

Dr. Margaret Wood

The Association of University Anesthesiologists is pleased to announce the creation of an endowment to fund a prize which will be awarded to the author of the best research paper submitted to the annual meeting from a resident or fellow. This endowment is the result of a gift to the AUA from Dr. Margaret Wood, E.M. Papper Professor and Chair of the Department of Anesthesiology at Columbia University in New York City. Dr. Wood has been a long-time supporter of the AUA and in 1995 was the first woman to be elected as President of the AUA. The prize will be named the "Margaret Wood Resident Prize for Research Excellence" and the awardee will receive a certificate and cash prize at the Annual Meeting. The AUA Newsletter recently asked Dr. Wood to share her motivation for making this gift to the AUA.

"I decided to create this prize in order to ensure our ability to recognize and honor the achievements of our specialty's rising stars. If we are to maintain and enhance the academic environment in anesthesiology we will need to continually repopulate our specialty with young anesthesiologists committed to a career as investigators and academicians. A similar motivation led me to set up the Apgar Scholars program at Columbia to recruit prospective academic anesthesiologists into our residency program and to provide them with the research training during residency and fellowship training that would equip them to pursue high level science and effectively compete for funding.

The initial award will be made during the 2014 AUA Annual Meeting. This is an auspicious time to make such a gift to the AUA, as the AUA and the IARS enter into a new partnership. This award will help to cement our societies joint commitment to maintaining and growing the scientific excellence of the specialty. I have been committed throughout my career as an anesthesiologist to furthering the science of the specialty, and found that the intellectual camaraderie and social interactions experienced at the AUA meetings were formative during my early career. I owe the AUA a lot! I want the next generation of trainees to have similar opportunities to experience the excitement of science and receive recognition at an early stage of their career."

Interventional Pain

Standiford Helm, MD, MBA, Medical Director The Helm Center for Pain Management

The National Uniform Claim Committee definition of Interventional Pain Management is "the discipline of medicine devoted to the diagnosis and treatment of pain-related disorders principally with the application of interventional techniques in managing subacute, chronic, persistent, and intractable pain, independently or in conjunction with other modalities of treatment.

MedPac defines interventional pain management techniques as minimally invasive procedures including percutaneous precision needle placement, with placement of drugs in targeted areas or ablation of targeted nerves; and some surgical techniques such as laser or endoscopic discectomy, intrathecal infusion pumps and spinal cord stimulators, for the diagnosis and management of chronic, persistent or intractable pain.

Thus, an interventional pain management practice is a multidisciplinary pain, or functional restoration, program, incorporating injections, ablations and implantables and other procedures, along with medication management, psychological therapy and physical conditioning. Different practices achieve this goal to differing degrees, some focusing solely on injections and others tightly integrating all aspects of treatment in an interdisciplinary model.

Demonstration of expertise in interventional pain management can be achieved in several ways. Subspecialty certification in Pain Medicine under the American Board of Medical Specialties is open to diplomates of anesthesiology, physical medicine and rehabilitation, and psychiatry and neurology. Subspecialty certification in pain medicine allows physicians to advertise that they are board certified in all states.

The American Board of Interventional Pain Practice (ABIPP) is the only board which has a skills component, in which the applicant has to demonstrate proficiency at performing interventional procedures. The ABIPP exam also requires competence in opioid prescribing and in coding and compliance. Diplomates of ABIPP can advertise that they are board certified in 21 states.

The American Board of Pain Medicine evaluates whether candidates have received adequate preparation in accordance with educational standards established by the American Board of Pain Medicine. Over 2,200 physicians are certified by the ABPM. The ABPM is recognized by California and Florida State Medical Boards. An additional 10 states may allow diplomates of the ABPM to advertise that they are board certified.

Interventional pain management is an evolving field. Initially, anesthesiologists were the predominate specialty, because of the expertise anesthesia provides with injections. As the focus has expanded to functional restoration, physical medicine and rehabilitation specialists have become more involved in the field. Initially, there were also relatively few academic centers involved with the treatment of chronic pain, so that most of the early academic work was from either clinical practices or overseas. Over time, academic involvement in the field has expanded, with the attendant benefit of expansion of intellectual and research activities.

There is a growing body of evidence showing the effectiveness of interventional procedures in treating pain. The future will be the integration of this high quality evidence with documentation of functional improvement in pain populations who are provided access to the full range of interventional pain treatments.

ANESTHESIA & ANALGESIA

SEARCH ANNOUNCEMENT: EDITOR-IN-CHIEF, *ANESTHESIA & ANALGESIA*

Deadline for Application: Friday, January 31, 2014

The IARS is seeking candidates for the position of Editor-in-Chief of its flagship journal, Anesthesia & Analgesia. A&A is a monthly, peer-reviewed journal dedicated to advancing the practice of anesthesiology worldwide by reporting novel and rigorous clinical research. The position of Editor-in-Chief for *Anesthesia & Analgesia* is a prestigious and honored role recognizing an individual's proven abilities and his/her knowledge in the discipline of anesthesiology.

KEY RESPONSIBILITIES

- Provide a strong editorial vision representative of the goals of the IARS and the Journal.
- Be responsible for the scientific content of the journal, maintaining and enhancing the journal's high standards for authoritative, innovative, and top-quality research.
- Monitor and ensure the fairness, timeliness, thoroughness, and civility of the peer-review editorial process.
- Select and lead an esteemed international Editorial Board whose knowledge base represents the topics covered in the Editorial Mission of the Journal.
- Make final publishing decisions on submitted manuscripts.

APPLICATION PROCESS

For more information about the application process, visit http://www.iars.org/journal/AAEICSearch.asp. Complete application packages should be sent to eicsearch@iars.org no later than **JANUARY 31, 2014**.

All application materials will be kept strictly confidential.

AUA 61st Annual Meeting

April 24-26, 2014

Li Ka Shing Center for Learning and Knowledge
Stanford University School of Medicine • Stanford, California
Hosted by Stanford University School of Medicine

Exchange ideas and discover new strategies to improve the development of anesthesiology teaching methods during two full days of comprehensive education sessions and networking opportunities.

Registration Opens in January!

Abstract Submission Site Opens Early January! Abstract Submission Deadline: February 21, 2014

Make Your Hotel Reservations at the Sheraton Palo Alto Hotel

Mr. Piano Man: Reflections on the Life of Physician, Scientist, and Humanitarian, William L. Young, MD (1954–2013)

Warner, David S. and Lanier, William L. Mr. Piano Man: Reflections on the Life of Physician, Scientist, and Humanitarian, William L. Young, MD (1954-2013). *Journal of Neurosurgical Anesthesiology*. Jan. 2014; 26:1-3. Reprinted with permission from Wolters Kluwer Health, Lippincott Williams & Wilkins: *Journal of Neurosurgical Anesthesiology*.

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We hope Bill Young would have enjoyed this title. Being a musician was the alter ego for this exemplary physician-scientist, and treasured friend and colleague, in our neuroanesthesia and neuroscience communities.

William L. Young, MD, passed away on August 1, 2013. He fought a battle with cancer that was every bit as heroic as his career in anesthesiology. His death came as a shock to many. He chose to suffer in privacy, his paramount concern being to not jeopardize his scientific team and their ability to continue their work in revolutionizing the understanding and treatment of cerebrovascular diseases.

Those who knew Bill, an Indiana native, considered him to be a Renaissance man. While a premedical student at Indiana University he majored in Germanic languages, this being his second choice to music for which he felt noncompetitive at that university's great school of music. Although his interest in medicine prevailed, he became widely known for his jazz piano virtuosity. He also had other broad interests, including philosophy, history, skiing, and travel; these were typically his preferred subjects of conversation (instead of his immense contributions to the science of cerebrovascular disease, a subject on which he had become one of the world's preeminent investigators). He once stated that when he started getting more of his research papers accepted than songs, he knew the direction his life would take. But his diverse background would serve him well in his groundbreaking scientific career.

Bill punched many treasured tickets in his professional life. He was an associate examiner for the American Board of Anesthesiology; served as president of the Society for Neuroscience in Anesthesiology and Critical Care (1996-1997); won the 2009 American Society of Anesthesiologists Excellence in Research Award; was a member of the editorial boards for Anesthesiology, Stroke, and the Journal of Neurosurgical Anesthesiology; and co-edited the Cottrell and Young's Neuroanesthesia textbook. He served on many National Institutes of Health study sections. He was a former Professor of Anesthesiology at Columbia University, New York, and later served as Professor of Anesthesia and Perioperative Care and Vice-Chair for Anesthesia Research at the University of California, San Francisco. At the University of California, San Francisco, he also held the James P. Livingston endowed chair. At the time of his death, he was the principal investigator on 5 active National Institutes of Health grants. Late in the course of his disease, he received notification that he again had scored exceptionally well on another National Institutes of Health grant application, written while he battled cancer. He had amassed over 300 peer-reviewed, indexed publications. His untimely death is tragic, but his legacy is profound.

What can we learn from Bill that is special? We think it would be his view, despite overwhelming evidence to the contrary, that he was not special. Like many of us who practice anesthesiology, he was an average student attracted to the "action" part of the specialty. Stimulated by hands-on participation in patient care and the scientific intrigue surrounding that care, he excelled during his residency at New York University. The seeds of his development as a scientist were also modest. He dropped out of his undergraduate chemistry major because he felt he had insufficient math skills to pursue a scientific career. After residency, he was attracted to a neuroanesthesia fellowship at Columbia University because he identified a supportive mentor, Richard Matteo, MD, who, while encouraging Bill to study neuromuscular blockade, placed this fledgling scientist in the domain he would later reign supreme, that being the neurosurgical operating room. Bill's fortuitous engagements with the experimental cerebrovascular physiologist Shu Chien, MD, and Isak Prohovnik, PhD, a leader in the development of modern methods for measurement of cerebral perfusion, coincided with the nascent field of interventional neuroradiology and the requirement of anesthesiologists to participate in these procedures. Bill brought these scientific tools to the operating room and neuroradiology suite. This caught the attention of the neurosurgery chief, Bennett Stein, MD, who invited Bill to bring his cerebral blood flow measurement apparatus to an arteriovenous malformation (AVM) resection. This resulted in a published case report, his not-so-special first step in a career

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Mr. Piano Man

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that would make him the most productive scientist to ever have approached the complex physiology of brain AVMs.

Another lesson Bill taught us was the opportunities created by multilingualism, a likely extension of his undergraduate studies. This aspect of his personality extended beyond his understanding of Germanic and Romance languages to the "languages" of different clinical and scientific disciplines. By learning (and largely teaching himself) the languages of neurology, neurosurgery, neuroradiology, bioengineering, molecular biology, and genetics, he was able to develop and effectively communicate with novel teams of investigators to span the full range from molecules and genomics to physiology and pharmacology to outcomes research. His research led him into largely unexplored pathophysiological territory that involves the intersection of anesthesiology, neurocritical care, and operative neurosurgery. He made revolutionary contributions to understanding a disastrous complication of cerebrovascular neurosurgical intervention called reperfusion hyperemia or perfusion pressure breakthrough, commonly associated with AVM treatment. In so doing, he helped characterize the basic pathophysiological effects of arteriovenous shunting on cerebral perfusion, intravascular pressure gradients, and cerebral autoregulation. His research group discovered that postoperative hyperemia is not a simple pressure-passive increase in cerebral blood flow. Further, they discovered that regions of the brain rendered relatively hypotensive as the result of nearby high-flow fistulae displayed a remarkable capacity to adapt and shift their autoregulatory curve to a lower set point, thus protecting the normal brain regions from ischemic injury in the setting of an active AVM.

Although Bill's collaborative efforts spanned the entire range of cerebrovascular disease with respect to epidemiology, pathogenesis, risk of hemorrhage, and surgical and interventional radiologic treatments, his latest work will likely be held most important. By studying populations of humans with hereditary risk factors for AVM incidence and hemorrhage, he was able to elucidate the molecular factors that contributed to AVM (and to some extent cerebral aneurysm) development. He discovered that single nucleotide polymorphisms and bone-marrow–derived signaling adversely interact with the biological systems that modulate vascular integrity, so as to promote AVM growth and rupture. This opened the door to the possibility that genetic screening could allow early detection of those who harbor, or are at risk for, early-stage AVMs. Identification of the lesion at an early-stage of development would allow medical intervention to prevent growth and rupture. To prove this point, Bill's team developed a mouse brain AVM model and provided proof in principal for this concept. Imagine the day when a cerebral AVM or aneurysm becomes a medical, not surgical, problem. Bill did and provided the path to achieve this!

There is another lesson from Bill that we, as anesthesiologists, should inculcate into our culture. Although Bill wrote scores of papers on how to best manage anesthetics for complex neurosurgical procedures, and served as an American Board of Anesthesiology examiner and editor of anesthesiology journals, he did not let his core ethos of being an anesthesiologist restrict his approach to the study of disease states. He felt that we as anesthesiologists need to not only perfect our anesthetic techniques to care for patients with disease, but also study the disease itself so as to eliminate it. He would have been in good company with other historically important physician-scientists such as Jonas Salk and Albert Sabin.

This humble man who did not major in chemistry because he felt he was not smart enough, and who did not pursue a career in music because he felt he was not talented enough, found a way to change the world.

Bill had great respect for those who thoughtfully educated and mentored him, and he was an astute student of optimal techniques to teach and mentor others. He practiced what he learned, and taught anyone who would listen the importance of firm philosophical foundations when planning ambitious leaps in scientific discovery. He left behind an impressive collection of former students and mentees who benefitted from his counsel and today continue as active and independent investigators.

This humble man who did not major in chemistry because he felt he was not smart enough, and who did not pursue a career in music because he felt he was not talented enough, found a way to change the world. The scientific legacy Bill left us will take another generation or two of scientists to bring it to transformative care. Had he been with us longer, these changes would have come much sooner.

While we friends and colleagues will long respect and admire his many professional contributions, we also feel a personal loss at the departure of this humble giant who was always eager to share a story or laugh, introduce a pithy critique, open our eyes to new ideas, share a book, and—in general—enrich our lives in many other surprising ways. Bill Young was a professional and personality for the ages. We, along with his charming and devoted wife, Chantal, will miss our beloved Mr. Piano Man.

To view online article please click here.

Cartoon courtesy of Strange Matter by Nick D. Kim

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

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