Maintaining relevance in a revolving trauma world

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It is such an honor and pleasure to stand before the members and guests of the Eastern Association for the Surgery of Trauma (EAST) during its 27th Annual Scientific Assembly.

Much has changed in the care of the injured patient since the founding of EAST in the late 1980s. EAST has changed as well and continues to grow during the last quarter century. Before I begin my reflections on the relevance of our chosen profession and EAST, I would like to begin with a preamble recognizing some of the relevant and important people in my life and professional career.

Dr. Richard Judd, president of Central Connecticut State University, founding member of the New Britain Emergency Medical Services (EMS), and himself an honorary member of EAST, and to all the members of the New Britain EMS ambulance service who fostered my interest in the care of the injured patient and encouraged me to become, at that time, Connecticut's youngest emergency medical technician and mentored me to become a member of the inaugural class of paramedics to serve the residents of this central Connecticut community. They taught me how to work hard and to play hard as well.

My time as a paramedic also allowed me to interact with the emergency department nurses at New Britain General Hospital, and there was one particular nurse, Michelle, who would figure quite prominently in my life. We met during a resuscitation of a patient who had sustained a shot gun blast to his buttocks, but more about her later.

Drs. Kim Nagy and John Fildes were the next mentors in my life to encourage me to proceed with a career in surgery. I had the opportunity to work with both of them early in their careers at the Cook County Hospital in Chicago during my fourth year of medical school. Their personal support, guidance, and teaching lit the fire in me to pursue residency training in surgery. Kim continues to work at Cook County and has served EAST as our organization's first female president. John currently is the director of trauma at the University of Nevada in Las Vegas, has been the chair of the American College of Surgeons' Committee on Trauma, and is completing his tenure as the college's trauma medical director. Those nights on call, at the grand old hospital on Harrison Street, while performing open cardiac massage after a resuscitative thoracotomy in the rickety manual elevator riding to the operating rooms on the eighth floor and listening to Swan-guided resuscitation talks after calls were some of my fondest memories from my medical school days.

After graduating from medical school in Chicago, Michelle and I moved our young family to Phoenix and the Maricopa Medical Center Surgical Residency Program where I met the next two important people in my career development.

Dr. William Schiller was the trauma director and chief of the burn center in Phoenix. He served his country with distinction as a surgeon in Vietnam, taught me how to resuscitate severely burned patients, and encouraged me to investigate my scientific questions. He was my mentor on several of my first publications. He was awarded an honorary EAST membership earlier this week. He could not have managed the trauma center without the tireless efforts of his trauma program manager, Ms. Heidi Hotz. Heidi taught me the nuances of performance improvement and pushed me to do the right thing for my patients. She also served as a mentor for Michelle during her time

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as the trauma coordinator at Maricopa Medical Center. Heidi is the trauma program manager at Cedars-Sinai Medical Center in Los Angeles and past president of the Society of Trauma Nurses. She was also awarded an honorary membership with the association earlier in the week. They both encouraged me to continue my training in trauma and surgical critical care, and at their urging, I moved to Orlando to begin my fellowship training.

Drs. Loren Nelson, Michael Cheatham, and Ernest F.J. Block challenged me to become a physician extremely comfortable with the management of the critically ill patient. The three were always pushing me and my cofellows, Jeffrey Johnson and Wayne Mashas, to be the best that we could be, which allowed us to foster bonds as fellows-in-training that last to this day. Dr. Nelson was the past president of the Society of Critical Care Medicine, Mike Cheatham is arguably the world authority on abdominal compartment syndrome, and Ernie went on to become the president of the EAST, continued to serve as a mentor to me as local arrangements chair for EAST, and encouraged me to work hard to help grow our organization. Jeff and Wayne have gone on to have exemplary careers and remain friends to this day.

My first job after fellowship was with Michael Rotondo and the great group of surgeons at East Carolina University. Dr. Rotondo is the current chair of the Committee on Trauma and past president of EAST, who taught me so much with respect to trauma center development and leadership, and together, we developed quite a center that served the rural citizens of eastern North Carolina. My partners at East Carolina University were a continual source of professional encouragement, support, and friendship that allowed me to participate in building a regional trauma system and fostered my growth within EAST.

After 13 years in practice in North Carolina, Mark Friedell, the former program director at Orlando Regional Medical Center and past president of the Association of Program Directors in Surgery, called and recruited me to join him in Kansas City at the University of Missouri, Kansas City, take over as chief of acute care surgery, and serve as trauma director at Saint Luke's Hospital. Mark's vision, leadership, and friendship has guided me into a new chapter in my professional career and allowed me to recruit a couple of exceptional young surgeons, Drs. Dustin Neel and Farshad Farnejad, both of whom are relatively new members of EAST. I am proud to be able to bring such superb young talent into our association.

I however could not have dedicated so much of my time to EAST without the love and support from my family. Todd and Mary Anne Sagraves, both teachers at the collegiate and middle school levels, encouraged me to pursue my dream of becoming a physician and to teach medical students and residents at the university level. Michelle's parents, Robert and Patricia Rugg, have served as a second set of parents to me for nearly 25 years. Bob, an original member of the Air Force Thunderbird Demonstration team and a quality engineer, and Pat, a registered nurse herself, have helped me to develop a quality aspect of my work and encouraged a high degree of attention to detail in my professional life. I am thankful to have them all here with me today.

Michelle and I have raised four amazing young people. They all have their own wonderful individual personalities and strengths and have excelled in their successes. Tayler, Kim, Nick, and Jordann are all exceptional human beings. I am so very proud of each of you and your accomplishments. Together, you have made being a dad one of my most prized and greatest accomplishments of my life.

Finally, I return to Michelle. Who would have thought that a chance meeting over someone's shot-up buttocks would have led to 25 wonderful years together? She has been a confidant and a supporter of my professional aspirations throughout the years, at times sacrificing her own career goals for the good of the family, and together, we have raised a fantastic family, which in my opinion, is our shining accomplishment. I want to thank all of my family for their love and support but, most of all, for their efforts to encourage me to do the right thing when it is the hardest thing to do and by doing so keeping me relevant despite the sacrifices it has caused for our family.

I would like to take this opportunity to transition into the main topic of this oration, maintaining relevance in a revolving trauma world. I will attempt to build a case for the importance of maintaining relevance in an ever-changing clinical trauma world through a series of reflections gathered from my professional experiences during my years of administering care to the injured patient.

Webster's dictionary defines relevance as: (1a) relation to the matter at hand; (1b) practical and especially social applicability; and (2) the ability to retrieve material that satisfies the needs of the user. A pretty dry definition, I will give you that, but consider Drs. Wilson and Sperber's definition on relevance theory as it relates to communication.[1] They contend that an input is relevant to an individual when it connects with the background information the person has available to them to yield conclusions that matter to the individual. Furthermore, they state that relevance theory claims that what makes an input worth picking out from the mass of competing stimuli is not just that it is relevant but that it is more relevant than any alternative input available to us at that time. I would like to add my own definition of relevance, that is, what is pertinent.

I began my career in medicine as an emergency medical technician/paramedic in central Connecticut in the 1980s. Advanced Cardiac Life Support was in full swing, as was the concept of mobile intensive care units. The Advanced Trauma Life Support course was introduced in the United States in 1980, and Norman McSwain—last year's Scott B. Frame lecturer—piloted the first Prehospital Life Support courses in 1983.[2] The esophageal obturator airway and military antishock trousers were in vogue, and tourniquets were taboo. The principle of damage-control resuscitation was still in its infancy, as Past Presidents Rotondo and Schwab would not publish the concept until 1993.[3]

Since my days as a field paramedic, much has changed with respect to trauma care in the ditch so to speak. I would refer EAST members to Drs. Bickell, Wall, and Mattox's work on the permissive hypotension resuscitation strategy for the management of penetrating hypovolemic shock[4] and some of the more recent discussions from the military along the same resuscitation paradigm.[5,6] I would also recommend that for those of you involved with EMS, review the literature on the use of tourniquets and be an early implementer of the use of hemostatic agents in the field.[7] The EMS field is continuing to change and is benefitting from our military's medics and

surgeon's experiences from the Iraq and Afghanistan wars. The EMS assessment paradigm is also changing. No longer are EMS medics using the ABCDE algorithm, rather many urban EMS agencies and fire departments are switching to the CAB algorithm and emphasizing hemorrhage control before intubation and airway control. Preventing delays in the field is critical to patient survival. I make a plea to all EAST members to work with your community's EMS medics by staying up-to-date with the latest research, helping EMS agencies adopt system protocols and triage algorithms to aid EMS personnel to take better care of the injured patient and, in doing so, maintaining your relevance in the EMS community. I am sure that the current paramedics look up to trauma surgeons, much as I did during my EMS career, while trying to provide their very best care and gain that little bit of notice for a job well done before they head off for their next run. Please offer the EMS medics and firefighters serving your community a kind word occasionally; not only will you stay relevant with what is going on in your trauma system, but it will also translate into better patient care through mutual understanding and respect.

I would now like to fast forward 12 years from my EMS days to June 2003 and set the stage for you. I am now on the faculty of East Carolina University as the associate trauma director. I had just celebrated my 40th birthday and had presented some of my original work on the brief interval transport patient and the use of β-blockade in trauma at the EAST Annual Scientific Assembly in Sanibel; it was starting off as a very good year. I was recovering from the flu at that meeting, and unfortunately, upon returning to North Carolina from Florida, I began to notice some weight gain, swollen ankles, and eventually some significant shortness of breath. In June, I found myself in the emergency in ventricular tachycardia in fulminate congestive heart failure with an ejection fraction of 12% from viral cardiomyopathy. As you all know, fellows and residents start their careers as doctors on July 1. My wife was at my bedside advocating for me by verbally castrating the new cardiology interventional fellow as he contemplated a coronary catheterization on me. There was no way a brand new fellow with a needle in his hand was going to jab that catheter into my groin. It was not the best time to be a patient with a serious illness, although I learned some valuable lessons from the other side of the sheet. I would never wish a serious illness on any of you, but I do suggest you consider how you provide care from the patient's perspective. I challenge you to take the time to explain what is going on in terms that your patient can understand. Slow down, sit down, and listen. In sum, treat your patients as you would like yourself or a member of your family to be treated. It really makes a difference, and I found myself with a dose of relevance in being able, for the rest of my career, to intimately relate with my patient's fears, questions, and doubts as a patient and not as a physician. I also found my sense of self, after recovering from this near-death experience. I realized the burden of trust that my patients place in me, onto all of us, as physicians and surgeons to help them navigate through arguably the worst time in their lives. Remember, nobody wakes up knowing that they are going to be in a car wreck on their way to work and in a split second have a life-changing experience.

After I recovered and completed cardiac rehabilitation, I had to get back to the job that I loved, but I quickly realized that the job had changed. I asked myself, how I could stay relevant in this changing trauma world?

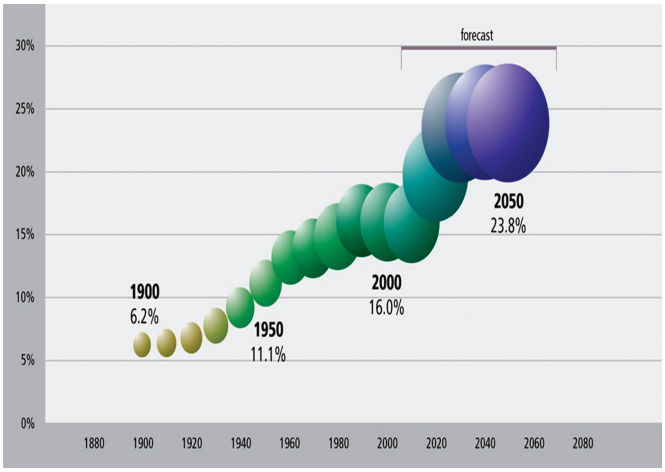


Figure 1. US population projections, persons aged 65 years to 90 years. Source: US Census Bureau.

Although trauma-related events remained the leading cause of death of individuals younger than 44 years and the third to fifth leading cause of death overall, depending on which year you review the mortality data, the overall admission rate for trauma-related mechanisms was decreasing.

Maybe our prevention efforts are working. Car manufacturers are building safer vehicles with more advanced, lifesaving technology being built in standard. The number of surgeries performed for trauma is decreasing; however, the population is aging, and the average life expectancy age is increasing.

The percentage of the US population older than 65 years is expected to exceed 20% by the year 2030 (Fig. 1).

Falls in the geriatric population is becoming an epidemic, and brain hemorrhages in the era of nonreversible antiplatelet and clotting cascade factor inhibitors is taking its toll on older Americans[8] (Fig. 2).

In addition, a surgeon shortage has started.[9,10] Who is going to take care of the aging population requiring an emergent general surgical operation?

The Association of American Medical Colleges (AAMC) reported that medical school enrollment was held at a relatively flat rate of 16,000 through 2006,[11] while the population grew by more than 70 million during the same period. The "baby boomers" are starting to retire, as are the doctors taking care of them. The AAMC predicted in 2006 that the percentage of doctors older than 55 years rose from 27% to 34% and an estimated 250,000 physicians will retire by 2020[12] (Fig. 3),

This puts the inner city and rural populations at risk from a lack of surgeons. The AMA reported that only approximately 9,300 of the approximately 211,000 physicians practicing in rural America are surgeons.[13] How do we as members of EAST stay relevant and take care of these at risk patient populations (Fig. 4)[14]

The freeze on medical school class size has to be lifted. This step alone has a potential for training an additional 7,000 physicians a year during the next decade. Another recommendation

	Age Groups										
Rank	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Unintentional Suffocation 905	Unintentional Drowning 436	Unintentional MV Traffic 354	Unintentional MV Traffic 452	Unintentional MV Traffic 7,024	Unintentional Poisoning 6,767	Unintentional Poisoning 7,476	Unintentional Poisoning 9,662	Unintentional Poisoning 4,451	Unintentional Fall 21,649	Unintentional MV Traffic 33,687
2	Homicide Unspecified 154	Unintentional MV Traffic 343	Unintentional Drowning 134	Suicide Suffocation 168	Homicide Firearm 3,889	Unintentional MV Traffic 5,558	Unintentional MV Traffic 4,552	Unintentional MV Traffic 5,154	Unintentional MV Traffic 4,134	Unintentional MV Traffic 6,037	Unintentional Poisoning 33,041
3	Homicide Other Spec., classifiable 82	Homicide Unspecified 163	Unintentional Fire/Burn 89	Unintentional Drowning 117	Unintentional Poisoning 3,183	Homicide Firearm 3,331	Suicide Firearm 2,914	Suicide Firearm 4,092	Suicide Firearm 3,387	Unintentional Unspecified 4,596	Unintentional Fall 26,009
4	Unintentional MV Traffic 76	Unintentional Fire/Burn 151	Homicide Firearm 58	Homicide Firearm 107	Suicide Firearm 2,046	Suicide Firearm 2,594	Suicide Suffocation 1,839	Suicide Poisoning 2,061	Unintentional Fall 2,011	Suicide Firearm 4,276	Suicide Firearm 19,392
5	Undetermined Suffocation 39	Unintentional Suffocation 134	Unintentional Suffocation 31	Suicide Firearm 80	Suicide Suffocation 1,824	Suicide Suffocation 1,910	Homicide Firearm 1,673	Suicide Suffocation 1,965	Suicide Poisoning 1,382	Unintentional Suffocation 3,400	Homicide Firearm 11,078
6	Unintentional Drowning 39	Unintentional Pedestrian, Other 103	Unintentional Other Land Transport 26	Unintentional Suffocation 48	Unintentional Drowning 656	Suicide Poisoning 787	Suicide Poisoning 1,279	Unintentional Fall 1,283	Suicide Suffocation 1,130	Adverse Effects 1,544	Suicide Suffocation 9,493
7	Undetermined Unspecified 35	Homicide Other Spec., classifiable 84	Unintentional Pedestrian, Other 20	Unintentional Fire/Burn 46	Homicide Cut/Pierce 420	Undetermined Poisoning 580	Undetermined Poisoning 712	Homicide Firearm 1,097	Unintentional Suffocation 613	Unintentional Poisoning 1,402	Suicide Poisoning 6,599
8	Adverse Effects 22	Unintentional Natural/ Environment 52	Adverse Effects 14	Unintentional Other Land Transport 42	Suicide Poisoning 371	Unintentional Drowning 476	Unintentional Fall 493	Undetermined Poisoning 955	Homicide Firearm 533	Unintentional Fire/Burn 1,088	Unintentional Suffocation 6,165
9	Unintentional Fire/Burn 22	Homicide Firearm 43	Unintentional Natural/ Environment 14	Unintentional Poisoning 40	Undetermined Poisoning 282	Homicide Cut/Pierce 438	Unintentional Drowning 409	Unintentional Drowning 578	Undetermined Poisoning 480	Suicide Poisoning 709	Unintentional Unspecified 5,688
10	Unintentional Natural/ Environment 22	Unintentional Struck by or Against 37	Unintentional Poisoning 14	Unintentional Firearm 26	Unintentional Other Land Transport 221	Unintentional Fall 299	Homicide Cut/Pierce 349	Unintentional Suffocation 464	Unintentional Fire/Burn 479	Suicide Suffocation 648	Unintentional Drowning 3,782

Figure 2. Ten leading causes of injury deaths by age group highlighting unintentional injury deaths, United States (2010). Source: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.

from the AAMC is that the government must lift their freeze on Medicare-supported residency positions and continue paying for its share of the training costs by supporting at least a 15% increase in graduate medical education positions,[15] thus allowing teaching hospitals to prepare another 4,000 physicians a year[16] (Fig. 5).

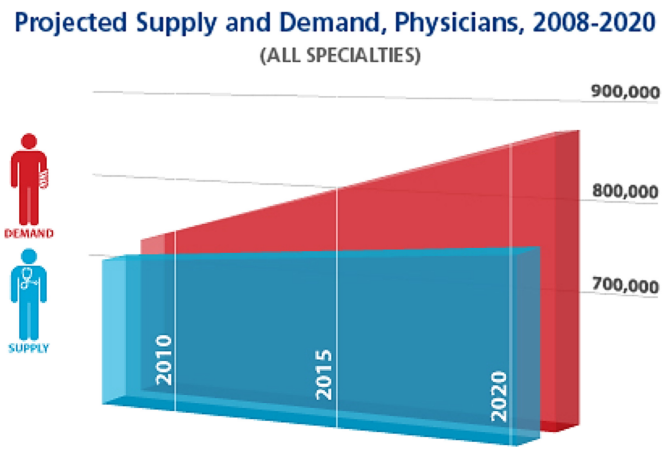


Figure 3. Projected supply and demand, physicians, 2008 to 2020 (all specialties). Source: Association of American Medical Colleges.

In failing to do so, America will face a physician shortage just as the number of "baby boomers" swell the Medicare rolls.

However, how does the practicing, "boots-on-the-ground," active EAST member stay relevant and impact this problem? I trained in the era of trauma and surgical critical care fellowships. I received excellent training, and I am confident that I can resuscitate a stone to discharge; however, our patient population is changing and becoming more challenging than ever. It is an older group, with more complex morbidities and sicker in general. The solution is to obtain training as an acute care surgeon. EAST and notably the American Association for the Surgery of Trauma have taken the lead in this new training paradigm. It has revitalized my career.

In North Carolina, we welcomed the training shift and transitioned our surgical critical care fellowship to that of the acute care surgery model. The fellows got to operate more on nontraumatic acute surgical emergencies, while our service census tripled from 30 to 40 patients to, in some months, more than 90 patients.

Currently, in Kansas City, I staff a general surgery clinic, perform elective operations, and cover the emergency general surgery, surgical critical care, and trauma patient populations while on call. The goal is to adopt an acute care surgery model

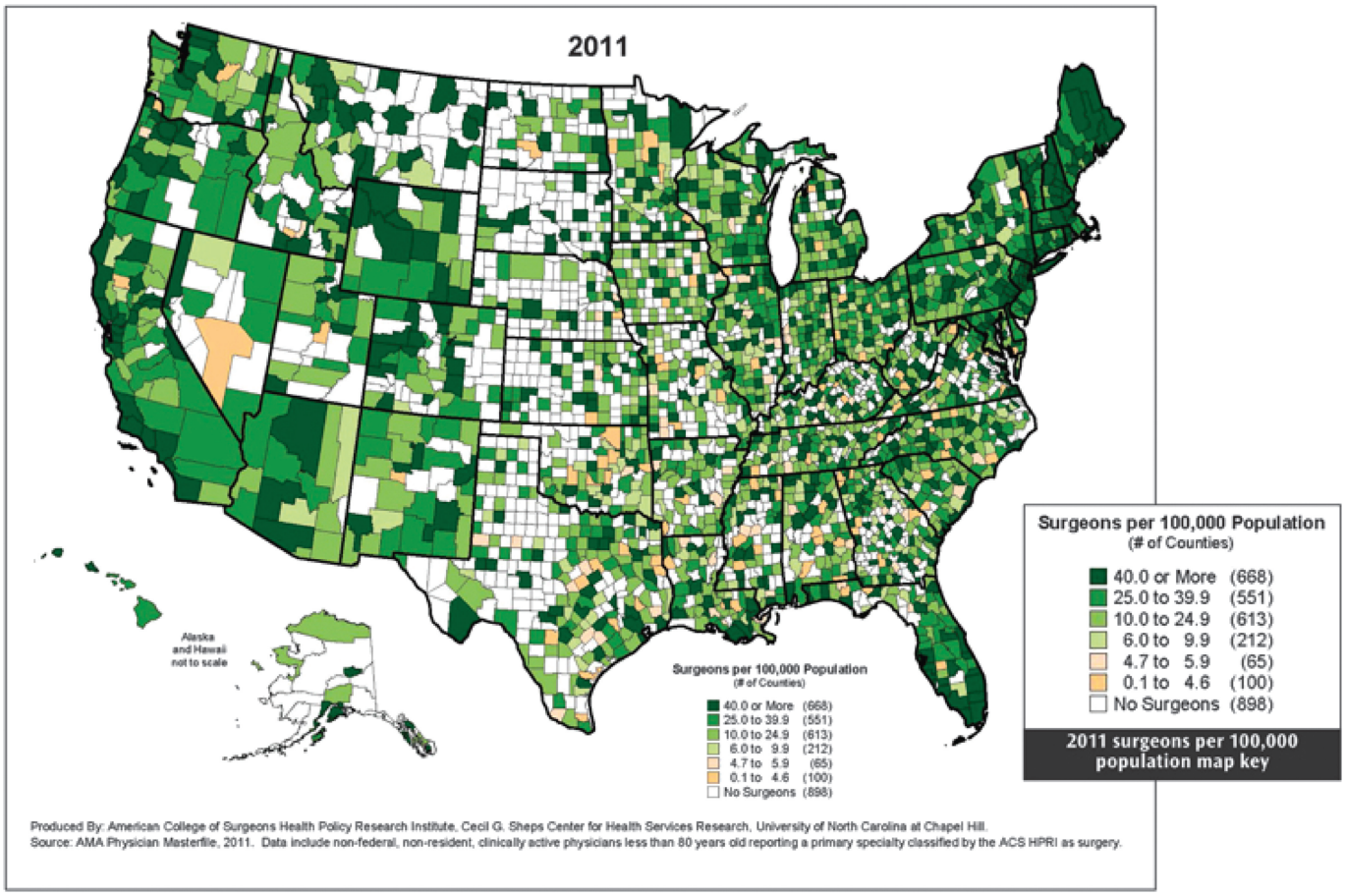


Figure 4. Surgeons per 100,000 population in 2011. Source: American College of Surgeons Health Policy Institute.

in Kansas City to be able to respond to the growing patient need. The patient variability is challenging and rewarding. I love coming to work every morning as I can never predict what will be coming through that ambulance bay door. It allows me to teach both residents and medical students in the operating room, resuscitation area, intensive care unit, and the clinic. In addition, how I care for the injured patient is changing as well. How exciting and relevant it is to hear from young investigators at meetings such as EAST's annual scientific assembly how our military surgical colleagues are bringing back new resuscitation strategies to our civilian trauma centers concepts such as one to 1:1 colloid resuscitation, while guiding that resuscitation with innovative noninvasive hypoperfusion technology as well as real-time information on clot formation during the resuscitation.

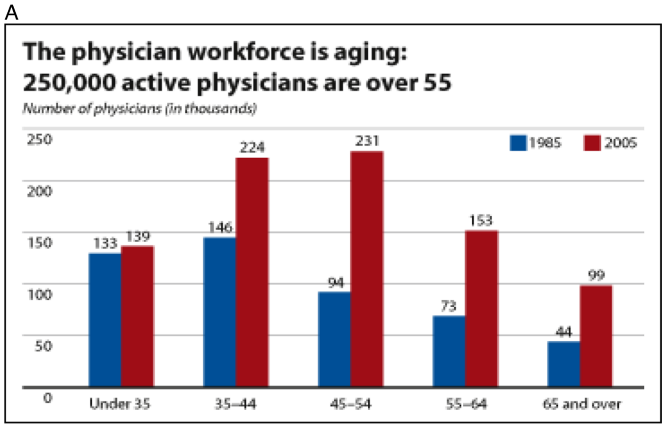
Tourniquets have reemerged as an invaluable technique to stop the bleeding as evidenced by the work in the war zones and during the Boston Marathon Bombings. I have personally saved patient's lives and limbs through adoption of these advances in tourniquet design and the early application of hemostatic agents in the field and in the resuscitation area. I truly cannot wait to see the advances in hemorrhage control and resuscitation that are on our horizon. I challenge all of you to stay relevant with the emerging technology and keep up with the expanding literature on these topics. At the end of the day, I feel I am part of the solution, and I am maintaining relevance to the issues as an acute care surgeon. I urge you to do the same.

Well, I have spoken about maintaining relevance in your daily activities and career, but one last topic that I would like to explore is how does EAST maintain relevance to you its members? That is the platform that guided my presidential year. I would like to take a few minutes to discuss some of the changes that have been implemented this year to maintain EAST's relevance in a changing trauma world.

We are all indebted to the founding members, Drs. Champion, Harris, Jacobs, and Maull for their insight, strength of thought, and intestinal fortitude to create the Eastern Association for the Surgery of Trauma. However, the association model that they developed is no longer relevant in today's changing trauma and emergency surgical world. The relevance and vitality of EAST are in jeopardy.

According to Coerver and Byers, authors of the *Race for Relevance* and the *Road to Relevance*, the traditional association model has several antiquated characteristics including years of stagnant culture and tradition, dependence on volunteer

A



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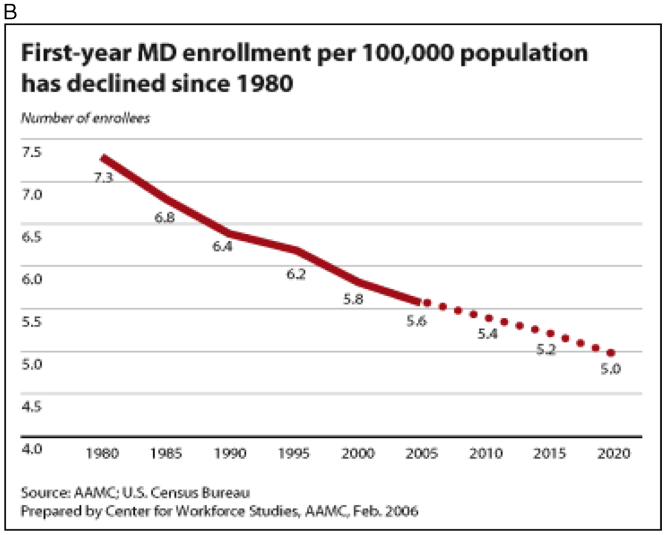

Figure 5. Physician workforce is aging (*A*) while medical school enrollees have steadily declined since 1980 (*B*). Source: Center for Workforce Studies, American College of Surgeons Health Policy Institute, February 2006.

boards and committees, a broad range of programs and services that lack focus, and a heavy reliance on face-to-face meetings and print communications.[17,18] Any of this sounds familiar?

The "new" association has to survive in the changing trauma landscape and confront several issues that are changing the way associations operate and include the following issues: (1) time pressures, (2) value expectations, (3) member market structure, (4) generational differences, (5) competition, and (6) technology. I will not go in-depth into each, but suffice it to say, we as EAST members are busier than ever; we expect a return on our dues investment, and we struggle with specialization within our field and compete with other associations for the same membership pool. Generational gaps that were not even thought of in the 1980s have become apparent during the last 25 years, especially over what membership means and the return on investment membership provides to the member. The technology boom of the last quarter century cannot be emphasized enough.

The Internet was not even in place during EAST's inception, and yet new, innovative, and emerging technology offers EAST many opportunities in the deliverables an organization can provide to its members, namely, education, information, networking, fundraising, and volunteer work force mobilization to list a few. With these challenges facing EAST as I assumed the presidency last January, I challenged the Board of Directors to adopt five radical changes, as proposed by Coerver and Byers, to maintain EAST's relevance to you, its membership.

The five radical changes are as follow: (1) overhaul EAST's governance model; (2) empower EAST's executive director, Christine Eme, and the professional management staff in the Administrative Office and enhance staff expertise; (3) rigorously define the member market EAST wants to attract; (4) rationalize and focus EAST's programs and services; and (5) bridge the technology gap and build a framework for the future.

The process commenced under presidential privilege by creating a new organization chart for the Board of Directors of EAST, which began to streamline the reporting structure within the EAST board.

The next step was to convene a strategic planning retreat, which included non–board members for their input and opinions. During that session, the participating members confirmed EAST's mission and vision statements and refined the association's core strategic goals.

The product of that meeting was the creation of a strategic initiatives list that was adopted by the Board of Directors in April. The assessment, implementation, and evaluation of the said initiatives were to commence in July 2013 and be reevaluated in June 2016.

The individual task forces were convened and began work on completing their strategic initiative. A member's survey was distributed to the membership in the fall of 2013 to take the temperature of the organization and ask questions concerning the EAST brand and member's participation at the annual scientific assembly. In addition, .orgSource, an independent Web strategy and technology consultant firm, was retained to review EAST's technology capabilities and interpret the results of the electronic membership survey.

The governance task force called upon EAST's legal counsel to review the bylaws for applicability to relevant federal, state, and local laws pertaining to EAST's bylaws and governance structure. The ensuing organization chart and board restructuring came out of that work. The main points of the governance restructuring were to make the board more nimble and anticipatory rather than reactionary.

The goal was to make board membership more accessible to the membership as a whole and to compose the board of individuals who perform and possess talents to move EAST forward and are critical to our organization's future. In short, the task force has created a board that can govern, direct, and grow the association, rather than one that reacts slowly and with much expenditure of human resources (Fig. 6).

I believe the task force has accomplished this very important restructuring, which allows EAST to be competitive in the highly specialized trauma world. As I prepare to hand over the gavel and consequently the presidency to Dr. Davis, it is my hope that the strategic initiative task forces will continue to strive to meet their strategic goals, resulting in a more vibrant EAST than the founding members could have envisioned. As

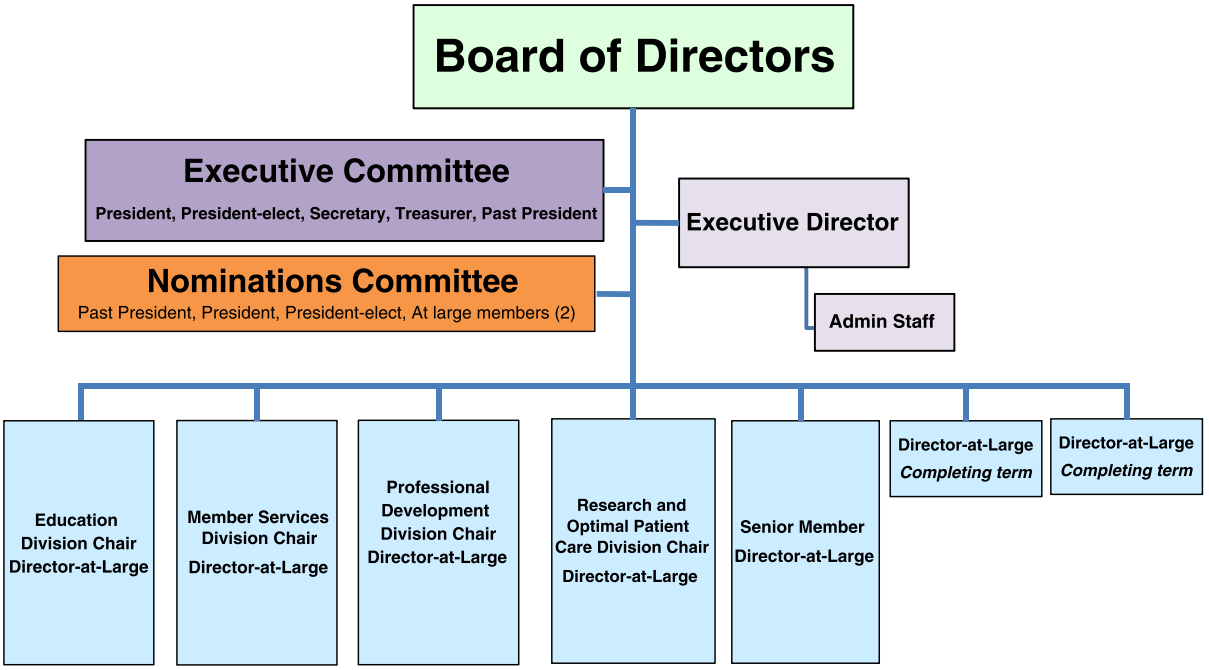

Figure 6. EAST organizational chart.

we embark on these changes as an association, I am reminded of a Machiavelli quote:

There is nothing more difficult to take in hand, more perilous to conduct, nor uncertain in its success, than to take the lead in the introduction of a new order of things, for the innovator has for enemies all of those who have done well under the old, and lukewarm defenders in all of those who may do well under the new.[19]

Before I close, remember to stay grounded. Keep in touch with your wife, your husband, boyfriend, or girlfriend. Talk with your children. They will not call you doctor, just dad or mom. Continue to maintain a family life as your family will always love you, and yet, be your biggest critic and keep your relevant.

Finally, let me close with these words from Dr. Sheldon Cooper… "I welcome change as long as nothing is altered or different."[20]

Thank you for allowing me to serve as your president; it has truly been an honor.

DISCLOSURE

The author declares no conflicts of interest.

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