

It Is the Journey, Not the Destination

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It has been a great honor to serve as the 45th President of The Society of Thoracic Surgeons (STS), the organization that has been my other professional home and added so much to my satisfaction and enjoyment of being a thoracic surgeon. Everyone who finds himself here on the stage struggles with what to say at this moment. It is a unique opportunity to have a captive audience of over 2,000 people listening to your every word and knowing by the next afternoon no one remembers a single one of them.

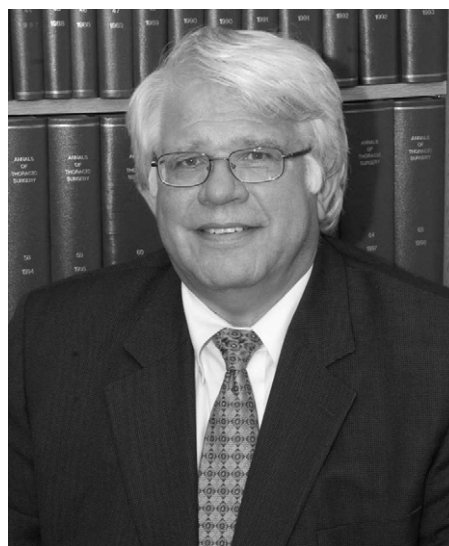
The title of this talk is, "It Is the Journey, Not the Destination." Indeed, all of life is a journey. What path we take, what we look back on, and what we look forward to is up to us. Many might feel being the President of the STS is the ultimate destination, but for me, it has been about the opportunity to have participated in so many ways in the organization along the way. Hence the journey, not the destination.

There are many who are responsible for getting me to this moment. There is something to learn from each of them. First and foremost I would like to thank my wife Julie. It has been years of enjoyment, mutual support, and lots of fun. Those who know her, know her to be a warm, generous, and loving person with a great sense of humor and a touch of Irish temper, which I love dearly. She is a great wife and even better mother, and most importantly, a great friend and partner in all that we do. She has supported me for many years, but never more so than this last year. She is the most understanding person I know.

I am fortunate to have 4 wonderful daughters Amy, Jen, Beth, and Kate. My daughters are terrific young women, intelligent, self-sufficient, productive, and each possesses a great sense of humor, an especially important quality for them, as they all have had to endure my role as the "brother" they never had. I am most proud of the fact that I never missed a sporting event during high school or college, from soccer, basketball, swimming, or rowing, home or away. It is a tradition I hope to continue with Kate. One of the most appealing aspects of a career in general thoracic surgery is that it allows some control over your time, allowing one to rearrange schedules to attend important family events. I hope many of you have been as fortunate as I have been in that regard.

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Of course, none of this would be possible without my mother and father. Unfortunately, they are not here with me today, having passed away a few years ago. I had the good fortune of growing up in a small town in the Midwest with a mother and father who placed the interests and well-being of their 2 sons ahead of their own. They made many sacrifices, pointed my brother and me in the right direction, and were there when we veered off course. They provided many valuable life lessons. The lessons often-times were simple but meaningful and were the ones by which they lived their lives.

While growing up in Illinois, I had the good fortune of being influenced by two people who made a great difference in my life. One was Harlan English. He was a surgeon in my hometown of Danville, Illinois. I met him when I was 5 years old. I was captivated by his twinkling eyes, laugh, sense of humor, and the image of being completely in charge. From the age of 5 when I first met him, all I ever wanted to be was a surgeon. I always stopped in to see him through medical school and residency. He always found time for me in his busy schedule.

Like most of us, there was a special teacher that influenced us along the way. For me it was Mary Paras, my sixth grade teacher. She was a great teacher, full of enthusiasm, passion, and very demanding. She brought out the student in me. She also took an interest in me and at virtually every graduation through medical school, I would hear from her. These two individuals set a great example and gave the most valuable gift of all, their time.



Fig 1. Massachusetts General Hospital Thoracic Staff: (L-R) Ashok Muniappan, MD, Michael Lanuti, MD, John Wain, MD, Christopher Morse, MD, Dean Donahue, MD, James Allan, MD, Cameron Wright, MD, and Henning Gaissert, MD.

I have always viewed the thoracic surgery service at the Massachusetts General Hospital (MGH) as a team and extended family. The office staff, nurses, nurse practitioners, physician assistants, coordinators, operating room staff, and residents are a remarkable group of talented, dedicated individuals that allow us to do all we do and create the great atmosphere in which we work.

My true home has always been general thoracic surgery. I have been blessed with outstanding colleagues from the moment I joined the staff at MGH (Fig 1). This group of remarkable individuals has never been more important than this past year. They are a great combination of teachers, scientists, and surgeons, all dedicated to resident education. They have always been about the team and not about the individual. Having them as colleagues is one of the reasons I look forward to coming to work every day.

We often hear the phrase “upon the shoulders of giants we all stand.” This has certainly been true in this orga-

nization. I have had the good fortune of knowing and working with many of the past STS Presidents. I have learned a lot from this remarkable group of individuals, their leadership style, judgment, problem solving, and how they manage people. I am grateful for their example and all they have given to the STS.

I cannot forget the STS staff, led by Rob Wynbrandt (Fig 2). There is no more loyal and dedicated individual to the STS than Rob. It has been a privilege to work side by side with Rob during this past year. Rob has assembled a dedicated and talented team in Chicago. They were there and rose to the occasion for every expected and, more importantly, unexpected event of the year. I am deeply indebted to them.

A couple of months ago I stumbled across an interview on television with Warren Buffet at the Columbia Business School. A student asked Buffet what is the best advice on how to choose a job, to ensure a successful



Fig 2. The Society of Thoracic Surgeons Staff.

career. “That is easy,” he said, “pick a great company to work for and a great person to work with. The rest will take care of itself” [1]. This comment certainly rang true for me.

The MGH is a great institution with a great surgical tradition. It is especially meaningful to me to be here this year—2011—the 200th anniversary of the original charter of the hospital, making it the third oldest hospital in the United States. The MGH Department of Surgery has a great tradition as well, spawning 10 Presidents of the American Association for Thoracic Surgery and 4 Presidents of the STS. A great tradition to be a part of.

No one was more surprised than I was to have matched as an intern at the MGH. Before I arrived, I had this image of people walking around with tweed sport coats, leather patches on their elbows, smoking a pipe with a copy of the *New England Journal of Medicine* sticking out of their back pocket. Although I am certain that those individuals are somewhere in the MGH, I have never seen them. There was a commitment and dedication to patient care that was palpable within the institution then and is still present to this day. I have been the beneficiary of that great environment.

The residents I worked with my entire time at MGH were outstanding and continue to be so. When I arrived at the MGH, there were 14 interns. Half came from Harvard, and the other half—like me—did not have to go to Harvard to get in. There is no doubt that those of us who did not go to Harvard always felt that we had something to prove. It was through this peer pressure that I believe all of us became better doctors and surgeons. There was a great deal of resident-to-resident education, certainly an important component of my education. This is something I think is in great jeopardy from the effects of the 80-hour workweek, call from home, post call days, and night floats, all unheard of in 1974. We must account for this loss in education as we redesign training programs.

The defining moment of my surgical career occurred at the end of my third year before I went to the National Institutes of Health (NIH). I was undecided about what I wanted to do. I had the good fortune to go to the Thoracic Surgery Service and work with Hermes Grillo, Earle

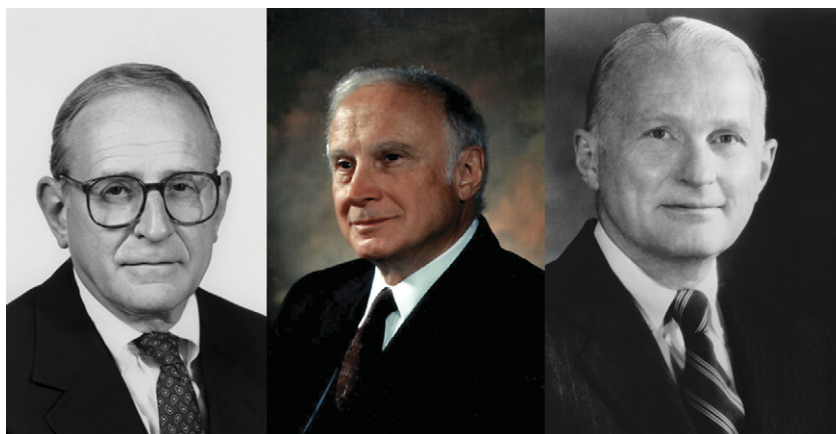
Wilkins, and Ashby Moncure, 3 great surgeons, but more importantly 3 great men (Fig 3). They were outstanding role models, dedicated to their patients, possessing great judgment, skilled and patient teachers in the operating room, and all committed to resident education. I knew then I wanted to be a thoracic surgeon. There is an inscription on a plaque outside the Sweet Conference Room at the MGH as a tribute to Richard Sweet, a prominent MGH thoracic surgeon: “Here are memorialized those attributes of a great surgeon: Maturity of judgment, dexterity of hand, devotion to teaching, and serenity in crisis so well exemplified by Richard Sweet 1941–1961.” This, however, equally applied to these 3 great surgeons. This was the surgical environment that I grew up in.

But it was really Hermes Grillo, the 23rd President of the STS, more than anyone else who was instrumental in my becoming a thoracic surgeon, a true mentor. He was the consummate professor: a creative, gifted surgeon, relentless in his care of patients. He demanded a great deal of himself and those around him. He instilled in all of us a philosophy of doing it right; paying attention to every detail. If it was not right, you do it over. You do it until you get it right. He took residents through virtually every case and expected the same of every other staff member in thoracic surgery, a tradition that lives on to the present. He treated me as a colleague even as the chief resident.

A brief anecdote illustrates two other important qualities of his. When I returned to MGH to join the staff in 1984, I met Dr Grillo in his office as he was to depart on vacation. He gave me 3 lists: patients in the hospital to care for, patients to see in the office to evaluate for operations, and a list of those he scheduled for me to operate on in his absence. Trust and opportunity—you couldn’t ask for more.

But the quality I admired most in him was his passion. Be it surgery, politics, food, or travel—he was passionate. Passion for what one does is the quality I value the most in any individual. A quote attributed to the German philosopher Hegel sums it up “Nothing great in life is accomplished without passion” [2], and Hermes accomplished much. In the obituary of Theodore Kocher, a

Fig 3. (Left) Ashby Moncure, MD; (Middle) Hermes C. Grillo, MD; (Right), Earle W. Wilkins, MD.



quote from Sir Brentley Moynihan, referring to Kocher, could have easily applied to Hermes: “The greatest gift of a surgeon is the gift of spirit to inspire many successors in the high destiny of our calling” [3]. Hermes lived up to that quote and inspired me, and many others.

So this is the personal journey that brought me to this moment. I would like to explore two other journeys so many of us have shared together. I would like to focus on two things very important to cardiothoracic (CT) surgery: experts and quality improvement.

I have been involved in the journey of resident education and training for much of my career. The journey of resident education and training in thoracic surgery began in 1928 at the University of Michigan under John Alexander with 2 years of special training in thoracic surgery. However, it was not until the 1936 Annual Meeting of the American Association for Thoracic Surgery in Rochester, Minnesota, that the concept of thoracic surgery training gained traction. At that time, there were many who felt thoracic surgery should be designated as a separate specialty with special training. Others felt it should be a part of general surgery. A panel with many prominent thoracic surgeons was convened to discuss the issue, including Evarts Graham and John Alexander. Representing the American Surgical Association, Evarts Graham gave the perspective of general surgery. He expressed the opinion that a sound foundation in general surgery would adequately train those interested in thoracic surgery and recommended 4 years of general surgery training. John Alexander detailed the Michigan experience, which at the time was 3 years of training in surgery followed by 2 years of graduated training in thoracic surgery.

This discussion set the stage for further development of other training programs specializing in thoracic surgery modeled after the Michigan experience and the relationship of general surgery to thoracic surgery. Since the 1936 meeting, much attention has been paid to the education and training of thoracic surgeons. However, the basic construct of thoracic training has changed

little—4 or 5 years of general surgery and 2 or 3 years of thoracic training—much as it was in the day of Alexander.

An alarming trend in applicants to CT surgery was identified in the mid-1990s (Fig 4). This trend of declining applicants served as a wake-up call to the specialty and led to much introspection about the state of affairs and how we got there. There was much concern when this trend was first identified. Our specialty in many respects hung in the balance. Efforts to address the problem proceeded along four lines: root cause analysis, how to stimulate interest in our specialty, retooling the educational product, and training redesign; all things in our control.

In the beginning, there were little data to go on and length of training became the focus. The average time from medical school to the completion of training averaged more than 8 years. Training was traditionally linked to the completion of 5 years in general surgery in a program approved by the Accreditation Council on Graduate Medical Education and American Board of Surgery (ABS) certification. After a lengthy debate and many retreats, Fred Crawford led the American Board of Thoracic Surgery (ABTS) through a process that led to the elimination of ABS certification as a requirement for entry into thoracic surgical training. This was a momentous decision and a very important one. Although many of our current trainees still get their ABS certification, it opened the door to new training possibilities. The hope at the time was that some of these new, alternative training programs would shorten the overall length of training.

Two new pathways for thoracic training emerged: the 0/6 integrated program matching directly out of medical school and into CT surgery and the 4/3 combined general surgery/CT training pathway. Most programs, however, remained in the traditional mode, but the new tracks have captured interest and are viewed as positive developments. There are currently 10 combined 4/3 programs and 10 integrated programs, with more on the way. Only

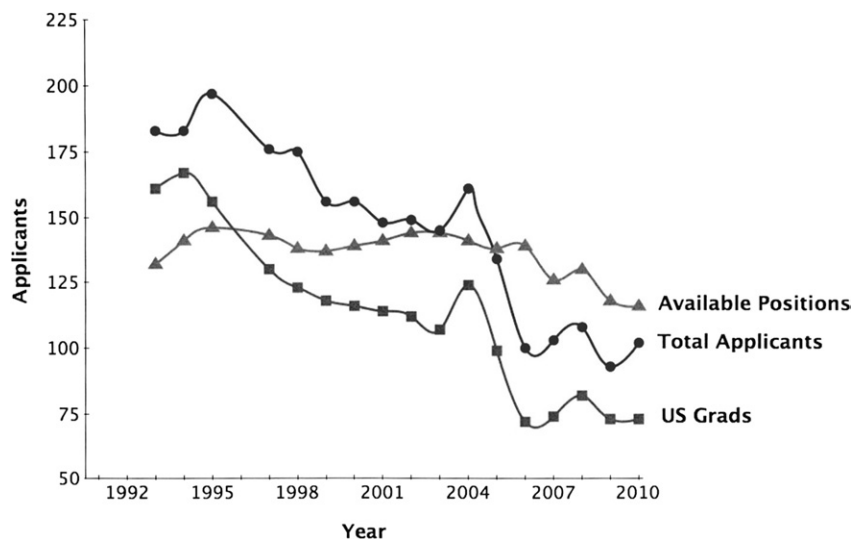


Fig 4. Total applications (circles) and applications from United States graduates (squares) for available positions (triangles) from 1993 to 2010.

<u>Positive</u>	<u>% Responders</u>
Type of Surgery	82%
Role Model	71%
<u>Not Critical</u>	
Work/Personal Life	23%
Income Potential	20%
Length of Training	10%
<u>Negative Factors</u>	
Job Security/Availability	70%

Fig 5. Reasons to choose cardiothoracic surgery. (Reprinted from *J Thorac Cardiovasc Surg*, Vol. 137, Vaporciyan AA, Reed CE, Erikson C, Dill MJ, Carpenter AJ, Guleserian KJ, Merrill W, Factors affecting interest in cardiothoracic surgery: Survey of North American general surgery residents, Pages 1054–1062, Copyright 2009, with permission from Elsevier [4]).

the integrated program at present offers less than 7 years of training.

Important survey data became available to allow further understanding for the decrease in applicants. A survey of more than 2,000 general surgery residents to determine factors influencing choice of residency was conducted in 2009 (Fig 5) [4]. This survey highlighted the reasons why residents choose our specialty. The type of surgery was the number 1 reason, chosen by 82%. The influence of role models on their choice was selected by 71%. The type of surgery was more important for CT surgery residents than any other subspecialty surgery group. In many respects, CT surgery is the last bastion of “big operations.” For those who like surgery, this is a definite attraction. We must continue to emphasize tech-

nical excellence in our specialty in big open operations as well as cutting-edge operations—robotics, minimally invasive cardiac and thoracic surgery, devices, and endoscopic therapy. This is what attracts residents to our specialty.

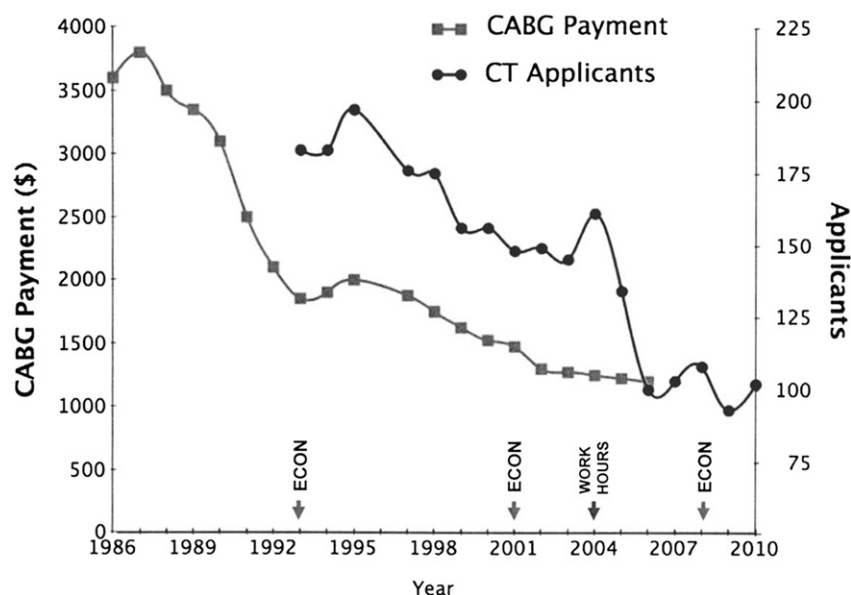
We must continue to provide excellent role models—it is still highly valued. Concern over length of training was cited by only 10% of respondents, not as important as initially thought. Other popular explanations for the decline in interest included lifestyle, income, and indebtedness, but were only cited about 20% of the time—again far less important than initially thought.

This survey did reveal the number one concern amongst residents considering CT surgery—job availability and job security. In my opinion the declining interest has always been about job availability. The phenomenon of a tight job market has occurred three times in my career, early 1990s, after 2001, and in 2008, and all were associated with periods of economic downturn. Decline in applicants soon followed.

Coupled with the general economic downturn was a decline in reimbursement. There is a clear correlation of declining coronary artery bypass grafting (CABG) reimbursements and resident applications (Fig 6). Of interest was the institution of work-hour restrictions in 2004; whether this represented a coincidence or a contributing factor is unknown. During this same interval, there was a decline in CABG volume—the number one procedure in cardiac surgery. Not only did the volume decline, but the payment per procedure also declined, a bad combination.

Delayed retirement of senior surgeons resulted in fewer opportunities. Confirming this theory of delayed retirement is the average age of the specialty—57 years—the oldest of any subspecialty area of surgery (Fig 7). This represents a steady trend upward from age 50 years as recently as 1999. All of these factors led to belt tightening,

Fig 6. Medicare coronary artery bypass grafting (CABG, squares) payment vs cardiothoracic (CT) residency applications (circles) from 1986 to 2010.



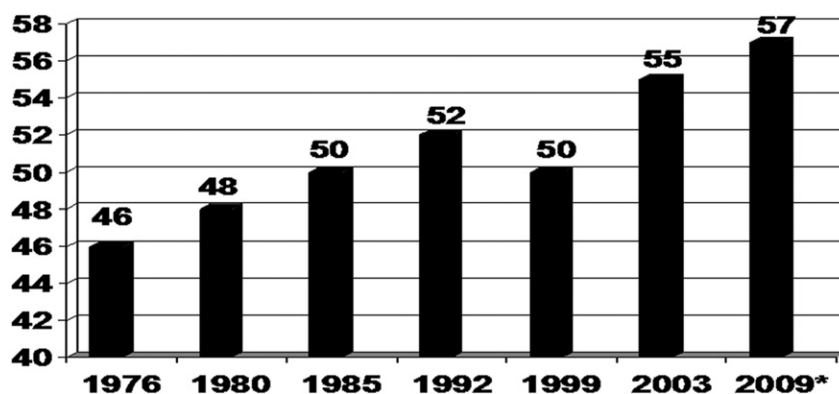


Fig 7. Mean age trend for thoracic surgeons. (*American College of Surgeons Health Policy Research Institute.) Note: The source of the past years' data is Thoracic Surgery Workforce: Survey at the End of the 20th Century and Implications for the New Millennium, 2001. 2002 STS/AATS Practice Survey. (Reprinted with permission from Elsevier.)

delayed retirements, and fewer jobs available for graduating CT residents.

There are positive signs to suggest job market soon will improve. The economy is improving. Double-digit increases in the stock market have occurred for the last 2 consecutive years and presumably translate into improved retirement accounts, allowing retirement to proceed. The first of the baby boomers enter the Medicare years this year, peaking in the year 2030 with a sustained impact for 40 years. Because this is the population that needs our services in a disproportionate way, surgical volume should increase creating a need for more surgeons.

We have seen from the recent STS/American Association for Thoracic Surgery CT workforce survey data that 73% of active CT surgeons are planning to retire by 2020, creating more job opportunity (Fig 8). This effect is starting to be seen as the number of active CT surgeons has declined in each of the last 6 years (Fig 9). CT surgeons are retiring at a greater rate than young surgeons are being trained. A recent analysis of the workforce done by the American Association of Medical Colleges sponsored by the STS and the American Association for Thoracic Surgery predicted that there would be a shortage of 1,500 CT surgeons by the year 2020 [5]. So, the answer to why a decline in resident applicants occurred seems to be—jobs—and the prospects look good for this phenomenon to turn around.

The second issue examined was how well we were marketing our specialty. I believe we had become com-

placent. We were not putting the effort into stimulating interest—selling our specialty. We had little to do with college students or even medical students in many cases. We were not reaching out to general surgery residents the way we should.

An aggressive response came from many directions. The national organizations developed college and medical student strategies. A Tech-Con-like event to highlight the exciting developments in our specialty was sponsored at the American College of Surgeons Meeting, with more than 100 general surgery resident attendees last year. Scholarships for interested general surgery residents were given to the STS Annual Meeting. The development of integrated training programs, resident boot camps, and CT simulation experiences sparked a renewed interest among medical students and general surgery residents. It has been frequently stated that as many as 150 medical student applicants are applying for the 10 integrated programs—an exciting development. We must keep track of the 140 individuals who did not match and keep them interested in our specialty. The traditional programs still need them.

The impression of increased interest is confirmed by a survey conducted by our Thoracic Surgery Resident Association to be presented Tuesday morning at this meeting (Fig 10) [6]. I applaud them for this effort. It was done with the cooperation of the ABS at the time of the in-service examination. There were more than 5,000 respondents. In the first 3 years of general surgery, more than 200 people per year expressed interest in CT sur-

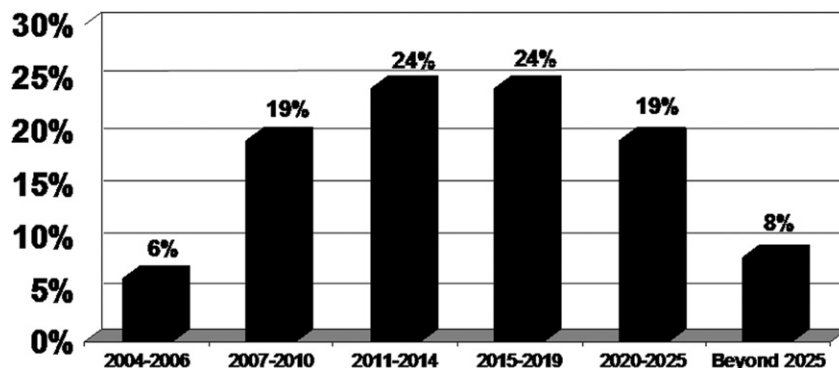
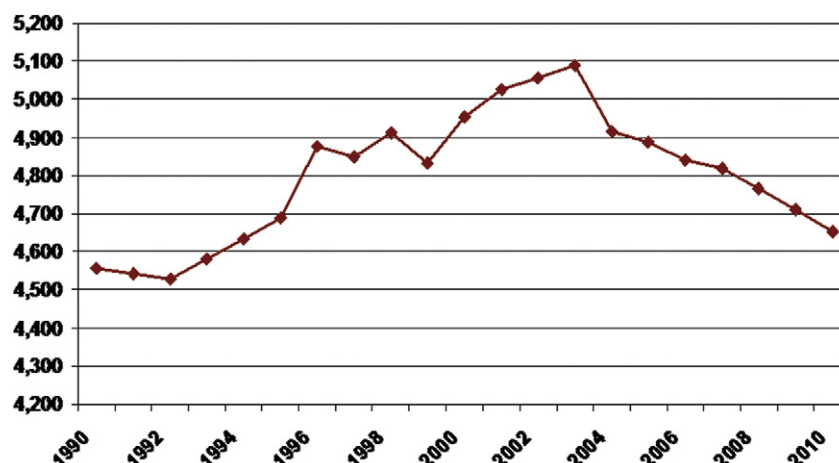


Fig 8. Projected year of retirement for cardiothoracic surgeons: 73% of cardiothoracic surgeons will retire by 2019.

Fig 9. Declining number of active thoracic surgeons 1990–2010. Source: American Medical Association Physician Characteristics and Distribution. Includes physicians self-designating as cardiovascular surgery, cardiothoracic surgery, and thoracic surgery.



gery. In the last 2 years of general surgery training, nearly 120 per year were interested. Last year, only 67 applicants from U.S. general surgery training programs had applied to our specialty. This recent survey, I believe, is the most reassuring sign that we are making progress in generating interest once again in the specialty.

At the MGH, we have had direct experience with a summer medical student program. It started more than 12 years ago after an inquiry about a summer opportunity from a student. Since that time, we have had more than 50 summer students. Most have pursued a career in surgery, and at least 5 have expressed an interest in CT surgery. Early exposure to our field will stimulate interest and is essential! I encourage more of you to develop your own program. We are a better specialty for the effort we have put into stimulating interest. We must not let up.

So, jobs may be improving and interest in the specialty increasing. We must be certain the educational product and the training programs are the best they can be to meet the needs of those interested in our specialty. CT surgery has long been the apex of surgical training and, in my humble opinion, has produced the best overall doctors and technical surgeons. This opinion is supported by the facts: the length of training, the broad base of our experience, the complex nature of the patients we care for, and the technical skills demanded in our specialty. In my opinion, we have always been in the

business of training experts! We must never lose that as our primary mission in resident training. We must not take a step backward or try for shortcuts. We must get this right!

The educational product is in the process of a major overhaul. The Joint Council in Thoracic Surgery Education has been reconstituted under the leadership of Ed Verrier and funded with more than \$4 million from sponsoring organizations and industry to improve the educational product in thoracic surgery. Through the effort and energy of the Thoracic Surgery Directors Association and the Joint Council on Thoracic Surgery Education, three successful resident boot camps have been completed. Simulation in CT surgery has rapidly been advanced based on the boot camp experience. Plans are underway to disseminate the simulation concept to the training programs so it may become more integral to the educational process. A 6-year integrated curriculum has been developed, and plans are underway to improve the curriculum for the traditional programs. Essential to all of this has been the initiation of an Educate-the-Educators program to create a core of well-trained, dedicated surgical educators.

As I stated earlier, we are in the business of training experts. Geoff Colvin deals with how people become experts in his book *Talent is Overrated* [7]. Whether sports, art, music, or surgery, few are born as naturals. True experts are the product of an early start in a particular field, encouraged by a mentor. Colvin stresses the development of intense, deliberate practice in your field. Passion for the field develops as early success is achieved. This creates a cycle of positive feedback and accelerates progress. He introduces the term “rage to master your domain,” which I am particularly fond of. It sounds like a prescription for training a CT surgeon to me—passion for your field, intense deliberate practice, and a rage to master your domain. Most important, he points out, there are no shortcuts to becoming an expert! It takes a long time—10 years or 10,000 hours of deliberate practice. We should heed this advice. The famous football coach Vince Lombardi was quoted, “None of us can achieve perfection, but the pursuit will result in

2009 TSRA General Surgery Workforce				
Year	1-3	4	5	Total
TOTAL Planning Thoracic Residency	611	117	117	845
TOTAL Surgery	5482	1117	1034	7633

Fig 10. The 2010 Thoracic Surgery Residents Association Workforce Study (General Surgery In-Service Exam). (Reprinted from Ann Thorac Surg, Vol. 92(6), Sarkaria IS, Carr SR, MacIver RH, et al. Results of the 2010 Thoracic Surgery Residents Association Workforce Survey: a view from the trenches, pages 2062–71, Copyright 2011, with permission from Elsevier [6].)

excellence.” Striving for perfection is what CT training and education should be about, and excellence will surely follow.

Let us now consider the redesign of the training programs and factors we must consider. Much attention has been focused on integrated programs, but we must not forget the more traditional pathways. First of all, survey data suggest length of training is a factor for only 10% of our residents, and yet many of our decisions have been predicated on our training being too long. We must ask ourselves what is the right length: Is 6 years really enough in the integrated programs? Most have about 3 years of actual CT training. Is this enough? Should all traditional and 4/3 programs have at least 3 years of exposure to CT surgery? Most have less than 3 years. Many point to vascular surgery going to 5-year-long integrated programs as justification for our 6-year integrated CT programs. I would argue that their specialty is evolving to a catheter-based specialty, and 5 years might be enough. We aren’t there in CT surgery, in my opinion. We must carefully evaluate what is the appropriate length of training. We must get this right for all the pathways!

The integrated experience suggests that many interested in cardiac surgery can decide in medical school. Time will tell if they made the right choice. What about general thoracic surgery? Can everyone make a decision in medical school? We should consider proactively negotiating with the ABS for years of credit for those individuals who drop out of the integrated program to give them some job security.

A survey of more than 2,000 general surgery residents revealed that a significant number of residents remain undecided about subspecialty choice into their third year or research years (Fig 11). We must keep that in mind. We must encourage the undecided and continue to provide a path to CT surgery for those who make a late decision to enter our specialty.

We all understand the value of adequate case volume. In response to this issue some years ago, the ABTS raised the index case requirements substantially to reflect not a minimum, but what was felt to be necessary. This was done at the time of declining applicants to ensure technical quality in our trainees. If we applied the measure of

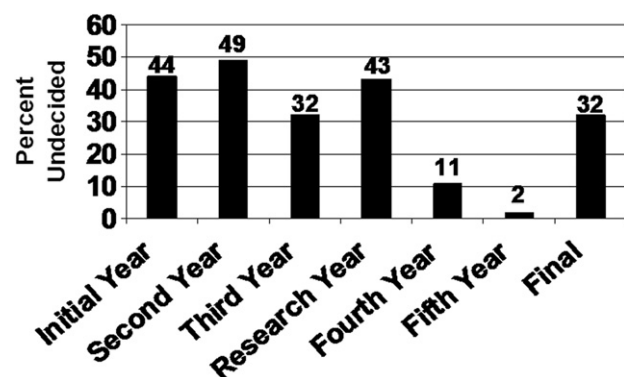


Fig 11. Survey of general surgery residents.

	Positive	Negative
Resident Quality of Life	51%	28%
Quality of Care	33%	41%
Resident Education	24%	54%
Preparation Senior Roles	13%	63%
Patient Safety	34%	39%

Fig 12. Resident perspective on Accreditation Council on Graduate Medical Education (ACGME) regulation of supervision and duty hours. (Reprinted from Drolet BC, Spalluto LB, Fischer SA, Residents’ perspectives on ACGME Regulation of Supervision and Duty Hours—A national survey. *N Engl J Med*, Dec 2010;e34:1–5, with permission [8].)

training experts, even the new numbers might not be enough. The constraint we face is what can be achieved in the time available in the various pathways. Do we provide enough operative exposure? Almost 40% of our trainees go on to further fellowship training, suggesting more operative experience and exposure might be needed. This question must be asked of all current training pathways. There is no shortcut to technical expertise. Simulation has a role, but does not replace operative experience. Remember the number one reason to choose our specialty was the operations we perform. We must provide the residents the opportunity to master these techniques.

The knowledge base required for our specialty, as we all know, has grown enormously. All training programs must provide an opportunity to encompass this information. Much of the traditional and 4/3 pathways are by necessity focused predominantly on technical training, leaving less time to expand one’s knowledge base. In the first year, most residents are still distracted by taking the ABS examination, leaving only the last 1 or 2 years to focus exclusively on CT surgery. Expecting to encompass all that is needed to know in our specialty is a challenge under these circumstances. Redesigning the curriculum and improving the accessibility of this to address this is imperative.

The effect of work-hour restrictions compounds the problem. The Accreditation Council on Graduate Medical Education–mandated work-hour restrictions and the associated night floats, post call days, cross coverage, and decreased resident-to-resident interaction have affected resident education. A survey published in the *New England Journal of Medicine* addresses this issue (Fig 12) [8]. More than 2,000 residents expressed their view of the effect of work restriction on their education as well as other important consequences. Most felt work hours had a detrimental effect. We must account for this loss in our training programs, and I am not sure we have. The unacceptably high failure rates seen recently on the ABTS exams mandate that we scrutinize the issue carefully. We have focused more on compliance with work-hour restrictions and less on the lost educational opportunity.

A recent study was done by 4 CT training programs in the western United States to assess the effect of work-

CARDIAC CASES			
YEAR	BEFORE RESTRICTION	AFTER RESTRICTION	p VALUE
1	190	153	.15
2	154	108	<.0001
3	115	75	.001

Fig 13. Effect of work-hour restriction on operative experience in cardiothoracic surgical training. (Reprinted from *J Thorac Cardiovasc Surg*, Vol 137(3), Connors RC, Doty JR, Bull DA, May, HT, Fullerton DA, Robbins RC, Effect of work-hour restriction on operative experience in cardiothoracic surgical residency training, pages 710–713, Copyright 2009, with permission from Elsevier [9].)

hour restrictions on cardiac case volume (Fig 13) [9]. As you can see, there was a significant decline in operative experience in cardiac surgery after the the 80-hour work-week was initiated, an overall 24% decline. We must continue to track this phenomenon. How do we accommodate for this loss of experience? The ABTS should monitor this trend carefully and react appropriately.

Flexibility in program design is imperative, in my opinion. Length of training, reliance on general surgery, need for index cases, and regulatory restrictions limit our flexibility. At present, there is little time for exposure to related fields or special rotations. We must examine whether CT residents benefit from dedicated time in cardiology, catheterization lab, echo, medical oncology, radiology, and pulmonology, and allow the training programs flexibility to provide this if indicated. Let us agree that we must continue to train experts. Let us decide what is right for our specialty and our residents and not compromise on the excellence that has defined our specialty.

We are not alone in facing challenging resident issues. General and vascular surgery face tremendous challenges as well. The number applying to general surgery has declined: 80% entering general surgery pursue subspecialty training. They spend a significant portion of their fellowship studying for general surgery examinations, as our residents do. Work hour restrictions impact all of surgery. They also have worrisome high failure rates on their qualifying and certifying examinations. Too often those interested in a subspecialty have little exposure in their field of interest during the 5 years of general surgery.

There have been recent discussions at the ABS about resurrecting the concept of a core surgical experience, followed by a longer period of subspecialty training. There are those within surgery who are supportive of this concept. We need to seek them out and lend our support if we feel this approach is in our specialties' best interest. This is not a new concept. Maybe its time has finally come!

An alternative approach for general surgery is the concept of early specialization within the 5 years of

training. In other words, more time in the specialty of your choice. When I was a general surgery resident, I had 16 months of CT surgery in 5 years. Now at MGH we have a maximum of 6 months. General surgery training programs became more prescriptive and less flexible. Wouldn't an aspiring CT surgeon or transplant surgeon prefer more time in their field of interest to develop domain expertise? Why not move the ABS examinations out of the subspecialty year? Let's find out if others agree and work with the ABS to explore this possibility. The concepts of early specialization or a core of surgery with a longer period for subspecialty training would have a very positive impact on our 4/3 and traditional training programs. Much attention has been focused on our integrated programs, but remember 75%, of our training programs are of the traditional variety.

The timing may be right to approach vascular surgery from a different perspective. I believe we can find common ground around the integrated programs making both stronger. Vascular integrated programs have the same challenges that our integrated programs have—work-hour restrictions, funding, good alternative rotations to vascular surgery and credit for years if residents drop out. Why not work together with them to solve these problems. Why not incorporate more training in our respective disciplines to each other's benefit. Why not approach hospitals jointly to fund integrated programs? Currently most integrated programs have positions outside of the categorical general surgery slots and therefore aren't funded. We need to make a compelling argument. Hospitals certainly are hiring many mid-level providers—usually more expensive than a resident and work 40 hours instead of 80. CT and vascular residents will be more cost effective in the long run. All will need some general surgery rotations. This could be a source of much needed cost-effective talented manpower for general surgery. We need to reach out to the ABS, vascular surgery, and hospitals to explore all of these possibilities. If hospitals don't see the wisdom of funding the integrated residencies, we need to continue to reach out to Congress for help in this area. The integrated programs have stimulated interest, but this interest can't be met by the current number of programs. Funding is an obstacle for many considering developing integrated residencies. We need to work closely with our 2 STS members in Congress and the many Congressmen who have benefited from our care to address this issue. It can be solved.

Whenever I talk to residents, their only concern is that they be well trained, equipped to meet the needs of their patients, and confident in their abilities. We must meet their needs. We must carefully analyze the issues, make the right choices, and continue to focus on training experts!

The STS

I would like to now comment on the STS and the recent journey we have been on for the last 8 years. Eight years ago we decided to become a self-managed organization. This decision was the subject of much debate at the time.

The wisdom of that decision, I believe has proven to be correct.

Since 2002, the staff has quadrupled in size. The volunteer participation has dramatically increased. Revenues have doubled and assets have more than quintupled. The activities of the organization have continued to involve every aspect of our profession. It is one of the most dynamic organizations in medicine.

An important aspect of the STS journey has been the evolution of the STS database. The wisdom of those individuals who believed in the database and the financial support provided by the society for its creation have been essential to the success of this organization. As I have traveled around this past year on behalf of the STS, it has been very revealing and a source of pride to see firsthand the acknowledgement by payers, government, and other medical societies of the leadership role our organization has in clinical databases and now public reporting. The benefit of this leadership position has been invaluable for our profession. We must continue to capitalize on our strengths in these areas.

The priorities of the database have continued to evolve from participation to public reporting. In the beginning, the emphasis was on participation in the adult cardiac database.

We have succeeded in that goal with 1,028 sites participating, representing nearly 95% of our specialty performing cardiac surgery. The congenital and general thoracic databases started later but are rapidly catching up. The congenital database now represents 98 sites—about 90% of those centers doing congenital heart surgery. The general thoracic database has grown to more than 190 sites currently, but there is still more work to be done to bring it on par with the percentage participation in the other databases.

The database for many years was carried as an expense to the Society. Since 2001 the database has been self-supporting. The increased revenues have allowed the Society to reinvest in the database and continually improve it. This investment has paid off.

In recent years the Society made the decision to explore three other important areas: auditing, the rating system, and public reporting. Each was the result of very careful deliberation by leadership. Each had important implications for the database and our members. Auditing has added great validity to the database. It was an initiative that came from within the organization, not at the request of others. The audit is conducted by independent outside agencies and paid for by the STS. It has set the standard for clinical databases. Currently, about 5% of our adult cardiac sites undergo an audit, with plans to increase this to as many as 20% per year in the future. The General Thoracic Surgery database had its first audit this past year. The rating system that was developed was an important move. It provides an opportunity for site-specific quality improvement. The rating system has also paved the way to the recent effort with Consumer's Union and public reporting. More than 20% of our adult cardiac sites have volunteered to participate in this project, and 20% have volunteered to participate in the

STS public reporting site that was launched just a few days ago. This activity has been recognized by many from the National Quality Forum to a recent editorial in the *New England Journal of Medicine* as an important step forward in transparency in medicine. We need more of you to participate in public reporting to further strengthen our position.

What is the next opportunity using the database? In my opinion it is the expanded use of the database to raise the quality of care at an individual site level and more globally, through quality improvement efforts, identification and reduction of complications, and management of resources. Effectively doing so should result in cost savings.

The Patient Protection and Affordable Care Act is potentially the most significant piece of health care legislation since Medicare in 1965. It is designed to extend health coverage to more than 40 million uninsured Americans and attempt to control the ever-rising cost of health care, and also to keep Medicare solvent. The new law has many implications for our specialty. The ever-increasing percentage of Gross Domestic Product consumed by health care spending and the threat to Medicare are serious issues that must be addressed. We have an obligation to society to be a part of the solution to this problem. We must focus on quality and reduction of costs. The database can help us meet this obligation to society.

Payment reform is also an important part of the new health care law. There is much talk about the effect fee for service has on the cost of health care. Some believe it may go away completely. What will take its place or when it will be implemented is not yet known.

How can we as a profession address these issues? While the government debates the fate of health care reform, we have an opportunity. One of the important lessons from the STS Kennedy School course was that when the window of opportunity opens, you must be ready to jump through it with an effective policy. Access, affordability, and quality will be the key to any future policy. What should our policy look like?

The epiphany for me occurred this summer when I was invited to attend the Annual Meeting of the Michigan Society of Cardiovascular and Thoracic Surgery. I was aware of the activities of the Michigan Society in the area of quality improvement but did not fully understand the effort and depth of their activity. They use the STS database as a quality improvement tool. Currently, all 33 sites that perform cardiac operations in Michigan participate. The effort is subsidized by Blue Cross/Blue Shield of Michigan in a unique arrangement. There are regular meetings and the data is now unblinded so that everyone knows each other's data. Confidentiality agreements are signed and none of the data can be used for individual or institutional purposes to gain advantage. Outcomes are analyzed and approaches to care and improvement are discussed. An atmosphere of self-improvement has been fostered as best practices are shared. The goal was to have the overall quality of cardiac care in Michigan improve.

In the beginning, they focused on five initiatives: internal mammary artery use, intraaortic balloon pump use, prolonged ventilation, postoperative atrial fibrillation, and CABG mortality. Sites that fell outside the STS or Michigan average were identified. Best practices from other sites with “better outcomes” were shared. Site visits were arranged if needed.

As an example, the positive impact this approach had on internal mammary artery use statewide was recently published (Fig 14) [10]. This is a model we can all learn from. Similar results have been achieved with their other initiatives. Individual sites improved their performance and the stated goal of improving care in Michigan has become a reality.

A similar initiative was developed in Virginia led by our second vice president, Jeff Rich, and others. Their stated purpose, similar to that of Michigan, was to improve outcomes, contain costs and make efficient use of resources in cardiac surgical care by identifying and sharing best practices. They combined the STS database with the Medicare claims database to allow analysis of resource utilization and quantification of complications. They identified the additive costs of a variety of complications after CABG from atrial fibrillation to mediastinitis. Cost savings are realized by reducing these complications. By sharing best practices and reducing atrial fibrillation after CABG from 20% to 14%, the estimated savings over a 3-year period was \$4.5 million for the state of Virginia [11].

Using this template, the Virginia group has collaborated with WellPoint Anthem to develop a payment model for hospitals and doctors. In 2009 alone, this resulted in \$32 million dollars in new money paid to Virginia hospitals [11]. They developed an incentive system for doctors resulting in additional payments when specific targets were met.

Improving quality and reducing costs is the mantra of the new Health Care legislation. If we as a specialty adopt an approach similar to these 2 examples our patients will do better, there will be fewer complications, the cost of health care will go down, and if it is done with the support of the payers, there will be incentives for doctors. With 40% of Medicare expenditures allocated to the diseases

we treat, the government understands the importance of addressing these issues in our specialty. We can lead this debate rather than have others determine our fate.

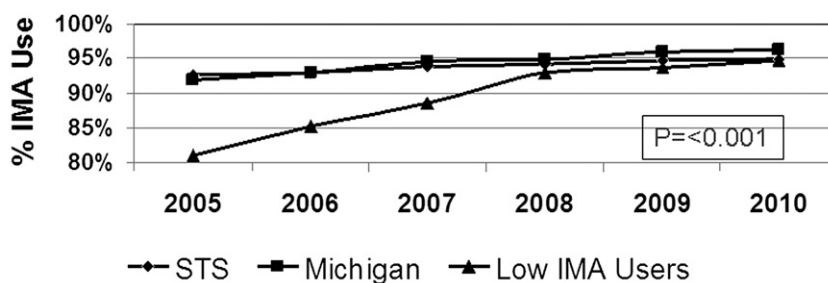
To this end, we have established a task force headed by Jeff Rich to help states or regions develop programs similar to the Michigan and Virginia initiatives. There are 14 state or regional societies that have been identified. Our plan is to approach these state organizations to see if they have interest in developing similar programs. We are holding a meeting of some of these organizations at this annual meeting to explore this possibility. Once again, it will require the energy, effort, and participation of all of you in the audience to accomplish this goal! I hope all of you will join us in this effort.

Training experts and focusing on quality improvement, that is our future journey.

In conclusion, I would like to once again thank the STS for the opportunities to participate over the years. I would especially like to thank all of you for allowing me the opportunity to serve as your President this past year. It is something I will always treasure. The final thank you is to all of you—the men and women who are CT surgeons. Being a thoracic surgeon and part of this great profession is a source of great pride to me as it is to you. We have a shared collective experience: Personal and family sacrifice, residency training, day to day practice of our specialty, education of residents, the stresses and challenges we confront and the volunteer spirit that runs so deep throughout our specialty.

Cam Wright, one of my colleagues and known to many of you, volunteered to join the Army Medical Reserve. He has served in Iraq and Afghanistan, recently supporting the unit upon whom the famous book and television miniseries *Band of Brothers* was based—The Currahees of the 101st Airborne. Upon returning home from his tour of duty, he introduced me to this quote. “We few, we happy few, we band of brothers. For he today that sheds his blood with me shall be my brother” [12]. We indeed, as CT surgeons, have shed blood together, literally and figuratively. We are a band of brothers and will continue to meet the challenges that confront us and seize the opportunities they present.

Fig 14. Internal mammary artery (IMA) use in isolated coronary artery bypass grafting (CABG). The Society of Thoracic Surgeons (STS) (diamonds), Michigan (squares), and low IMA users (triangles). Courtesy of Richard Prager. (Reprinted from Ann Thorac Surg, Vol 90(4), Johnson SH, Theurer PF, Bell GF, Maresca L, Leyden T, et al, A statewide quality collaborative for process improvement: Internal mammary artery utilization, Pages 1158–1164, Copyright 2010, with permission from Elsevier [10].)



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