Southwestern Surgical Congress: Presidential Address

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I deeply appreciate the honor of serving as president of the SWSC [Southwestern Surgical Congress] this year. I have thoroughly enjoyed my almost 20 years with the SWSC. During my time with the Congress, I have been impressed with its commitment to its mission, the education of surgeons at all levels of practice and training. I wish to express my thanks to members who helped me grow within the Congress. Dr Scott Peterson, Dr Maria Allo, Dr Ed Nelson, and Dr Ernie Dunn were constant resources during my time as a member of the council and of the executive committee. Thanks to Dr Russell Postier for his counsel when I became president-elect and then president of the Congress. A special thanks to Dr Jim Edney, who has been a source for me throughout my time with the Congress and who has devoted a great deal of energy helping make the SWSC a viable organization and making our annual meetings such a success. The continued success of the Congress is a reflection of the willing participation of so many members. The culture of the Congress also permits comfortable interaction among all who attend the annual meeting, part of the “recharging of our batteries” that is so important in our profession. The Congress is also fortunate to have Nonie Lowry, Jill Kawulok, and others at LP who made this year much easier for me than I perhaps have made it for them. Some of what I will present today will be provocative, with the intent to stimulate meaningful discussions.

During the last 2 years, in preparation for this presentation, I thought of the many topics that I could cover. With my interests in trauma and critical care, I thought of numerous scientific presentations. I considered a talk on one of my special interests, fluid, electrolyte, and acid-base
disorders as they relate to surgery. Many of my current and past residents and associates are aware of the importance that I place on the proper attention to detail in these areas. This commitment to detail is critical for many of our patients and particularly the elderly. Since I am entering this age group, I want to make sure that if my graduates have to take care of me, then they know what I expect of them. Also, recent articles have indicated that 1 in 5 of all patients admitted to hospital, including surgical patients, develop a minor or major complication (including death) as a result of mismanagement of fluids and of electrolyte disorders. There is, for example, a direct correlation between hyponatremia, particularly preoperative hyponatremia, and surgical morbidity and mortality. Also, some of the information regarding fluids, electrolytes, and body composition in most standard texts is outdated and incorrect based on newer research, perhaps contributing to some of the problems. Most recommendations for fluids and electrolytes in surgical patients are based on the classic 70-kg young male, who almost doesn’t exist in today’s society, perhaps less than 5% of the population. These young patients are also a minority of all patients that need surgery other than from trauma. Yet it is this characterization that is the basis for all recommendations regarding fluid management, with little consideration as to how to extrapolate to the other 99% or more of the population.

Very little is written in most standard surgical texts regarding body composition and fluid and electrolyte disorders in the elderly, yet a large percentage of major operations are in this patient group. Other than from trauma, most patients in the surgical intensive care units [ICUs] are also elderly, and even minor mismanagement of fluids in this group can result in prolonged ICU and hospital stays, with increased morbidity and mortality. My perception during my career is that many of these patients also require extended nursing care after discharge, and much of it might be preventable. How much of an improved quality of life and/or cost saving would be realized if even half of these electrolyte disorders and their consequences could be prevented? Precise management of fluids and prevention of fluid and electrolyte disorders in the elderly will become even more important in the future as the elderly population is expected to expand to more than 60 million in the near future, with a corresponding increase in the numbers of operations related to this age group.

I considered a presentation on surgery in the morbidly obese, since it is becoming or has become the most common group of procedures performed in our country, although recent work has questioned some of the long-term cost benefits attributed to these procedures. Studies have looked at body composition in the obese. In contrast to some previous knowledge, the obese have a substantially lower total body water as a percentage of their weight, and their blood volume is less than the standard 7% of weight usually quoted in almost all textbooks (which is also incorrect). This has implications regarding fluid resuscitation and daily fluid requirements. Most of the obese patients get too much fluid, since the estimated fluid requirement is based on 1 of 2 common formulas for fluid replacement that use weight for a reference. Use of these formulas, if not corrected for the obesity, can result in excess fluid infusions in the obese (and, more critically, in the elderly) than they need, contributing to the “fluid overload” seen in these patients. Neither of the 2 formulas applies to the elderly. I tell my residents that in these situations, the patient gets better in spite of what we do, not because of what we do. It should be the opposite.

As an aside, the term fluid overload is a very poor term and a pet peeve of mine, as it can be easily misinterpreted. The term is used for almost anyone with peripheral edema or even pulmonary edema (which has noncardiogenic causes), and we know that many of these patients may be normovolemic, hypervolemic, or hypovolemic. Furthermore, it produces conflict between specialties, since each specialty seems to interpret the term differently and, in my experience, more between surgical and medical intensivists. Also, at least 30% of surgeons will develop venous insufficiency during their career and develop dependent edema. They are not “fluid overloaded.” (Surgery residents, take note regarding use of support stockings.) Would it not be more appropriate to say, for example, that the patient has a significant increase in total body water, an increase in interstitial fluid but a deficit in vascular volume (common, for example, in elderly with congestive failure who are bleeding from the GI [gastrointestinal] tract). More verbose perhaps, but more precise, and it would reflect some of the thinking that went into the interpretation of the patient’s fluid status.

I was going to dedicate my presentation to these issues, but 3 things changed my mind. The first was my ongoing concern regarding surgical manpower, particularly in community and rural areas. Having practiced in a small town for 3 years, I was and am very aware of the problems with recruitment, retention, and availability of general surgeons for small community and rural sites. My presentation at our 2006 meeting addressed some of these concerns. When I became chair of the Department of Surgery at the University of North Dakota, and also for a time program director, I traveled extensively in the Dakotas and Montana. I visited the practice sites of almost half of my graduates and became even more aware of the training required for graduates to practice in rural and small communities, almost always without a fellowship. As a result, I now believe the experiences required to prepare residents for community and rural practice are somewhat different than what is required for an urban environment, where multiple surgical specialties exist and competition can be significant. This difference is not so much on the types of surgery that would be performed during residency but on the different emphasis on what would be needed. For example, endoscopy training is essential for most rural and many community practices, but not for urban. Many in small communities and rural areas may need training in basic gynecology, such as C-sections and hysterectomies, urology to include nephrectomies and
cystoscopies, management of simple orthopedic injuries or even some ENT [ear, nose, and throat], again not priorities for urban practice. The study from our department of actual procedures performed by community and rural surgeons in North and South Dakota reflected a more complete picture of a general surgical practice in nonurban centers and is different from those reported to the American Board of Surgery for surgeons applying for recertification. The latter numbers, however, are the ones usually quoted when there are discussions or recommendations related to the content of training programs for general surgery residents. The University of North Dakota residency program now has a designated rural training track, preparing the graduate for practice in small communities and rural sites without needing a fellowship. I believe we have a very good template that other programs could use to develop similar training.

The second issue that changed my mind was the title of the second chapter in the book A Century of Surgeons and Surgery recently published about the history of the American College of Surgeons [ACS]. The chapter title was “Who Is a Surgeon?” which tried to define who was a qualified surgeon in the early 1900s. At that time, there were no specialist general surgeons. I thought it was a very appropriate question for today in view of increasing numbers of general surgical specialties that have developed in the past few decades and appear to be a major reason why residents are not going into general surgery when they graduate. Who is the general surgeon today, and what is the need, if any, for general surgeons in the future?

Multiple analyses by medical and governmental organizations in the early 1980s predicted that by the year 2000, there would be a surplus of physicians, including surgeons and surgical specialties. These reports, however, could not predict the rapid proliferation of fellowships nor the rapid growth in our population that increased by 25 million per decade. Concern that a shortage of physicians including general surgeons might occur surfaced in the mid-1990s. Unfortunately, at that time, a report out of Europe was mistakenly used to justify a proposal that at least 50% of future physicians would need to be in primary care (defined as family practice, internal medicine, and pediatrics), and the politicians, leading medical organizations, and many universities developed programs to encourage at least 50% of medical school graduates to go into primary care. What was not appreciated (or perhaps it was ignored for any number of political reasons) was that all physicians are not interchangeable, and this includes the surgical specialties. Looking only at numbers of each group per 100,000 does not accurately reflect the needs of different areas of the country or of the number of surgeons needed in each general surgical subspecialty. I believe the surgeon qualifications are different for someone practicing in New York City or Boston compared to someone practicing in smaller communities or rural areas of the country. Different demographics of the country were and are still ignored in many discussions of physician and surgeon manpower. Although there has been a slight trend for a population shift of younger people from rural and small communities to more urban areas, during the same time, the elderly population in the nonurban areas has increased dramatically, and much of the care for this group requires surgical care, not just primary care.

The number of general surgery resident positions has been essentially fixed since 1997 Balanced Budget Act, with an average of 1,000 graduating from general surgery residencies each year, with only about 900 now certified in general surgery, the others in surgical specialties such as colorectal surgery. However, over the past 25 years, there has been a slow but progressive decrease in the number of general surgeons who remain in general surgery. In the latest figures, almost 80% of all general surgery graduates now go into fellowships, leaving less than 200 general surgeons to fill the open general surgery positions. The only saving grace is that many of those who complete a fellowship will do some general surgery in addition to the surgery specific to their surgical fellowship.

From 1996 to 2005, there was a 27% decrease in the number of urban surgeons and a 21% decrease in rural surgeons, related to the change in population. Current projections, using multiple different methods, indicate a shortage of general surgeons of over 2,500 by the year 2030. At present, there are over 1,300 general surgery positions open. Other factors may make this shortage even worse. The elderly population, which requires more surgical services, is expected to grow substantially. The majority of the surgeons in the country are over the age of 50, 58 in rural areas. The retirement rate is and will continue to exceed the numbers of residents who graduate and practice general surgery. There is already a shortage of well-trained general surgeons, and we are approaching a national crisis in this specialty, but a crisis has existed for more than a decade in small and rural communities. The increasing trend to fellowship training is making the crisis potentially worse.

The third and more important issue that changed my mind was comments concerning the need for fellowship training. A candidate for our surgical residency stated that he was looking for a training program that would give him a good foundation for entering a fellowship, having been told at previous interviews sites that residents needed to complete a fellowship after their general surgery training. This comment disturbed me, since it implies that some programs consider a general surgery residency as only preliminary training. My experience in the last 30 years involved in general surgery education, 23 years helping train general surgery residents at the University of North Dakota, and interaction with multiple training program in various areas of the country was that a resident could be trained very well during their residency, such that they could enter a general surgical practice comfortably without doing a fellowship. Even more disturbing for me have been multiple comments from some leaders of surgery at regional and national meetings that a resident needs training in a general surgery residency and a fellowship to
successively practice general surgery. Essentially no choice for the resident. My interpretation from these comments is that some general surgery training programs have accepted that a general surgery residency is inadequate preparation for practice. These comments, plus recent development of fellowships that would allow a resident to “complete” his training in general surgery such as recent development of the American College of Surgeons Transition to Practice Program in General Surgery fellowship, seem to support this attitude. It bothers me greatly that there seems to be an acceptance of the inadequate training of residents rather than trying to correct the primary problem. ACGME [Accreditation Council for Graduate Medical Education] requirements for a surgical residency state, “The goal of a surgical residency program is to prepare the resident to function as a qualified practitioner of surgery at the advanced level of performance expected of a board-certified specialist.” It doesn’t imply the need for a fellowship. The ACGME also states, “Supervision in the setting of graduate medical education has the goals of—assuring each resident’s development of the skills, knowledge, and attitudes required to enter the unsupervised practice of medicine [emphasis mine]; and establishing a foundation for continued professional growth.” Programs that state that general surgery is becoming obsolete, that residents need to get fellowship training, are not acknowledging the first part of the ACGME conditions for resident training and are assuming that the second part of the last statement relates mainly to fellowship training and not development within their practice. I believe that those programs that state that resident training is a prelude to a necessary fellowship are in violation of the primary principles of general surgery training according to ACGME guidelines. I would suggest that if a resident feels that the training during their residency was inadequate to allow them to practice general surgery without taking a general surgical specialty fellowship, then that program has failed the resident. An alternative explanation might be that the program director may feel the resident is ready, but the resident does not. But it is the responsibility of both the resident and the program to assure the resident is ready to practice when graduating, and in this regard, residents must take some ownership of their education.

Unless corrections are made to address what I considered inadequate training programs, are we getting to the stage in surgical training where programs will have to declare that they only prepare residents for specialty training and others for general surgery training? This would require a revision of ACGME guidelines, board requirements, and a host of other changes, which I think we do not need to proceed with, nor should we.

As noted before, in the past decades, there has been a rapid increase in the numbers of fellowships available to the graduating resident. Some of these are controlled by societies such as in surgical oncology and vascular surgery, but until recently, most have been independent of any governing or accrediting body such as the ACGME. As noted before, there has been a progressive increase in the number of residents taking fellowships after graduation, increasing to almost 80% for current graduates. This may be one of the reasons that have led to the question from some surgical leaders: is the general surgeon becoming obsolete? This question was asked of residents who answered the National Study of Expectations and Attitudes of Residents in Surgery survey, conducted in 2008. Twenty-seven percent of 4,586 residents who answered the questionnaire answered “yes.” But further evaluations of the survey results indicate that 72% of residents in academic programs supported this stance, but only 25% in community programs. The more senior residents in both types of programs indicated a higher interest in fellowships. These numbers are different from the recent 80% number, since the survey included all categorical general surgery residents, not just graduating residents. Most residents in the survey who agreed with this statement were more likely single, from academic programs that also had affiliated fellowship programs and were more commonly in the Northeast (38% of the programs).

A recent Canadian study suggests that residents frequently will opt for fellowship training when they are exposed to a specialist in that surgical specialty during their training, particularly in the senior levels of their residency. The majority of academic programs have surgical specialists in leadership positions. Does this result in an unintentional influence on the general surgery residents, or is there intentional influence? What are the reasons for the substantial differences between academic and community-trained residents? Both types of programs have general surgical specialists that teach the residents. I believe that the statement from programs indicating that general surgery training is becoming obsolete is a self-serving prophecy.

There are programs, such as vascular surgery, where the change in knowledge and technology has resulted in a different surgical specialty. This is not, however, true of minimally invasive surgery, which is one of the most common fellowships sought by graduating residents. At the start of the laparoscopic era, most academic programs did not have sufficiently trained faculty to provide the experience in minimally invasive surgery. Fellowships were developed outside of the academic environment, since it was the private sector that embraced minimally invasive surgery (laparoscopy) before the academics. Now, however, it must be a very rare program, if it even exists, that does not have sufficiently trained faculty to provide adequate minimally invasive training for general surgery residents. Why then are some residents, particularly in the academic programs, still feeling they do not get adequate training in minimally invasive surgery during their residency? The 80-hour work week might have something to do with it, but could it also be the exposure to fellowships in the same institution, as well as influence by leaders in the program and faculty, as noted before? Surgeons are trained to embrace and solve challenges, so is the 80-hour work
rule a reason for questioning the future of general surgery, or is it an excuse for the statement?

Fellowships, by ACGME standards, should not interfere with general surgery resident training. Yet in a recent meta-analysis of articles evaluating the impact of fellowships on general surgery programs, only 1 article, authored by Dr Kothari, indicated a positive effect. All the others indicated a neutral or, more commonly, a negative effect on resident experience. Have academic programs evolved such that the fellowships essentially now drive the experience of the general surgical residents (ie, limit the experience so that residents are directed into fellowships)?

I have multiple questions regarding fellowships, some perhaps not answerable at this time. Why do general surgery graduates go into fellowships? What is the perceived value of a fellowship, and is there any need to go into a fellowship? How have fellowships impacted general surgery resident education? Are fellowships in the general surgery specialties siphoning off so many graduates that general surgery will become obsolete? If so, and in view of the need for general surgery in a large part of the population that is not urban, how do we support and improve the training of the general surgeon such that they do not need or wish to obtain fellowship training?

Why do general surgery graduates go into fellowships? In my case, it was intellectual curiosity, which began in 3rd-year medical school. A number of my questions regarding fluid management of patients and of the management of shock were not answered to my satisfaction. I completed a Ph.D. in experimental surgery on the topic of the ultrastructural response to hemorrhagic shock during my residency. This interest in shock resulted in my fellowship in trauma and critical care at Wayne State University in Detroit. The process for obtaining a fellowship for me was a lot different from today. The dean of our medical school, who was past chairman of the Department of Surgery and past president of the American College of Surgeons, called me, and I was informed in mid-December of the year I took my Canadian Boards that “I hear you are interested in a trauma fellowship. Dr Alexander Walt is expecting you in Detroit in the next 2 weeks” for a fellowship in trauma. This is how I “matched,” and I of course immediately accepted.

Increased surgical knowledge and new skills needed to use developing technology foster a desire to embrace the new technology and become more competitive. This is particularly true of residents wishing to practice in an urban environment or who wish to advance in their professional career, especially those in academic programs. There is some suggestion, however, that after a few years of practice, there is little difference in the practice patterns for those that have taken a minimally invasive fellowship compared with those that did not.

There are perceived financial incentives to having special certificates. However, this may be a false or misleading reason. If one looks closely at the financial advantage that may result from completing a fellowship, it may take up to 15 years to recover the 1 or 2 years of lost income during the fellowship from not practicing for those 2 years as a general surgeon.

Some residents take fellowships in order to have a better lifestyle. This seems to be more common in residents with children, particularly women with children. Fellowships that do not include night or weekend call, such as breast fellowships, are the ones usually sought. Residents with children, at least in community programs in contrast to academic programs, are much less likely to pursue a fellowship, particularly if they have a spouse not working outside the home.

Residents may enter a fellowship that holds a very specific interest, as it did for me. I also believe there are certain procedures that are best performed by the general surgery specialist. Examples include advanced vascular disease such as endoluminal stenting of aneurysms, but more basic vascular problems, such as acute embolic disease, should and can be cared for by a well-trained general surgeon. In surgical oncology, this would include procedures such as a Whipple procedures or esophagectomies for cancer as examples. However, at the most recent [Society of] Surgical Oncology meeting, a presentation stated that 70% of all cancer surgery is still done by general surgeons, a not unexpected finding considering that in this report, only 308 counties in the country have surgical oncologists. We certainly are not able to train enough surgical oncologists to perform all or most of surgical cancer procedures, nor should we. A well-trained general surgeon can perform most cancer-related procedures if they recognize their personal and practice-site limitations. In fact, with few exceptions, this well-trained general surgeon should be able to do the majority of the procedures for any of the general surgical subspecialties.

Some residents perceive that fellowship training might reduce their risk of a malpractice suit. Current data fail to support this perception. Until there is meaningful tort reform, the lawsuits will occur. Successful defense of the lawsuit is based on numerous considerations; fellowship training may or may not be one of them.

I am sure that there are many more reasons that residents could enumerate. I want to emphasize again, however, that it should be a resident’s choice whether or not to pursue a fellowship, not a necessity because the training has been inadequate.

How will patients be served in the future with respect to surgical needs other than with everyone being fellowship trained? For now, there are not enough fellowships to accommodate all residents, nor do I think there should be.

Some predict that as the population grows, particularly the elderly, the fellowship-trained surgeons will become much busier with respect to their specialty work, and the general surgery cases that they now do will increase the general surgery workload by 25%. This, coupled with the increased surgical needs of the population, speaks positively for the future of the general surgeon.

My answer to the question “Is the general surgeon becoming obsolete?” is emphatically no. Those who state...
this either truly believe this or are making excuses for their training programs. Not only is the general surgeon not becoming obsolete, I believe we need to make every effort to assure broad-based general surgery training. General surgery is the foundation of all general surgery specialties. The Surgical Council on Resident Education developed by the APDS [Association of Program Directors in Surgery] and the ACS is a reflection of the need to strengthen general surgical training.

There will be a substantial need for the broad-based general surgeon in the future. Over 100 million people depend on a well-trained general surgeon. General surgery specialties will and should continue and maybe even expand, but not at the expense of eliminating general surgery.

Specialty surgeons strive for perfection in their area of expertise, counting mortality rates and morbidity rates as the mark of success, yet from the patient perspective, other issues such as quality of life are more important. It has always impressed me with how little we have addressed the quality-of-life response to surgery. For example, for years, I did basic hand surgery as I was trained. This was a very enjoyable part of my practice, particularly when I practiced in a small community. A patient would come in with a fingertip amputation or a digit amputated at the first interphalangeal joint. I would offer him a referral to a hand surgeon. At that time, the nearest hand surgeon was 120 miles away. After explaining what the hand surgeon would do and the time it might take to heal, the patient would almost always say, “Just sew it up, I need to get back to work.” Yet when the results are presented to the hand surgeon, there was almost always criticism that the results were not as good as what the hand surgeon might have achieved. The patients’ needs and wants seemed to take second place to the specialist interpretation of what would be their idea of an ideal outcome. This is not to say, however, that the general surgeon should not strive to achieve the best for the patient. With a marked shortage of hand surgeons, much of the basic hand surgery will revert back to the general surgeon or the orthopedic surgeons. Sometimes, a patient’s decision trumps the surgeon’s idea of the ideal treatment.

A general surgeon who lives in a small or rural community has a better perspective on their patients’ wants rather than the perceived needs that come from specialty societies. An example is in the area of breast surgery. In our program a number of years ago, one of the residents surveyed women with breast cancer as to the type of care they would want. The majority of the women wanted the simplest approach (ie, mastectomy) rather than the then standard of care recommended by the oncologist or breast surgeon. The patients could not take the time for 6 weeks of radiation therapy, because of their home situation, including extensive travel requirements. Studies dealing with urban populations and patient perceptions of the type of care they would want may not be generalizable to other populations, such as smaller or rural communities. There are different societal expectations in various regions of the country. What is expected in one area is not necessarily what the patient might want or expect in another area of the country. Specialty societies need to understand the different attitudes toward care by patients in different areas of the country, and they should take recommendations as guidelines rather than absolutes.

Who will provide surgical care for patients in the future? I believe the foundation for care is and will be the well-trained general surgeon, particularly for most community and rural areas. But there must be a change to future resident education. General surgery residencies need to closely evaluate how they are training residents and to what end. If a residency feels that they cannot train a general surgery resident to practice without advancing to fellowship training, then they should declare this to student applicants and explain why to the RRC [Residency Review Committee] that will review them. Resident training programs need to comply with minimal requirements for general surgery training but be allowed more flexibility in their training schedules. If a program achieves the desired goal of training a resident to become a successful general surgeon, do the specific rotations and sequence of rotations really matter that much? Some community programs provide laparoscopic experience in the first 2 years and advanced laparoscopic procedures in the senior years, allowing residents to feel comfortable with their skills when they enter a general surgical practice. Why can’t the others? What are the true essentials for general surgery resident training? I would hope that in the near future, that advancement in residency is based on performance, not on arbitrary years. I have seen during my surgical career residents with knowledge and skills sufficient to easily pass their board exams after 4 years of training. Would this make a problem logistically, particularly for a service-oriented program? Probably, but we need to look at these possibilities. Residencies need to become more resident centered (ie, what does the resident need for their practice location?). For example, is a rotation on the transplant service an educational need for the general surgical resident when they will be minimally exposed to transplant during their career, or is it just a need to fill a service responsibility?

In surgical education, there still seems to be an emphasis on lectures, journal club formats, et cetera, that are not only disliked by residents but do not address the varied learning needs of the residents. Multiple studies indicate that for most, these methods have little lasting educational value. Modern educational methods have developed substantially. There should be much more attention to faculty development regarding resident education and how to incorporate newly learned teaching methods in resident education. We need to address some of the specific learning styles of our residents. In most programs, faculties teach as they were taught, frequently not very effectively. Programs should be given the latitude to allow residents to obtain surgical experience without the service model driving the program. For example, a general surgical resident on one of our general surgery teaching rotations can, time permitting, participate in a nephrectomy with a urologist, or a parotidectomy with an...
ENT surgeon, or a thoracotomy and lung resection with a thoracic surgeon, while still functioning in the general surgery rotation. This is obviously not practical for many programs, but other designs could be developed.

There needs to be a substantial increase in resident training positions, not just for primary care. This has been suggested for over a decade, with little result. Discussions and recommendations regarding increased funding have been “all sound and fury signifying nothing.” There has not been much political support for this, due to the inability of the Senate and Congress to agree on anything, let alone funding for training of future physicians. There has been an attitude by some in politics that by restricting numbers of physicians, particularly the specialists, costs will be reduced. This experiment failed miserably in Canada. There is, however, some hope. Two bills have been introduced this month in Congress and the Senate. The latter would increase the numbers of resident positions by 3,000 per year over the next 5 years. There are stipulations in the proposed bills that would determine how many would be primary care, and specialty care. The actions of surgical organizations such as the American College of Surgeons will be extremely important in helping decide the numbers that will be allocated to surgery residencies. I think that the majority of the surgical positions that may become available must be allocated to programs that can train a general surgeon without the need for “completing” their training in preparation for surgical practice, and particularly those that train for small community and rural sites. Further research must be done to evaluate how many general surgeons will be needed and how many general surgical specialist surgeons will be needed in the foreseeable future and for what areas of the country. Some of this work has already been started and published by Dr. George Sheldon and his group. We can only hope that politicians will do the unusual and agree on supporting this essential budget expense.

If these additional resident positions for surgery occur, we need to have students interested in surgery to fill these positions. Numerous publications have addressed this issue. For the residents in the audience, how you interact with medical students while they are on your rotation has a major effect on their decisions to proceed with a surgical career. I teach that 80% to 90% of surgery is exciting, stimulating, and enjoyable. Try not to spend most of your discussions of the negative 10% to 20%. In the 2012 AAMC [Association of American Medical Colleges] data of graduating medical students, 98% indicated that the top 2 reasons they choose a residency are personality fit and specialty content. Role model influence, which includes resident influence, work-life balance, and future family plans, round out the top 5. Graduating debt is among the lowest considerations for resident choice. The most recent review of medical student debt indicates an average of $160,000. Even though undergraduate debt is only about 10% of this total, more medical schools need to evaluate accepting students with less than 4 or more years of premedical training and also how to reduce costs for medical students. The 4th year of medical school needs to be restructured to allow some of this time to prepare better for residency, not a new concept but one not seemingly pursued by many medical schools. The curriculum committee of the Association of Surgical Educators is, to my knowledge, currently looking at this. Could 3 to 6 months count toward resident training? Medical school supplemental certification in this regard by the LCME [Liaison Committee on Medical Education] in conjunction with recommendations from surgical organizations such as the American College of Surgeons and the American Board of Surgery is not insurmountable.

We need to address attrition and burnout rates in students, residents, and practicing surgeons. Ten percent of medical students, 15% of residents, and up to 40% of surgeons have signs of burnout or depression. How many in these groups are classed as fatigued from night call, when it might be other problems such as sleep disorders? Up to 20% of the population has 1 or more sleep disorders. Should we be offering testing in this for residents, and if identified and treated, would this contribute to decreased attrition, including from early retirement? If we could prevent even half of the attrition from these problems, it would help with surgical manpower issues. We need to become more proactive in identifying and helping our colleagues with these problems.

Unless there is success in significantly expanding the number of resident slots, we will continue to have shortages in general surgery, probably some of the general surgery specialties, and increasing as the needs of the future increase. If this shortage intensifies, as is projected, then others, including the advanced practice practitioners, will fill the void.

In summary, I feel that the well-trained general surgeon is not becoming obsolete and must not become obsolete. Comments otherwise are the minority and are self-serving. We must critically assess all training programs and assure that they really are training residents to enter a successful practice, not just training them in preparation for a fellowship. General surgery is an exciting, intellectually stimulating, and satisfying profession. Let us continue to evaluate and correct negatives in the training and enhance the positive. Residents when graduating should not be expected to complete a fellowship; they should be given a choice. Surgeons are noted for their leadership: they are innovative, embrace challenges, and provide solutions, and we put our patients first. We should be able to solve the issues confronting general surgical education and the future of the general surgeon with respectful collegial dialogue.

I would like to close by thanking those who have made my surgical career so satisfying: my surgeon mentors in my residency and in both my academic and private practice, the medical students, and most importantly my residents past, present, and future. You have made my teaching career so satisfying. In many ways, you are a teacher’s legacy.

Last and most important, I want to thank my wife. In spite of appearances to the contrary when I was working long hours, she has always been the number one love of my life, and I thank her for her patience, endurance, and support for my career decisions and her unquestioned love. Thank you for your attention.