



From The Editorial Desk

Is General Surgery on the Verge of Demise?

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Introduction

*To accomplish great things we must first dream, then visualize, then plan... believe... act! –
Alfred A. Montapert*

Although general surgery remains one of the most respected residencies available to medical students today, it is facing terrible pressures, including less attraction to surgery as a profession, increasing interest in surgical sub specialization, and high attrition rates. In November 2007, Josef Fischer¹ sounded an alarm among physicians in the US with the commentary: “The impending disappearance of the general surgeon,” published in the *Journal of the American Medical Association*. He notes that the reasons for the “disappearance” were multiple including fewer graduating surgical residents pursuing general surgery as well as less favourable working conditions and less lucrative reimbursement for general surgeons. In the U.S. the imminent demise of the general surgeon has been a growing concern for the medical community and the general public, both who fear an end to a once robust medical discipline and its consequences for patients with general surgical problems².

There is an abundance of literature addressing the challenges facing general surgery. Longo³ in *Yale University School of Medicine in the USA* reported that 5% to 20% of residents leave general surgery training annually compared to roughly 3% to 5% of physicians who leave medicine voluntarily. The Association of Surgeons of South Africa has identified and was concerned about the decline in the number of applicants for registrar posts and the critical shortage of general surgeons in the state sector⁴.

General Surgery Defined

General surgery is a specialty that requires knowledge of and familiarity with a broad range of conditions that may require surgical treatment. The span and depth of this knowledge will vary by disease category. In most areas, the surgeon will be expected to be competent in diagnosing and treating the full spectrum of diseases.

While intellect and good technical skills are essential, they alone do not ensure success as a surgery resident. Confidence, stamina, tenacity, and patience are imperative. Good leadership, motivational, and decision making skills are also vital characteristics. Finally, the importance of dedication to patient care cannot be overstated⁵.

The required residency experience in general surgery

The general surgeon is required to be acquainted with diseases and operative techniques in paediatric, cardiothoracic, vascular, orthopaedic, neurosurgery, urology, plastic surgery.



He/she will have experience during training that will allow for diagnosis and management of a specified group of conditions in these areas. Consequently, during his/her residency, should rotate in the relevant units

He is also expected to have knowledge and skills in the management and team-based interdisciplinary care of a number of specific patient groups such as the terminally ill patients, to include palliative care and the management of pain, weight loss and cachexia in patients with malignant and chronic conditions.

Declining interest in general surgery

There are various reasons for the waning interest in general surgery. Reasons for this decline are varied and many factors have been identified by numerous surveys and retrospective studies. In particular, lifestyle issues, likelihood of litigation, absence of role models, lack of undergraduate exposure and gender issues are especially prominent^{6,7}.

One problem specific to surgery is that medical students are now given less and less exposure to surgery, due to the shortening of required surgical rotations. Most important, however, is their perception that the life of the surgical resident is stressful, the work hours are too long, and the time for personal and family needs inadequate and sometimes unavailable. The workload of the surgical resident over the years has increased significantly both in amount and intensity, without necessarily having attendant increase in the number of residents, appreciation from the administration or increase in take home package.

The enormity and quality of night calls and in-hospital hours needed for a particular residency may sway an applicant's choice. The night-duties and work hours required of general surgery residents are among the most painstaking of all residencies. A general surgery resident's training, as well as the patient care he/she offers, frequently requires a resident's full attention and maximum effort during all hours of the day and night. In addition to the personal sacrifice such hours require, general surgery residents also must regularly place the demands of their jobs before the needs of self, the family and friends. Those who are not willing or able to have a 24-hour dedication to the patient care are likely to reject or choose surgical programs with less demanding curricula than general surgery.

Lifestyle and general Surgery residency

Many current medical school graduates, like their peers outside medicine, hope to achieve a better balance between their work and personal lives. Some are willing to sacrifice their professional aspirations, including financial reward, for better personal and family lives. Unlike many residents of prior generations, a growing number of today's residents, both men and women, are no longer willing to delay marriage and childbearing until they have completed their residencies. Moreover, most residents with families want more time away from work to spend with their families and may be less willing to delegate family responsibilities to a spouse or a paid caregiver.

From several recent studies, lifestyle is found to be the critical and most pressing issue in surgical residency. Some studies have also shown that the best students in the medical profession tend to select specialties that provide controllable lifestyles, such as public health, radiology, dermatology, and ophthalmology. We have a problem not only in the declining

number of students applying for surgical training but also in the declining quality of those who do apply.

Kahn et al⁴ in South Africa observed that the tiredness and stress associated with the long working hours placed severe strains on family life at a time when many registrars would be establishing young families. It was also thought to be dangerous and risky when linked with trauma and the associated 'life and death' situations. There were also concerns about the possible risk of litigation. Working hours were also considered to be excessive in relation to international practices.

Medical students seem to be more concerned with issues of controllable lifestyle such as adequacy of family and leisure time, level of stress, and amount of work and commitment. An issue of material rewards becomes especially prominent as the time to choose future residency approaches and debt from student loans increases. Students need to be exposed to the humanistic values of surgery during medical school as early as possible but need to be reassured that their sacrifices and commitments will be compensated. Early involvement of students in mentored externship and exposure to positive role models is essential. Concurrently, it is imperative to create a more realistic and livable life environment experience for medical school graduates in surgical residency⁸.

Failure to attract women

Globally, there is a shift in the gender ratio of medical students. An increasing proportion of women are working in medicine, although only very few choose surgical specialties and the interest in an academic pursuit is generally smaller among women compared to their male colleagues⁹. For instance, since 2005 more than half of the medical school graduates in Switzerland were women; indeed, in 2008/2009 there were 62.1%⁹.

Gender issues and the perception that surgery remains a 'boys' club' are still prevalent among medical graduates. Lack of female surgeons results in inadequate exposure of female students to encouraging role models and may reinforce perceptions that surgery is not a viable option, and that there are undefeatable barricades to success. Among the reasons cited for the decline in applicants to surgical fields is the failure of surgical training programs to attract women. Despite the increasing proportion of women taking up medicine, only very few choose surgical specialties and the interest in an academic pursuit is generally smaller among women compared to their male colleagues. A lack of mentoring is among the main reason for a deficiency in career success in academic medicine, especially for women.

Choice for Sub specialization

The knowledge explosion in medicine is a principal cause of development of the specialization seen during the last two decades. The rapid and profound advances in medical technology has increased the complexity of surgical, interventional and intensive care and fueled further specialization and sub specialization.

There are several reasons for surgeons to specialize. To be thoroughly competent in the face of a knowledge base that is increasing in all areas, many surgeons choose to limit the number and types of surgical procedures they perform. Additionally, it may be easier to develop expertise in some subspecialties, and more refined expertise often leads to economic rewards.



In some large urban environments, subspecialists bill at higher fees than general surgeons performing the same procedures¹⁰.

A career as a specialist caters to the lifestyle preference of medical school graduates, who have little desire to work long hours. They are less focused on being entrepreneurial and accept being employed by large group practices if it means they need not worry about the economics of practice and if they can have less demanding on-call schedules, which enable them to spend more time with their families. Subspecialties, such as plastic surgery, otolaryngology, urology, and ophthalmology, for example, seem to allow for a better quality of life during residency and in private practice. These fields are reputed to require less in-hospital hours, lighter call schedules (in quality and/or quantity), and more rewarding monetary returns after residency.

An added advantage is that sub specialization ensures that the surgeon get a reasonable volume of patients within his or her specific area of interest. The trend now is that even general surgeons have chosen to concentrate on their areas of interest such as colorectal, breast, thyroid or biliary surgery. Thus, the general surgeon in the true sense of the word. Young surgeons start early focused training in upper abdominal, colorectal, biliary, Endocrine or breast. Upper abdominal surgery is often divided into hepatic/ biliary/pancreatic surgery versus upper gastrointestinal surgery.

As the phenomenon of progressive specialization continues to evolve, the impact on hospitals and health-care delivery will be substantial. If the trend continues, a larger workforce of surgeons will be needed to provide the multitude of services encompassed by the primary components of general surgery¹¹.

The Generation Gap in Modern Surgery³

The term generation refers to a group who experienced history from the perspective of the era they were born into or grew up in. Generational differences exist between the Silent Generation (1925–1944), Baby Boomers (born 1945–1962), Generation X (born 1963–1981), and Generation Y (1983–2000). As life spans have increased, more generations are now alive simultaneously and need to coexist. It is extremely important to appreciate the fact that that each generation has its own reference point, its own values, and its own needs.

Generation X works hard if balance is allowed, expect many job searches, self-sacrifice is on their terms, and question authority. Generation X is seeking a greater sense of family, and they are less likely to put their jobs ahead of friends, family, or outside interests. Their first loyalty is often to themselves rather than an institution. Generation X'ers tend to be more direct and outspoken, want their mentors to achieve their own goals, are perceived as self-centered, and reject the message that you must sacrifice and lay down your life for your organization. They are looking for different models of career development and often point out the shortcomings of a single-minded focus on work. They strive for work-life balance and understand that they cannot succeed at the expense of reducing their family time and jeopardizing personal health. They are very much technology driven.

Strategies to improve this generational gap include improving mentoring strategies, recognizing that limiting one's hours in the hospital does not translate into poor work ethic, and enhancing leadership development.

Attrition

In the dictionary, attrition has a number of thought-provoking definitions. It can also mean a gradual diminution in number or strength because of constant stress. It may further be defined as a natural reduction in membership or personnel as through retirement, resignation, or death. Finally and, interestingly, it may be defined as repentance for sin motivated by fear of punishment rather than by love of God. Here attrition is a feeling of regret for one's sins or misdeeds³.

There are three types of attrition: withdrawals, transfers and dismissals. Most are apparent such as poor academic performance, personality mismatch, personal difficulties or family pressures, workload and stress, marital bliss, familial and financial crises uncertainty about career goals and outside distractions. However, often it comes as a 'bombshell'.

Many statistics are mentioned regarding attrition. About 12% of residents leave graduate medical education, 5% to 20% of residents leave general surgery training annually. In contrast, roughly 3% to 5% of physicians leave medicine voluntarily, and about 15% of physicians leave academic faculty³.

The combination of low, uncompetitive levels of remuneration, coupled with long working hours and substandard facilities, provides an overwhelming deterrent for doctors and specialists, and general surgeons in particular, to remain in state employ. It is difficult to visualize any impact being made on current, critical shortages of skills in the state sector until at least some of these issues are addressed⁴.

Emigration

Whether for seeking for green pasture or because of Africa's political mayhem and conflicts, emigration of health workers is a common phenomenon. It is well known that a significant number of medical graduates choose to emigrate African countries including South Africa. Reasons included the perceived better remuneration, more normal working hours, better working conditions, and better career advancement opportunities overseas. Lifestyle issues such as crime and educational standards were also factors. The impact of the HIV epidemic was also cited in South Africa as a reason why doctors choose to emigrate⁴.

Conclusion

"In the struggle for survival, the fittest win out at the expense of their rivals because they succeed in adapting themselves best to their environment." Charles Darwin

Will a general surgeon be available when you need one?

If the current situation remains, the answer will be "NO".

Is General Surgery on the verge of demise?

The answer is 'YES'. Unless these current trends are reversed, general surgery as a specialty is threatened, and a future shortage of general surgeons is inevitable.



We must look very carefully at the demands of surgical residency and improve the life of residents without compromising their surgical experience. Unless we deal with work hours and quality of life issues, we are likely to see a continuing decline in the interest of medical students in surgical training in all specialties.

With the change in medical student demographics over the past few decades and an increasing proportion of female students, the gender disparity among surgeons must be redressed if surgery is to maintain its appeal to the entire medical student population. Lack of female surgeons results in inadequate exposure of female students to encouraging role models and may reinforce perceptions that surgery is not a viable option for females, and that there are insurmountable barriers to success. Issues relating to childbearing and surgical practice must be addressed. Female residents as well as female surgeons must be given adequate rest or light duties during the last trimester of pregnancy and a long maternity leave with salary should be a must.

A surgical clerkship has a positive impact on the choice of a surgical career due to a change in the perception of the specialty. The medical schools should increase the time allocated for clerkship in surgery.

Attrition

Attrition will be a continuing challenge in the medical profession in general and in surgery in particular. Our surgical societies should work hand in hand with the Ministries of Health in our constituent countries should investigate and address the causes of attrition so as to prevent further rise in the attrition rates. Although the selection process remains an important exercise in striving for a “goodness of fit,” in the end, the environment that one enters will often govern the rate that attrition will occur¹. According to Longo¹, recommendations for reducing attrition are:

1. Accepting and understanding generational changes;
2. Flexibility, especially when it comes to diversity;
3. Leadership that employs today’s standards; and
4. Mentorship that is multidimensional and multipersonal.

The old generation and Health administrators need to realize that Generation x rejects the message that “*you must sacrifice and lay down your life for your organization or you must be patriotic*”. They are looking for different models of career development and often point out the shortcomings of a single-minded focus on work. They strive for work-life balance and understand that they cannot succeed at the expense of reducing their family time and jeopardizing personal health¹.

We have to plan strategies that will improve the generational gap include improving mentoring strategies, recognizing that limiting one’s hours in the hospital does not translate into poor work ethic, and enhancing leadership development. Listening to this new generation instead of telling them this is the way it is will be productive.

Those in authority must use a participative approach rather than a “topdown” approach. However, all of these strategies will not be successful unless all those concerned are on board.



To retain its leadership position in innovation and its attractiveness as a career choice for students, surgery must evolve with the times.

For general surgery to survive there is need to introduce changes to create new priorities in clinical practice, education, and research; to increase the morale and prestige of surgeons; and to preserve general surgery as a profession. Santry and Chokshiurgical educators have undertaken innovative and rewarding solutions that will likely spread to general surgery residents

There is urgent need to look at the current general surgery curriculum for general surgery residents. We must find ways in which we can improve the residency programs and, probably more important, emphasize to students the things about this field that led us to devote our lives to its practice. Sub specialization within general surgery has come to stay and should now be accepted as the norm. That would mean therefore that general surgery should have sub specialization. I would propose that for a four years training programme, the first two years should be confined to applied anatomy, physiology and pathology in one's area of interest, general principles of surgery, acute trauma care and emergency surgery including all surgical and gynecological emergencies. The resident would then in the last two years choose and concentrate on a specific area(s) of interest among the following:

- Gastroenterology
- Hepatobiliary and pancreatic surgery
- Laparoscopic surgery
- Breast and dermatology surgery
- Endocrine System
- Surgical Critical Care, Trauma and Emergency Surgery
- Surgical Oncology (including Head and Neck Surgery)
- Vascular Surgery
- Solid organ transplantation.

His/her research for the dissertation should be in the area of interest and for those who wish to further their academic path, they would continue with their research for a PhD. The refined expertise would lead to more job satisfaction, prestige and economic rewards. They would also not be underrated by their colleagues who currently look at a general surgeon as generalist rather than a specialist.

As I conclude, I am reminded of the words of the President John F Kennedy "*Change is the law of life. And those who look only to the past or present are certain to miss the future.Let us not seek to fix the blame for the past. Let us accept our own responsibility for the future*".

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