Presidents Address.

Canadian General Surgery - dinosaur or chameleon.? Having experienced training on both sides of the Atlantic Ocean I do feel some sense of qualification to give you my opinion on the state of Canadian General Surgery. General Surgery 40-50 years ago was the mainstream, the father of all surgery, and the origin of all subsequent surgical specialties. Many more years ago than that, the dinosaur ruled the animal world but did not adapt to environmental changes and subsequently became extinct. The chameleon, however, a distant relative of the once great dinosaur can adapt to changes in its environment very rapidly and continues to survive to this day.   I am concerned that Canadian General Surgery is perhaps not adapting to a rapidly changing environment as fast as it might, or perhaps even should. Fifteen years ago in the Canadian Journal of Surgery, a former President of CAGS, Fred Murphy, proclaimed that Canadian General Surgery was alive and well.   He stated that this was because General Surgeons remained versatile and adaptable. He also said that if this were not the case, the specialty of General Surgery would go the way of the dinosaurs. Why then do I say that Canadian Surgery has not changed quickly enough or for the better?

Three years ago in the British Journal of Surgery. Sanfey, of the University of Virginia Health System wrote an article entitled “General Surgery Training Crisis in America”. In this article she explained that in the United States of America 2001 General Surgery match there were 68 unfilled positions.   This amounted to 7% of the available positions in the country.   She also noted that in 2001 there was a 20% attrition rate in General Surgery Residents compared to 12% some 8 years earlier. Looking at the CaRMS match statistics for General Surgery at around the

same time, and these numbers do not include the 3 French training programs, there is certainly no significant growth. More disturbingly the number of unfilled positions nationally increased over this period. While there is clearly fluctuation in these statistics, and recognizing that since then there has been some improvement, the overall trend is certainly not encouraging. As a General Surgeon the question in my mind was “what is the problem, how big is the problem, and how can we fix the problem”?

The prestige of the General Surgeon has always seemed to me to be somewhat of a problem. The phrase “so you are just a General Surgeon” has rankled me for some time but the question now is “what is a General Surgeon, how many are there, and will General Surgery as a specialty indeed become extinct. The question of how many General Surgeons is difficult to answer. This relates to the question “what is a General Surgeon”. Is a General Surgeon a certificant in General Surgery, or is he someone who practices General Surgery, or is he somebody that takes General Surgery call although is really a sub-specialist. Depending on the definition, one can come up with significantly different answers. If one accesses provincial college licensing data or the Canadian Medical Directory, one will find that there are many certificants in General Surgery who are Cardiac Surgeons, Thoracic Surgeons or even Family Physicians. The actual number of practicing General Surgeons is usually much smaller.. Whatever the number of General Surgeons, are there too many or too few? Ignoring the fact that the scope of practice of General Surgery is constantly changing, the average number of General Surgeons per 100,000 population varies across the world, and in many areas defining a General Surgeon is just as difficult as it is in Canada.

In the United States of America, however, the American College of Surgeons has studied this on several occasions, most recently in 1996 when it estimated there were 19,791 General Surgeons in a population of 263 million. While the rate of General Surgeons per 100,000 population varied, the national average was 7.5 per 100,000. In Canada we are uncertain of the number but my own belief is that the number is around 1400. By the Canadian/U.S. “rule of 10”, that is with one tenth of the population we should have approximately one tenth of the General

Surgeons, that is 1979 surgeons. Canadian Medical Association data for specialists varies but ratios of the order of 5.5 specialists per 100,000 population are common and, therefore with a population of 32.8 million we should have around 1800 General Surgeons.

From Royal College of Physicians and Surgeons of Canada data regarding maintenance of certification participation the number would seem to be closer to my own estimate of 1400 General Surgeons with good rates of participation in maintenance of certification but a very significant number of senior surgeons.

The aging of Canadian General Surgery has been alluded to in many previous reports, one of the most recent being that of Goldsand and Pollett. Approximately 30% of Canadian physicians in general, are over the age of 55, and this number is increased to close to 35% if one considers only specialists. However, over 42% of Canadian General Surgeons are over the age of 55. Similarly if one looks at the percentage of physicians over age 65, General Surgeons comprise 20% of this number, the highest proportion of all specialists.

This aging process is further substantiated by Royal College of Physicians and Surgeons data, and the comparison with other specialties is quite dramatic. Considering Anesthesia and Orthopedic Surgery, in both specialties the number of practicing specialists over the age of 65 is between 10-12% and the peak age distribution is in the 35-44 age group.

If one looks at General Surgery, however, the peak distribution is between 55 and 64 years and the percentage of surgeons practicing over the age of 65 is 24.1. It is well known that the financial rewards of General Surgery are the poorest of all surgical specialties; is a lack of financial preparedness for retirement the reason for the high number of surgeons over 65 years, or is replacement, particularly in community surgery areas, such a problem, that aging General Surgeons are being persuaded to work longer? The answer is not clear. Assuming, however, that the estimate of 1400 General Surgeons in Canada is correct, if 24% are over the age of 65 years, this amounts to 336 General Surgeons. Should they retire by age 70, at a uniform rate, then to maintain the status quo we require 67 graduates per year, to replace them.

The population of Canada, however, is growing. Statistic Canada data of population over the

last 15 years indicates that one can expect approximately 1.5 million growth in population every 5 years. At a prevalence of 5.5 General Surgeons per 100,000 population this amounts to an additional 16.5 General Surgeons per year that will be required to take care of the population increase, assuming no change in the scope of activity of the General Surgeon. Thus, just to maintain the present workload per General Surgeon, we need to train at least 83.5 General Surgeons per year. It has been recently reported that the emigration of Canadian Physicians to the United States has rapidly declined and perhaps even been reversed. Emigration statistics tend to fluctuate, and while it may be possible that a change is occurring, past history suggests that we can expect to lose approximately 25 surgeons per year. Therefore to maintain the present work force, we need an additional 25 General Surgeons per year making the total replacement number now 108.5 per year.

Regrettably, if one looks at the number of successful candidates in the English General Surgery specialty exam, one again sees fluctuation but the trend is certainly not upwards and in 2004 was, in fact, the lowest in the last 10 years. 65 graduates per year, as in last year, would not even cover the replacement of the aging General Surgeons mentioned earlier, and takes no account of the loss of general surgery activity to sub-specialization.

More recent data from the CMA master file shows encouraging signs of an increase in the General Surgery supply, however this will not occur until at least 2010. This reversal of the decline in the numbers of General Surgeons is largely based on overcoming the aging of the General Surgery population and on the increased number of medical students graduating from University. If General Surgery does not attract it fair share of these graduates, and if the training programs in General Surgery do not increase their numbers, I am a little less certain that these projections will be accurate.

What are the factors that influence medical students to choose General Surgery as a career choice? Much has been written on this subject and several surveys have been carried out in Canada and the USA. There are obviously positive and negative influences, and the positive influences we should nurture but not change. Interestingly, with respect to increasing sub-specialization, the breadth and variety of General Surgery as we have known it, is a major

attractor. Mentor and faculty support is another major influence in all studies. and was a big factor in my own career choice. Curiously both faculty and resident lifestyle can be positive or negative influences in different studies. In some cases the hard work, both as a resident and as a practicing surgeon, seems to appeal to residents, while in other cases the intense demands of the career choice are a distinct negative. Career and research opportunities are major factors in attracting General Surgery residents.

The major detractor, and this seems common to many studies, is the poor prestige of the General Surgeon, particularly in relation to other more glamorous surgical specialties. Remuneration, being at the very bottom of the surgical specialty ladder obviously does not help attract medical students with loans to repay. The perception of General Surgeons being overworked, and the demands of on-call also appear to dissuade many a potential recruit, with better lifestyle sub-specialties receiving approval instead. Finally, and very importantly in my opinion, the needs of the community surgeon not being met, and the lack of compulsory rural rotations in training programs are major detractors to a career choice as a rural surgeon.

Given that we will be able to replace the aging general surgeons, what type of Surgeon do we have to replace? What is the present distribution of the General Surgeon population of Canada? The new CAGS membership database suggests that almost twice as many members are working in community hospital settings as in academic Health Science centres, however 71% of members have not provided information. Utilizing the membership data in another way, the number of General Surgeons with an address in a city where there is a General Surgery training program were compared with the number of General Surgeons living outside of a university city. The database shows that 59% of General Surgeons live outside of a university city, while 41% live within a university city. This is somewhat similar to the previous distribution

Recently 591 General Surgeons responded the 2004 National Physician Survey. With respect to their main patient care setting, 54% work in a community hospital and 28% in an academic health science centre. These figures tend to support the previous estimates from the CAGS database and suggest that approximately a 60/40 split exists between community surgeons and academic surgeons. This is of paramount importance, since Canada is a very large country with a

very small population distributed over a very wide area. In guiding the path of future General Surgeons and General Surgery practice, we must not become a slave to the U.S. model of increasing sub-specialization and resultant fragmentation of General Surgery. The USA population statistics are considerably different from those of Canada. Centralization of rural and suburban health care in Canada undoubtedly will continue to occur, but given the nature of the country, and its population, the community general surgeon, albeit with a different surgical training, will continue to play a major role in the delivery of Canadian general surgical care. This must be recognized when discussing the training of future General Surgeons.

It would seem that the Canadian population of General Surgeons is older, the majority exist in a community surgery setting, and the replacement numbers as predicted are probably grossly inadequate. A further loss of general surgical manpower occurs with subspecialization. This is not a complete loss, and the degree of loss to general surgical activity varies from subspecialty to subspecialty and region to region.

A recent Canadian study again by Goldsand and Pollett looked at R3 residents in General Surgery between the years of 1988 to 1997. There were 729 eligible residents of which 385 replied, a fairly good response rate. Forty of the 385, that is nearly 10%, were no longer practicing any General Surgery. This would again suggest that whatever number we factor as a number for replacement of retiring General Surgeons, we have to add another 10%. Of those that were still practicing General Surgery 209 were practicing General Surgery only, while 136 had completed a certifiable subspecialty fellowship. Interestingly, however, of the 209 that were practicing General Surgery only, a further 68 had completed at least 6 months of additional training without certification, and 13 of that 68 had completed more than a full year of additional training without certification. If one, looks at the number with subspecialty training, be it certifiable or not, 204 General Surgeons had completed at least 6 months of specialty training, that is 59% of all the responding graduates.

Numbers such as these invite question as to what is the stimulus and reason for such a rate of subspecialization. Dependent on the nature of subspecialization, general surgery loses part or all of the general surgery activity of a significant number of its graduates. While this narrows the

focus of work of the non sub-specialized general surgeon, it also has a potential negative effect on the future of general surgery as a specialty. There are many reasons for the development of sub-specialization. Much has been written about patient outcomes particularly in the more complicated surgical fields. There is a clear demonstration that focused care by a subspecialist is beneficial to the patient. It is also abundantly clear that with the traditional breadths of general surgery it is increasingly difficult to be an expert in all areas. Technological advances in many surgical fields such as intraoperative ultrasound, laparoscopic technology, and others mean it is difficult to be current and expert in all of these areas. It is also clearly understandable why university surgical chairmen in an attempt to develop their surgical departments want to focus on sub- specialized individuals who will foster research and improve patient outcomes. In many but not all instances, subspecialization may improve remuneration and lifestyle. Another significant factor in the rate of post FRCSC surgical training may be that today's graduate from a General Surgery program feels that their training is inadequate to equip him or her for the scope of practice that he or she wishes to enter into. This may be a principal reason that an additional 20% of graduates in the Pollett/Goldsand study under took non-certifiable additional surgical training.

I believe we have to adopt some caution, and re-look at he reasoning behind why we apparently promote sub-specialization with such enthusiasm. Does a 1 year fellowship or 2 year fellowship change what is often referred to as "just a General Surgeon" to an "expert sub-specialist", and what of the negative effect on the prestige of the community surgeons who after all carry out the majority of the general surgery work in this nation of Canada. Much has been written about the reasons whereby medical students enter into general surgery as a career. The intellectual challenge and the breadth and variety within the specialty are significant positives. I suggest that if we continue to fragment the specialty we are simply exacerbating the recruitment problem and the manpower situation.

A second issue that arises with subspecialization is are we producing what the hospitals need? This issue has been raised in Britain where trainees applying for consultant posts are encouraged

to have one or more subspecialty interests if not fellowships. The survey carried out by Watkins looked at all the advertised consultant posts in the British Medical Journal over 2 years between 1997 and 1999, and found in fact that there was a significant mismatch between what subspecialty interests were being trained, and what were required by the delivery system. Indeed, there was an overall shortage of trainees with only 237 trainees applying for 310 consultant posts. There was a particular shortage of trainees in breast oncology, transplantation surgery and vascular surgery. Watkins concluded that "the rate of expansion of the consultant grade in General Surgery was being limited by his mismatch between subspecialty interests and those of the advertised posts".

Can General Surgery survive? Are there solutions? I believe it can. Women graduates will help change the situation for us. Looking at the CaRMS match over the last several years by gender, and again the statistics do not include the 3 French training programs, there is an interesting trend. The gender split of all applicants is roughly 50/50 with some variation, but a definite small increase in female applicants. The split in all surgical specialties considered as a whole has been rising, but in 2005 is still only 30%. female, In General Surgery, however, the gender split in last year's match was 50/50, having risen from 25% female in 2002; and risen in a consistent fashion. This year's intake into one training program was 5 women and 1 man. Why do I believe this will help? One of the negative aspects of General Surgery with respect to recruitment of medical students is lifestyle. These young women recruits will not work the long hours of their male predecessors and rightly so. This in itself will make the specialty more attractive, and particularly more attractive to today's woman, who in general has a more balanced view on life and better time management skills than her male counterpart. This will in turn improve the market for recruitment of General Surgeons.

Secondly I believe we have to recognize community surgery, as the statistics show that at least 60% of all the General Surgery in Canada is being done in the community. Recognition of the community surgeon by increasing the prestige of that position and getting away from the "just a General Surgeon" label will improve recruitment in this area. The future for community surgery is a reduction in the number of rural or regional surgical centers coupled with increasing sub-

specialization of some extent within these centers, but perhaps not all with fellowship trained surgeons.

This would be aided significantly by a change in the training programs. In the UK ,the training model has changed considerably. Today's trainees write the MRCS examination after 2 years and then embark on a 6 year training program which will include one or more subspecialty interests and will include examination in that specialty interest at the Higher Surgical Training level. This last exam bestows on them the FRCS qualification. Australia is actively discussing somewhat similar changes , suggesting a period of basic surgical training followed by advanced training for 5 years. The first 3 years of advanced training would be in a General Surgery program, and the last 2 years in a sub-specialty. Australia has also recognized that while there is a need for rural community surgeons there is no such thing as a prototypical rural community surgical training program. They have found that the needs of the rural community surgical areas differ so much from place to place, that they are strongly advocating tailored training. In this plan graduates would receive sub-specialty training in the areas of General Surgery required by the region in which they are about to work.

So what of Canada: my own belief is that we require an additional year of training anyway, because of the loss of training that has occurred with restriction on hours worked, hospital bed cut backs, operating room closures and perhaps even a declining number of general surgical teachers. A 4 + 2 years model would be appropriate and I think we should follow the Australian lead of being able to tailor the last 2 years to suit the particular candidate. If this were adopted then all General Surgeons including the future community surgeons would have some subspecialty interest, and this would detract from the "just a General Surgeon" label.

Similarly, general surgeons with a major interest in General Surgery, and not just post Fellowship sub-specialists, should be recruited in the academic centers. This would help counteract the negative prestige of the non-differentiated General Surgeon. I also believe that such surgeons would be of great benefit to the academic centers, particularly with respect to teaching.

Finally, I believe we need to maintain a liaison between all General Surgeons and I am happy to

suggest to you that CAGS and the Canadian Surgical Forum may already be doing this. The last Royal College clinical meeting was in Edmonton in the year 2000. The registration of CAGS members was the lowest in many years. Since the advent of the Canadian Surgical Forum in Quebec City in 2001, the CAGS registration has increased significantly and the total registration for the conference has increased every year.

In summary , perhaps Fred Murphy was correct in 1990. The Canadian Association of General Surgeons will continue to play a vital role in maintaining liaisons between all types of General Surgeons across the country and help in anyway possible to support the ever changing face of General Surgery.