



Supply and Demand: Is the Surgical Oncology Match in a Bear Market?

Dan G. Blazer III, MD

Duke University Medical Center, Durham

Advanced training in cancer surgery has been recognized as a specialty since well before board certification in Complex General Surgical Oncology. Informal training in surgical oncology goes back at least to the 1930s and 1940s, when surgeons could train at cancer hospitals such as the MD Anderson Hospital or the Memorial Hospital for the Treatment of Cancer and Allied Diseases.¹

Alumni trained at Memorial Hospital created the James Ewing Society in 1940, which in 1975 was renamed the Society of Surgical Oncology (SSO). That same year, the SSO formally proposed to the American College of Surgeons that surgical oncology should be formally designated as a specialty, and training in surgical oncology eventually came under the supervision of the SSO.² The first surgical oncology fellowships were approved in 1983 (Memorial Sloan-Kettering Cancer Center, Roswell Park Cancer Institute, and Ohio State University).²

At the time of his Presidential address to the SSO in 1999, Dr. Edward Copeland summarized the current state of surgical oncology fellowships and training. At that time only 14 SSO fellowship programs had been approved, training 34 to 39 graduates per year, of whom only 14% of the graduates were females. Interestingly, he stated at that time, “Certification of surgical oncology by the American Board of Surgery should not be an immediate goal, and possibly never a goal at all.”¹ However, the pursuit of specialty board recognition was one of the original strategies of the James Ewing Society, and ultimately, in 2011,

the American Board of Surgery (ABS) approved Complex General Surgical Oncology (CGSO) with subspecialty certification.³

The first board certifications of CGSO-trained fellows were awarded in 2015, 75 years after the founding of the James Ewing Society. Currently, the United States has 33 accredited CGSO fellowship programs, training approximately 66 fellows per year.⁴ As of May 2022, there are 431 board-certified surgical oncologists, 31 % of whom are female.⁵

In this issue of *Annals of Surgical Oncology*, investigators from the University of Pennsylvania Perelman School of Medicine and Howard University College of Medicine evaluate application and match rate characteristics as well as trends during the last 8 years of the CGSO match, encompassing nearly the entire era of ABS board certification.⁶

Using data obtained from the National Resident Matching Program (NRMP), the authors have selected a topic of significant interest to the readers of this journal, the majority of whom are likely fellowship-trained in breast or surgical oncology. The authors report on two elements of the match.

TRENDS IN ANNUAL NUMBER OF APPLICANTS

Although the number of accredited fellowship programs had increased from 23 to 34, and the number of available fellowship slots had increased from 56 to 67, the authors report that the number of applicants actually decreased from 103 to 90 from 2014 to 2021. This reported decrease reflects a drop in applications from non-U.S. allopathic medical school graduates, as U.S. allopathic medical school applicants increased during that time. The authors raise concerns that these numbers might represent a “disturbing trend.” However, some caution should be exercised

with this interpretation because the reported “trend” actually is only a comparison between the years 2021 and 2014. Notably, 2014 had the highest number of applicants, so by default, any comparison with this year is going to appear as a “downtrend.” Moreover, the number of applicants in 2021 represented the third highest number of applicants during the period of the study (Fig. 1, Silvestre et al., 2022), and the “drop” in non-U.S. students must be taken in the context of the ongoing Covid-19 pandemic. Therefore, we in fact may not actually be seeing a real trend toward fewer applicants.

TRENDS IN ANNUAL MATCH RATES

With a potential decrease in the number of overall applicants and an increase in the number of fellowships and fellowship positions, match rates in CGSO increased over time. In fact, during the last 3 years of this study, the match rate was 75 %. These trends favor both U.S. allopathic and non-U.S. allopathic medical school graduates applying for fellowship. Importantly for applicants, matching at one of their top three choices also increased over time, from 36 % to 50 %.

What do we take away from these results? We know for certain that the number of fellowship and fellowship positions is increasing. The question then becomes whether this is good for current applicants (i.e., more fellowships to choose from with better odds of matching and of matching at one’s top choice).

The assertion that the number of applicants truly is decreasing may be overreaching a bit based on the data, but we as program directors and leaders in the field of surgical oncology should always be aware of changes in the applicant pool to ensure that the highest-quality candidates are applying for our fellowships.

The authors suggest that the possible drop in applicants may be driven by financial and future job prospects, such as the overrepresentation of many graduates in academic medical centers.⁷ I also suggest that a potential drop could be related to competition from other fellowships with disease-site overlap. The clinical breadth of training in CGSO overlaps with that of multiple other surgical fellowships (Table 1). Each of these fellowships offers a 1-year training program with a more specific disease-site focus. Nearly all of these fellowships have grown in number of applicants and fellowship positions during the period of this study. These training models may be appealing to a broader array of modern general surgery residents. We must consider the strengths of these fellowships as we decide how we will train future CGSO fellows. Should CGSO fellowships more routinely offer clinical specialty tracks to allow disease-site specialization? Several CGSO fellowships already

offer additional hepato-pancreato-biliary (HPB) specialty certification within their 2-year training program, and it is possible to imagine that accommodations could be made for other specialties overlapping with competing fellowship programs.

The potential drop in applicants also may reflect a burgeoning identity crisis for surgical oncology fellowship training. How do the goals of a traditional, broad-based 2-year training program fit the needs of the current job market? I argue that although the job market may be tight in some of the larger academic medical centers in urban population settings, the need for broadly trained surgical oncologists in more underrepresented areas remains strong, both nationally and internationally.

A major weakness of this report, which reflects limitations of the dataset, is that no data are available on racial/ethnic trends in applicants. As the authors acknowledge, future efforts to understand best who we are training must include these data. It is critical that we train oncologists that reflect society at large. In addition, although the number of women training in surgical oncology has improved since Dr. Copeland’s address in 1999, we still need to make progress because women currently make up only 31 % of board-certified surgical oncologists. Continued efforts by the SSO and other organizations are crucial to continued progress in both of these areas.

Overall, this work fits nicely into a growing body of literature that applicants and program directors will find useful in understanding the current state of applicants for CGSO training programs.^{12–14} One of the motivations for seeking board certification was to attract the strongest candidates in general surgery. As anyone who interviews CGSO applicants year after year knows, it is obvious that the quality of the applicant pool remains outstanding. (I frequently note I would not have been nearly as competitive now as I was when I interviewed for fellowship approximately 20 years ago.)

Looking forward, the continued training of outstanding future surgical oncologists is crucial. Much has been written about anticipated shortages of general surgeons in the next few decades.^{15,16} Similar shortages have been predicted for surgeons providing cancer care.^{17,18} Demand for cancer surgery will continue to grow in the United States. Estimates show that lack of access to cancer surgery will result in an estimated economic loss of \$6 trillion to the cumulative gross domestic product by 2030.¹⁷

In addition, cancer care has become increasingly complex, with the emergence of novel treatment strategies including immunotherapy, identification of targetable mutations using next-generation sequencing, and highly sensitive assays for tumor staging such as circulating tumor DNA (ctDNA). Optimal cancer care also means delivering quality surgical care, and leaders in surgical oncology have

TABLE 1 Additional fellowships that overlap CGSO disease sites

Fellowship	Accrediting body	Fellowship program (n)	Fellowship positions (n)	Length of training (years)	Additional comments
Breast ⁸	Society of Surgical Oncology	62	83	1	Steady growth each year in program numbers
Colorectal ⁴	American Board of Colon and Rectal Surgery	65	109	1	121 to 154 increase in applicants since 2018
Endocrine ⁹	American Association of Endocrine Surgery	26	27	1	Growth from 12 fellowship programs in 2007 to the current number. ¹⁰
HPB ¹¹	Fellowship Council	16	16	1	Fewer fellowships since 2014

CGSO complex general surgical oncology, HPB hepato-pancreato-biliary

been instrumental in many of these efforts, including the establishment of programs such as the Commission on Cancer and the Cancer Surgery Standards Program.¹⁹

For surgeons to remain leaders in cancer care, they must understand how to integrate these advances and demands into the management of their patients. Fellowship training of talented, thoughtful surgeons is a critical step to meet these needs. We need more volume without a compromise in the quality of the applicants.

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