Managing the Cardiothoracic Surgical Workforce: A Responsibility of the Profession

John E. Mayer, Jr, MD
Department of Cardiovascular Surgery, Children’s Hospital Boston, Harvard Medical School, Boston, Massachusetts

In this issue of The Annals of Thoracic Surgery there are two articles related to the cardiac surgical workforce in Canada. The first article [1] describes the survey results of the graduates of cardiac surgical training programs in Canada between 2002 and 2008. The second article [2] describes the results of the dynamics of modeling systems for the future Canadian cardiac surgical workforce needs under a number of different scenarios for demand and supply of cardiac surgeons. The model also addresses the ability of the existing cardiac surgical workforce to increase the total number of cases per surgeon per year, and the impact of this increased capacity per surgeon on future cardiac surgery workforce needs. As in the United States (U.S.) [3], recent graduates of Canadian training programs report significant difficulty in finding staff positions as cardiac surgeons. There are 96% of recent graduates who reported pursuing additional training beyond the minimum required 6 years of postmedical school training, which has resulted in an average length of training of 9.4 years after medical school [1]. At least 25% of the respondents reported extending their training with fellowships because of a lack of cardiac surgery jobs. Only 5 of 12 available training positions were filled in 2009, and the percentage of Canadian medical students choosing cardiac surgery declined to less than 0.25% [1].

Scope of Training

There has been an ongoing discussion among the leaders of the U.S. cardiothoracic surgery training programs and also among the American Board of Thoracic Surgery (ABTS) members regarding the wisdom to continuing to provide training in both cardiac and thoracic surgery within the same training program. There are now different cardiac and thoracic training tracts with different case requirements for the qualification with the ABTS. In Canada, this separation between cardiac surgery training and noncardiac thoracic surgery training is complete, with most cardiac trainees entering cardiac surgery programs directly after medical school and thoracic trainees entering training in general surgery first, followed by noncardiac thoracic surgery training [1]. It is noteworthy that 38% of the recent Canadian cardiac surgery graduates who were surveyed expressed a strong preference for diversifying the training of Canadian cardiac surgeons to offer multiple certification opportunities during core training, including vascular surgery and thoracic surgery [1]. It is also noteworthy that 11% of the Canadian survey respondents reported practicing as a cardiac intensivist [1]. Particularly because there is some uncertainty regarding the numbers of coronary bypass surgeries that will be required in the future in the U.S. and elsewhere, this Canadian experience would seem to uphold an argument for U.S. programs to also continue providing the training in both cardiac surgery and thoracic surgery so that graduates will have more options than their Canadian counterparts. Data from the last workforce study for The Society of Thoracic Surgeons and the American Association for Thoracic Surgeons in 2000 indicated that a significant fraction of practicing cardiothoracic surgeons provided surgical care in more than one subdiscipline of cardiovascular and thoracic surgery [6]. In addition, an additional year of training for cardiothoracic surgical residents leading to a critical care certificate, which is now possible through the American Board of Surgery, will likely be important for at least some U.S. trained cardiothoracic surgeons.
Impact of Changes to the Training Paradigm on Workforce Flexibility

There has been increasing interest in creating new training paradigms for cardiothoracic surgery in the years since the ABTS eliminated both the requirements for prior certification by the American Board of Surgery and the requirement for 5 years of general surgical residency prior to entering cardiothoracic training. There are now a number of integrated 6 year (I-6) cardiothoracic surgery training programs that accept applicants directly after medical school, and a number of other programs now accept applicants after 4 years of general surgical residency training. Anecdotally, the I-6 programs report an excess of applicants for the available positions, suggesting that there is a significant interest among medical students for these programs that significantly reduce the amount of time in general surgery rotations and increase the time spent training in more specific cardiothoracic surgery-related areas. Consideration has been given in requiring all cardiothoracic surgery training programs to become I-6 programs. The results of the Canadian workforce modeling study seem to indicate that such a change would significantly reduce the ability of the specialty to respond to a workforce shortage. If cardiothoracic surgery trainees could only receive training in an I-6 program, there would be a minimum obligatory 6-year lag between the time a shortage was identified and the time when any increased number of board-eligible surgeons would become available. In theory, the current paradigm of general surgery training (4 or 5 years) followed by cardiothoracic surgery training (2 or 3 years) could expand the number of graduating trainees more rapidly, because the pool of potential cardiothoracic trainees (general surgery and vascular surgery residents) could be trained and released within a shorter period of time if such a cardiothoracic surgery workforce shortage developed. However, the ability to increase the number of training programs to produce more trainees is clearly limited by the time and resources needed to establish new programs or re-establish and re-accredit previously closed programs.

Workforce Productivity

An important assumption in the article by Vanderby and colleagues [2] is that the productivity of each Canadian cardiac surgeon could vary only between 190 and 230 cases per year and would not be affected by the age or experience level of the surgeon. An important question is whether 230 cases per year is a reasonable average upper limit and whether this limit could be extended further with greater deployment of physician assistants and advanced practice nurses, although these physician extenders are already an established part of the cardiothoracic surgical team in most institutions. If further expansions of the use of physician extenders in cardiothoracic surgery were necessary to improve productivity, the refusal of the Centers for Medicare and Medicaid Services to recognize the costs of these personnel in their calculation of practice expenses for cardiothoracic surgery procedures would likely need to be revisited.

Management of the Cardiothoracic Surgery Workforce

Most importantly, these studies raise the question of the role of our specialty of cardiothoracic surgery in meeting the future cardiothoracic surgery workforce needs in this country. Currently there is no single organizational structure that is responsible for either assessing or meeting these future societal needs. The current system has many separate organizations involved in addressing various pieces of the workforce issues, including the ABTS, the Thoracic Surgery Residency Review Committee (RRC), the Society of Thoracic Surgeons (STS), the American Association for Thoracic Surgery (AATS), the Thoracic Surgery Directors Association, and the newly reorganized Joint Council on Thoracic Surgical Education. The most recent workforce survey by The STS and the AATS Workforce group received responses from approximately only two thirds of its U.S. members. Data on performance on board examinations, success of residents in finding positions after training, annual practicing surgeon case-loads, job availability, and even the number of currently practicing cardiothoracic surgeons is incomplete, and the existing data is collected in informational silos that are not easily connected. Only recently has the specialty engaged in a study of workforce needs projection that was carried out by the American Association of Medical Colleges under contract with The STS and the AATS [4]. The current system operates in an information-deficient environment, and potential cardiothoracic trainees are left to make career choices based on soft variables, such as current perceptions of the job market, the perceived likelihood of a future stable and economically viable practice position, and the presence of good mentors. The number of cardiothoracic surgery residency positions is determined primarily by whether or not individual training programs have attracted residents during a period of 3 years or failed to pass RRC reviews, and not by any conscious assessment by the RRC, the ABTS, The STS, or the AATS regarding the question of whether more or fewer training positions will be required in the future. The net result by default is that much of the future planning for the specialty is based either directly or indirectly on the predictions for the future made by current medical students and general surgery residents.

The fundamental question is whether this current “passive” system should continue or whether the profession should engage in more active management of our specialty’s future workforce. The current perception of a difficult job market for cardiothoracic trainees suggests that the current passive system has not served the trainees or the specialty students particularly well, although one may argue that the system is self-correcting as the number of first-year training positions has decreased from 138 to 118. Even these reduced numbers of positions have not been completely filled through the residency
matching system for the each of the last 5 years. However, if the workforce projections by Grover and colleagues [4] are truly correct that there will be a looming shortage of cardiothoracic surgeons, then the current system is unlikely to be capable of “ramping up” the number of trainees to meet the projected need in a timely fashion. If the active management pathway is chosen, the specialty must create or designate an organizational structure that will provide workforce management, including modeling and projection of future workforce needs. Ideally, the data that exist in separate silos at The STS, RRC, ABTS, Thoracic Surgery Directors Association, and the individual training program level could be brought together, analyzed, and made available for current workforce status determinations and future workforce modeling efforts. The specialty must then have an effective mechanism by which to either increase or decrease the number of training positions. These efforts will require a significantly enhanced level of collaboration and data sharing among the existing organizations and a willingness to actively manage the postgraduate educational resources. The Joint Council on Thoracic Surgical Education structure was revised to enhance graduate and postgraduate medical education, and the specialty must consider whether this or some other entity will be empowered to make more frequent projections of workforce needs and the difficult decisions regarding the deployment and use of educational resources. These issues will test our ability to act as a profession because individual interests would likely become secondary to the interests of the larger society that we serve. As Krause noted in *Death of the Guilds* [7], the prerogatives and privileges of a profession are granted by that society only so long as that society perceives the profession is acting in the societal interest and not its own. It is my opinion that the profession is obligated to undertake active workforce management in both the interests of our trainees and the interests of society, even if the interests of some of us may not be perfectly served. As I noted previously, in a different venue [8]: “We must all hang together, or we shall surely hang separately.” This was attributed to Benjamin Franklin at the signing of the Declaration of Independence. Managing our workforce will be a test of whether we can truly act as a profession.

References