The characteristics of good thoracic surgical training

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In the summer of 2011, the Senior Tour (a group of retired cardiothoracic surgeons committed to education and service for their profession) was asked by the Joint Council of Thoracic Education to visit 10 thoracic surgical training programs that were considered above average according to a poll taken of thoracic surgical residents in the fall of 2010 by the Thoracic Surgery Residents Association. These training programs comprised 5 programs known for their excellence in cardiac surgery and 5 similar programs in general thoracic surgery.

The programs were each visited in person by 1 of 10 members of the Senior Tour. All of these members had previously been program directors in their own right and thus had some experience on which to base their judgment of the remarks that they received from residents, program directors, faculty members, and other personnel involved in training residents. A script of questions was prepared by group consensus to ensure a standardized approach to interviews. Each of the visitors prepared a document summarizing the visit's impressions and submitted it to the executive committee of the Senior Tour. A master data sheet was created to form the basis for this document, which was shared with all of the visitors for their own comments before it was submitted to the Joint Council of Thoracic Education and the Thoracic Surgery Directors Association (TSDA).

RESIDENTS

Not surprisingly, the strongest comments related to the status of the programs were made regarding the quality of the residents. In all 10 programs, the residents were considered to be of top quality on the basis of medical school grades, honor societies, and in-training examination scores. There were remarkably few negative comments from the residents in all of the interviews. In all the resident interviews, the personal life feature of their residency program appeared to cause no consternation. All seemed

to feel that they had enough free time to achieve some balance with their families and friends. The 80-hour work week appeared to play a role in this lack of concern, and there was only a single negative comment related to achieving an 80-hour rigid schedule.

PROGRAM DIRECTOR

There was uniform agreement that each of the program directors was personally involved in their training, mentorship, and planning for the future. The involvement varied from contact at least each quarter to once a week. Many of the program directors were busy clinicians or had other responsibilities such as research and fund raising. Program directors uniformly kept track of the progress of the residents, took care of clinical problems, and were instrumental in solving personal problems that were often a feature of the first 2 or 3 years of integrated 6-year (I-6) programs. Program directors also played a major role in making sure that clinical activity was maintained and that contact with the appropriate faculty was established. Program directors often had extra financial resources, which allowed residents to gain access to more expensive housing in some of the larger cities, where reasonable housing would not have been feasible were financial support not provided.

EDUCATIONAL COORDINATOR

A separate educational coordinator was present in the department for each of the programs visited. The educational coordinator was particularly valuable in the I-6 programs. The educational coordinator played a role in setting up in call schedules, educational conferences, TSDA educational materials, and in-service examinations. In the I-6 program, the educational coordinator was particularly valuable in guiding first- and second-year residents through the rigors of moving and residency. The educational coordinators also often identified themselves as a brother or sister "confessor" for the younger residents.

ADDITIONAL FACULTY

Most of the programs had large numbers of additional faculty, both in the parent university and in affiliated hospitals. Many of these faculty members had national reputations and were instrumental in both clinical training and mentorship. Much of the faculty relationship with the residents was voluntary, although some of the mentoring relationships were assigned by the program director (see the section on mentorship).

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ACADEMIC REPUTATION

All of the programs listed as above average were closely affiliated with a university, and in most cases a university hospital served as the parent training facility. Academic reputation was very important to the residents, as many of the residents when they were applying for programs wanted a spot where they could achieve the type of training that would lead to an academic affiliation when they were looking for jobs at the completion of the residency program. In several of the programs, residents were mentored by the program director to achieve academic success during the time of their residency, and most of the residents were strongly encouraged to perform scholarly work during the time of their residency and to present their work at national meetings.

CLINICAL TRAINING

In each case, the programs involved had large volumes of clinical material for resident work. There were no programs in which the residents had any problems in making the numbers of both first surgeon and assistant surgeon cases required for the American Board of Thoracic Surgery qualifications. In most cases, there were more operations being performed in the clinical setting than there was time for the residents to participate in all of the surgery. This provided an opportunity for younger faculty members to gain confidence operating on their own and also for involvement of general surgical residents, medical students, and other trainees in the operations.

The residents and faculty alike were extremely proud of the fact that, from the earliest days of their training, the residents were given some responsibility for portions of each case and, as they progressed, were the operating surgeon for all or at least the vast majority of each case. It was noted in several of the programs that the resident always stood on the patient's right side for cardiac surgery and on the operating surgeon's side for general thoracic surgery. It was also noted in every case that the clinical faculty took pride in supervising and teaching the residents in the operating room. This was a consistent feature during interviews with residents and faculty alike. A committed faculty appeared to be the sine qua non for the high status of these training programs.

All of the training programs had strong specialty programs in both cardiac and general thoracic surgery. Many of the programs had national leaders in the field in such specialty opportunities as minimally invasive cardiac and general thoracic surgery and catheter-based programs, including thoracic endovascular aortic repair and transcatheter aortic valve implantation. Thoracic endoscopic procedures were available in large volumes in the general thoracic surgical programs, and the training in this particular facet of general thoracic surgery was extensive, as many of the programs had an arrangement

with the hospital so that they would perform most, if not all, of the thoracic endoscopy.

Simulation was not a strong feature of the entire program, although all of the programs at least had plans for simulation in their institutions. The most common use for simulation was in programs that had mature I-6 residency programs in which simulation was used significantly for training younger residents in common techniques in vascular, cardiac, and general thoracic surgery. Most of the residents involved had been to one or even several of the boot camp programs put on by the TSDA.

MENTORSHIP

Mentorship was a much discussed topic among both residents and faculty members alike. In most cases mentorship was voluntary, with the resident finding one or several faculty members who offered the style of training that attracted the resident, who then adopted a mentor-mentee relationship with those attendings. The program director in 8 of the programs had a supervisory role in mentorship and also in an advisory role for finding a position at the completion of training. In 2 of the programs, 2 mentors were assigned to each resident: a younger mentor, who would perhaps have more in common with the resident, and a senior faculty member, including the program director, who would have more experience in some of the features of the residency program including job finding and research. It was of interest that all of the programs stated that at least 50% of their trainees went on to find academic positions after their training.

DIDACTIC EDUCATION

In 8 of the programs, the TSDA curriculum was followed with only minor modifications. Two of the programs used some of the features of the TSDA curriculum but added significant features that had been developed in their own programs. All programs had significant conference schedules, which in some cases delayed the beginnings of surgery during the week. These conferences included journal clubs, morbidity and mortality conferences, specialty lectures by faculty and residents alike, and lectures by visiting faculty several times per year. Each of the programs allowed their residents to attend 1 meeting a year and any other meeting in which they had a presentation. All of the programs offered financial assistance for didactic education, including books, videos, online training programs, and specialty reviews before Board examinations.

PROGRAM TYPES

Most of the programs were 5-year general and 2-year specialty (5-2) programs, with residents sitting for both general and thoracic Boards. Of the 6 studied 5-2 programs,

4 were transitioning to I-6 programs, although 2 of those 4 were planning to offer a traditional program in parallel with the I-6 residencies. There were 2 programs that had only I-6 training and 3 programs that had approved 4-3 programs in which 50% of the first year of thoracic surgical training could be a general surgical chief residency, so that Boards could be taken in general surgery. There was 1 program that had a 5-3 training program, with virtually every resident completing the 5-2 schedule staying for an extra year of specialty training in one or another of the cardiothoracic fields. The variety of the training schedules offered by these programs leads to the conclusion that a program's merit is based mostly on factors other than the training schedule.

SUMMARY

These programs, not surprisingly, had many common features that led to superior training in cardiac and general thoracic surgery. The following are some factors that programs wishing to improve in status could incorporate:

1. Involved and committed program directors and an excellent faculty, with an emphasis on personal, high-quality education and a palpable pride in their program.
2. Excellent planning, with high-quality training programs that include much supervision and direction from faculty and an educational coordinator.
3. The development of a significant academic reputation, with residents, attendings, and ancillary staff participating in research and other scholarly work that leads to presentations at national meetings.
4. Large volumes of clinical training material, with the intent to facilitate the residents' repetitive training in many difficult clinical areas, allowing them to finish their residency programs with skills that those programs with smaller volumes are unable to provide.
5. Significant emphasis on mentorship, with the program director playing the primary roles and with voluntary relationships between residents and other faculty and with mentorship also including involvement in job finding, with the program directors again playing a primary role.
6. Stress on didactic education, with emphasis on following the TSDA curriculum and conferences for the most part mandatory, with financial assistance provided for attendance at national and regional meetings and other educational tools.
7. Coordination of the leadership of clinical facilities, with training program goals, up-to-date technology, and affiliated programs that complement the primary program, and with significant involvement of Veterans Affairs hospitals.