Surgical Training in the United States: Is It Time for a Paradigm Shift?

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The current paradigm of surgical training in the United States is based on a system that William Halsted introduced when he assumed the leadership role as the surgeon-in-chief at Johns Hopkins Hospital in 1889.[1] Dr Halsted modeled the Hopkins training program after what he had observed in Europe at that time, especially in Berlin. Before this time, finishing medical students interested in surgical training in the US generally undertook an apprenticeship for 1 or several years with a surgeon they happened to locate, if they were lucky enough to find an available position. The training was haphazard and the finished product, most felt, was poor. In addition to introducing formalized training, Halsted was responsible for many of the early important developments in surgery in the US, and is known for the successful development and introduction of a number of surgical procedures, including inguinal hernia repair, cholecystectomy, radical mastectomy, and aneurysm repair, among others.

Halsted is probably best known for the system of training that he introduced, in which medical graduates entered a university-sponsored, hospital-based, training program, which, over a several-year period of increasing responsibility, slowly led to the training of young surgeons who were well versed in anatomy, pathology, and physiology, in addition to the conduct of operative procedures. The training culminated in a final period of near total independence and autonomous activity. This system has essentially persisted since that time, although the pyramidal nature of the training process,[1] in which a smaller number of trainees were allowed to progress through training each year, has been replaced by a rectangular design.[2] In addition, there is much less autonomy for senior surgical residents than in years past, due, in part, to the expectation of care by full-time board-eligible or board-certified surgeons in our training hospitals. There is very little allowance for completion of surgical procedures solely by someone still in training, regardless of the number of years of training or the magnitude of the procedure. Therefore, for today's trainee, the independence for decision making and independent performance of operative procedures often does not occur until completion of general surgery and achieving board eligibility, whether in fellowship or in surgical practice.[3,4]

The training in the 20th century, however, was in some ways quite different from what we use today. Barnes Hospital was opened in 1914 in St Louis, and this was the first hospital in our region built around the idea of training for doctors.[5] Interestingly, the vast majority of trainees were single men. There were sleeping quarters built within the hospital, essentially a dormitory. So, not only was the training nearly all consuming, trainees actually lived at the hospital. Pay was meager, and it was expected that there would be a complete dedication to surgical training, with very little time for personal activities, including family life.

Evarts Graham was the first chair of surgery at Washington University, and he was a major leader in the field of surgery in America for more than 30 years. He performed the first successful pneumonectomy and, along with Warren Cole, developed the technique of the oral cholecystogram. Perhaps most importantly, Dr Graham was instrumental as one of the founding members of the American Board of Surgery (ABS) in 1937.[5]

OFFICIAL OVERSIGHT BODIES OF SURGICAL TRAINING

Today, there are 2 official bodies that are formally responsible for overseeing the conduct of training and certification of surgical trainees in the US. The first is the ABS, which conducts exams and issues certificates to individuals completing surgical training.[6] This Board is involved in improving education and training in surgery and ensuring quality and safety for the public. The ACGME[7] is responsible for assessing and advancing quality resident education through program accreditation. So, the ABS certifies individuals and the ACGME oversees programs, ensuring that appropriate standards are met.

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Abbreviations and Acronyms

ABS = American Board of Surgery
ASTS = American Society of Transplant Surgery
ESP = early specialization program
HPB = hepato-pancreato-biliary
MIS = minimally invasive surgery

This system seemed to work effectively, perhaps through the 1980s and early 1990s, when most trainees finished general surgery training and went into practice, joined an academic unit, or in some cases, went on to further surgical fellowship training. This has since changed significantly, perhaps related to the introduction of laparoscopic cholecystectomy, which was first reported in France in 1987 and was more fully introduced across the US around 1990. This surgical procedure revolutionized general surgery because general surgeons at that time were completely unfamiliar with laparoscopy. Moreover, the surgical establishment, including many academic surgical departments, were skeptical of this procedure, so it was essentially promoted by nontraditional, nonacademic, general surgeons. This led to the development of minimally invasive surgery (MIS) fellowships for surgeons interested in learning this and other developing procedures in laparoscopy, and most such fellowships were not part of the traditional ACGME structure.

As an outgrowth of these nontraditional fellowships, the Fellowship Council was created to help develop and oversee high quality non-ACGME fellowships in a number of areas. In addition to MIS fellowships, these included foregut surgery, flexible endoscopy, bariatric surgery, some components of thoracic and colorectal surgery, and hepato-pancreato-biliary (HPB) surgery, among others. This organization conducts a match, inspects programs, and in some circumstances, will issue certificates of completion of training under the guidance of specific surgical societies. Other societies, including the American Society of Transplant Surgeons (ASTS) and others, have continued to oversee training in their specific fellowship areas, totally separate from the ACGME and the ABS.

COMPLEXITY OF TRAINING OPTIONS IN SURGERY

Figure 1 shows the road map of potential training options presented by Dr Ajit Sachdeva and colleagues[8] in 2007 and outlines the complexities that have existed in recent years. The standard mechanism that most current senior surgeons followed during their training was fellowship

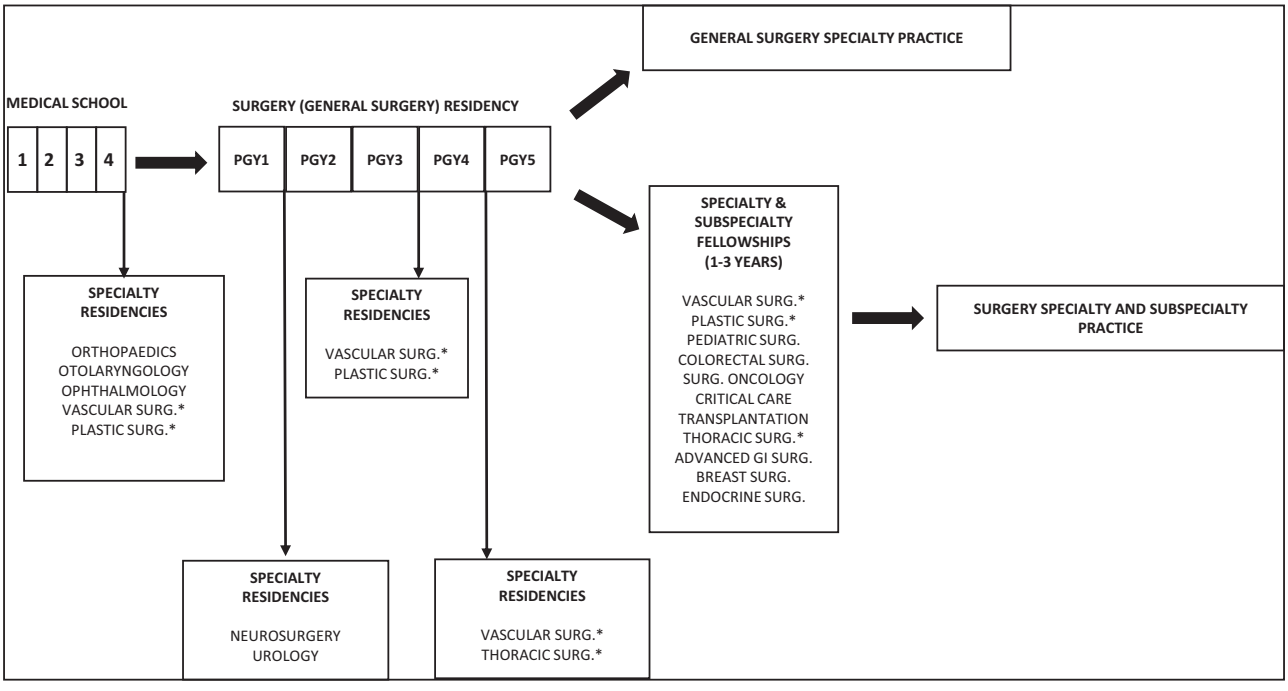

Figure 1. The pathways for postgraduate education in general surgery and related specialties and subspecialties, as outlined by Sachdeva and colleagues.[8] Specialties marked with an asterisk (*) have more than 1 possible pathway leading to certification. (Reprinted from: Sachdeva AK et al. National efforts to reform residency education in surgery, Acad Med 2007;82:1200-1210, with permission.)