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In Brief

General surgery residency: Past, present, and future



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The first residency program in general surgery (and the first formal training in surgery) in the United States began in 1889 at The Johns Hopkins Hospital under the direction of William Stewart Halsted. Decades passed before residency training became widely accepted and, ultimately, required. Standards for surgical training programs were initially set by the American Medical Association (AMA). Later, different (and competing) standards were established by the American College of Surgeons (ACS). In 1950, appointees of the AMA and the ACS were joined by appointees of the American Board of Surgery in the Conference Committee on Graduate Training in Surgery to establish a single set of standards for training in general surgery. This forerunner of the Residency Review Committee for Surgery acted completely independently in the establishment of standards for – and the approval of – general surgery residency programs. Similar groups independently controlled the standards for – and approval of – programs in every other specialty. This somewhat chaotic situation led to calls for an oversight body for all of graduate medical education in the United States. As a result, the American Board of Medical Specialties, the American Hospital Association, the AMA, the Association of American Medical Colleges and the Council of Medical Specialty Societies joined forces in the creation of the Liaison Committee for Graduate Medical Education (LCGME) in 1972. Still comprised of representatives of the American Board of Surgery, the ACS, and the AMA, the former Conference Committee became the Residency Review Committee for Surgery. Importantly, at that point the Residency Review Committee for Surgery ceded to the LCGME ultimate authority for the establishment of training standards in surgery and the accreditation of surgery residency programs. The LCGME rather rapidly imploded under the weight of its arcane administrative structure. With the ACS playing a key role, the LCGME was disbanded in 1981 and replaced by the Accreditation Council for Graduate Medical Education (ACGME). The same 5 organizations (Association of American Medical Colleges, American Board of Medical Specialties, American Hospital Association, AMA, and Council of Medical Specialty Societies) became the “parent organizations” of the ACGME and its Board of Directors was comprised of representatives of those organizations. That ACGME was saddled by many of the same organizational barriers as the LCGME and survived only a few

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years longer than its predecessor. In 2000, that ACGME was disbanded in favor of the “new” ACGME – an incorporated and independent entity.

With the exception of 1 brief period, the overall length of training in general surgery since 1950 has been 5 years for most individuals. From the outset, a core tenet of general surgery residency has been graded and progressive responsibility along with graded and progressive authority culminating in the chief residency year and preparedness for independent practice in the specialty. Although “sufficient operative experience” has always been required of surgical residents, quantification of that operative experience was not actually required until 1990. In the years since, there have been periodic modifications in the minimum requirements for the total number of operations performed during residency, the number of operations in the chief residency year, and the number of operations performed in various types of procedures.

Since the establishment of the current ACGME, the number of accredited general surgery residency programs changed very little until 2015. That year saw the beginning of the transition to a single graduate medical education accreditation system in which programs previously approved by the American Osteopathic Association could, through a specially modified process, apply for ACGME accreditation. That transition will end 30 June, 2020 but has already resulted in a large increase in the number of ACGME-accredited general surgery programs as well as in many characteristics within those programs. Despite stability in the number of accredited programs through 2015, there was a steady and significant increase in the number of general surgery residents. That number has, understandably, increased more rapidly since 2015. Because the previously AOA-approved programs generally have fewer residents than the historically ACGME-accredited programs, the mean number of residents per program – which steadily increased from 2001 to 2015 – has now fallen below the number seen in 2001. Obviously, the transition to a single GME accreditation system has resulted in a much higher proportion of residents in ACGME-accredited general surgery programs who graduated from osteopathic medical schools. There has been little change in the proportion of individuals of various ethnic minorities in the general surgery resident population since the ACGME began tracking that information. There has been, though, a steady increase in the proportion of women in the general surgery resident cohort.

Today there are numerous substantial challenges to properly educating and training residents for the independent practice of general surgery. Medical schools poorly prepare their graduates for the rigors of surgical residency. Duty hour limitations – although necessary and, in many ways, beneficial – have significantly reduced the overall amount of clinical contact in surgical residency and resulted in what many believe to be a diminished sense of personal responsibility for patients. Another challenge is that for historical, financial, and other reasons, residency remains hospital-based while much of the work of the specialty has moved to the outpatient arena. Residents historically had 5 years to learn open surgery. Today, in those same 5 years, they must learn open and laparoscopic techniques as well as some principles of robotic surgery. Diseases and conditions treated by general surgeons continue to change. This, in addition to continuing exponential growth in the amount of surgically related information to be learned results in a real challenge to create and maintain a surgery residency curriculum which is at once sufficiently comprehensive and comprehensible. In most programs, faculty development in such basic educational concepts as teaching methodology, evaluation, and feedback is woefully lacking. Fellowship education in the derivative subspecialties of general surgery poses yet another challenge to the education of general surgery residents. The vast majority of those fellowship programs co-exist in the same institutions as the general surgery residency programs. They divert from the general surgery residents the time and attention of faculty members as well as patients whose care could very well be provided by the general surgery residents. Despite the very recent downturn in the mean number of residents per program due to the transition to the single GME accreditation system, the great majority of general surgery programs continue to grow in terms of the number of residents, the number of faculty, and the number of clinical sites. In the face of such growth, each faculty member and, certainly, each program director spends less time with each resident and is, therefore, less able to evaluate the abilities of each resident, less able to provide feedback to each resident, and less able to provide learning oppor-

tunities appropriate for that resident. Perhaps the greatest single challenge to general surgery residency today, though, is the lack of appropriate resident supervision. Constant and direct supervision of residents who are naïve to a given procedure is absolutely appropriate. Constant direct supervision and instruction of residents in procedures that they have repeatedly, competently, and safely performed is inappropriate and impedes preparation of those residents for the independent practice of the specialty.

Some things about the future of general surgery residency are fairly predictable based on established trends. Despite potential detriment to the education of residents, it is likely that general surgery programs will continue to grow in the number of residents, the number of faculty members, the number of clinical sites, or combinations of the three. Similarly, despite potential detriment to the education of residents, there will predictably be continued growth in the number of identified derivative subspecialties and sub-subspecialties of general surgery, the number of programs in those disciplines, and the number of fellows in those programs. Predictable changes in the residents, themselves, include continued growth in the proportion of women and, at least until 2020, growth in the proportion of residents who graduated from osteopathic medical schools. Resident operative case logs will continue to play an important role in the accreditation of surgery programs. It is likely that value will be added to the case logs in terms of their utilization in the evaluation of the performance of individual residents. It is also conceivable that resident case log information could be passively acquired from electronic medical records rather than manually entered by residents. The use of simulation in resident education will predictably increase as more tools become available and affordable, as curricula are developed to make simulation more educationally meaningful, and as public demands result in more requirements for simulation by regulatory bodies. Technological improvements, legal and regulatory evolution, and practical implications of clinical practice will result in far greater utilization of telehealth in surgery and education of the residents.

The specifics of regulation of resident duty hours will likely continue to undergo incremental changes in the future, but there is no reason to believe that the 80 hours per week overall limitation will be liberalized.

Finally, despite the incredible growth in the knowledge to be mastered and the skills to be obtained, there is no reason to believe that the duration of general surgery training will be lengthened. Indeed, there are several pathways now to effectively shorten general surgery residency – at least for those who wish to pursue the practice of a derivative subspecialty. One development that may at some point in the future result in the duration of general surgery residency being shorter or longer than 5 years for a given individual is the implementation of true competency-based resident education. However, the obstacles to true competency-based resident education are so numerous and so formidable that the question of when competency-based resident education will be implemented must truly be preceded by the question of whether it can ever be implemented.