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Is the generalist surgeon obsolete?

The impact of the general surgeon shortage on global health

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Editor's note: In 2009, the Resident and Associate Society of the ACS (RAS-ACS) sponsored an essay contest on the question, "Is the generalist surgeon obsolete?" Opposing positions were discussed by two previous authors (Bull Am Coll Surg, 94[10]20-24), and the topic was debated at the 2009 RAS Symposium at Clinical Congress, in Chicago, IL. In this article, the RAS-ACS Issues Committee presents its final submission from this series—an essay on the global impact of the general surgeon shortage.

The impending shortage of general surgeons has been well documented.¹ In the U.S., poor reimbursement rates, increasing medical school debt, and long work hours have contributed to a 26 percent decline in the overall number of surgeons over the past quarter century.² Thirty-two percent of general surgeons are older than 55 years, and thus many are poised to exit our profession.³ According to the American Association of Medical Colleges, the average U.S. public medical school student graduates with \$120,000 of debt, and a private

school student graduates with \$160,000 of debt—which could grow to more than \$150,000 and \$205,000, respectively, after the first three years of residency.⁴ During lengthy general surgery training, this debt multiplies, leaving the young surgeon with a significant financial burden.

Fewer doctors are choosing general surgery as a career, and those who do tend to subspecialize.^{2,5} At a time when fewer doctors become general surgeons, evidence of the global burden of surgical disease is demonstrating desperate surgeon shortages, disproportionately impacting developing countries. Surgery has recently been described as "the neglected stepchild of global public health" by Harvard professors Jim Kim, MD, PhD, and Paul Farmer, MD, PhD.⁶ Although Drs. Kim and Farmer are infectious disease physicians, not surgeons, they are lobbying the public health community to scale up essential surgery services in resource-poor settings. While approximately 234.2 million major surgical procedures are performed worldwide each year, the poorest third of the world's population receives only 3.5 percent of

these operations. Meanwhile, three-quarters of these procedures are performed on the wealthiest third of the world's population.⁷ There is a major disparity between state-of-the-art, expensive surgical care available in resource-rich countries and the lack of even basic services in poor countries.


The highest surgical burden of disease lies in Africa, where it is estimated to be 24 percent of the global volume; and most of that need is unmet.^{8,9} With only one surgeon of any type for every 1 million people in Africa,⁹ the sick person who finds a general surgeon, let alone a surgical specialist, is quite fortunate. Violence, injury, and obstetric emergencies are among the leading causes of mortality and morbidity, which could be mitigated through surgical intervention. Surgically treatable problems are estimated to account for up to 11 percent of the world's disability-adjusted life years.¹⁰ In addition to this massive disease burden, there are other problems that are seriously debilitating (cataracts) or stigmatizing (obstetric fistula) this population.

Desperate surgeon shortages in developing countries are amplified by unstable political states, a paucity of medical schools and training programs, and the lure of higher salaries in developed countries.^{11,12} The few surgeons working in developing countries confront an endless barrage of surgical pathology with little compensation, ill-equipped hospitals and operating suites, and with rare reprieve from continual "on-call" duties. Increasing evidence from the Disease Control Priorities Project, as well as evidence from recent literature, documents the tremendous number of years of life lost to death and disability from surgical pathology because of the inaccessibility of surgical care.^{10,13}

Over the last several years, the surgical community has been debating the topic of whether the general surgeon is obsolete. Perhaps a better question for debate would be, "Who will replace the general surgeon in caring for the poor?" Increasingly, resource-poor countries are relying on expatriate surgeons to perform surgery or to train the local surgical workforce. For example, Ken Johnson, MD, FACS, a U.S.-trained general surgeon, has been working at a district hospital in Zambia for more than a decade. During the course of a single day, he performs a variety of

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cases such as caesarean sections, bowel resections, prostatectomies, and internal femur fixations. He is the only surgeon for the district; there are no surgical specialists. E.E. Moore, MD, FACS, and others, argue that the type of surgeon "who operated confidently and effectively on the neck, chest, abdomen, pelvis, and repaired any injured blood vessel" is disappearing from the American landscape.¹⁴ Médecins Sans Frontières and other humanitarian organizations that provide surgical care during emergencies such as armed conflict and natural disasters in resource-poor environments are challenged to find broadly trained general surgeons.¹⁵

It is ironic that at a time when surgery is increasingly recognized as an important public health issue in developing countries, the number of surgeons with the appropriate breadth of training is decreasing. American surgeons are desperately needed to provide surgical services and train local providers worldwide, but the contribution they can make will depend on the relevance of their skills. Our surgical community must intentionally consider how to increase its impact on global health with surgeons adequately prepared to work in resource-limited settings. To accomplish this goal, attention must be given to establishing global surgery electives and residency tracks, similar to what has already been successfully accomplished by other specialties.¹⁶ It is time to reflect, as a profession, on what contribution we want to make to medicine and public health before the general surgeon becomes extinct. 

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