Getting the Science Right on the Surgeon Workforce Issue

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In this article we summarize the perspectives given by a range of health policy researchers as presented at the fifth annual meeting of the Surgical Outcomes Club at the annual meeting of the American College of Surgeons in Chicago, Illinois, on October 11, 2009. During that session, the participants reviewed 3 main areas that are summarized here: history of physician/surgeon workforce policy, current beliefs, recent policy activity, and issues related to forecasting/planning the future surgical workforce.

The debate over US physician workforce policy has reached a fever pitch. Surgical leaders and the press have called attention to situations in which the needs of patients are not being met by the regional supply of general surgeons.1-3 General surgical services are increasingly perceived as vital, not only to patients and communities, but to the financial viability of rural hospitals.4 These articles have raised awareness of the importance of general surgical services within regions and what can happen if the regional supply of general surgeons runs short.

A BRIEF HISTORY

The modern history of physician workforce projections and planning is best reviewed in phases: before 1980, the 1980 Graduate Medical Education Needs Advisory Committee (GMENAC) Report, and the 1980s and 1990s.

In the period leading up to 1980, there was growing consensus of an oversupply and maldistribution of the surgical workforce. Leaders in health policy research called attention to a low operative workload among surgeons in practice.5-7 The Study on Surgical Services in the United States, published in 1974, led to tightening of the process of accreditation to reduce the number of non–board-certified surgeons.8 While the Study on Surgical Services in the United States report did not recommend restricting the numbers of surgical trainees, it did advocate that training become more centralized in academic medical centers. The study provoked considerable discussion but was felt to support the status quo in surgery.9

The emerging consensus in the 1970s was that there was a significant oversupply of physicians in general, and surgeons specifically. It was within this framework that in 1980 the GMENAC report to the Secretary of the Department of Health and Human Services was released.10 The report suggested a surplus of 140,000 physicians (approximately 25%) and 11,800 general surgeons (approximately 50%) by the year 2000 and gave more than 100 recommendations regarding policy changes by which these surpluses might be reduced. The policy response was to withdraw support for expansion of medical schools and reduce pressure to redistribute incentives among specialties. There were few expansions of medical school classes, and almost no new schools were opened. Graduate Medical Education growth slowed and essentially flattened in this period.

The period following the GMENAC report was most notable for the increased penetration of Health Maintenance Organizations (HMOs) and the belief that such systems would decrease the use of...
medical care in general. Managed care entities were seen as providing a way to balance population-based needs with the staffing of networks and systems of care.11 A wide range of players in the health care policy arena aligned in agreement with the findings of the G MENAC report and also argued for a reduction in the rate of physician training of up to 25%.12-15 Perhaps the most important action during this era was the passage of the Balanced Budget Act in 1997, which capped the number of residency training positions that would be funded through Medicare.

CURRENT PERSPECTIVES ON PHYSICIAN WORKFORCE

Here we will review the major schools of thought regarding the current state of the physician workforce. Each approach we describe has validity in terms of predicting the surgeon supply relative to demand in the coming decades, and all have significant shortcomings.

Needs-Based Models

Developing and applying a needs-based model for physician workforce projections is conceptually straightforward. Ideally, a needs-based approach allows for estimates of true population need considering changes in technology and health status. In practice, the method involves an assumption that the rates at which surgical work is performed (per population) remain constant over time and that population growth therefore directly engenders an increase in surgical output. To the extent that the surgical workforce does not grow to meet this increase, there is a workforce shortage. In the last decade, several studies have applied this approach to forecast growth in surgical work; 2 examples are described here. In 2003, Etzioni et al16 found that, as a result of an expanding/aging population, there would be a 31% increase in surgical work between 2001 and 2020. More recently, Williams et al17 estimated that, in 2030, there would be a 9% shortage in the general surgical workforce, with greater shortages in other surgical specialties.

Economic Models

The number of physicians in the United States per capita has grown substantially faster than the population. This observation lies at the heart of a school of physician workforce forecasting described in a 2002 study by Cooper et al.18 Their approach, termed a trend model, is based on the assumption that there is a causal relationship between economic growth and the number of physicians per capita (Figure 1). Other factors also considered in the trend model are population growth, physician work effort, and the availability of nonphysician clinicians. Based on this model, the physician supply will be significantly inadequate to the demands of the population by 2020.

Dartmouth Model: Benchmarking Using Regional Variation

Since the 1970s, Wennberg and colleagues at Dartmouth have analyzed regional variations in rates of surgical procedures and concentrations of medical and surgical specialists. The degree of the variation in regional physician supply is significant; in a recent report by Goodman et al., the number of physicians per capita was 1.6 times higher in high-supply regions compared with low-supply regions (Figure 2).19 A natural question arises: is the quality of care worse in regions where physician supply is lower? According to the analyses from the Dartmouth group, the answer is “No.” Patient satisfaction, quality of care, and access to care appear to be no different. Based on these findings, Skinner, Goodman, and Fisher stand against a growing belief that a looming shortage of physicians will compromise quality of care in the US.
Although there are several contrasting opinions about the current surgical workforce, most existing policies focus on addressing an overall shortage. In 2006, the Association of American Medical Colleges released a statement advocating an increase in medical school positions by 30% during the 10-year period beginning in 2002.20 While enormously important, such an increase would have no effect on the rate at which trained physicians are produced. Because approximately 25% to 30% of physicians in residency training positions are international medical graduates, this policy action would only serve to displace international medical graduates from domestic training programs. If the number of physicians in the United States is to increase, then the residency caps from the Balanced Budget Act need to be repealed, a move that was proposed in the Resident Physician Shortage Reduction Act of 2009, currently in committee in the US Senate. This bill proposes a 15% increase in the number of residency positions funded through Medicare. Of great interest to general surgeons should be the language included in this piece of legislation, in which specific preference is given to " . . . hospitals that submit applications for new primary care and general surgery residency positions . . . " While it is tempting to look at such action as an appropriate and timely reaction to a future physician shortage, it is important to consider the timeline in which such changes might occur. An immediate 15% increase in residency training positions would only result in an increase of 7.5% in trained general surgeons after a 20-year period (assuming a 30-year career in practice).

Focus on Regional Workforce Issues

The adequacy of the surgical workforce should be considered not only in terms of its size, but also its distribution relative to the demands/needs of the population. The regional variation in physicians and surgeons documented by the Dartmouth Atlas highlights this point. Why worry about a 10% shortfall when there are 50% differences across different regions in the United States? Rural areas in particular are known to have a ratio of surgeons to population that is significantly lower than nonrural areas.21,22 If the goal is to alleviate shortage, simply increasing the number of general surgeons will not necessarily lead to an increased supply of surgeons in the areas where the need is greatest. Research has shown that new physicians preferentially settle in areas where supply is already high.23 Simply increasing the surgical workforce is a blunt method by which to address regional shortages of surgeons.

What policy levers are available to redistribute surgeons from areas of relative abundance to areas with relative shortage? Geographically focused recruitment/retention with immigration visas, loan forgiveness, and other incentives need to be discussed as ways to optimize the delivery of care by a workforce that is not distributed according to patient needs. The activation of these policy levers would ideally be armed with valid, reliable methods for measuring and reporting the adequacy of surgeon supply within specific regions.

Develop Methods for Reliably Determining the Adequacy of the Surgical Workforce

Validated measures that meaningfully measure and report the adequacy of the surgical workforce need to be developed and implemented. It is in this area that we believe the greatest work needs to be done. Most recent reviews of the status of the surgical workforce are based on surgeon to population ratios, a calculation that is insensitive to regional differences in patient demands and physician practice patterns. A more useful system would investigate the ability of patients and hospitals to access surgical treatment. To best guide policy efforts, this type of system should be detailed enough to analyze specific types of surgical care, including hospital/emergency department coverage, subspecialty surgical services, and trauma care. This information is needed to inform policymakers involved in responding to issues regarding the regional availability of surgical services. Without significant advances in measures that track access to treatment, the policy debate will continue to be driven by opposing analyses of secondary data. The American College of Surgeons is ideally placed to take a leadership role in developing and reporting these types of measures.

**COMMENT**

During the last 2 decades, the general surgical workforce has remained remarkably stable in terms of overall numbers but has slowly declined in terms of the number of surgeons per population.24 Unless the rate at which general surgeons are trained increases, the number of general surgeons per population will continue to decline. The extent to which these decreases will result in worse access to care or quality of care is difficult to predict. Surgical leadership, especially the American College of Surgeons, needs to become more engaged in this process to ensure its appropriate progress. The health of our patients and communities depends on it.

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