

HEALTH POLICY REPORT

New Steam from an Old Cauldron — The Physician-Supply Debate

David Blumenthal, M.D., M.P.P.

The debate about the physician workforce is back. Just yesterday, it seems, the conventional wisdom was a confident prediction that we faced a worrisome surplus of physicians.¹⁻³ But today, a swelling chorus of experts contends that we may face an equally worrisome shortage of physicians.^{4,5} The shift has occurred suddenly enough to inflict cognitive whiplash on policymakers and physicians who have not been schooled in the arcane science of projecting the supply of and demand for physicians. Indeed, some observers may be tempted to conclude that assessing workforce needs is a fool's errand, one that is too technically difficult and too mired in controversy to be useful.

To dismiss this reemerging debate, however, would be a mistake. Those with the patience to look beyond the clashing numbers will find much to learn from the controversy over the current and future adequacy of the supply of physicians. Physicians have always been vital to the health and the health care of their patients. Appropriately, the present debate raises questions vital to the future of the U.S. health care system. These questions concern, among other subjects, the intrinsic value of health care services, our collective ability to influence the future of the health care system, and the future attractiveness of the venerable profession of medicine.

This report examines the new debate about the physician workforce. First, I review past and current efforts to assess and manage the supply of physicians. Next, I examine the fundamental methodologic, ideological, and social questions that lurk beneath the debate — the debates beneath the physician workforce debate — and I conclude with a comment on the ways in which policymakers are likely to react to the revival of this controversy.

A SHORT HISTORY OF THE PHYSICIAN SUPPLY AND ITS MANAGEMENT

FROM FLEXNER TO GMENAC

In some ways, the history of the physician-supply debate begins, like so much else in modern medicine, with the Flexner report, which was published in 1910. Implicit in this document was the conclusion that the United States at the time had an oversupply of poorly trained physicians that had been produced by an unregulated, largely proprietary system of medical education.⁶ One effect of the revolution that resulted from the Flexner report was a decrease in the supply of physicians owing to the closing of medical schools that were considered educationally deficient. Between 1900 and 1930, the ratio of physicians to the population in the United States fell from 173 per 100,000 to 125 per 100,000⁷ as the medical establishment sought to produce “fewer but better doctors.”⁶

During the Depression and World War II, no major reassessment of the supply of physicians was conducted. A 1932 report by a commission on medical education concluded that the supply of physicians in the United States was more than ample as compared with ratios of physicians to populations in Europe.⁸ There was some modest expansion in the number of physicians as medical schools were built in areas with growing populations. The number of medical school graduates had increased to levels that obtained before the Flexner report by the early 1930s and grew in parallel to the growth of the U.S. population in the years from 1930 to 1960.⁶ However, after a long period of “professional birth control”⁷ in the early 20th century, these graduation rates were not sufficient to raise substantially the physician-to-population ratio, which totaled 140 per 100,000 in 1960.⁸

The conventional wisdom with regard to the physician supply gradually changed after World War II.

The change reflected a number of forces, including the expectations of a more affluent public, the growing demand for places in medical schools as the number of college graduates increased, and pressure from underserved rural and inner-city areas.⁶ In comparison with current ratios of applicants to acceptances of approximately 2:1,⁹ in 1950, acceptance to medical school was a herculean task. Only 1 of every 3.4 applicants was accepted. The American Medical Association (AMA), and even some medical school deans, stoutly resisted proposals to expand the number of medical school slots.⁶⁻⁸

The tide turned, however, with the publication in 1959 of the report of the Surgeon General's Consultant Group on Medical Education (the Bane report), which predicted a shortage of approximately 40,000 physicians in the United States by 1975. In Ludmerer's opinion, "The Bane report became the most influential and effectual report on medical education" since the Flexner report.⁶ The Kennedy and Johnson administrations responded in the 1960s by successfully championing legislation that subsidized medical schools to grow in number and size. Between 1965 and 1980, the number of medical schools increased from 88 to 126, and the annual number of graduates grew from 7409 to 15,135.^{6,7}

The scientific basis for assessments of the physician supply during the first 75 years of the last century was less than impressive in the view of Eli Ginzberg, the distinguished late health economist and scholar of workforce policy. As he wrote in 1989, "Neither the restrictive policies of the first four decades of this century, nor the expansionary policies of the postwar era were formulated and implemented on the basis of demand and supply for physician services."⁸ This critique, however, could not be fairly leveled at the nation's next adventure in assessing the supply of physicians, which came in the report of the Graduate Medical Education National Advisory Committee (GMENAC) in 1981.

FROM GMENAC TO Y2K

The modern age of planning the physician workforce really began with the GMENAC report, which was the result of a painstaking, analytic effort directed by a distinguished panel of experts that was chaired by Alvin Tarlov, then the chief of internal medicine at the University of Chicago.¹⁰⁻¹² Convened in the late 1970s to provide advice to the Department of Health, Education, and Welfare (the precursor of the current Department of Health and Human Services) on issues related to the physician

workforce, the panel attempted to forecast the supply of and need for physicians for the years 1990 and 2000. Its projections were based on the best available data and on a number of assumptions with reference to epidemiologic and demographic trends in the population of the United States, rates of the production of physicians and of the immigration by physicians to the United States, and physicians' choice of specialty and geographic distribution. On the basis of diseases and specialties, the GMENAC panel tried to predict the number of physicians that the population would require and the extent to which the requirement would be met. The panel concluded that, if nothing changed, the United States would have a surplus of 145,000 physicians by the year 2000, or 23 percent of the projected supply of 643,000.¹¹ The GMENAC report recommended restricting both the number of places in medical schools and the number of graduates of international medical schools permitted to immigrate.

In response to the report, in 1981 Congress discontinued general federal support provided to medical schools for the education of new physicians. This congressional action, however, addressed only one of two important determinants of the physician supply — the number of graduates of U.S. medical schools. The other important determinant is the number of graduates of foreign medical schools who are admitted to postgraduate training in the United States, in addition to graduates of U.S. medical schools. Shortly after acting to curb the supply of graduates of U.S. medical schools, Congress inadvertently provided teaching hospitals with an incentive to increase the numbers of graduates of foreign medical schools entering training programs. As part of the 1983 Medicare hospital-reimbursement reforms that created the system of diagnosis-related groups, Congress provided extra payments to teaching hospitals to cover the special costs associated with medical education and other academic functions, such as research. These so-called graduate medical education payments increased with the number of trainees, and hospitals responded by increasing the number of interns and residents. Though the number of graduates of U.S. medical schools increased only modestly during the next 20 years, the number of trainees in U.S. hospitals grew substantially, expanded by an influx of graduates of foreign medical schools (Fig. 1).

The GMENAC report was the first of several au-

thoritative analytic exercises conducted in the following 15 years that used a variety of methods to reach roughly the same conclusion. In 1986, Congress created the Council on Graduate Medical Education (COGME), which was charged with providing the federal government with continuing advice on workforce-related issues. In a series of reports issued in the early 1990s,^{1,13} the COGME concluded that the United States would face a surplus of about 80,000 physicians by the year 2000. The council also predicted a dramatic and excessive growth in the number of specialist physicians (from 123 per 100,000 population in 1992 to 152 per 100,000 in 2010), whereas the number of generalist physicians (family practitioners, general internists, and general pediatricians) would remain stable and deficient at 67 per 100,000 during the same period.¹⁴

To address these problems, the council recommended policies to ensure that 50 percent of the new physicians would enter generalist disciplines and 50 percent would enter specialties, and that the number of positions available for residency training in U.S. hospitals would be limited to 110 percent of the number of graduates of U.S. medical schools (down from about 140 percent at that time). The figure of 110 percent was intended to restrict the tendency of teaching hospitals to add to the physician supply by hiring graduates of foreign medical schools. The COGME recommendation came to be known as the 110/50/50 rule and was widely accepted by policy experts during the 1990s.

Using a slightly different model, the Bureau of

Health Professions in the Department of Health and Human Services advised Congress that by 2000, the United States would have a surplus of 73,000 physicians.² Meanwhile, Tarlov¹¹ and Weiner³ explicitly incorporated the implications of the managed-care revolution into workforce projections, which the GMENAC could not have foreseen. Noting that managed-care plans in the form of group or staff models, such as Kaiser Permanente, used the services of far fewer physicians to care for their enrolled populations than did plans in the fee-for-service sector, Weiner suggested that the need for physicians would decline as more people enrolled in such plans. He estimated that there would be 165,000 more physicians in the United States by the year 2000 than were required to care for the people in this country.

Faced with this drumbeat of warning, Congress acted to curb the incentive it had created in 1983 for teaching hospitals to recruit more interns and residents. As part of the Balanced Budget Act of 1997, the Medicare program, for the first time, capped the number of residency slots eligible for federal support at 1997 levels.

Ironically, almost as soon as Congress acted to moderate the predicted glut of physicians, the expert consensus behind the prediction of an oversupply of physicians began to unravel. Since the publication of the GMENAC report, a small band of critics had expressed skepticism about the projected surplus.^{15,16} But the work and advocacy of Richard Cooper, former dean of the Medical College of Wisconsin, seem to have precipitated the recent reexamination of previous assessments of the physician workforce.

Cooper's approach is fundamentally different from earlier efforts to predict the number and type of physicians required in the future, and his approach has important implications for health care policymaking across a broad range of issues. Eschewing the microanalysis used in previous workforce studies, Cooper and his colleagues note that there was a very strong correlation during most of the 20th century between the size of the economy, measured as the gross domestic product (GDP) per capita, and the number of physicians in the United States ($R^2 = 0.94$).⁴ They argue that this correlation reflected underlying causal links between the nation's wealth, its demand for health services, and the consequent demand for health professionals to deliver the desired services. On the basis of historical trends, and on the assumption that the GDP per

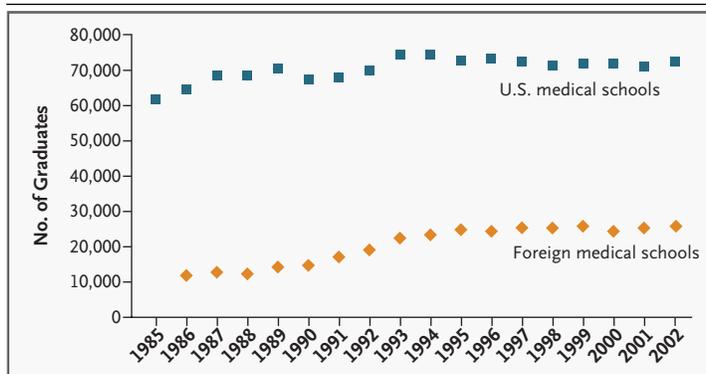


Figure 1. Graduates of Foreign and U.S. Medical Schools in Residency Programs in the United States, 1985 through 2002.

Graduates of Canadian medical schools and graduates of osteopathic schools are included in the numbers for U.S. medical schools. Data are from the Medical Education Theme Issues of the *Journal of the American Medical Association* from 1986 through 2003.

capita will grow at a rate of 1.5 percent to 2.0 percent annually through the year 2020, Cooper and his colleagues predict that the demand for physicians will exceed the supply by about 50,000 physicians in 2010 and by about 200,000 in 2020. His prediction allows for substantial growth in the number of non-physician clinicians (nurse practitioners, physician assistants, and nurse midwives), without whose services the effective deficit in the number of physicians would be even greater.¹⁷

The work of Cooper et al. suggests that the correlation between income and the demand for physicians' services is stronger for specialty care services than for primary care services. Thus, he projects that the need for specialty services will increase much faster than the need for primary care services, contradicting the conventional wisdom that specialty growth must be constrained, and the supply of primary care physicians increased. The coming deficits, his work predicts, will be most dramatic for specialty and subspecialty physicians. These changes will come to pass even though the number of active physicians in the United States grew from 459,555 (202 per 100,000 population) in 1980 to 779,723 (276 per 100,000) in 2000 and is projected to reach 887,000 (283 per 100,000) in 2010.^{4,18}

Cooper's work might have had less effect if not for some tantalizing confirmatory evidence drawn from the real world — the health care equivalent of the nonevent known as Y2K. The year 2000 arrived, and as Michael Whitcomb, vice-president for medical education at the Association of American Medical Colleges (AAMC), put it, "No one saw a real doctor on the [street] corner selling pencils." In fact, anecdotal evidence began to hint at deficiencies in certain specialties such as pulmonary critical care medicine, anesthesia, and radiology.^{19,20} Surveys of residents who were leaving training in New York and California in 2002 showed that specialists in these states received an average of 4.3 and 4.0 job offers, respectively, whereas generalists received 2.7 and 2.9, respectively.²¹ At least judging by the experience of young doctors in these two states, there was clearly no surplus, and the data seemed to confirm Cooper's prediction that shortages of specialist physicians would exceed those of primary care physicians.

Taken together, Cooper's persuasiveness, the health care equivalent of the Y2K effect, and these bits of data have profoundly shaken the medical establishment's view of the physician supply. Recent analyses undertaken for the COGME by Edward

Salsberg of the University of Albany, who is a respected specialist in issues related to the physician workforce, suggest that a shortage of 85,000 physicians could occur by the year 2020 (Salsberg E: personal communication). Carl Getto, who chairs the council, said in an interview that the possibility of a shortage is "real, if relative." Getto believes that previous projections overestimated the effects of managed care and underestimated the effects of an aging, chronically ill, and increasingly demanding population on the need for physicians. "Measuring demand is the difficult issue" in assessing the adequacy of physician supply, he concludes.

The COGME plans to issue a revised report on physician workforce policy sometime this year, but according to news reports, the council may already have decided that a shortage in the number of physicians is probable and that medical schools should consider expanding their enrollments.²² Last year the AAMC abandoned its earlier prediction of a surplus of physicians, stating that instead it was undecided on the subject of the future supply and that it was creating the Center for Workforce Studies to monitor the issue in the future.²³ At the December 2003 meeting of its House of Delegates, the AMA also abandoned its previous projections of physician surpluses.

DEBATES BEHIND THE DEBATE

HOW MANY DOCTORS ARE ENOUGH?

The debate on the physician workforce would be simpler to understand, but less interesting, were it not for disagreements about the methods that are used to predict the supply of and demand for physicians in the future.²⁴ Roiling beneath the technical disputes are strongly held views about the value of all medical care services and whether our health care system can or should be reformed. In this regard, the most instructive argument concerns the question of how to predict the demand for physicians — that is, how to decide how many are enough at any given time.

Analysts have used two general approaches to estimating the future demand for physicians.²⁴ The first approach, in which history is used as the main guide, assesses past levels of the use of physicians' services, tries to identify the forces that influenced these levels, and then predicts the future need by projecting these forces forward. Implicitly or explicitly, this approach takes the historical levels and patterns of investment in health care as ei-

ther desirable or inevitable. The work of Cooper et al. falls into the category of estimations based on this approach.²⁵ Having concluded on the basis of experience that “the major trend affecting the demand for physician services is the economy,”⁴ they predict the future demand on the basis of predictions of growth of both the GDP per capita and the population.

The second general approach to predicting the demand for physicians rejects historical patterns of the use of physicians’ services as a guide to the need in the future. Instead, proponents of this approach ask how many doctors we ought to have or, more specifically, how many would be required to take care of the U.S. population in a properly organized health care system. Critics of the analysis of Cooper and colleagues largely fall into this camp.²⁶⁻²⁹ Their predictions of the current and future numbers of physicians required are, for the most part, based on one or another benchmark, according to which they identify places or systems that provide care of similar quality to that provided elsewhere in the U.S. health care system with the use of lower physician-to-population ratios. For Weiner,³ the benchmark is the health maintenance organization, in both the group model and the staff model, which uses 30 percent fewer physicians per 100,000 enrollees than the national averages for other types of health care arrangements. For other analysts, the benchmark is geographic areas in which health care expenditures and physician-to-population ratios are lower than the national averages.^{25,26,28} Of course, implicit in the findings (or, more correctly, recommendations) of analysts who hold this view is the assumption that the United States can muster the political will and wisdom to reform our health care system in order to improve its efficiency dramatically.

In fact, the argument about the proper approach to estimating the demand for physicians has grown larger than a dispute about methods. Underlying the different technical approaches are fundamentally different attitudes toward the health and evolution of our health care system. With the resumption of increased spending for health care, economists have begun to argue about the implications of these increases for health care in particular and for the U.S. economy in general. Some economists have suggested that the return on investment in health care is reasonable and that we can afford much larger health care expenditures.^{30,31} Proponents of the physician-deficit theory tend to em-

brace this view. Other economists, however, have expressed concern, seeing the growth in health care expenditures as excessive and dangerous to the economy. Proponents of the physician-surplus theory generally share this belief.³²

The physician-supply debate is therefore now enmeshed in and inseparable from a larger discussion about the value of the services physicians provide and the future of the health care system — how big it should be, how to organize it, and whether its trajectory can be controlled. Proponents of the deficit theory argue that ignoring or resisting inevitable increases in the demand for physicians’ services will only lead to “public discontent” and invite other health care professionals to take over the roles traditionally played by physicians.⁴ Proponents of the surplus theory seem to believe that constraining the supply of physicians is one way to begin restructuring our health care system in order to improve its rationality and efficiency.

Stepping back from the debate, observers may reasonably infer the following. If the past proves to be prologue in our health care system, and if the growth in spending continues unabated, then the demand for physicians’ services is likely to increase and the prediction of physician deficits may very well materialize, thus vindicating the deficit theory. If the growth in spending slows — either of its own accord or by means of policy interventions — then the need for physicians may decline accordingly. The result could be an excess of physicians and the validation of the surplus hypothesis.

THE HEALTH OF THE MEDICAL PROFESSION

If a shortage of physicians were to materialize, then a question that would logically arise is whether we could find sufficient numbers of physicians of high quality if we needed them.³³ The answer depends to some degree on the attractiveness of medicine as a career in the early 21st century, which is a matter for considerable discussion at present.³⁴

New physicians can be either imported from abroad (as postgraduate trainees or fully trained physicians) or educated in medical schools here. The former strategy raises troubling ethical questions about our obligations to less developed nations.^{35,36} Furthermore, at a time when health care issues are increasingly global in nature and infectious diseases such as the severe acute respiratory syndrome (SARS) spread quickly across national borders, the health of the U.S. public increasingly depends on the effectiveness of health care systems

in other countries. A strategy of consciously recruiting graduates of foreign medical schools, especially from the developing world, could weaken the systems in other nations and thus increase the United States's long-term vulnerability to emerging infectious illnesses.

Increasing the number of graduates of U.S. medical schools would, therefore, seem to be the preferred option. This, in turn, would require medical schools to attract sufficient numbers of qualified applicants. Recent trends have not been encouraging. Having peaked at nearly 47,000 for the academic year 1996–1997, the number of applicants to medical school fell to 33,625 in 2002–2003, below the 1982–1983 level of 35,720. This decline means that there are now 1.9 applicants for each medical-school place, down from 2.7 in 1996–1997 and 2.1 in 1982–1983.⁹ Even the number of female applicants, which had grown through the 1980s and early 1990s, dropped to 16,556 last year, as compared with more than 20,000 in 1996–1997. Although, as Zuger³⁴ points out, changes in the number of applicants tend to be cyclical, a reversal of the current sharp downturn cannot be predicted with certainty.

Several factors influence the number and quality of aspiring physicians, including the number of college graduates and the attractiveness of medicine as a career as compared with the alternatives.³² The second factor has increasingly become a concern in recent years, despite the retreat of managed care.

One important influence on a career's attractiveness is financial. Medical students now graduate with an average educational debt of \$103,855, up from \$80,462 in 1997.⁹ This burden undoubtedly deters some medical school candidates, but its full implications need to be assessed with reference to the return on investment for purchasing a medical education as compared with buying training of another sort, such as training for law or business. A 2002 study³⁷ concluded that for physicians entering "procedural specialties" including gastroenterology, cardiology, and ophthalmology the return on investment in a medical education in 1997 was similar to that for an investment in law and somewhat greater than that for an investment in business. For primary care physicians, the return on investment was considerably below the return for law, business, procedural medicine, or dentistry, which is revealing in the light of the recent drop in the number of medical school graduates entering primary care. One possible conclusion is that the

figures for medical-student indebtedness exaggerate the financial problems facing the profession, although certain branches of medicine, such as primary care, are unlikely to compete well financially.

Finances, of course, are not the only influence on the attractiveness of a profession. Medicine continues to have powerful humanitarian and intellectual appeal, and it is encouraging to note that, despite declines in the number of applicants, the academic qualifications of applicants have not eroded over time.⁹ Nevertheless, concern has grown about the quality of professional life.^{34,38,39} Recent data suggest that career satisfaction among physicians declined in the mid-1990s but has now stabilized.³⁸ As Mechanic points out, some of the forces complicating doctors' lives — pressures for efficiency and accountability and increasing demands from patients — are universal in a globalized, high-tech economy and thus affect potential alternative career choices as well.³⁸

The physician-supply debate therefore leads directly to a controversy about whether the profession itself is in trouble. For those who believe that our health care system is bloated and wasteful and needs to shrink, reducing the appeal of medicine as a profession may simply be part of the prescription for a trimmer medical sector. Beyond that, objective measures of the profession's status do not support the pervasive impression of crisis. Nevertheless, if concern about the future supply of physicians helps to spur action to improve the professional lives of the next generation of physicians, the result might benefit not only doctors but also their patients.

THE POLICY RESPONSE

As the physician-supply debate is reheating, a logical question is whether it will capture the attention of policymakers at national or local levels. If Cooper and his colleagues turn out to be correct, and expanding the number and size of medical schools proves necessary, this expensive undertaking will be very difficult without substantial public investment. Alternatively, preventing the continuing increase in health care expenditures that is likely to fuel the need for more physicians will require dramatic reforms in public policy to constrain health care spending.

At the current time, questions about the supply of physicians are simply off the radar screens of most federal policymakers. Historically, the federal

government has been slow to act on issues related to the supply of physicians and has waited for evidence of public distress, a firm professional consensus, or both before acting either to augment or to restrain the number of physicians. There is at present no indication that shortages of physicians have captured voters' attention, and experts and professional groups are far from a consensus on the adequacy of current or projected workforce numbers. In fact, according to Michael Whitcomb of the AAMC and Barbara Barzansky of the AMA, both these organizations seem to be admitting defeat in the effort to predict the required number of physicians, and, for now, neither plans to take a definite position on this issue. Despite the likely conclusion by the COGME that a physician deficit looms, the suddenness of the council's change in view, together with the reticence of the AAMC and the AMA, may well give policymakers pause. Therefore, it seems exceedingly unlikely that Congress or the executive branch will venture into the debate on the physician supply anytime soon.

Action seems more likely to occur at the state level. Physician-to-population ratios vary considerably among the 50 states, and in the South and the West, where the population growth is most rapid, the supply of physicians and the medical-education capacity have not kept up with the growth in population. Thus, in 2001 the medical school slots per 100,000 population in Texas and California were 24.5 and 15.6, respectively, as compared with the U.S. average of 27.1 (Salsberg E: personal communication). Texas and Florida have already established new medical schools. However, any large initiatives at the state level to increase the capacity for training medical students are unlikely to occur until state governments recover from the fiscal troubles that have overtaken them in the past four years. It will therefore be some time before the states address real or perceived shortages of physicians.

In the meantime, the debate with regard to the supply of physicians is likely to continue and even escalate, as will the controversies that underlie and fuel it. On at least one point, all sides seem to agree. The reemergence of the discussion about the numbers and composition of our physician workforce is healthy in itself. Salsberg, for one, believes that complex efforts to project the number of physicians needed 20 years into the future are misguided (Salsberg E: personal communication). Instead, we should continually review the adequacy of the

supply for each subsequent three-to-five-year period, taking into account the supply of all health professionals, physicians and nonphysicians. If this approach makes the debate more intelligible and credible to health professionals and policymakers, the change will be welcome. However, the drawback of this approach is the length of training to become a physician and thus the long lag in time between the implementation of policy interventions and any resultant changes in the number of physicians. Increasing the frequency of assessments of the physician workforce will not necessarily lead to a more effective and rational workforce policy, something that seems likely to remain a critical, but elusive, goal for the profession and for the larger society.

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