Cite this article as:
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Physician supply and the U.S. medical marketplace
*Health Affairs* 11, no.1 (1992):235-243
doi: 10.1377/hlthaff.11.1.235

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How individual and institutional decisions affect physician specialty distribution in the United States is a complex, mysterious, and uniquely American process. It is not, as one might suppose, a straightforward market interplay of supply and demand. Yet, how physicians are distributed according to specialty has important implications for the medical marketplace—for what kinds of care are given, who receives it and where, and how much it costs.

Compared with other countries, the United States stands alone in the high proportion of physicians who are specialists (and in the correspondingly low proportion who are generalists). Even more singular is the decentralized, uncoordinated way in which we make decisions about how many medical students we should train in the various specialties. Currently there are about twenty practicing physicians per 10,000 Americans, a ratio somewhere below the median for developed countries. Although this is slightly above the ratios of Canada, Australia, New Zealand, and the United Kingdom, it is considerably below those of Italy, Germany, Belgium, France, and the Scandinavian countries. In these other countries, however, from 25 to 50 percent of physicians are specialists, but in the United States—even if we include general internists and general pediatricians in the generalist camp—the proportion of specialists is upward of 70 percent. (Since the total supply of physicians simply equals the number of generalists plus the number of specialists and since physician supply experts generally agree that in the United States this total supply is now about right, we have equilibrium: more specialists means fewer generalists and vice versa.)

The number and types of specialty positions are tightly controlled in most other countries, either by a central governmental body (as in the United Kingdom) or through spending caps (as in Canada). In some countries—notably the Netherlands—payers limit the number of spe-
cialists eligible for reimbursement. By contrast, the U.S. approach is complex and totally voluntary; our academic medical leaders make most decisions about the need for various residency and fellowship positions. These decisions determine the ultimate mix of specialists and generalists.

Of course, a benefit of the relatively high proportion of specialists in the United States is the essential lack of queuing for elective surgery (at least for those patients without financial barriers to care). Nevertheless, this benefit must be weighed against the costs of the current generalist-to-specialist ratio—overuse of costly procedures, inadequate access to generalists’ services, and excessive medical care expenditures.

After reviewing current physician distribution in the United States, two prestigious bodies, the Council on Graduate Medical Education and the Association of American Medical Colleges, have urged changes in the ratio of generalist to specialist physicians in the direction of more generalists and fewer specialists. Despite these recommendations, however, there exists no current federal physician supply policy. Indeed, our current national policy contradicts itself: one federal agency advocates that the country would be better served if we had more generalist and fewer specialist physicians, while another pays doctors with incentives that favor specialism at the expense of generalism and is content to support residency training that produces the very specialty mixture that is currently under scrutiny. Part of the difficulty in changing this specialty mix stems from the voluntary, complicated, and uncoordinated system of graduate medical education.

**The U.S. System Of Graduate Medical Education**

At the hub of our nation’s five-part system of graduate medical education are the academic health centers. These centers produce all U.S.-trained physicians and control the bulk of the residency positions through their teaching hospitals, including Department of Veterans Affairs (VA) and public hospitals. Second, physician licensing is a responsibility of the states and usually requires graduation from an accredited medical school, training in an accredited residency program, and passing a standardized examination, such as that given by the National Board of Medical Examiners. Third, the Accreditation Council on Graduate Medical Education (ACGME) accredits residency programs. Membership on this council consists of representatives of five organizations: the American Medical Association (AMA), the American Hospital Association, the Council of Medical Specialty Societies, the American Board of Medical Specialties, and the Association of American Medical Colleges. The ACGME delegates its accreditation
responsibility to residency review committees within each of the twenty-three specialty fields. These committees are composed of members appointed by the AMA's Council on Medical Education, the appropriate specialty board, and, in some cases, the specialty society (for example, the American College of Surgeons). Most residency review committee participants are current or former faculty members of academic health centers. Fourth, specialty certification is the responsibility of the American Board of Medical Specialties and its twenty-three specialty boards. As with the twenty-three residency review committees, membership on the specialty certification boards is heavily dominated by academicians. The fifth and final spoke of the graduate medical education wheel is the system of payment for residents' stipends and their associated administrative expenses. In most hospitals, funds for these purposes come almost exclusively from payments for patient care, with the government the largest payer via Medicare and Medicaid. (In VA and public hospitals, residents' salaries and expenses are usually a direct line-item expense.) By this means, payment for residency support is uncoupled from decisions about the mix of specialties within a given hospital.

A startling aspect of this system is the lack of any formal checks and balances among these five sectors, although informally, within each specialty, memberships of the residency review committees and specialty certification boards overlap considerably. The dominant voice in each of these bodies is that of academic medicine. The net result of this voluntary system of graduate medical education is virtual autonomy for academic health centers, especially the teaching hospitals and the academic clinicians who sponsor—and indirectly regulate—residency programs. However well or poorly these health centers perform their educational coordination role, their payment is guaranteed by third-party payers, including federal and state government. No national mechanism exists to regulate residency slots according to specialty; each teaching hospital decides how many residents it wants in each of its residency programs, subject only to the approval of the pertinent residency review committee. (Theoretically, a committee could reduce residency positions in a specialty threatened by oversupply, by either shrinking the number of positions in existing programs or terminating entire programs. The committee would have to justify its actions solely on considerations of program quality, however, or invite protracted scrutiny by the Federal Trade Commission.)

Oversupply of specialists. The oversupply of specialist physicians presents a problem in the United States, because Americans do not have enough health problems to keep all of our specialists appropriately occupied. The imbalance between the prevalence of disease and the capacity to treat it means that we have very high rates of expensive,
invasive procedures, which often result in only marginal improvements in health. Rates of coronary artery bypass surgery are often cited as an example. In 1978, the United States far exceeded any other country in the frequency with which this procedure was performed, with 483 procedures per million citizens. The next-closest country, the Netherlands, performed 150; the United Kingdom, 74; Sweden, 37; (formerly West) Germany, 25; and France, 19. In 1987, 1,373 procedures per million citizens, plus 588 angioplasties per million, were performed in the United States. Although figures for 1987 are available only for the United States, it is known that the rate of increase in performing bypass surgery was slower in the other countries.

The nation's investment in the surgeons and technology to perform this type of surgery, not rates of coronary artery disease, predicts the frequency of coronary artery bypass surgery in various countries. The United States has many more cardiologists, cardiac surgeons, anesthesiologists, cardiac catheterization laboratories, and cardiac operating suites per capita than do other countries and correspondingly higher rates of coronary surgery. Similar patterns exist for other high-technology services, such as diagnostic imaging, neurosurgery, treatment for end-stage renal disease, and cancer chemotherapy. While no one can say what the "right" number of various procedures should be, a growing body of persuasive evidence indicates that between 20 and 50 percent of commonly performed procedures in the United States could be avoided without harming the health of the public. Current policy approaches to the problem of overused procedures focus only on pricing interventions (for example, reducing what Medicare pays for invasive procedures) and attempts to put forth guidelines for surgical interventions. Yet, inevitably, the major factor determining our high rate of surgery is our capacity to perform it.

Systematic overuse of any costly procedure—even if we accept the 20 percent estimate—has enormous financial implications. Each year, we may spend at least $2 billion for unnecessary coronary artery surgery alone. For each of these unnecessary procedures—at about $30,000 apiece—we could fund two full-time home health aides for a year.

Here the issue of equity becomes salient: costly, high-technology procedures are available mostly for people with Medicare or private insurance; low-technology services, such as home health aides, are rarely covered by insurance yet are beyond the financial means of many chronically ill people. Thus, we have achieved a system of elite care for the well insured, while the basic health needs of some 42 percent of our population—the estimated thirty-five million uninsured and seventy-five million underinsured—are in jeopardy.

Another problem with excess specialist capacity is that, given the
epidemiologic reality that disease prevalence is too low to support all of these specialists, many will serve as part-time generalists. Though some may relish this opportunity, others will not. They, their patients, and policymakers, too, may be dissatisfied with the result, because when specialists practice outside their field of competence, they provide more expensive care. An excess of specialists even carries some health risks. If physicians have too few patients in their specialty to hone their technical skills or preserve competence, patients are exposed to extra risk. And if excess capacity increases unnecessary procedures, then predictably a certain (usually small) percentage of patients will have needless complications, and some will die.

**Shortage of generalists.** Meanwhile, a nation that is awash in specialists has too few generalist physicians, say many physician supply experts, and is not providing access to basic health care services for its citizens. While policymakers’ current attention focuses on the many people without access to health insurance coverage, inadequate access to generalist physicians also persists in inner cities and many rural areas. People respond to this in ways that are inefficient and expensive—they use emergency rooms for nonurgent care, or they go without care. In the latter case, they miss opportunities for prevention and early intervention, as well as for case management of any complex medical problems. And, if universal coverage for basic health care does come to pass, the resultant surge in demand will surely swamp the generalist capabilities of our current health care system.

The decline in generalism is a function of changes within the practice of medicine and within the “factory” that produces physicians: the academic health center. Whatever the causes of this decline, currently less than a quarter of graduating medical students express an interest in a generalist career, and that proportion has been decreasing steadily during the past decade.\(^\text{11}\) Dissatisfaction among practicing generalists, which may spill over and affect medical students, stems from several factors: lower income potential and the expectation of a more modest lifestyle, the administrative burden of cost containment programs—which falls disproportionately on office-based, high-volume practitioners—and the lesser prestige society accords to generalists.\(^\text{12}\)

Recent studies from several medical centers, supported by data from national surveys, indicate that students’ medical school experience is critically important in determining their career choices. The relative absence of generalist role models in medical schools, the undue concentration of clinical training within tertiary care hospitals, the values and biases of the faculty—as reflected in their contacts with students and their decisions on admissions committees—and perhaps the fear of acquired immunodeficiency syndrome (AIDS) all contribute to students’
decisions regarding which residency program to enter.\textsuperscript{13}

At this point, one might ask, why not let marketplace pressures determine students’ career choices? There are two reasons not to do so. First, the market is imperfect. In particular, academic medicine (the source of production) is driven by the parochial interests of academic health centers, not by societal needs; physician payment reform (the price), which is being phased in incrementally, will not have an impact for several years; and patient choices (demand) regarding care are not made in a conventional way, between competing goods, but instead are greatly influenced and controlled by physicians. Second, the negative consequences of an imbalanced generalist-to-specialist ratio are sufficiently important to warrant active, rather than passive, interventions. Fostering such interventions is a role for both public and private agencies; The Robert Wood Johnson Foundation, the nation’s largest health care philanthropy, is pursuing this actively.

\textbf{Role For The Robert Wood Johnson Foundation}

Because the nation’s physician specialty mix is such a critical issue, it is a key element in programs addressing at least two of The Robert Wood Johnson Foundation’s three program goals (assuring access to basic health services for all Americans and promoting system reform for people with chronic disorders), as well as its interest in health care cost containment. At a minimum, the foundation’s efforts can help clarify why specialty distribution is an important national policy issue and what steps might be taken to improve it. By supporting research and policy analysis, the foundation can help shed light on physician payment issues and on the tangled questions of demand versus need for physician services. Through its grant programs, the foundation can strengthen incentives for producing a more appropriate mix of physicians throughout the continuum of medical education.

Changes in physician supply policy take many years to be felt but also have long-term implications. (The average physician will practice medicine for about forty years after finishing medical school.) The foundation, unlike public policymakers, has the luxury of the long view on this complex problem and need not expect immediate results. However, because of the success of many of our past programs directed toward one of the key actors affecting the generalist/specialist mix—the academic health centers—good results appear both possible and probable.

During the next few years, The Robert Wood Johnson Foundation will introduce a number of programs intended to increase the proportion of generalist physicians. Two approved in 1991 are described below; others are under consideration.
The Generalist Physician Initiative. Under this $32.7 million challenge-grant program, medical schools will collaborate with a wide variety of public and private agencies to increase the number of generalist physicians. Each site funded will develop a comprehensive strategy for increasing the supply of generalist physicians throughout the continuum of training—admissions, undergraduate medical education, residency training, and practice entry and support. Some program interventions will be implemented internally by the schools and residency programs; others will require the collaboration of private insurers, provider institutions, and state governments.

Sample interventions include scholarship opportunities and debt forgiveness programs for future generalists; increasing medical students’ exposure to community settings and generalist physician role models during the preclinical years; informing medical students and residents about employment opportunities within health maintenance organizations (HMOs) and group practices; working with state governments to structure financial incentives for schools to increase the number of generalist residents; developing partnerships with state Medicaid agencies and private insurers to change reimbursement policies that affect graduate medical education (for example, through enhanced payment for generalist residency positions or for time spent by residents in community-based ambulatory care settings); and providing support for practicing community-based generalists, such as night call and weekend relief, locum tenens arrangements, continuing education, and teaching opportunities. Up to eighteen medical schools will be awarded one-year development grants to plan their projects and work out necessary agreements. These schools will then compete for up to twelve six-year, $2.5 million implementation grants.

The foundation will give priority to applicants that show the greatest potential for increasing the number of graduates entering generalist residency programs and increasing the number of practicing generalist physicians, by virtue of related recent or proposed efforts, strong collaboration between the undergraduate medical school leadership and generalist residency programs, staffing and financial commitments from the school and a diverse set of partners, technical and political feasibility, plans to document the project’s effectiveness, and a high likelihood that lasting changes will occur.

Practice Sights: State Primary Care Development Strategies. This $16.5 million challenge-grant program will challenge states to improve the distribution of primary care providers in medically underserved areas. Organizations with statewide impact (such as government agencies, state universities, or primary care associations), in collaboration with local community provider groups and health professions schools,
will develop statewide models to recruit, retain, and support primary care physicians, nurse practitioners, physician assistants, and certified nurse midwives in medically underserved areas. This program is intended not only to help increase the number of primary care practitioners in these underserved areas, but also to improve financing policies and practice environments to help communities keep their medical personnel.

Again, one-year development grants will be awarded to up to fifteen states; from these, up to ten will be selected for three-year implementation grants averaging $800,000 each. States awarded implementation grants also will be eligible to apply for low-interest loans averaging $700,000 per site to develop loan funds to help both private practitioners and community health centers establish financially viable practices. Four essential goals of each state’s comprehensive strategy will be a statewide needs assessment; improvements in the state’s capacity to recruit primary care practitioners to underserved areas; improvements in retaining practitioners; and improvements in the financing and policy environment, such as fee increases for Medicaid and other state-funded insurance plans, state tax credits, malpractice premium subsidies, and special incentive payments for primary care practitioners who work in underserved areas.

Other programs under consideration by the foundation would improve the academic environment for generalist faculty physicians or support efforts to increase private physicians’ role in meeting the basic health needs of underserved groups.

Unless such programs catalyze significant public- and private-sector action to change the generalist/specialist physician mix in the United States, we will continue to be trapped in a costly irony: too many physicians providing high-technology, specialized services mainly to people with generous insurance plans and too few practitioners providing the basic health services needed by everyone. Because changes in physician supply policy take a long time to be felt, the foundation does not expect immediate returns from investments in this area. While it is certainly possible to change the mix of specialists and generalists, to do so will require reduction of some of the societal disincentives that exist—particularly the payment structure that now so heavily favors specialists. The Robert Wood Johnson Foundation’s support of this area confirms our belief in the importance of the composition of our nation’s physician supply and its impact on access to care, service coordination, cost-effectiveness, and disease prevention.
Members of the National Advisory Committee for the Generalist Physician Initiative are Samuel O. Thier (chairman), John Ball, Roy Butler, Jocelyn Elders, Nancy Gary, Robert Graham, David Greer, Laurence Haspel, Robert B. Johnson, Bill Kerr, David Kindig, Fitzhugh Mullan, Kay Orr, Thomas Pyle, Howard Rabinowitz, and Eduard J. Stemmler. The initiative will be directed by Jack Colwill.

NOTES

3. Schroeder, “Western European Responses to Physician Oversupply.”