SPECIAL ARTICLE

A REPORT CARD ON THE PHYSICIAN WORK FORCE IN THE UNITED STATES

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IN a 1992 report,[1] the Council on Graduate Medical Education concluded that deficiencies in the physician work force, the medical-education system, and public policy would hinder efforts to provide high-quality and affordable health care for all people in the United States. A surplus of specialists, shortages of minority physicians and generalists, poor geographic distribution of physicians, and inadequate training of physicians in key practice skills were identified as problems. A series of national goals were recommended that, if attained by the year 2000, would result in a physician work force better suited in composition and skills to respond to health care needs. These goals included limiting the number of federally funded first-year resident positions to 110 percent of the number of graduates of U.S. medical schools in 1993; ensuring that at least half of graduates who complete training each year begin careers in family practice, general internal medicine, or general pediatrics; doubling the number of African American, Hispanic, and Native American medical students; eliminating shortages of primary care physicians in specific areas; and improving the skills of practicing physicians.

The 1992 report[1,2] and a 1994 report[3] assessed trends in the physician work force and proposed specific legislation to help attain these goals. During the national debate on health care reform in 1993 and 1994, the proposals were discussed extensively.[4,5] Despite the failure of the reform effort, the financing and delivery of health care in the United States are changing rapidly, and imbalances in the work force remain highly relevant. The movement from fee-for-service coverage to capitation and the growth of integrated systems of managed health care[6,7] profoundly affect requirements for the physician work force,[8-10] medical practice,[11,12] and medical education.[13-16] Some believe regulatory intervention will be needed to bring the physician work force into balance,[17,18] whereas others[19] argue that market forces will align the future supply of physicians with the demand for them. This article constitutes a report card on the physician work force in the United States.

THE SUPPLY OF PHYSICIANS

Physician-to-Population Ratio

The supply of active allopathic and osteopathic physicians (those working in patient care, teaching, research, and administration) has grown dramatically. From 1970 to 2000, the number of active physicians will increase from 156 to 261 per 100,000 members of the population, and the number of physicians in patient care will nearly double, from 115 to 203 per 100,000. Graduates of foreign medical schools accounted for 23 percent of active physicians in 1990, as compared with 18 percent in 1970.[20] The supply of physicians is projected by the Bureau of Health Professions of the Department of Health and Human Services to continue to outpace the growth of the population into the early 21st century (Fig. 1).

Residents

Of the 108,064 residents in training in 1993–1994, 5729 (5 percent) were in programs approved by the American Osteopathic Association, and 23,757 (22 percent) were graduates of foreign medical schools (Fig. 2). The total number represented an increase of more than 4000, or 4.3 percent annually, in just the three years between the 1990–1991 and 1993–1994 academic years.

A disproportionate number of residents are in the northeastern states. The five leading states — New York, Massachusetts, Pennsylvania, Rhode Island, and Connecticut — have more than 57 residents per 100,000 population. New York is first, with 84 residents per 100,000 population.[21] Residents who graduated from foreign medical schools are also unevenly distributed (Killian C, Association of American Medical Colleges: personal communication). In 1993–1994, 56 percent of these residents began their training in five states — Illinois, Michigan, New York, New Jersey, and Pennsylvania — accounting for 45 percent of all first-year residents in those states. In the other 45 states, graduates of foreign medical schools represented 19 percent of all first-year residents.

Of the 25,127 first-year allopathic and osteopathic residents in 1993–1994, 17,330 graduated from medical schools in the United States, and 6747 from foreign medical schools. The latter account for about 70 percent of the recent increase in the number of first-year residents. The number of first-year residents in 1993–1994 was more than 7000 higher than the number recommended by the Council on Graduate Medical Education, which proposed limiting the number of federally funded first-year resident positions to 10 percent more than the number of graduates of U.S. medical schools in 1993.

MIX OF GENERALISTS AND SPECIALISTS

From 1965 to 1992, the number of generalist physicians (defined as those in family or general practice,

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The views presented are those of the authors and not necessarily the official position of the Council on Graduate Medical Education.

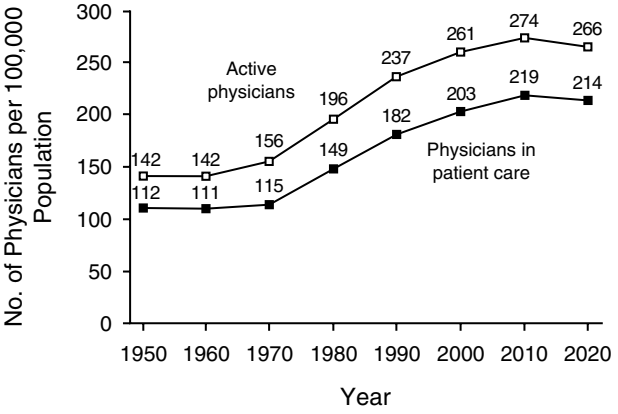

Figure 1. Numbers of Active Physicians and Physicians in Patient Care per 100,000 Members of the Population, 1950 through 1990, with Projected Numbers through the Year 2020.

Data for 1950 through 1990 are from the American Medical Association Physician Masterfile (1995) and the Biographical Records data base of the American Osteopathic Association as compiled by the Bureau of Health Professions. The projected data are from the physician-supply model of the Bureau of Health Professions.

general internal medicine, or general pediatrics) increased by only 13 percent, to 7 per 100,000 population, whereas the number of specialist physicians increased 121 percent, to 124 per 100,000. As a result, the proportion of physicians practicing as generalists decreased from 51 percent to 35 percent (Fig. 3). Currently, 34 percent of allopathic physicians and 56 percent of osteopathic physicians are generalists. Of the 1990 graduates of medical schools, an estimated 28 percent completed residency training and began careers as generalists, far below the goal of half of each graduating class of residents proposed by the Council on Graduate Medical Education. This figure included 25 percent of graduates of schools teaching allopathic medicine (Killian C: personal communication) and 58 percent of graduates of schools teaching osteopathic medicine.[22]

Several hopeful signs may be noted. First, 27 percent of 1994–1995 graduates of allopathic medical schools expressed an intention to pursue generalist careers, up from 14 percent in 1991–1992.[23] In addition, more than 3000 first-year residency positions in allopathic family practice were filled in 1994–1995, the largest number in history.[22]

Minority Groups

A net increase of 19,000 physicians from underrepresented minority groups (Hispanics, African Americans, and Native Americans) entered the work force during the past decade. However, the ratio of these physicians to their respective racial or ethnic populations remained lower than the ratio of all active physicians to the overall population (unpublished data). Among African Americans, there were 73 active physicians per 100,000 population in 1990, as compared with 51 per 100,000 in 1980. The comparable figures for Hispanics were 132 and 129, and for Native Americans, 50 and 36, respectively.

The number of applicants, entrants, and graduates from underrepresented minority groups has increased since 1988. The number who applied to medical school increased from 3300 in 1988–1989 to 5935 in 1994–1995. In 1994, a record 2487 African Americans, Hispanics, and Native Americans entered allopathic and osteopathic medical schools, as compared with 1882 in 1988. In 1994, these entrants accounted for 12.9 percent of all entrants (8.9 percent of those entering osteopathic schools and a record 13.4 percent of those entering allopathic schools), as compared with 10.6 percent in 1988. Although the trend is favorable, the number of minority entrants is still substantially below the council's goal of 3350 minority students in the two types of schools together. The number of medical school graduates from underrepresented minority groups also increased between 1988 and 1994, from 1345 to 1495, or from 7.8 to 8.6 percent of the total number. The proportion of minority members of medical school faculties increased very little in this period, from 3.2 percent to 3.6 percent at allopathic schools and from 2.3 percent to 2.6 percent at osteopathic schools.[24]

Geographic Distribution

Despite a net increase of 125,000 physicians entering the work force over the past decade, the number of areas with shortages of primary care and the number of people without access to primary care services is increasing. From 1992 to 1994, the number of generalist physicians needed for the areas of primary care shortage to be served at the minimal level of 29 physicians per 100,000 population (1 generalist per 3500 people) increased from 4533 to 5085 physicians; for these areas to be served by 50 physicians per 100,000 population

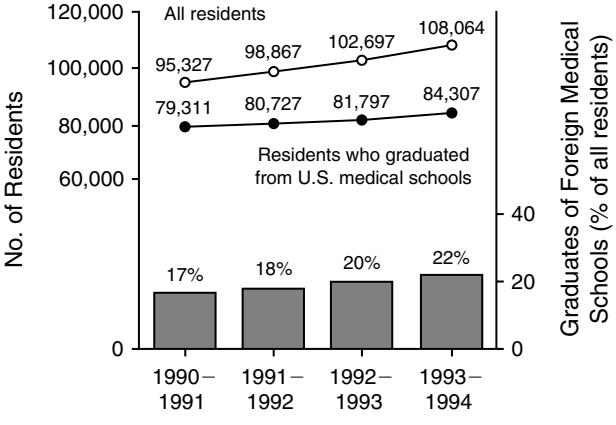

Figure 2. Numbers of Residents and Residents Who Graduated from U.S. Medical Schools, with the Proportion Who Graduated from Foreign Medical Schools.

Data are from the Biographical Records data base of the American Osteopathic Association and the Tracking Census: Student and Applicant Information Systems data base (1994) of the Association of American Medical Colleges, as compiled by the Bureau of Health Professions.

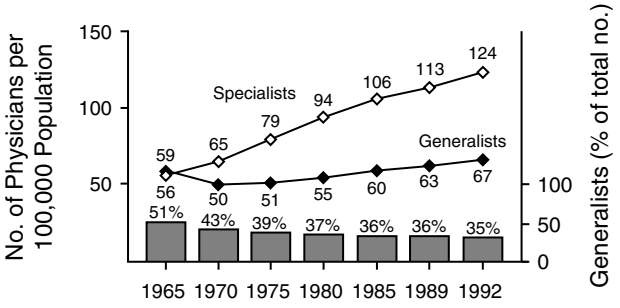

Figure 3. Numbers of Specialist and Generalist Physicians per 100,000 Members of the Population, 1965 through 1992, and the Percentages of Generalists among the Total Number of Physicians.

Data are from the American Medical Association Physician Masterfile (1995) and the Biographical Records data base of the American Osteopathic Association as compiled by the Bureau of Health Professions.

(1 generalist per 2000, a figure more in line with managed-care staffing patterns), the number of generalists needed increased from 10,582 to 11,708.[25]

In rural counties with fewer than 50,000 inhabitants, the ratio of generalist physicians to members of the population has decreased since 1990. This decrease is almost entirely the result of a decline in the number of family physicians, who make up the vast majority of practicing generalists in these communities.[26] It is encouraging that graduating residents in family medicine continue to seek employment in communities of all sizes in proportions similar to the distribution of the general population.[27,28]

There are 1900 physicians in the National Health Service Corps who provide primary care in underserved communities. The number of scholarships for this program plummeted from 2300 in 1979 to fewer than 200 in 1991. It is now increasing, but only to 429 as of 1994.[29]

Physicians' Skills

Survey data suggest that physicians are not optimally prepared to meet their patients' health care needs. Graduates of allopathic medical schools, who are surveyed each year by the Association of American Medical Colleges, often cite inadequate training in practice management, cost-effective practice, preventive care, and the care of ambulatory patients. In comparison, few complain about their training in the care of hospitalized patients. A 1991 survey of young practicing physicians indicated that only 60 percent felt they were well trained to provide preventive care, only 41 percent to provide cost-effective care, and only 32 percent to coordinate patient care with community resources and services. Two thirds responded that they would have liked more training in physicians' offices and managed-care settings.[30] Medical directors of health maintenance organizations (HMOs) who recruit residents believe that the majority of generalist physicians in training are poorly prepared for managed-care practice.[31]

Discussion

Data indicating that the supply of physicians in the United States continues to grow faster than the general population are of great concern. Barring drastic changes, this trend will continue for another 20 years. It is generally agreed that between 145 and 185 physicians in patient care per 100,000 people is an appropriate ratio for a system dominated by managed care early in the 21st century.[32] The current supply of physicians (about 200 physicians per 100,000, or 1 for every 500 persons) already exceeds this estimated staffing requirement, and further increases are inevitable over the next two decades unless there are policy changes. Most analysts of the work force agree that the underemployment or unemployment of specialist physicians in the early 21st century is a distinct possibility in the United States, as is now the case in several European countries. The increasing participation of nonphysician professionals in work previously performed only by physicians will make the projected surpluses even greater.

Another factor fueling the growth in the supply of physicians is the Medicare policy for funding graduate medical education, through which teaching hospitals are paid on average more than $70,000 for a portion of a resident's time, and much more than that in many urban academic centers. These payments interfere with the signals the marketplace is sending hospitals, since they make residents relatively inexpensive for these hospitals. The 4 percent annual growth in the number of residents primarily results from increased numbers of graduates of foreign medical schools. In its Seventh Report,[33] the Council on Graduate Medical Education called for reducing Medicare payments to graduates of such schools as a strategy for discouraging teaching hospitals from becoming dependent on them. This controversial position can be misunderstood in the current climate of immigration. We acknowledge the important contributions that graduates of foreign medical schools have made and will continue to make to medicine and science in the United States. Yet the Medicare policy has had the unintended consequence of attracting growing numbers of such graduates into a pool of residents for whom medical work may be unavailable. We do no one a favor by continuing this incentive.

Extensive analysis indicates that only by reducing the number of graduating residents to 110 percent (or less) of the current number of graduates of U.S. medical schools — that is, by having 7000 fewer first-year residents enroll each year — will the supply of physicians be brought into line with staffing requirements by 2010. Reports of the growing difficulties physicians encounter in finding employment may increase the pressure to reduce this number, as well as to reevaluate the number of medical students in the United States.

Market-driven estimates of the optimal distribution

of specialists within the overall supply of physicians have generated further debate. According to the Council on Graduate Medical Education, from 85 to 105 specialists and from 60 to 80 generalists will be required per 100,000 members of the population in the future. Comparison with the available supply suggests that we now have a moderate need for more generalists and a substantial surplus of specialists. Estimates from most other analyses agree with this conclusion, including those that take into account staffing requirements in managed care. Establishing a nationwide goal that at least half of all residency graduates begin generalist careers seems prudent, if not overly conservative.

There is a paradoxical decline in the supply of generalist physicians in smaller rural communities despite the growing physician surplus. There are anecdotal reports that increasing demand for generalists by HMOs may be enticing such physicians away from rural America. The federal definition of areas with a shortage of primary care physicians continues to be based on the assumption that approximately 30 physicians are needed per 100,000 population. This number was chosen because it originally represented the lowest quartile of national physician-to-population ratios. Increasing the number to 50 physicians per 100,000 (which may still be a low standard, according to managed-care estimates) would result in the need for almost 12,000 additional generalist physicians in these areas. Current market forces can be expected to do little about this problem. Universal health insurance would draw providers, especially much-needed family physicians, into many of these areas. Until this happens, locally targeted financial-incentive programs are needed to improve the imbalance.

Goals for the representation of minority groups in medicine are needed in order to address the health needs of minorities. Although the success of the recent effort to increase minority enrollment in medical schools is to be applauded, it is far from enough even to approach a goal of parity with the minority population in the next 50 years, given the expected growth of that population (unpublished data). No current strategy will yield the appropriate proportions.

Similarly, we are only beginning to address the questions of what specific skills, curriculums, and training venues are optimal for this era of managed care and the increasing focus on the health of the population. Nonetheless, it is apparent that substantial incentives in the Medicare policy toward graduate medical education must be reversed in order to encourage less training in the hospital and more in community, primary care, and managed-care settings. Similarly, private-sector leadership from the academic, professional, and managed-care communities is essential to revise standards, policies, and procedures for accreditation and certification and actively build new educational partnerships between academic institutions and managed-care systems if today's medical students and residents are to be adequately prepared for tomorrow's systems of managed health care.

We recognize the need for more timely data and diverse types of information, since change is happening quickly in local markets and is often not reported to the public. We suggest that a collaborative private–public effort be made to collect anecdotes and report local developments as rigorously as possible, for wide distribution and to inform decisions. Finally, we urge those concerned with issues of the physician work force to track trends carefully, since several indicators reported here show that we are departing further from the desirable composition of that work force with every day we fail to act.

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