

The Physician Workforce and Financing of Graduate Medical Education

American College of Physicians*

This paper addresses key issues concerning the physician workforce and the financing of graduate medical education. The American College of Physicians recommends the establishment of a national advisory organization to develop a coherent and coordinated national policy on the health professions workforce. Given the increasing oversupply of physicians, the College recommends that no new medical schools be created, that total enrollment in U.S. medical schools not increase, and that the number of international medical graduates entering residency training in the United States be restricted. All health care payers should share the cost of graduate medical education, funding should be predictable and stable, and funding should include ambulatory training sites. The number of first-year residents should be linked more closely to the annual number of medical graduates in the United States, and Medicare payments for medical education and training should be made only to the health maintenance organizations that actually incur these costs. The College advises that hospitals providing care primarily to underserved populations and indigent persons need stable funding with which to pay for personnel to replace residents.

The College calls for research to evaluate the feasibility of establishing a voucher system, in which each resident would receive payment authorization certificates to fund training at accredited residency sites. Additional research is also recommended to distinguish the individual costs involved in graduate medical education from other costs associated with graduate medical education and the costs of care of indigent persons.

This paper is also available at <http://www.acponline.org>.

Ann Intern Med. 1998;128:142-148.

* This paper, written by Jack A. Ginsburg, MPE, was developed for the American College of Physicians Health and Public Policy Committee (HPPC) and the HPPC Workgroup on Physician Workforce and Financing of Graduate Medical Education. Members of the HPPC were Whitney W. Addington, MD, FACP (*Chair*); Phillip D. Bertram, MD, FACP (*Vice-Chair*); John M. Eisenberg, MD, MACP; William M. Fogarty, MD, FACP; Nancy E. Gary, MD, MACP; David J. Gullen, MD, FACP; Janice Herbert-Carter, MD, FACP; Richard Honsinger Jr., MD, FACP; Stephan L. Kamholz, MD, FACP; Derrick L. Latos, MD, FACP; Risa J. Lavizzo-Mourey, MD, FACP; Wayne J. Riley, MD, MPH; Richard K. Tompkins, MD, FACP; and James Webster Jr., MD, FACP. Ex officio members were Gerald E. Thomson, MD, MACP (*Immediate Past President*); Christine K. Cassel, MD, FACP (*President*); William A. Reynolds, MD, FACP (*President-Elect*); and Jock Murray, MD, FACP (*Chair, Board of Regents*). The HPPC Workgroup consisted of Stephan L. Kamholz, MD, FACP (*Chair*); Whitney W. Addington, MD, FACP; Janice Herbert-Carter, MD, FACP; Farouque A. Khan, MD, MACP; Jaan Sidorov, MD, FACP; Jay S. Skyler, MD, FACP; Lawrence G. Smith, MD, FACP; Neal Vanselow, MD, FACP; and Michael Whitcomb, MD. This paper was approved by the Board of Regents on 19 March 1997.

How well the supply of physicians in the United States matches national, state, and local health care needs has profound implications for public policy. Surpluses or shortages of physicians among specialties and the geographic distribution of physicians affect the access, quality, and cost of health care throughout the United States. The U.S. government and state governments traditionally have striven to ensure that the public receives medical services of the highest quality, that medical services are safe and effective, and that providers of medical services have the requisite education, training, and skills. It has also been public policy to encourage and sustain the institutions and resources that are essential for medical education and research and to help ensure that opportunities for medical careers are open to the best qualified applicants. However, the supply of physicians has continued to increase much faster than the U.S. population for more than 20 years, and market forces, enhanced by the growth of managed care, seem to have decreased the aggregate number of physicians required. Although public and private efforts to influence the supply and distribution of physicians have widespread ramifications, a national policy on the physician workforce seems to be nonexistent or to have evolved haphazardly.

Projections of an aggregate oversupply of physicians in the United States have abounded since the mid-1970s (1-8). Meanwhile, the supply of active physicians has more than doubled since 1970 and is expected to continue to increase until 2020 (3-9) (**Figure 1**). Physicians in some specialties and subspecialties are already in oversupply. Estimates of the total number of physicians needed to meet national health care needs vary, but there is growing consensus that concerted action is needed for a coordinated national policy on the health care workforce (10-13).

Despite an abundance of physicians, many Americans do not have adequate access to health care (14). This is especially true for the 43 000 000 Americans who have no health insurance or who have inadequate coverage. Shortages of generalists persist in inner-city areas and rural communities. At a minimum staffing level of only 29 physicians per 100 000 persons (1 primary care physician per 3500 per-

sons), approximately 5085 additional generalist physicians are needed to meet the needs of underserved areas. A staffing level of 50 generalists per 100 000 persons (1 primary care physician per 2000 persons), a level consistent with managed care staffing patterns, would mean that these areas need almost 12 000 more generalist physicians (15).

The increasing supply of physicians has not resulted in the migration of physicians from oversupplied urban and suburban areas to underserved rural or inner-city areas, and the profusion of physicians in some specialties and subspecialties has not prompted an influx of physicians into primary care fields (16). Further untargeted growth in the overall supply probably will not accomplish a more effective distribution of physicians or ameliorate problems of access. Nevertheless, efforts to address the growing aggregate surplus of physicians must be carefully monitored to minimize adverse effects on populations and areas that now have difficulty obtaining health care services and to forestall the creation of new underserved areas (Figure 1).

The marketplace for physician services has increasingly been affected by the growth of managed care and capitated health plans that typically require fewer physicians than traditional fee-for-service plans (17, 18). Discounted fee-for-service has forced physicians to increase patient volume to maintain income, further reducing the total number of physicians required. Many physicians are faced with unprecedented difficulty in finding or maintaining employment, and anecdotes abound about the increasing difficulty of maintaining a clinical practice.

The American College of Physicians endorses efforts to improve the quality and cost-effectiveness of patient care and recognizes that marketplace competition may be an effective means of reducing health care costs. Regardless of the effect on physician incomes, the College is concerned that continued unfettered production of physicians will adversely affect many persons who seek to embark on medical careers and could have serious repercussions for the quality of patient care. Continued pressure to maximize productivity and reduce costs may mean less time for physicians to spend with each patient, greater potential for underservice and missed diagnoses, and diminished career satisfaction.

Marketplace forces alone will not redress the uneven distribution of physicians or ensure that sufficient numbers of health care professionals are educated and trained to meet health care needs in the United States. However, current and predicted surpluses of physicians in certain specialties and subspecialties do not mean that physicians should not be trained in these fields. Similarly, we will continue to need physicians for teaching, faculty develop-

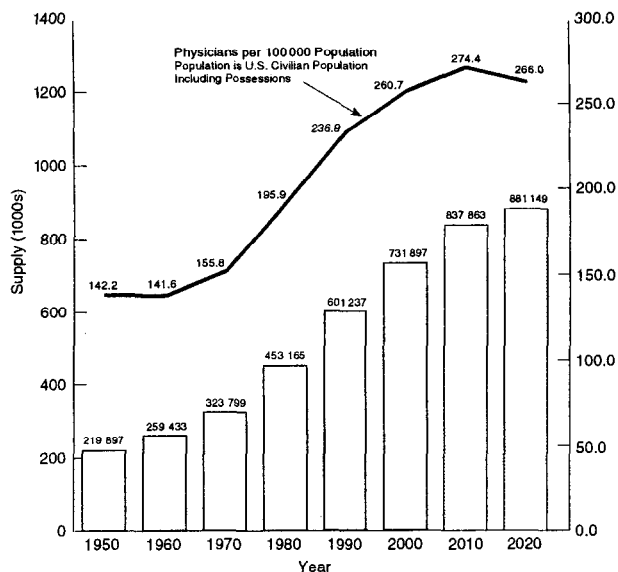


Figure 1. U.S. physician supply and requirements by year. Reproduced from Lohr and colleagues (5).

ment, public health, and research, despite lack of marketplace support for these activities.

Position 1: An advisory planning organization, preferably an independent organization in the public or private sector, is needed to develop a coherent and coordinated national policy on the health professions workforce. This organization should be charged with projecting workforce needs in the dynamic health care marketplace and recommending actions to achieve an optimal balance between supply and requirements for health care personnel.

No effective mechanism currently exists for adjusting the supply of physicians or other health care professionals to approximate national health care needs. The numbers and types of health care professionals being trained are largely determined by the availability of training programs, the number of applicants, and the inpatient service needs of academic medical centers. However, institutional service needs are a poor indicator of requirements for the national health workforce, particularly as patient care has shifted from inpatient to outpatient settings.

In 1994, the College recommended establishing a National Health Professions Workforce Commission with decision-making authority that would not be subject to political interference (19). It recommended that the Commission be granted authority to set targets for the aggregate numbers of physicians to be trained and to allocate postgraduate medical training positions among specialties.

Although a regulatory national workforce commission does not seem politically feasible at this time, the College continues to favor development of a coordinated national policy on the health workforce. The College remains convinced that an independent, national advisory commission is needed to

further refine the process for determining health workforce requirements, make recommendations for national policy, and monitor supply and requirements for each health care profession. Determinations of workforce needs should reflect recognition of the roles of subspecialty physicians in cost-effectively serving the medical and preventive health care needs of patients with acute and chronic illnesses. An advisory commission could play an important role in disseminating information to guide students who are contemplating careers in health care. The commission should include professional representatives of academic medicine and persons who are thoroughly familiar with the intricacies of graduate medical education.

The Medicare Payment Advisory Commission, established by the U.S. Congress in the 1997 Budget Reconciliation Act, examines and develops recommendations for Medicare payment policies and other federal policies that concern teaching hospitals and graduate medical education. The charge to the Commission includes review of federal policies on international medical graduates (IMGs), the need and supply of physicians in the aggregate and among specialties over the next 10 years, and methods for promoting an appropriate number, mix, and geographic distribution of health professionals (20). Although the composition of the Commission is not prescribed, the Commission is required to consult with the U.S. Council on Graduate Medical Education and with experts in various areas of health professions education.

Position 2a: The American College of Physicians recommends the following physician workforce policies concerning the number of physicians graduating from U.S. medical schools.

No new allopathic or osteopathic medical schools should be created or chartered in the United States.

Total enrollment in allopathic and osteopathic medical schools in the United States should not increase.

All candidates for graduate medical education should be required to pass both Step I and Step II of the U.S. Medical Licensure Examination (USMLE) before commencement of residency training.

In the past decade, voluntary efforts by allopathic medical schools in the United States have been largely successful in keeping first-year enrollment relatively constant at about 17 000 students. Total enrollment has ranged from 65 000 to 67 000, and the number of allopathic medical schools has decreased from 127 to 125 (21). However, first-year enrollment in schools of osteopathic medicine has increased from 1724 in 1986–1987 to 2535 in 1996–1997. Total enrollment in osteopathic schools has increased from 6640 in 1986–1987 to 8961 in 1996–1997, and enrollment is expected to continue to

increase because the number of osteopathic schools has increased from 15 to 19 (22, 23).

Meanwhile, the total number of physicians in postgraduate residency training has ballooned from 69 142 in 1982 to 98 076 in 1996–1997 and is now more than 140% of the annual number of U.S. graduates from schools of allopathic and osteopathic medicine (24, 25). Limits on the educational pipeline are necessary to avoid a substantial oversupply of physicians in the United States. There should be at least as many residency training positions as the annual number of graduates of U.S. medical schools because it would be unconscionable to deny U.S. medical school graduates an opportunity to complete their education (much of which is at least indirectly subsidized by public funds) and obtain the graduate residency training required for licensure and independent practice. However, this does not mean that all U.S. medical school graduates should be guaranteed a residency.

All candidates for graduate medical education should be required to pass both Step I and Step II of the USMLE. Competition for residency training could then be based on merit more objectively. In addition, mechanisms must be developed for making comparative evaluations of residency training programs on the basis of quality. The current accreditation process, without scoring or rankings, does not permit such comparisons. Ideally, overall quality could be enhanced if reductions in enrollment could be targeted to the lowest-quality programs. However, legal barriers deter the medical profession from taking any coordinated action to self-regulate its numbers. Denial of accreditation or other restrictions on the basis of determinations of a surplus of physicians in a particular specialty would probably be construed as actions in restraint of trade and would therefore violate federal anti-trust prohibitions.

Position 2b: The American College of Physicians recommends the following physician workforce policies concerning IMGs:

The number of IMGs entering U.S. residency training programs should be restricted.

Opportunities should be expanded for short-term advanced training in the United States for IMGs who will definitely return to their home country upon completion of training.

As postgraduate medical residency training programs in the United States have expanded, the number of training positions filled by IMGs has increased by 100%, from 12 433 in 1980 to 24 703 in 1996 (25). International medical graduates now account for more than 25% of all residents on duty (5). Consequently, a national physician workforce policy must address not only the allopathic and osteopathic medical school pipeline but also the

numbers of IMGs admitted for postgraduate residency training in the United States.

Although IMGs must individually satisfy rigorous certification and visa requirements before admission to the United States for postgraduate medical residency training, no international mechanism exists for accrediting or evaluating the medical schools from which they graduated. All IMGs are required to pass Steps I and II of the USMLE as a condition for certification by the Educational Commission for Foreign Medical Graduates. This Commission also directly verifies students' credentials and requires that they pass an English-language proficiency test. Exchange visitor IMGs who hold J-1 visas must agree to return to their country of origin for a minimum of 2 years upon completion of training in the United States. Their home government must also attest that they will be appointed to a position that will fully use the skills acquired in the United States (26) (Table).

Nevertheless, in 1995, about half of all IMGs completing residency training obtained waivers that allowed them to remain in the United States. Waivers are granted to federal agencies for physicians from abroad whose continued participation in certain programs is deemed to be in the U.S. public interest. Each state government may request up to 20 waivers per year for foreign physicians who agree to work for at least 3 years at a health facility in an area that is federally designated as having a health professions shortage. The total number of waivers granted increased from 70 in 1990 to 1374 in 1995, exceeding the 1267 National Health Service Corps physicians in underserved areas (27) (Figure 2).

To successfully balance physician supply with requirements, the total number of residency training slots available must decrease and the number of IMGs entering the United States for training should be limited. Restricting the number of physicians-in-training from unaccredited foreign medical schools would be less disruptive and more responsive to changing needs than adjusting the U.S. physician pipeline. The process of closing U.S. medical schools only to have to re-open some or build new ones would be costly, wasteful, and impractical. However, the number of visas granted for U.S. postdoctoral training could be readily adjusted. Competition for the limited number of training positions available to IMGs should be based primarily on objective measures of merit, and adjustments to the supply of physicians should be accomplished without discrimination against IMGs in the United States (28).

The College recognizes that the United States has a major responsibility for providing opportunities for the education and training of outstanding physicians and scientists from throughout the world. A selected number of IMGs with great potential

Table. Immigration Status of Physicians in ACGME-Accredited and Combined Specialty Training Programs as of 1 August 1995*

Immigration Status	All Physicians	IMGs†‡
	n (%)	
Exchange visitor (J visa)	9573 (9.8)	9183 (36.8)
Nonimmigrant (H visa)	2618 (2.7)	2363 (9.4)
Permanent U.S. resident	8937 (9.1)	6985 (28.0)
Naturalized U.S. citizen	61 886 (63.1)	2057 (8.2)
Native U.S. citizen	61 886 (63.1)	2057 (8.2)
Refugee	963 (1.0)	862 (3.4)
Unknown	4501 (4.6)	980 (3.9)
Miscellaneous§	827 (0.8)	579 (2.3)
Total	98 035	24 982

* Adapted from reference 27. Percentages may not total 100 because of rounding. ACGME = Accreditation Council for Graduate Medical Education, IMGs = international medical graduates.

† Does not include graduates of Canadian medical schools.

‡ Type of medical school was not indicated for 454 residents (0.5% of all residents).

§ Includes temporary visitors on B-2 visas and students on F-1 visas.

should be supported in their advanced training in the United States as residents and fellows. Although most IMGs would be expected to return to their home countries as leaders in academic medicine and science, it should be recognized that for some, only the advanced medical technology found in the United States will allow them to be productive in biomedical research and development. Such IMGs should be permitted to obtain permanent visas after a period of employment at a recognized academic medical center or research institute, such as the National Institutes of Health. Residency training opportunities must also be maintained for limited numbers of IMGs who satisfy the examination and certification requirements of the Educational Commission for Foreign Medical Graduates and are naturalized U.S. citizens, permanent U.S. residents, refugees, and U.S. citizens who obtained their undergraduate medical education abroad.

Another option would be to designate and fund a certain number of residency training positions specifically for international physician-scientists and researchers. Positions could be awarded on the basis of merit by the decision of a federal scientific advisory board.

Enhanced opportunities should also be available for short-term, advanced postgraduate training in nonresidency programs. An international program could be established to assure high-quality educational experiences for IMGs. Funding could come from the U.S. State Department, with contributions from foreign governments when possible, rather than from the Medicare program. This would enable physicians from throughout the world to obtain the training needed to update their skills for the benefit of the people in their home countries.

Reduced reliance on IMG physicians who have waivers and expanded opportunities for National Health Service Corps placement in underserved ar-

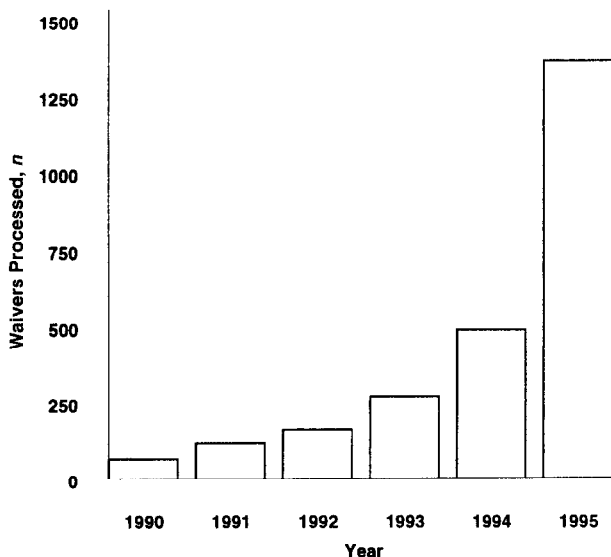


Figure 2. Waivers processed for physicians holding J-1 visas, 1990–1995. Reproduced from reference 27.

eas would be more consistent with long-range health workforce policy goals and the intent of the exchange visitors program. Accordingly, funding for the National Health Service Corps should be increased so that the Corps can be the principal federal program for addressing the health care needs of underserved areas.

Position 3: The American College of Physicians recommends the following actions for funding graduate medical education:

All health care payers should share in the cost of graduate medical education:

Funding should be predictable and stable.

Funding should follow the resident to ambulatory training sites, such as community-based sites at health maintenance organizations, clinics, and physician offices.

Public funding for first-year residency training should be linked more closely to the annual number of U.S. medical school graduates and should only be for training in accredited programs.

The formula for average adjusted per capita cost used by Medicare to determine payments to capitated medical plans should be revised so that payments are made for medical education and training only to plans that actually incur these costs for graduate medical education in accredited residency programs.

Funding for personnel who will replace residents must be available to hospitals that provide care primarily to underserved populations and indigent persons and that currently depend on residents to meet their patient care service needs.

All purchasers of health care services benefit from medical education and research; thus, all should bear their equitable share of these costs. Currently, such payers as Medicare, Medicaid, the Veterans Administration, and some private insurers

provide almost all of the funding for these vital functions, whereas others provide very little or no support. Although Medicare and Medicaid have historically not interfered in curriculum issues, other payers may expect to have a greater role in shaping postgraduate programs in return for assuming a greater share of the costs. However, ultimate control of the content and focus of a curriculum must reside with recognized medical educators. Greater involvement in medical education and research by all payers will better ensure adequate and stable funding and will provide important input for better preparation of the workforce for future employment.

Since 1982, the Health Care Financing Administration has contracted with integrated health care systems to provide services to Medicare beneficiaries in risk-adjusted health plans. Payments per enrollee are 95% of the national average Medicare per capita cost under the fee-for-service system, adjusted geographically by county. The average adjusted per capita cost payment includes compensation for the direct and indirect costs of medical education whether the plan actually incurs educational expenses or not. When a plan uses a teaching facility, no requirement or incentive exists to pass on the capitation premium for education to that institution. The College and others have recommended that Medicare's average adjusted per capita cost payments be adjusted so that the graduate medical education portion of the payment is provided directly to institutions that actually incur the costs of medical education and training (3–5, 17, 29).

As patient care is increasingly provided in outpatient settings, limiting funding for graduate medical education by Medicare or other payers solely to teaching hospitals is not justified. Funding should follow the resident to ambulatory training sites at clinics, health maintenance organizations, and physician offices. However, funding from public programs should only be for residents who are enrolled in accredited programs and should be linked more closely to the annual number of U.S. allopathic and osteopathic medical school graduates. The special needs of public hospitals in major urban centers that depend on housestaff to meet patient service needs must also be recognized. If residency training positions are reduced, permanent replacement funding will be needed to enable these institutions to continue to serve poor and indigent inner-city populations.

Many of the College's recommendations for funding graduate medical education through the Medicare program were enacted by the U.S. Congress in the 1997 Budget Reconciliation Act. The legislation 1) carves out educational components from Medicare capitated payments to risk management plans (average adjusted per capita cost) and

mandates that these funds be paid directly to teaching hospitals, 2) caps the overall number of residency training positions funded by Medicare so that the aggregate number will not exceed the levels funded on 1 January 1995, and 3) permits payments for graduate medical education to be made directly to sites other than hospitals for interns and residents at outpatient settings in approved training programs. The new law also authorizes demonstration projects similar to one already in effect in New York to stabilize funding and encourage voluntary reductions in the number of residents (20). These actions will help counteract previous incentives to increase the number of physicians and rely on hospital-based residents for patient care service.

Position 4: Research should be conducted to evaluate the feasibility of establishing a voucher system for funding graduate medical education.

One option is the establishment of a payment mechanism in which qualified U.S. graduates and a limited number of qualified IMGs would receive vouchers to fund their residency training. The vouchers would represent authorization for payment from a graduate medical education account or trust fund. Funding could consist of payments from Medicare, other federal sources, private health care payers, or a combination of public and private sources. The voucher would be a prerequisite for entry into an accredited residency training program. With assured funding, the voucher could be an effective way to control the overall number of residency training positions. Additional funding for IMGs outside the voucher system might be permitted if funds were provided by the home governments of foreign physicians who would return home upon completion of training.

Vouchers could simply be funding authorizations for accredited graduate medical education, or the value of each voucher could be set annually. The value might be tied to the national average cost of graduate medical education, with adjustments for cost differences by geographic location, size or type of hospital, specialty, year of residency or fellowship, and other factors. The voucher would accompany the qualified medical graduate and generate increased competition on the basis of quality and cost among training programs that seek to attract funded applicants. Vouchers may also facilitate training in outpatient and community-based sites because graduate medical education funds would follow the resident through training.

Disadvantages may include increased bureaucratic obstacles for teaching programs and residents, inadequate recognition of legitimate cost differences, and insufficient funding that could threaten the viability of some institutions. Vouchers for graduate medical education are untested and prompt

many questions. How would teaching hospitals be compensated for additional functions, such as indigent care, services to inner-city populations, faculty development, and research? What adjustments should be made for differences in patient mix? Would residents have to pay for costs not covered by their vouchers? What distinctions, if any, should be made between direct and indirect costs? Who would distribute the vouchers? Which candidates would receive vouchers, who would select them, and to which programs would they be assigned? These questions necessitate further research and analysis to determine the desirability and feasibility of a voucher payment mechanism.

Position 5: Further research is needed to identify separately the direct costs of graduate medical education, other costs associated with graduate medical education, and the costs of indigent care.

Graduate medical education incurs substantial costs. Medicare alone contributes more than \$6 billion per year for its share of graduate medical education costs. However, costs vary widely among institutions. The U.S. Congressional Budget Office estimates that the annual costs of graduate medical education to Medicare range from \$58 000 to \$102 000 per resident in 1993 dollars, depending on the residency program (30). More than \$4 billion of Medicare graduate medical education payments are for indirect medical education cost adjustments to compensate for the additional costs associated with teaching programs. These higher costs are thought to be linked to the more severe and complex illnesses treated at teaching hospitals, the specialized services and advanced technology that are often available only at these hospitals, the added financial burden of providing care to patients without sufficient means to pay fully for their care, and the additional costs of diagnostic testing and supervision attributable to training residents. It is not clear which costs should be considered costs of graduate medical education and why costs vary so greatly among institutions.

The large amounts of federal money involved, the uncertainty about the justification for higher costs, and the growing disparities of costs between teaching hospitals and other types of hospitals make Medicare funding for graduate medical education increasingly vulnerable to budget cutting. The 1997 Budget Reconciliation Act will progressively reduce indirect medical education payments from the 1997 level of 7.7% for every 10% increment in a hospital's resident-to-beds ratio to 5.5% by the year 2001. The law also requires the Secretary of the U.S. Department of Health and Human Services to study the variations among hospitals in direct costs of medical education for overhead and supervision and to report back to the U.S. Congress (20).

Although it is difficult to isolate the costs of education from those of patient care, accurate cost information will be necessary if adequate funding for graduate medical education is to be ensured. This will be true whether funding is provided through the existing financing structure, an all-payer system, or a payment mechanism that uses vouchers.

Conclusions

For more than two decades, the number of graduate medical residency training positions and the aggregate supply of physicians in the United States has far exceeded national physician workforce requirements. However, millions of Americans do not have adequate access to health care services, and physicians are not optimally distributed geographically or among specialties. Despite numerous studies warning of impending physician surpluses, no concerted national effort has been made to balance physician supply with requirements. Market forces, abetted by the growth of managed care, are beginning to affect physician employment and career opportunities and to raise serious concerns about potential effects on the quality of health care.

Many of the College's recommendations on graduate medical education, particularly those on funding by Medicare, were enacted by the U.S. Congress in the 1997 Budget Reconciliation Act. However, efforts to achieve a health professions workforce that is more in line with needs in the United States will be ineffectual as long as the number of residency training positions continues to expand, the number of osteopathic school graduates continues to increase, unlimited numbers of IMGs remain in the United States after completion of residency training, and physician workforce decisions are made without regard to the supply and distribution of other health professionals. A coordinated national policy on the health workforce is needed.

Note: This is an abridged version of the position paper approved by the American College of Physicians Board of Regents. For copies of the full text, contact Jack A. Ginsburg, MPE, American College of Physicians, 700 Thirteenth Street, NW, Number 250, Washington, DC 20005.

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