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AUTHOR Hadley, Jack
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ABSTRACT

This Digest is a summary of the principal policy implications from Medical Education Financing: Policy Analyses and Options for the 1980s, comprehensive policy analyses of options for financing both undergraduate and graduate medical education. Five general classes of options are evaluated: (1) reimbursement reforms, (2) loan programs, (3) scholarship programs, (4) institutional support, and (5) nonfederal governmental programs. This report also provides background information on the structure, organization and financing of the medical education system: the National Health Service Corps; the history of federal legislation affecting medical education; and econometric studies of the relationship between physicians' earnings and specialty and location decisions. The evaluations are based on thorough reviews of existing research and the application of theoretical and empirical analyses to new data. Implications for an overall policy strategy for medical education financing are offered. The authors conclude that changes in the system of reimbursement for health services would have the greatest potential for altering physician distribution and affecting the medical education system. However, because the reimbursement system is complex and changes in it would probably not occur in the immediate future, recommendations are made on a number of options for the direct financing of medical and graduate medical education. (Author/DTT)

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Medical Education Financing: Issues and Options

Jack Hadley, Ph.D.
Urban Institute
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Abstract

This Digest is a summary of the principal policy implications from *Medical Education Financing: Policy Analyses and Options for the 1980s*, comprehensive policy analyses of options for financing both undergraduate and graduate medical education. Five general classes of options are evaluated: reimbursement reforms, loan programs, scholarship programs, institutional support, and nonfederal governmental programs. This report also provides background information on the structure, organization and financing of the medical education system; the National Health Service Corps; the history of federal legislation affecting medical education; and econometric studies of the relationship between physicians' earnings and specialty and location decisions. The evaluations are based on thorough reviews of existing research and the application of theoretical and empirical analyses to new data. Implications for an overall policy strategy for medical education financing are offered. The authors conclude that changes in the system of reimbursement for health services would have the greatest potential for altering physician distribution and affecting the medical education system. However, because the reimbursement system is complex and changes in it would probably not occur in the immediate future, recommendations are made on a number of options for the direct financing of medical and graduate medical education.

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Additional copies of this Digest may be obtained on request from the NCHSR Publications and Information Branch, Division of Academic and External Liaison, 3700 East-West Hwy., Room 7-44, Hyattsville, MD 20782 (tel: 301-436-8970).

Foreword

Among the key health policy issues for the coming decade are the maldistribution of physicians by specialty and location, the pending aggregate surplus of physicians, and the rising costs of medical education and medical care delivery. An important component of any strategy for dealing with these issues will be the methods chosen to finance both undergraduate and graduate medical education. In order to contribute to the formation of a medical education financing policy, the National Center for Health Services Research (NCHSR) has supported analyses of alternative financing options.

This issue of the *Research Digest Series* summarizes the principal policy implications of a forthcoming book, *Medical Education Financing: Policy Analyses and Options for the 1980s*. This book, which is the outgrowth of an earlier NCHSR sponsored report to the Graduate Medical Education National Advisory Committee (GMENAC), evaluates five broad classes of financing options: reimbursement for patient care services, loan programs, scholarship programs, institutional support for medical schools and teaching hospitals, and state and local government programs. Particular attention is given to each option's probable consequences for health costs and physician supply and distribution. Although the poor quality of data and the complexity of the education process hamper rigorous quantitative analyses, the book provides a useful compendium of existing data and information, and their implications for financing policy choices. Wide dissemination of this study and its findings is particularly timely because of the forthcoming Congressional debate over the renewal of the Health Professions Educational Assistance Act of 1976.

The National Center for Health Services Research has long considered studies of health manpower supply, distribution, and financing to be among its priority areas. Research support for GMENAC is but one example of this commitment. We look forward to the continued contribution of NCHSR to health manpower research.

Gerald Rosenthal, Ph.D.
Director

October, 1979

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Introduction

The Health Professions Educational Assistance Act of 1976 will require Congressional reauthorization in 1980. Preliminary Congressional hearings, due to begin in the fall of 1979, will provide an explicit and highly visible forum for the debate over financing medical education. Among other concerns, this debate will focus on the following key issues:

- Should the federal government continue to grant unrestricted subsidies for medical education?
- Are scholarship and loan programs needed for medical students?
- What are the roles of scholarships with service obligations and loans with forgiveness options?
- How much of the cost of medical education should be borne by medical students?
- What kinds of grants should be made to medical schools and teaching hospitals?
- Should capitation grants be continued, and in what form?
- What is the role of state and local governments in medical education financing?
- How does the system of third-party reimbursement for patient care services influence medical education financing and the attainment of health manpower supply and distribution goals?

The policy objectives underlying these issues will be much like those of the 1976 Act, in which Congress declared that there was no longer an insufficient number of physicians and surgeons in the United States. Rather, it found that ". . . there are many areas in the United States which are unable to attract adequate numbers of health professions personnel to meet their needs; and physician specialization has resulted in inadequate numbers of physicians engaged in the delivery of primary care."[1] This view was reiterated and reemphasized in 1978 by Joseph A. Califano, Jr., then Secretary of Health, Education, and Welfare:

> The first tenet of national policy in the health professions area is this: Overall we face in the next decade an over-supply of doctors; unless we change direction we will seriously aggravate the over-supply by the end of this century.

The second tenet of national policy is that we are producing too many medical specialists and sub-specialists—such as surgeons—and there is a corresponding and disturbing decline in the proportion of primary-care physicians.

The third tenet of national policy in the health professions area is this: The doctors we do have are seriously maldistributed in geographic terms.[3]

Thus, physicians' specialty and location distribution continue to be principal foci of health manpower policy. Perceptions about the aggregate supply of physicians, however, appear to have continued their shift: shortage in the 1950s and 60s, sufficiency in 1976, and surplus in the 1980s. Converging with these issues are the goals of reducing the overall cost of medical care and the high rates of increase of medical care expenditures and prices. The data on expenditure and price increases are so striking that containing medical care costs has become one of the most important health policy objectives of the late 1970s. One inevitable result of this shift is a reexamination of both federal and state support for medical education—the nature and amount of that support and the returns to the public's investment.

This Research Digest summarizes the policy implications of recently completed analyses of options for financing medical education. Five basic sets of options were explored: third-party reimbursement, loan programs, scholarship programs, institutional support for medical schools and teaching hospitals, and state and local programs. The policy implications reported below are based on a thorough review of the literature, analysis and examination of existing data on current financing programs and medical schools' and teaching hospitals' finances, and the application of economic theory to certain aspects of the training process.

There are several important limitations to these analyses. First, no attempt was made to determine optimal values for key policy variables. Questions such as how many physicians should we have, how should physicians be distributed, how much should medical education cost, or who should pay for medical education reflect normative issues which require both value judgments about the importance of medical care as well as technical information about the contribution of physicians and medical care to improved health and well being.

Second, the analyses were limited by existing data and research relevant to the issues under investigation. Unfortunately, much of this research has been hampered by severe data problems. Disaggregated information is extremely hard to obtain on physicians' and medical students' financial status, and medical schools' and teaching hospitals' revenues and expenses. Without such data, the results of empirical research on how these actors might respond to variations in financial incentives must be considered

tentative at best. In most cases, therefore, we must be content with qualitative assessments of the directions of possible effects rather than firm quantitative estimates.

Finally, there may be numerous nonfinancial policies which could be important components of any strategy to meet broad social objectives for physician supply and distribution, medical education costs, and medical care costs. These might include curriculum reform, organizational restructuring of the medical college-teaching hospital relationship, increased public (federal and/or state) regulation of both the medical education and medical care delivery systems, and shifts in medical colleges' admissions policies. Consideration of these options falls outside the scope of these analyses.

Implications for medical education financing policy

1. Reimbursement for patient care services

Payments made for patient care services can influence the medical education system in two ways. First, teaching hospitals and medical schools rely on funds generated from treating patients to pay for major portions of their educational activities. As a result, the structure of payment levels among medical specialties, geographic locations, and medical procedures may influence key components of the educational process: the number, specialty mix, and geographic location of residency training programs; the sites at which training is provided; the specialty mix of medical school faculty; and the types of clinical training offered undergraduate medical students.

Second, reimbursement influences practicing physicians' earnings in different specialties, locations, and practice settings. If medical students' and recently graduated physicians' career choices are sensitive to variations in financial incentives, then reimbursement also influences the kind of education which students will seek.

Unfortunately, incentives embodied in the existing payment system appear to be inconsistent with the broad goals set for the supply and distribution of physicians. Physicians' incomes and fees tend to be higher and work-loads lighter in nonprimary care specialties and adequately served geographic locations. Furthermore, usual-customary-reasonable payment systems tend to perpetuate such differences. Teaching hospitals find it easier to finance residency programs in specialties which concentrate on inpatient rather than ambulatory care. (This also corresponds to the pattern of service demand supported by existing insurance coverage). Medical schools have an incentive to hire faculty in nonprimary care specialties because of their ability to generate revenues through medical service plans. Finally, the public medical care financing programs (Medicare and Medicaid) create an incentive for providers to prefer patients covered by private insurance, which offers more generous reimbursement.

Reform of the reimbursement system, therefore, is probably the most powerful of all the financing options considered. Reimbursement provides substantial revenues to both medical schools and teaching hospitals, influences future physicians' career decisions through its effects on physicians'

earnings and, perhaps most importantly, affects the quantity and mix of services provided by currently practicing physicians. These effects occur on a continuous basis and touch all physicians and medical care institutions, not just those engaged in training physicians. Thus, changes in payment methods can have an immediate and direct effect on the delivery of services as well as a long-run impact through shifts in the medical education system.

There are four major areas of potential reimbursement reform: (1) patients' cost-sharing provisions (coinsurance rates and deductibles) in ambulatory and inpatient care settings; (2) relative fee levels among medical procedures, geographic areas, and medical specialties; (3) methods of paying hospitals and the accompanying requirements to distinguish between education and patient care activities; and (4) the multiplicity of payment methods, plans, and coverage.

If training primary care physicians is to be emphasized, then reimbursement for ambulatory medical care services should be provided on a more equal footing with that for inpatient care. If cost were not a concern, this goal could be accomplished in three ways: expanding coverage for ambulatory services, reducing coinsurance and deductible provisions for ambulatory care, or paying for all services on a reasonable cost rather than fee or charge basis. Under these conditions, payment for ambulatory care would mirror that for inpatient care. These options, however, are likely to be very costly, and thus are neither desirable nor politically feasible.

The alternatives are to introduce greater patient cost-sharing for inpatient care, and to reimburse hospitals for services provided rather than for the costs of inputs employed. Arguments against cost-sharing frequently focus on the potential burden imposed on lower income families. Public subsidies for the poor or medically indigent coupled with upper limits on other patients' out-of-pocket payments can solve this problem. Imposing a more even degree of cost-sharing for all services should also make patients more cost-conscious in choosing among alternative treatment options. (Changing the method of hospital payment is discussed below).

The second area of potential reform is physician reimbursement. Existing disparities in fee levels encourage the delivery of nonprimary care services, entry into nonprimary medical specialties, and choice of adequately served practice locations. These disparities should be reduced or eliminated. Simply raising fees for less generously reimbursed services, specialties, and areas would accomplish this objective in the short run, but probably at an unacceptably high cost. Furthermore, the desired balance among fees might quickly erode because the predominant usual-customary-reasonable method of paying physicians places few constraints on what physicians can charge for their services. Thus, reform in this area should have two components: replacing usual-customary-reasonable type reimbursement systems with fixed-

fee schedules, and using fee schedules to gradually realign relative fees so that they are consistent with objectives for the supply and distribution of both medical care services and physicians. In order to be equitable, fee schedules should be developed through negotiations among physicians, insurers, and public representatives. Cost containment objectives could be maintained by allowing relatively lower fees to increase more rapidly than high fees, with the different rates of growth selected in order to attain a predetermined increase in overall expenditures for physicians' services.

A third set of implications concerns methods of reimbursing teaching hospitals for residents' and teaching physicians' activities. Several issues are involved. Are residents' stipends and teaching physicians' salaries educational expenses, and therefore, not reimbursable from patient care funds? How can teaching physicians' alleged practice of submitting bills for services actually provided by residents be discouraged? Similarly, if teaching physicians receive a salary and submit bills for services provided to patients, how can the potential for double payment be eliminated?

These issues are primarily the result of the reasonable cost method of reimbursing hospitals coupled with Medicare's dual approach to paying hospitals and physicians. The former requires distinguishing patient care costs from research and education costs, while the latter requires physicians to separate their professional from their hospital services. Regulatory approaches which attempt to apply these distinctions and impose further definitions of teaching physicians, teaching patients, and preexisting physician-patient relationship are inevitably arbitrary, and thus unfair, confusing, and unadministrable. This dilemma arises because reasonable cost reimbursement and the dual approach to paying for hospitals' and physicians' services are inconsistent with institutional and technical realities. Many hospital outputs are intrinsically joint products provided by the hospital's staff, including non-salaried physicians.

These issues can be dealt with by altering hospital payment methods rather than devising and attempting to enforce more detailed regulations. The basic problem is that reasonable cost reimbursement involves third-party payers in hospitals' internal labor and management decisions, since insurers must ultimately determine what is a patient care cost and whether it is reimbursable. These artificially created problems can be eliminated by paying hospitals in the same way that physicians and, indeed, almost all other producers of goods and services are paid—on the basis of the outputs provided rather than the cost of inputs employed.

There are three possible output oriented approaches which might be considered. Probably the most efficient would be a system of unified charges for each admission or patient stay.[4] In order to account for variations in case mix, charges might vary by primary diagnosis, age, sex, and the presence of multiple conditions. The hospital would then submit a single charge,

based on the above factors for example, which would cover all of the specific services, including physicians' services, provided to the patient. Although some individual cases would undoubtedly be more costly than the permitted charge, these revenue losses should be made up by cases which are less costly. The primary objective is to balance costs and charges in the aggregate, not for every individual case.

A second advantage of this approach is that the question of how to pay teaching physicians and residents would not arise as an issue of public concern. These matters would now be entirely internal to the hospital and its staff. In fact, hospitals and physicians should be permitted maximum flexibility to develop internal labor arrangements best suited to their particular situations. For example, physicians could receive either salaries or fees for individual services provided in the hospital. Existing arrangements need not change; the only difference is that the hospital rather than an insurer would serve as fiscal intermediary for the physician.

A second output based billing option would separate all physicians' charges from hospitals' charges. Under this system, the services provided to a patient by all physicians, including residents, would be identified and billed for separately. If more than one physician is involved in a patient's care, then primary and secondary fees could be applied, in much the same way that they are used to pay surgeons in multi-physician operative procedures. Although more cumbersome than a unified billing approach, dual billing would permit physicians the same degree of independence as under the existing system. From an administrative point of view, however, the key characteristic of this approach is that it would generate a complete accounting of services provided by residents and teaching physicians.

The third possibility is prospective or fixed budgeting which determines *ex ante* what hospitals' revenues will be. This approach encompasses a wide range of alternative procedures. For example, relevant parameters of these programs include: whether the system is voluntary or mandatory; formula versus budget review; the types of insurers covered; the payment unit (total hospital budget, capitation, admission, days, specific service); the method used for grouping hospitals when computing formulae; and the nature of the negotiation process for budget review programs. Thus the likely effects of prospective budgeting depend on the detailed specifications of the method used. Whatever approach is used, however, government inevitably would become involved in hospitals' internal management.

The final policy implication from the analysis of reimbursement and medical education financing concerns the multiplicity of existing insurance and reimbursement arrangements. Differences in how much third parties are willing to pay for the same service create financial incentives for physicians and hospitals not to treat certain classes of patients. This phenomenon is best exemplified by Medicaid patients' difficulties in obtaining care

from private providers. Furthermore, to the extent that patient care revenues contribute to medical education financing, they appear to do so in an inequitable fashion, since only some third-parties recognize educational costs as reimbursable expenses. Therefore, all suggested reforms should be implemented on a system-wide basis rather than for only one or two third-party payers.

Obviously, the potential reforms outlined above would not come easily. Strong political opposition would be mounted by groups (providers and patients) who might suffer income reductions, reduced access, or higher costs. Cost containment considerations limit the extent to which financial rewards can be increased for desired activities without constraining payments for other activities. In addition, the fragmented nature of the existing insurance system poses significant administrative and legislative barriers to reform. From this perspective, prospects for marked changes in the near future appear problematic. Thus, the medical education financing implications of reimbursement reform should be treated as input to the broader debate over medical care delivery, distribution, and cost. When, and if meaningful changes occur, efforts should be made to reconcile the contradictions between current reimbursement incentives and explicit objectives for physicians' supply, distribution and education.

2. Loans and scholarships'

Loans and scholarships are a major component of financing for medical students. Since passage of the Health Professions Educational Assistance Act of 1963, total loan funds have increased from just over $4 million to more than $126 million for the 1977-78 academic year. More than half of all medical students have received loans in recent years, compared to about 20 percent in 1963. Similarly, scholarship funds have grown from roughly $3 million in 1963 to almost $80 million in 1978. Slightly more than 40 percent of medical students now receive some form of scholarship aid, compared with only 16 percent in 1963.

Although loans and scholarships appear to be two distinct financing options, they are in fact closely related. Both are members of a general class of financing instruments which transfer funds directly to medical students or residents. The specific characteristics of a particular loan or scholarship depend on the values of the following parameters: the effective rate of interest, the effective amount of subsidy, repayment schedules, maximum amounts per year and per person, default penalties, and forgiveness options or service obligations.

Several types of loans and scholarships were investigated: subsidized loans, neutral loans, loans with forgiveness options, income-contingent loans, and scholarships with and without service obligations. The primary

focus in analyzing each option was its effect on the net present value of income associated with alternative career choices.[6] Loans and scholarships increase net present value by granting funds during the training period. Any monetary repayments made after training is completed reduce net present value. If the current value of loan or scholarship awards just equal the current value of future repayments, then there is no change in net present value and the loan or scholarship does not affect career choice.[7] This is referred to as an *economically neutral* financing option. If, on the other hand, the current values of awards and repayments are unequal, then the option either grants a subsidy (awards exceed repayments) or imposes a financial penalty. The ultimate impact on career choices depends on the pattern of subsidies and penalties associated with different loans and scholarships, and the sensitivity of career choices to financial incentives.

Medical students have received extensive unrestricted subsidies through scholarships without obligations, grants of unrestricted funds to medical schools, and the availability of loans with implicit subsidies. There was little evidence that unrestricted subsidies either induce specialty and location decisions to be more consistent with public goals or increase equity of access by poor and minority students to medical careers. Given that physicians can expect to earn very high incomes, that the number of qualified applicants for medical training greatly exceeds the number of available places, and that the projected number of physicians is deemed to be adequate, there appears to be little justification for continued unrestricted support of medical education. Thus, such aid should be eliminated, preferably in phases, in order to allow both educational institutions and prospective applicants to adjust to new circumstances.

In the absence of extensive subsidies, the cost of a medical education could become prohibitive for all but the most affluent. This is likely to occur if medical schools choose to make up for lost subsidies by increasing tuition rather than, for example, cutting back programs or reducing faculty size. It is also possible that state and private funding would substitute for reduced federal support. However, if the full loss of revenues is compensated for by tuitions, then they could increase dramatically.

In order to permit students to finance their education out of future earnings, an economically neutral, unsubsidized loan program should be established. This program should permit interest rates to reflect prevailing economic conditions and develop long-term, graduated repayment schedules which result in repayment of the full present value of borrowed funds. Graduated repayments set parallel with expected increases in a physician's earnings lessen repayment burden during practice-building years. The Health Education Assistance Loan program established by the Health Professions Educational Assistance Act of 1976 embodies several of these characteristics and could be easily modified to permit graduated repayments.

Operation of such a loan program appears to be an appropriate task for the federal government because of its absolute advantage, relative to states or private organizations, in raising loan funds through conventional capital market activities. Development of a self-financing loan program would eliminate the need for a separate system of guaranteed student loans.

Prospective applicants from low income and/or minority backgrounds may be less willing to assume large debts if they are uncertain about the odds of successfully completing medical training. Thus, a scholarship program aimed at such students can be justified on equity grounds. The current scholarship program should be extended to include sophomore medical students of exceptional financial need. Because attrition for academic reasons is extremely low after the second year, scholarships should be limited to two years duration with an option to switch to loan funds in the third and fourth years.

Scholarships with service obligations and loans with forgiveness provisions should be continued. The financial subsidies implicit in these programs probably influence some students who would not otherwise do so to practice in underserved areas (or complete primary care residency training). Although these two options are equivalent in terms of their impact on the net present values of alternative careers, there is an important administrative difference. An obligated service scholarship with severe buy-out penalties is a much more binding commitment than a loan with forgiveness options. Thus, scholarships provide greater certainty as to the number of future physicians who will be available to serve in the National Health Service Corps or other federal programs eligible to receive scholarship students. Loans, on the other hand, are more voluntary and give students greater flexibility in making their career decisions. How the balance is struck between these two mechanisms requires a political judgment.

Another point to emphasize is that in the absence of unrestricted funding options, obligated service scholarships and loans with forgiveness options will be most attractive to students with large financial burdens and/or inadequate financial resources. Thus, the amount of unrestricted funds which are available and the terms of the different loan and scholarship programs will influence both the number and background characteristics of students willing to enter obligated service arrangements. Whether the balance between unrestricted and restricted financing is fair or acceptable requires political judgment.

3. Institutional support for medical schools and teaching hospitals

Three general types of institutional support mechanisms were considered: capitation grants, income grants, and special project grants. Like scholarships and loans given directly to students, institutional support can also

change net present values associated with alternative career choices. For example, if one of the effects of capitation grants is to keep medical schools' tuitions low, then the financial return to becoming a physician would be higher for all students. Another example is the program of psychiatry training grants, which supported faculty and residents in psychiatry.[9]

A second and perhaps more important aspect of institutional support mechanisms is that government is given a stronger voice in influencing the structure of medical education. Physicians in training and consumers of medical care are too decentralized to articulate clearly their preferences for change. Furthermore, the existing reimbursement system tends to perpetuate historical patterns of medical education and medical care provision. Thus, government grants to medical schools and teaching hospitals may be particularly important in supporting new or innovative programs, and in enabling government to express public preferences for the number and kinds of physicians to be trained.

From 1965 through 1977, federal funds for teaching and other non-research activities (excluding recovery of indirect costs) accounted for 7 to 15 percent of medical schools' revenues. Support for teaching alone reached a peak of 13.1 percent in 1968, but has declined steadily since then, accounting for only 5.3 percent of total revenues in 1977. Capitation and construction grants are the two largest direct support programs. They comprised about one third of non-research related federal grants to medical schools in 1977. Although these funds are not large relative to federal research and state and local appropriations, they nevertheless are an important source of revenues.

Capitation grants to medical schools were instituted in 1966 to stimulate expansion in medical education capacity and to provide a stable source of funds for medical schools. Thus far, the size of an award has depended on the number of students enrolled in the medical school. (There have also been explicit side conditions for expansions in class size and increases in the proportion of first-year residency positions in primary care.) It is now generally agreed that the enrollment expansion objective has been met. Capitation has not proved to be a stable funding source, however, because of annual fluctuations in actual obligations and the uncertain prospects for continuation of the program.

Three general characteristics of capitation grants should be emphasized. The first is that the use of capitation funds has not been restricted in the past. As such, these awards probably have not directly encouraged physicians to choose primary care specialties or underserved area practice locations. Second, capitation creates a financial incentive to expand whatever activity is built into the capitation formula. So far, this has been enrolling undergraduate medical students. Third, capitation awards need not be limited to medical schools or tied to medical school enrollment at all. The capitation

mechanism could, for example, be used to make grants to teaching hospitals based on the size of their primary care residency programs.

Income grants differ from capitation grants in that their award is independent of the level of any particular activity within the institution. A pure income grant would be made solely on the basis of an institution's engaging in medical education. For example, every medical school or every teaching hospital receives a flat payment. In practice, there are few cases of pure income grants. (Early capitation grant formulas included a fixed grant per medical school.)

If the use of funds from income grants is unrestricted, then they subsidize all of an institution's activities. Expansion of desired programs thus depends on the institution's preferences. Restrictions can be placed on income grants, but this still leads to some subsidy for other activities through the internal reallocation of other revenues. Thus, if control of funds' use is of primary concern, there may also have to be ceilings on the amounts of funds from other sources directed to restricted activities. The more restrictions imposed, the more the process moves toward detailed budget review.

The difference between special project grants and restricted income grants is primarily one of degree. The former makes an award for a more narrowly defined, prespecified project or program within an institution. The latter would generally be used for a broader range of activities. In recent years, special project grants have been used to finance construction of medical education facilities and ambulatory care centers, to support family medicine departments in medical schools and family practice residency training in teaching hospitals, and to develop new curricula and other special programs, such as rural preceptorships, for medical students. Although use of these funds is predetermined, they also may result in indirect subsidies for other activities through internal reallocations of other revenues.

Altering the specialty distribution of future physicians will probably require changes in both undergraduate and graduate medical education institutions. Although medical schools cannot control their graduates' decisions, they are thought to exert significant influence. Thus, efforts should continue to encourage the development of primary care curricula and interest at the undergraduate level. The most efficient and flexible method of providing financial support for such activities would be through a system of incentive payments to medical schools based on the number of graduates entering primary care residencies within a specified period of time after graduation. Special project grants, such as existing primary care training grants, could supplement such payments. However, these are more restrictive, are less directly tied to students' actual choices, and involve the granting agency in medical schools' internal activities.

At the graduate level, there is evidence that specialty-specific subsidies to teaching hospitals encourage expansion in the numbers of residency positions

offered. However, funding primary care residencies will result in primary care making up an increased proportion of all filled positions only if limits are placed on the expansion of non-primary care training positions and also if graduating medical students continue to show an interest in entering primary care specialties. Analysis of the subsidy support for psychiatry training suggested that simply creating additional training positions does not necessarily fill them.[10]

4. State and local government programs[11]

Over the last fifteen years, state and local governments have been the source of an increasingly larger share of the fiscal support for medical education. In 1963, they provided more than $88 million to medical schools, which accounted for 14.6 percent of medical schools' total revenues. By 1977, the state and local contribution had grown to $859 million, or 22.1 percent of schools' revenues. The most important component of this support is appropriations for publically owned medical schools. Additional funds are channeled through education grants to private medical schools, direct appropriations to public teaching hospitals, public service grants to private teaching hospitals, and Medicaid payments. States have also become increasingly involved in various types of programs aimed primarily at influencing physicians' location choices. These programs include loan forgiveness, recruitment of medical students from underserved areas, preceptorships and clinical clerkships in underserved areas, physician placement services, and practice start-up subsidies.

Given this rather extensive nonfederal government involvement, one possible policy option is for the federal government to make grants to state and local governments for the purpose of supporting medical education and/or influencing physicians' career choices. The basic argument in favor of a decentralized system of using medical education financing as a policy tool is that states and localities are in a better position to identify their particular shortage or maldistribution situations, to design programs for dealing with these problems, and to monitor the performance of such efforts. Counterarguments involve possible inconsistencies between federal and state/local objectives, problems of monitoring and evaluation from the federal level, and possible capture of educational financing revenues by interest groups.

Most state programs to affect physician distribution offer loan forgiveness in exchange for practicing in an underserved area for some specified amount of time. Thus, the predominant approach taken by most states is very similar to federal efforts. There seems to be considerable variation in states' success rates in inducing physicians to fulfill their service obligations. Although there are no detailed evaluations of why some programs succeed and

others fail, several general observations can be made. First, many states offer relatively liberal buy-out provisions from their loan forgiveness programs. Second, the loan amounts offered and forgiven are quite low relative to physicians' net incomes. Third, many states with loan forgiveness programs already make extensive appropriations and grants to medical schools, thus indirectly subsidizing medical students through low tuitions. Under these conditions, it seems likely that these states' programs will be of interest primarily to students already planning to locate in areas eligible for loan forgiveness.

For a number of reasons, no explicit policy implications are drawn for the role of states and local communities in medical education financing. First, many of the financing options available to states and localities affect institutions and physicians in much the same as federal options, regardless of what agency controls the funding. Second, adequate study of nonfederal programs has not been carried out. In particular, the administrative advantages and disadvantages of decentralization have not been examined carefully. Third, the advantages of decentralized programs may be cited as arguments for independent programs which require neither funding nor direction from the federal government. Finally, decentralized programs may wish to focus directly on provision of medical services, rather than on attempts to influence the distribution of physicians indirectly through the medical education system.

Available evidence fails to demonstrate whether state and local programs have been more or less effective than federal initiatives. In particular, the characteristics of successful local programs need to be identified, and more rigorous evaluations of these programs are needed. Also, limited experimental or demonstration projects to explore and evaluate the feasibility of decentralizing existing programs may have considerable merit. It also seems that a greater emphasis could be placed on using local agencies to identify medical care shortages and design possible solutions. Components of the developing health planning network, e.g., State Health Planning and Development Agencies, could play an important role in this process.

5. Summary

Changes in the system of reimbursement for medical services have the greatest potential for altering physician supply and distribution. If reimbursement offers incentives for socially desirable outcomes, separate programs for influencing the distribution of physicians through the medical education system will be needed only to reinforce progress toward those goals. To the extent that reimbursement rewards physicians relatively less for primary care in shortage areas, financial incentives channeled through

the system of medical education may be necessary compensatory mechanisms.

Several specific reimbursement reforms were suggested. The training of primary care physicians and the provision of primary care services could be encouraged by making reimbursement for ambulatory and inpatient care more comparable. In order to meet cost containment objectives, this should be done by increasing cost-sharing on inpatient care and converting the hospital reimbursement method from reasonable cost to predetermined charges. Excessive financial burdens could be avoided by subsidies for the poor and ceilings on out-of-pocket expenditures for other patients. Incentives for specialty and geographic redistribution could also be reinforced by altering relative fees for physicians' services. Again, cost containment considerations suggest the substitution of negotiated fee schedules for usual-customary-reasonable fee systems and the gradual realignment of fees at controlled rates. The problems of how to pay teaching physicians and residents and to reimburse educational expenses are best handled by developing unified billing systems which combine hospitals' and physicians' services fees into a single charge. Paying for teaching physicians, house staff, and education then becomes an internal hospital decision. Finally, equity considerations suggest that to the extent possible, reimbursement reforms should be applied to all payers, not just Medicare and Medicaid.

Loan and scholarship programs should continue to be important parts of the medical education financing system. However, the predicted aggregate surplus of physicians suggests that unrestricted subsidies to medical students can no longer be justified. In order to permit students to finance their own education, an economically neutral, self-financing, federal loan program (perhaps a modified version of the current Health Education Assistance Loan program) should be established. Loans with forgiveness options and scholarships with service obligations should also be continued, since they can be used to increase financial incentives for choosing physician-shortage practice locations. Scholarships for students of exceptional financial need should be extended as well in order to improve equity of access to medical careers.

Unrestricted grants to medical schools and teaching hospitals also seem to have little justification given current policy objectives. Training institutions, however, are thought to exert a significant influence on physicians' specialty choices. Therefore, restricted institutional support should continue to be provided in order to encourage the training of primary care physicians. One type of grant mechanism which could be used to meet this goal is incentive payments to medical schools or teaching hospitals. These payments could be tied to the numbers of physicians entering or completing primary care residencies. In addition special project grants to support primary care training programs should be extended.

Although states and localities have been providing an increasing share of medical education revenues, existing evidence does not warrant a major redistribution of federal medical education funds to other levels of government. Better evaluations are needed of the growing number of nonfederal programs which attempt to use the medical education system as a means of redistributing medical care services.

Several important caveats to these implications should also be reiterated. First, very little is known about the exact responsiveness to financial incentives by medical students, residents, medical schools, and teaching hospitals. Thus, we cannot say, for example, how large a grant or scholarship would be required to induce an additional medical student to enter a primary care residency. More research with reliable and current data is needed.

Second, information is extremely limited on exactly how many additional primary care physicians are needed, on exactly where physicians should be redistributed, and on which specialties are producing too many physicians. These shortcomings make it difficult to determine beforehand the total amount of financial incentive needed. Thus, whatever combination of financial policies is implemented, it is imperative that careful monitoring and evaluation of their effects on students, residents, and institutions be carried out.

Third, financial incentives are but one of several classes of policies which could be used to influence the graduate and undergraduate medical education systems. The growing network of state and local health planning agencies, private educational organizations (such as the Association of American Medical Colleges, the Council of Teaching Hospitals, and the Coordinating Council on Medical Education), the Department of Health, Education, and Welfare, and state governments can all have major effects on the structure and organization of medical education. Potential nonfinancial options include both voluntary and mandatory limits, controls, or direct allocations of educational activities. These policies frequently appear to be less costly than financial options because they do not involve explicit financial transfers or budgetary outlays. Regulatory approaches nevertheless have their potential costs. These include direct administrative expenses, the intrusion upon academic freedom, arbitrary and cumbersome regulatory procedures, the creation of adversary rather than cooperative relationships, and incorrect outcomes because of the complexity of the system being regulated.

The main point is simply that financial and nonfinancial policies should be treated as complements, not substitutes. The inability to specify precisely the parameters and structure of financial policy options does not mean that regulatory policies are easier to develop and implement. Both approaches should be considered and each requires the same monitoring and readjustment over time.

Lastly, these implications for policy are not radical departures from

existing financial programs affecting medical education. This reflects primarily the belief that reforming the financing and reimbursement of medical care service delivery would ultimately have the greatest impact on the structure of medical education. Reforming the reimbursement system involves considering much more than the impact on medical education. Nevertheless, an appropriate long-run objective should be to create a reimbursement system which emphasizes the efficient and equitable delivery of primary care services and a medical education system which trains physicians to provide such care.

Footnotes

1. U.S., Congress, *Health Professions Educational Assistance Act of 1976*, Pub. L. 94-484, 94th Congress, 2d session, 1976.
2. Speech to the Association of American Medical Colleges, New Orleans, La., October 24, 1978.
3. Frank A. Sloan, "Patient Care Reimbursement: Implications for Medical Education and Physician Distribution," in *Medical Education Financing: Policy Analyses and Options for the 1980s*, Jack Hadley (ed.) (New York: Neale Watson Academic Publications Inc., 1979).
4. This is very similar to the unified billing approach recommended by the Institute of Medicine in 1976. See Institute of Medicine, *Medicare-Medicaid Reimbursement Policies*, final report of Contract No. SSA-PMB-74-250 with Department of Health, Education, and Welfare (Washington, D.C.: National Academy of Sciences, 1976), pp. 40-1.
5. Roger D. Feldman, "Loan Programs and Medical Education Financing," and Robert H. Lee, "Scholarship Programs and Medical Education Financing," in *Medical Education Financing*.
6. This is simply the amount of money in the current year which, if allowed to accrue interest over a physician's training and practice years, would be equivalent to his/her total net income over the entire period. The advantage of the net present value concept is that it simplifies the problem of comparing careers whose incomes and expenses vary by year and are unevenly timed. For example, a general practitioner may begin to earn a full income within two or three years of graduating from medical school. Some specialists, on the other hand, do not enter active practice until six or seven years after medical school graduation. Although they eventually earn higher annual incomes than general practitioners, these higher earnings are postponed for several years. Computing net present values permits an unambiguous comparison of the financial returns associated with alternative career choices.
7. This statement is strictly true only if there are no capital market imperfections which discourage private lenders from making unsubsidized loans at going market rates. If imperfections do exist, however, then

government provision of unsubsidized loans will obviously influence the number of students who can consider medical careers.

8. Jack Hadley and Mark Levenson, "Institutional Support for Medical Schools and Teaching Hospitals," in *Medical Education Financing.*

9. Grants to teaching hospitals for psychiatry training did increase the net present value of psychiatry training, but only by a small amount relative to changes in psychiatrists' earnings from patient care. See Lee, "Scholarship Programs."

10. Ibid.

11. Jack Hadley, "State and Local Financing Options," in *Medical Education Financing.*

Appendix

Contents of *Medical Education Financing: Policy Analyses and Options for the 1980s*

Current NCHSR Publications

National Center for Health Services Research publications of interest to the health community are available on request to NCHSR, Publications and Information Branch, 3700 East-West Highway, Room 7-44, Hyattsville, MD 20782 (telephone: 301/436-8970). Mail requests will be facilitated by enclosure of a self-addressed, adhesive-backed mailing label. These publications also are available for sale through the National Technical Information Service (NTIS), Springfield, VA 22161 (telephone: 703/557-4650). PB and HRP numbers in parentheses are NTIS order numbers. Publications which are out of stock in NCHSR are indicated as available only from NTIS. Prices may be obtained from the NTIS order desk on request.

Research Digests

The *Research Digest Series* provides overviews of significant research supported by NCHSR. The series describes either ongoing or completed projects directed toward high priority health services problems. Issues are prepared by the principal investigators performing the research, in collaboration with NCHSR staff. Digests are intended for an interdisciplinary audience of health services planners, administrators, legislators, and others who make decisions on research applications.

(HRA) 76-3144	Evaluation of a Medical Information System in a Community Hospital (PB 264 353)
(HRA) 76-3145	Computer-Stored Ambulatory Record (COSTAR) (PB 268 342)
(HRA) 77-3160	Program Analysis of Physician Extender Algorithm Projects (PB 264 610, available NTIS only)
(HRA) 77-3161	Changes in the Costs of Treatment of Selected Illnesses, 1951-1964-1971 (HRP 0014598)
(HRA) 77-3163	Impact of State Certificate-of-Need Laws on Health Care Costs and Utilization (PB 264 352)
(HRA) 77-3164	An Evaluation of Physician Assistants in Diagnostic Radiology (PB 266 507, available NTIS only)
(HRA) 77-3166	Foreign Medical Graduates: A Comparative Study of State Licensure Policies (PB 265 233)
(HRA) 77-3171	Analysis of Physician Price and Output Decisions (PB 273 312)
(HRA) 77-3173	Nurse Practitioner and Physician Assistant Training and Deployment (PB 271 000, available NTIS only)
(HRA) 77-3177	Automation of the Problem-Oriented Medical Record (PB 266 881, available NTIS only)
(PHS) 78-3190	Uncertainties of Federal Child Health Policies: Impact in Two States (PB 283 202)

(PHS) 79-3231 Israel Study of Socialization for Medicine
(PHS) 79-3235 AAMC Longitudinal Study of Medical School Graduates of 1960
(PHS) 79-3238 Some Effects of Quebec Health Insurance

Research Summaries

The *Research Summary Series* provides rapid access to significant results of NCHSR-supported research projects. The series presents executive summaries prepared by the investigators. Specific findings are highlighted in a more concise form than in the final report. The *Research Summary Series* is intended for health services administrators, planners, and other research users who require recent findings relevant to immediate programs in health services.

(HRA) 77-3162 Recent Studies In Health Services Research, Vol. I (July 1974 through December 1976) (PB 266 460)
(HRA) 77-3176 Quality of Medical Care Assessment Using Outcome Measures (PB 272 456)
(HRA) 77-3183 Recent Studies In Health Services Research, Vol. II (CY 1976) (PB 279 198)
(PHS) 78-3193 Optimal Electrocardiography (PB 281 558)
(PHS) 78-3201 A National Profile of Catastrophic Illness (PB 287 291)
(PHS) 78-3187 Criterion Measures of Nursing Care Quality (PB 287 449)
(PHS) 78-3192 Assessing the Quality of Long-Term Care
(PHS) 79-3230 Per-Case Reimbursement for Medical Care
(PHS) 79-3236 Nurse Practitioners and Physician Assistants: A Research Agenda

Policy Research

The *Policy Research Series* describes findings from the research program that have major significance for policy issues of the moment. These papers are prepared by members of the staff of NCHSR or by independent investigators. The series is intended specifically to inform those in the public and private sectors who must consider, design, and implement policies affecting the delivery of health services.

(HRA) 77-3182 Controlling the Cost of Health Care (PB 266 885)

Research Reports

The *Research Report Series* provides significant research reports in their entirety upon the completion of the project. Research Reports are developed by the principal investigators who conducted the research, and are directed to selected users of health services research as part of a continuing NCHSR effort to expedite the dissemination of new knowledge resulting from its project support.

(HRA) 76-3143 Computer-Based Patient Monitoring Systems (PB 266 508)
(HRA) 77-3152 How Lawyers Handle Medical Malpractice Cases (HRP 0014313)
(HRA) 77-3159 An Analysis of the Southern California Arbitration Project, January 1966 through June 1975 (HRP 0012466)
(HRA) 77-3165 Statutory Provisions for Binding Arbitration of Medical Malpractice Cases (PB 264 409, available NTIS only)
(HRA) 77-3184 1960 and 1970 Spanish Heritage Population of the Southwest by County (PB 280 656, available NTIS only)
(HRA) 77-3188 Demonstration and Evaluation of a Total Hospital Information System (PB 271 079)
(HRA) 77-3189 Drug Coverage under National Health Insurance: The Policy Options (PB 272 074)
(PHS) 78-3204 Experiments in Interviewing Techniques: Field Experiments in Health Reporting (PB 276 080, available NTIS only)
(PHS) 79-3210 Telehealth Handbook: A Guide to Telecommunications Technology for Rural and Neglect Health Care
(PHS) 78-3211 Emergency Medical Technician Performance Evaluation (PB 285 961)
(PHS) 79-3217-1 Evaluation of Child Abuse and Neglect Demonstration Projects, 1974-77, Vols. 1 and 2
(PHS) 78-3219 Needed Research in the Assessment and Monitoring of the Quality of Medical Care (PB 288 826)
(PHS) 79-3237 A Cost-Effective Approach to Cervical Cancer Detection

Research Management

The *Research Management Series* describes programmatic rather than technical aspects of the NCHSR research effort. Information is presented on the NCHSR goals, research objectives, and priorities; in addition, this series contains lists of grants and contracts, and administrative information on funding. Publications in this series are intended to bring basic information on NCHSR and its programs to research planners, administrators, and others who are involved with the allocation of research resources.

(PHS) 79-3220 Emergency Medical Services Systems Research Projects, 1978
(PHS) 79-3241 NCHSR Research Priorities

Research Proceedings

The *Research Proceedings Series* extends the availability of new research announced at key conferences, symposia and seminars sponsored or supported by NCHSR. In addition to papers presented, publications in this series include discussions and responses whenever possible. The series is intended to help meet the information needs of health services providers and others who require direct access to concepts and ideas evolving from the exchange of research results.

(HRA) 76-3138 Women and Their Health: Research Implications for a New Era (PB 264 359, available NTIS only)
(HRA) 76-3150 Intermountain Medical Malpractice (PB 268 344, available NTIS only)

(HRA) 77-3154	Advances in Health Survey Research Methods (PB 282 230)
(HRA) 77-3181	NCHSR Research Conference Report on Consumer Self-Care in Health (PB 273 811)
(HRA) 77-3186	International Conference on Drug and Pharmaceutical Services Reimbursement (PB 271 386)
(PHS) 78-3195	Emergency Medical Services: Research Methodology (PB 279 096)
(PHS) 78-3207	Health Survey Research Methods, Second Biennial Conference
(PHS) 78-3208	Drug Coverage Under National Health Insurance
(PHS) 79-3209	Health Services Research in Puerto Rico
(PHS) 79-3225-1	Emergency Medical Services Research Methodologies -Workshop I
(PHS) 78-3227	Effects of the Payment Mechanism on the Health Care Delivery System
(PHS) 79-3228	A National Conference on Health Policy, Planning, and Financing the Future of Health Care for Blacks in America

Program Solicitations

(HRA) 77-3196	Conference Grant Information
(PHS) 78-3224	Grants for Dissertation Research Support
(PHS) 79-3240	Grants for Research on Quality and Economy of Drug Prescribing

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16. Abstracts

This Digest is a summary of the principal policy implications from Medical Education Financing: Policy Analyses and Options for the 1980s: a comprehensive policy analyses of options for financing both undergraduate and graduate medical education. Five general classes of options are evaluated: reimbursement reforms, loan programs, scholarship programs, institutional support, and nonfederal governmental programs. This report also provides background information on the structure, organization and financing of the medical education system; the National Health Service Corps; the history of federal legislation affecting medical education; and econometric studies of the relationship between physicians' earnings and specialty and location decisions. The evaluations are based on thorough reviews of existing research and the application of theoretical and empirical analyses to new data. Implications for an overall policy strategy for medical education financing are offered.

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