Reforming Physician Payment: Report of a Conference (1984)

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REFORMING PHYSICIAN PAYMENT

Report of a Conference

INSTITUTE OF MEDICINE

Division of Health Care Services

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This conference summary was prepared by the staff of the Institute of Medicine's Division of Health Care Services, directed by Karl D. Yordy, with the advice and assistance of the planning committee, chaired by Paul B. Beeson. Major conference themes are reported to provide highlights of the conference discussions; however, they do not represent policy statements by the Institute of Medicine.

The Institute of Medicine was chartered in 1970 by the National Academy of Sciences to enlist distinguished members of appropriate professions in the examination of policy matters pertaining to the health of the public. In this, the Institute acts under both the Academy's 1863 Congressional charter responsibility to be an advisor to the federal government, and its own initiative in identifying issues of medical care, research and education.

The conference was supported by the National Research Council Fund, a pool of private, discretionary, non-federal funds that is used to support a program of Academy-initiated studies of national issues in which science, technology, and health figure significantly.

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PREFACE

The methods of physician payment and their effects on the costs and characteristics of medical care have recently moved up on the national health policy agenda. For many years the focus of policy attention and experimentation was on hospital payment. Physician payment issues were relatively little examined, even though health care analysts frequently acknowledged the primacy of physician decision-making in the allocation of health care resources. Now with the dramatic change in Medicare reimbursement to hospitals, along with continuing fear about the financial viability of the Medicare program, private sector actions to moderate health cost increases, and the rapid expansion of the physician supply, the Congress and other policymakers are indicating it may be time to reconsider the methods of physician payment.

The Institute of Medicine's interest in the issues of physician payment arose primarily from its members, concerns about the effects of physician payment methods on the nature of health care, rather than the cost issue itself. The conference summarized here and the accompanying background papers arose from these members' concerns. Although the conference was convened primarily to provide advice to the IOM on how it might best approach these issues, many inquiries about the conference have led us to make this summary and the background papers available for the information of those with interest in methods of physician payment.

The surge of interest by Congress has resulted in current studies of physician payment methods by the Health Care Financing Administration and the Office of Technology Assessment. A major study on this topic is being proposed by the IOM, and other groups have indicated their intent to conduct studies. If the forces for change are gathering momentum, a better understanding of the issues and the range of relevant perspectives should be useful to all concerned with physician payment methods. The conference participants represented many different viewpoints, and the background papers and authors represented the judgment of the planning committee about aspects of the topic that deserved attention by the participants. The papers were intended to stimulate thought and to provide a more common basis of understanding for a diverse group. We hope these proceedings can serve those purposes for others as well.

We wish to thank the planning group and the discussion group leaders for their efforts to steer the IOM through the turbulent waters of a controversial topic while making headway toward a productive IOM role in further study. Special thanks go to Paul Beeson for his even-handed and

CONFERENCE SUMMARY

Sunny G. Yoder

The Institute of Medicine sponsored a conference on Strategies for Reform of Physician Payment that was held on October 27 and 28, 1983, at the National Academy of Sciences, Washington, D.C. The conference was organized by the Institute's Division of Health Care Services to provide an opportunity for members of the Institute and others from medicine, industry, government, and academia to discuss the issues involved in physician payment, to identify problems with existing payment methods, and to suggest how the Institute might contribute to future deliberations on the topic by public and private decision makers. A list of participants appears as Appendix A. Although a primary purpose of the conference was advice on a possible further Institute activity, the discussion summary and the background papers should be of interest to all concerned with physician payment issues.

The conference represented the most recent manifestation of a long-standing Institute concern about the influence of physician payments on health care in this country. In a 1974 study, "Medicare-Medicaid Reimbursement Policies," an Institute committee examined alternative methods of payment for physician services in teaching hospitals and considered the effects of those payments on the specialty and geographic distribution of physicians. The committee recommended that payment mechanisms be changed to provide higher payments for ambulatory services in order to better support primary care residency training and thereby increase the number of primary care physicians. Other Institute studies have identified undesirable and usually unintended influences of payment policies on patterns of health care. A 1978 study, for example, found that payments for primary care services were having an adverse effect on the availability of primary care. The study committee recommended that third-party payers change their payment structures and practices to

(1) pay all physicians the same amount for primary care services, with payment levels based on the minimum level of skill required;

(2) reduce the differentials in payment levels between primary care and other procedures; and

(3) institute payments for certain primary care services such as health education and preventive services.*

More recently the Institute's Board on Health Promotion and Disease Prevention has pointed to inadequate payment levels (and inadequate insurance coverage) as negative influences on patients' decisions to seek, and physicians' decisions to provide, preventive services. The Board on Mental Health and Behavioral Medicine has raised the issue of low payment levels for cognitive and psychosocial services.

In a 1982 survey, Institute members were asked to suggest critical issues that the organization should address. They ranked physician payments as having the highest priority. An ad hoc group was convened in March of 1983 to consider how the Institute of Medicine could engage with this issue. The group found it likely that the IOM could make a useful contribution, but that the complexity and sensitivity of the issues called for a sequence of activities:

1. commissioning of papers by experts on several aspects of physician payment

2. a staff analysis of existing forms of physician payment and physician earnings

3. a meeting whose participants were familiar with the commissioned papers and staff analysis.

The meeting was envisioned as a small, invitational conference of 25 or 30 people. But because of the intense membership interest in the issue, the conference was expanded by extending invitations to all members and scheduling it in conjunction with the 1983 annual meeting of the Institute. Five background papers were commissioned and distributed in advance:

"The Impact of Changes in Payment Methods on the Supply of Physicians' Services," a critical review of relevant economics literature by Robert Lee, an economist at the University of North Carolina;

"Politics as Usual and Customary? Physician Payment in Transition," an assessment of political considerations

*Institute of Medicine, "A Manpower Policy for Primary Health Care," Washington, D.C.: National Academy of Sciences, 1978, pages 45-52. A conference was held by the IOM in 1978 to explore the payment issues raised in the primary care report with public and private third-party papers, union and industry purchasers of health insurance, physicians, and other providers of health care. See Institute of Medicine, "Reimbursement Policies for Primary Health Care," Report of a Health Policy Forum, May 24, 1978, St. Louis, Missouri. Washington, D.C.: National Academy of Sciences, October 1978.

influencing physician payment methods by Lawrence Brown, a political scientist at the University of Michigan;

Changing Physician Behavior: In Search of the Little Blue Button," a discussion of non-economic influences on physician behavior by John Kimberly, a sociologist at the Wharton School of Management;

"Antitrust and Physician Payment," an analysis of the implications of antitrust law for physician payment changes by Michael Pollard, a lawyer with the American Pharmaceutical Manufacturers Association;

"A Third-Party Carrier Perspective on Physician Payment," a discussion of the objectives and motivations of a private third party payer by Lawrence Morris, a senior vice president of Blue Cross and Blue Shield.

An additional paper was prepared by Sunny Yoder of the IOM staff; it is titled "Physician Payment Methods: Forms and Levels of Physician Compensation." The six papers, edited and revised, are included in this volume.

Conference Agenda

The conference agenda was designed to provide participants maximum opportunity for discussion. To set the stage for those discussions, four speakers representing a variety of perspectives briefly stated their views in the opening session (see Conference Program, Appendix B). Carl Schramm, an economist and director of the Johns Hopkins Center for Hospital Finance and Management, emphasized the urgency of physician payment issues in the current political and economic climate. Now is the time for a reexamination of payment policies, he stated, because those policies determine not only physicians' aggregate claims on the nation's wealth, but also the relative claims of the different specialties. For change to occur, he said, a new "treaty" will be required between physicians and the other parties at interest: business, labor, private insurers, the federal government, patients, and organized consumers. The second speaker, Donald Blim, a practicing pediatrician from Kansas City, predicted that changes in physician payment are inevitable given the unrelenting growth in health care costs and an unacceptable inequity in earnings among specialties. He called upon the physician community to recognize its responsibility for problems of increasing health care costs and utilization, and to contribute to finding solutions.

The third speaker, Richard Wilbur, physician and executive vice president of the Council of Medical Specialty Societies, took issue with the need for reform. Not only is the proportion of physicians

remunerated on a fee-for-service basis declining, he said, but fee levels are not a major influence on physician behavior. If any change is needed, Dr. Wilbur felt it should be in the direction of bringing the preferences of patients into the picture by rewarding the kinds of caring behavior they value. John D. Crozier of the Massachusetts Business Roundtable, the final speaker, said the impending financing crisis of the Medicare Trust Fund would be the catalyst for change in health care, including physician payment reform. The business community, in his view, can and should influence such change. According to him, we can expect business to become increasingly active in this arena through its involvement in health benefits design, utilization review, and consumer education.

The remainder of the opening session was devoted to a general discussion of physician payment issues and conference objectives. This discussion is reflected in the following section on themes.

On the second day of the conference, participants met in six workshop groups, each of which was to discuss the following set of questions:

- What are appropriate objectives for methods of payment for physician services?
- How well do existing methods meet those objectives? How strong is the evidence?
- What new methods have been proposed or implemented and what is known of their effects?
- What mechanisms exist for modifying methods of payment today or might emerge in the future?
- How might the Institute of Medicine contribute to a reconsideration of physician payments by government, private purchasers of health care, physicians, and the public?

Each group's chairman reported on his group's suggestions regarding possible IOM activities in the final plenary session. The conference concluded with a general discussion of whether and how the Institute might contribute to future discussions of physician payments.

The conference afforded considerable opportunity for a wide-ranging discussion of problems, policy alternatives, and the needs of decision makers. Some of the work groups closely followed the suggested questions. Others did not. In the plenary sessions participants were free to touch on any issues they felt were relevant and important. No attempt was made to achieve consensus, nor were any policy recommendations formulated. Nevertheless, out of this rather free-flowing process emerged a number of clear themes.

Major Conference Themes

A Climate for Change

Both explicit and implicit in the conference discussions was the perception that change in physician payment practices is inevitable. Congress is increasingly demonstrating a will to insist that physicians share the burden of restraining Medicare cost increases. State Medicaid programs are exercising their new contracting ability to experiment with new forms of payment. Private firms and health insurers are becoming more and more active in trying to limit their outlays for health services. Physicians themselves are forming Preferred Provider Organizations and in other ways seeking new relationships with health care purchasers. Ferment on this issue is apparent at all levels, and the fiscal pressures are rising.

Although there is an emerging consensus on the need for change, there is not an accompanying consensus on what to do. Most participants agreed that, in the short term, changes were likely to be stop-gap measures to control costs, but that, for the longer term, more fundamental reforms would be called for. The next few years will be a period for developing a consensus around the nature of those reforms.

A Need for Change

This theme was sounded by Paul Beeson in his opening remarks. Quoting from a letter by Arnold Relman, editor of the New England Journal of Medicine, he said:

> The method by which most physicians are paid now seems, on a number of grounds, to be rather a poor reflection of society's objectives for health care. It offers considerable incentive for a greater use of health resources than is necessarily cost-effective. It offers little or no incentive for physicians to help restrain the growth of expenditures for health care, growth which has put enormous upward pressure on government health budgets and on premiums charged by private insurance plans. It provides large rewards for the provision of high-technology procedures and little or none for preventive and cognitive activities. While average earnings of physicians rank at the top levels in our society, earning abilities differ greatly among physician specialties.

Conference participants elaborated on this theme in their discussions. Under the existing structure of physician fees, there are large disparities among payments for different services. In general, the rate of compensation per unit of physician's time is higher for surgical and diagnostic procedures than, for example, for history-taking. Fees seem to bear little relationship, if any, to the cost of

producing services, to their medical value, or to consumer demand. Rather, they are determined by long historical precedent and by the payment practices of government programs and private insurers.

Not only are there disparities in payment levels among services, but also the current system offers little incentive for physicians to be prudent in their use of health resources. At a time of rapid increase in the number of physicians and of more strenuous efforts to hold down the growth in health care expenditures, physicians have considerable financial incentive to provide more services and to choose to provide services that yield greater fees. Thus our current payment system contains perverse incentives that conflict both with cost and quality objectives.

For a substantial portion of physician services that are covered by insurance (approximately 63 per cent in 1982, according to the Health Care Financing Administration), neither the physician nor the patient bears any significant financial risk for decisions about the quantity or kind of services utilized, and thus neither has reason to take into account the financial consequences of one course of treatment as compared with another. While protecting people against financial catastrophe from illness, insurance coverage also insulates them from health care costs.

Non-economic Influences on Physician Behavior

Physicians not only receive 20 percent of all health expenditures, but also influence other expenditures through their medical decisions such as ordering tests, prescribing drugs, and admitting patients to hospitals. Because of their central role in health care, physicians are seen as the key to containing costs, and payment methods as a significant influence on physician behavior. However, conference participants cautioned that economic incentives are not the only factors influencing physician behavior. They actually may be less important than other influences such as the physician's organizational environment and practice milieu, peer pressure, and educational background. Physicians also are influenced by their concern for patients and, to some degree, by fear of malpractice litigation.

Conference participants felt that research is needed to sort out the complex set of factors that influence physician behavior. Small geographic area analyses have demonstrated enormous variations in surgery rates, for example, but more work is needed to explain those variations in terms of the relative influence of economic and other variables on physicians' medical decisions.

Notwithstanding of the lack of firm empirical evidence on the strength of the effect of payment levels and methods on physician behavior, most participants thought that re-examination of the current payment structure at this time is important.

Payment Objectives

One objective of reforming physician payments is cost control. However, it was suggested that a more appropriate objective is to establish payment mechanisms that provide incentives and compensation, for effective, high quality, economical care. Conference participants asserted that payment mechanisms should encompass a concern for the well-being of patients, the development of an equitable system, and cost consciousness. They criticized an approach that cuts payments in the public sector and ignores the impact of subsequent cost shifts to the private sector.

A number of other, more specific objectives were articulated:

- fair compensation of the physician for his time, talents, and the degree of risk involved
- encouragement of the most appropriate level of care
- encouragement of care in the most appropriate setting
- encouragement of cost consciousness on the part of patients and doctors
- encouragement of good quality medicine
- facilitation of equitable access to care
- administrative simplicity.

Conference participants noted the potential conflicts and trade-offs among objectives but did not try to resolve them in the short time available.

Once the desired objectives are established, the structure of incentives to attain them will have to be studied from the standpoint of how physicians participating in group practice receive compensation--salary, share of net receipts, etc.--which may be different from how the patient or insurance makes the payment--fee-for-service, capitation rate, etc.

Paucity of Data and Research Findings

Conference participants noted that, in terms of data and research on physician payments, little is known in comparison with similar information available about hospitals. Better data on the physician components of hospital episodes are needed, as are studies linking payment levels and mechanisms to various dimensions of physician behavior. Demonstrations of the effects of alternative payment methods on access, costs, and quality are needed before major reform of physician payments is attempted.

Potential Contributions by the Institute of Medicine

The conference participants suggested several potential Institute contributions to a broad reconsideration of physician payment methods. There was a high regard for the success of this conference in convening on neutral gound a diverse group of interested parties, researchers, policy analysts, and policymakers from the public and private sectors to consider these controversial issues. A continuing series of such conferences, each focused on a specific aspect of physician payment, was seen as a potentially useful contribution to the policy debate. A related suggestion was that the Institute serve as a clearinghouse for information on local innovations in physician payment practices, monitoring the innovations and disseminating information to interested parties. Such a function might be extended to recommending designs for systematic evaluations and monitoring ongoing evaluation studies.

Participants also made suggestions for a greater degree of active IOM involvement in defining directions for reform of physician payments. Conference participants suggested that an Institute committee could contribute in the near term by analyzing and commenting on policies currently under active consideration such as freezing physician fees, establishing fee schedules, and adopting prospective payments for inpatient physician services. Such a study would be directed to measures aimed at immediate cost containment. A longer-term major study could have an enlarged scope of concern extending to the effects of physician payments on desired health care objectives. These objectives, which the study would define specifically, could include access to primary care, and to preventive and psychosocial services; use of health resources and technologies; and distribution of health manpower. With such objectives as criteria, the study could examine payment options, including all the appropriate alternatives to fee-for-service payment.

Finally, a number of conference participants urged that the Institute undertake a study of the relative values of physician services. Such a study would address directly the issue most cited as a concern by IOM members: distortions in health care delivery due to disparities in payment levels for different services. It was felt that the IOM was an appropriate body to examine the relationship between existing fee structures across medical specialties and (1) the costs of providing a service, (2) its medical efficacy, (3) consumer preferences, and (4) other criteria that might be developed for establishing "value," and to recommend one or more new methods for developing and updating physician fees. A number of participants pointed out that the issue of relative value pervades all payment mechanisms. Efforts to develop a better rationale for valuation would therefore be helpful in determining payment levels irrespective of payment methods that might be adopted in the future.

COMMISSIONED PAPERS

POLITICS AS USUAL AND CUSTOMARY? PHYSICIAN PAYMENT IN TRANSITION

Lawrence D. Brown

> People knocking them up at all hours. For God's sake doctor. Wife in the throes. Then keep them waiting months for their fee. To attendance on your wife. No gratitude in people. Humane doctors, most of them.
>
> James Joyce, Ulysses[1]

Like Leopold Bloom, American policymakers tend to think well of physicians and their services. Increasingly, however, both policymakers and public opinion believe that physicians are paid too much for what they deliver. A recent poll found that 88 percent of Americans are satisfied with the quality of the care they get from doctors, but 70 percent thinks that care costs too much, and 81 percent believes that doctors are doing little or nothing to reduce rising costs.[2]

As a component of total health care spending, the share of physician services has actually declined over the century. In 1935, the United States spent $744 million on physician services, $731 million on hospitals. By 1950, however, hospitals had pulled well ahead--$3,698 million for them, $2,689 million for physicians--and the gap has widened steadily, indeed annually, since then.[3] Of the $322 billion the nation spent on health services in 1982, hospitals consumed 42 percent ($136 billion), physicians less than half as much, 19 percent ($62 billion).[4] It is estimated that in 1990 the nation will spend $334.6 billion on hospital care (44.1 percent of total health spending) and $128.8 billion on physicians' services (17.0 percent).[5] Nonetheless, physician services stand second only to hospitals as objects of spending and the rate of growth of the former has kept close pace with the latter: between 1981 and 1982 spending on hospitals rose by 14.9 percent, on physicians by 12.8 percent.[6] Moreover, physicians are widely regarded as the captain of the medical team. "Even though only 20 percent of health care expenditures are for physicians' services and less than 10 percent of all health care workers are physicians, it is the physician who determines most of

what happens in the health care process."[7] And "most" may mean seventy percent of all personal health care expenditures.[8]

The Perplexing Target Of Policy

The central policy issue is how to influence, by remuneration measures or otherwise, the lines of causation, sometimes clear and distinct, sometimes tortuous and obscure, between physicians' decisions and the nation's health care bill. For the most part policymakers in the 1970s (and so far too in the 1980s) have viewed the hospital as the appropriate unit of influence. One program after another--Professional Standards Review Organizations (a program of physician review, but one aimed almost entirely at hospital use), certificate-of-need programs, health planning, state rate-setting, and most recently, the Medicare system of prospective payment based on diagnostic-related groups (DRGs), has been aimed at hospitals. Some have argued that it is futile to regulate institutions that necessarily are capitives of their medical staffs; the reply has been that constraining this major component of the environment of physician practice is the fastest and most feasible means of constraining physician behavior. This hypothesis has not been rigorously tested. For example, it is unclear how far the impressive savings in state hospital rate-setting programs reflect managerial innovation and how far enduring changes in physician behavior. Many physicians do seem to find the hypothesis persuasive, however.[9]

Critics of hospital regulation as a cost containment strategy are convinced that a better way exists: change physicians' incentives to order excessive diagnostic tests, specialist referrals, treatment procedures, hospital admissions, long stays, and prescriptions. This is easier said than done, however, and although "scenarios" were abundant in the 1970s, no reliable, generalizable method of changing physician incentives (as distinct from regulating their conduct or remuneration) was discovered. Throughout the 1970s, great hopes were pinned on health maintenance organizations (HMOs); the organizational union of group practice and prepayment could not fail to generate economies. Despite their conceptual appeal and despite federal encouragement, however, HMOs have grown slowly; today there are only about 260 HMOs and only about five percent of the population receives care from them.[10] Moreover, the relationship between organizational variables and physician behavior in HMOs remains poorly understood. Do HMOs achieve savings because their doctors are paid differently or because these doctors bring with them or acquire norms of group cohesion and loyalty or a commitment to the HMO "cause"?[11] The individual practice association is at once the fastest growing type of HMO and the least disturbing to physicians, but its savings tend to be smaller than those found in classic prepaid group practice plans.[12] Other schemes to change incentives by altering the organizational framework of practice--"preferred provider organizations" (PPO), for

example--are widely advertised but their future is as uncertain as their potential for cost containment.

Meanwhile European observers look on the American debates about the theoretical merits of regulation "versus" incentives with some amusement. Their view, surely not implausible, is that a society that wants to spend less on physician services must simply resolve to pay less for them by means of fee schedules. But fee schedules must be bargained between payers and providers and therefore reflect the relative political strengths of the contenders. Furthermore, fee schedules, like other forms of fee-for-service payment, are vulnerable to multiplication of procedures toward "target income" levels. Indeed the Europeans have enjoyed little more success in curbing the growth of spending on physicians (not to mention hospitals) than have the Americans.[13]

Some observers conclude that capitation payment (fixed lump sums paid to the physician for the complete care of each patient on his list) is the only proven economical method, and the experience of Great Britain's frugal National Health Service seems to bear them out. The only comparable country to follow the British example (at least in part), however, is Italy, which created a National Health Service in 1978 and adopted capitation for general practitioners, in good part because physicians who had been paid by capitation under the previous sickness fund system demonstrated lower costs than those paid by fee-for-service.[14] National Health Services and capitation may be the waves of the future, but if so they are weak waves and the future a distant one. For now most systems, including the United States, will continue struggling to introduce cost constraints into fee-for-service systems.

The Rise And Decline Of Usual And Customary

The American health care system differs fundamentally from most European systems not in its adherence to fee-for-service payments but rather in its methods of calculating the fees insurers agree to pay. The European method, as noted above, uses negotiated prospective fee schedules; Americans retrospectively calculate the charges that are "usual and customary" or "prevailing" and "reasonable" in the physician's individual practice and in his community.

Although this approach is itself often taken to be usual and customary in the United States it is in fact of fairly recent vintage. Fee schedules (or fee bills) are nearly as old as American medicine. The colony of Virginia adopted a fee schedule in 1736. In 1766, New Jersey's medical society adopted one, the first private society to do so.[15] Fee schedules proliferated in the 1800s. Doctors were plagued by competition, rising living costs, and a much-deplored credit system that encouraged patients to postpone or

forget about paying bills for medical services that had been rendered months earlier. There were "quacks putting themselves forward, and doing what they do for half price," thus creating community norms that made life difficult for the unhappy physicians, who thought themselves "less adequately rewarded for their services than any other class of educated men, in proportion to their labors and sacrifices."[16] The public was always ready to condemn reasonable charges as "exorbitant" and might even go to court to contest them.[17] A fee schedule could establish uniformity, and thereby bring peer pressure to bear on the "quacks," assure the public that it had been treated fairly, and illustrate professional opinion for the courts. As a New York journal explained in 1825: "We are far from desiring that the physician should demand the same compensation from the rich and the poor; he must of necessity regulate his demand by the ability to pay of his patient; but in doing so, let him keep up the impression that his services are valuable, let him charge a proper fee, and then make such deduction as the pecuniary circumstances of his patient require and not openly profess to practice medicine at half price."[18] By the 1880s there were separate fee schedules for city and rural practice and for the sick poor.[19]

Health insurance plans, which grew during and after the Depression, essentially institutionalized this dichotomous approach. The better-off subscribed to "indemnity" plans, which paid them scheduled sums for care rendered by physicians; fees might well exceed the reimbursement. Those with lower incomes might enroll in "service" plans, which gave directly to the physician a sum he was expected to accept as payment in full. As insurance spread and incomes rose in the 1950s, however, doctors complained that both the service plans and the insurers' fee schedules unreasonably curtailed their earnings. Some physicians started developing fee schedules that reflected their professional understanding of the comparative value of medical procedures--the so-called "relative value scales," of which California's was most prominent.[20] Others, however, sought to develop a less arbitrary, more dynamic method that would adjust reimbursement automatically to changing practice costs and norms over time without periodic battling over the revision of fee schedules. First employed by a local Blue Shield plan in Wisconsin in 1954, remuneration according to "usual," "customary," or "reasonable" charges began to spread across the country, although quite unevenly.

As enactment of Medicare drew near in the early 1960s, physicians feared new struggles over fee schedules with a new and more prominent payer, the federal government. The new "usual and customary" approach held several advantages: because high billing by physicians drives up both the individual's usual charges and the community's customary levels, the system leads to progressively more generous reimbursement levels over time. It also allows rate differences among doctors that reflect variations in the quality and scope of service, and permits rapid adjustment to technological or other changes in the content of

services.[21] Blue Shield hastened to assure Congress that the method was widely used and acceptable, and urged that it be incorporated in Medicare.

Congress agreed, partly because it was in search of political peace with the greatly agitated physician community (which opposed Medicare vehemently and warned that its adoption would substitute "socialized medicine" for the system Americans knew and loved), and partly because it believed that usual and customary charges (the statute used the less familiar terms "customary and prevailing" charges) would mean charges similar to, but not higher than, those for similar services rendered to non-Medicare subscribers by local physicians. The method, in short, promised simultaneously to avoid both second-class care for Medicare beneficiaries and excessive billing. Clinton Anderson (D-N. Mex.), Medicare's Senate sponsor, argued that the system would "significantly and unnecessarily inflate the cost of the program to the tax-payer and to the aged," but Congress, fearful of driving physicians to boycott the program, avoided discussion of fee schedules.[22]

Before long, Congress--or at any rate the staff of the Senate Finance Committee--had second thoughts. By 1970 charges for physician services for Medicare beneficiaries were running well ahead of charges for people who received comparable services outside the program.[23] The staff blamed the Department of Health, Education, and Welfare, which, ever in search of "supportive consensus,"[24] had given the fiscal intermediaries a free hand in defining customary and prevailing charges as they saw fit. Although Blue Shield had left Congress with the impression that usual and customary was a method with a fixed meaning and settled application, it turned out that definitions, data, interpretations, and calculations differed greatly from place to place.[25] The staff recalled the virtues of fee schedules, which it referred to as "built-in cost limitations," or "fixed indemnity allowances." These, it wrote, were "within the traditional framework of the medical insurance obligation of an insurer (social security) to the insured (beneficiary) whereby specific indemnities are payable to the insured by the insurer when he has incurred a legal obligation to pay a physician who has rendered care covered under the policy." It urged too that balance billing be allowed: "The Government will not tell the nonparticipating doctor how much to bill the medicare beneficiary and it will not interfere with this privilege of collecting his own bills."[26] Congress, however, chose to stick with the existing system, tightening definitions and limiting reimbursement increases in various ways, in particular by linking them to a general economic index. In the mid-1970s Medicare was still paying physicians according to their usual and customary charges, but the method had evolved from a "loosely defined and enforced concept" to an "exacting mechanism" of control over price increases.[27]

That the mechanism has become exacting did not mean that it made sense, and by 1977 there was growing agreement that, as Holahan and Spitz put it, "The only consistent outcome of UCR has been confusion and a loss of program control."[28] The Carter administration, however, chose to launch a new drive against hospital costs and proposed in April 1977 that Congress impose an annual ceiling on hospital revenues and capital expenditures. The battle over these caps dominated the health policy agenda until November 1979, when the House of Representatives overwhelmingly rejected a much-revised version. The election of Ronald Reagan in 1980 then promised to transform that agenda radically: "pro-competitive" legislation would be introduced to replace regulation. Throughout 1981 the health sector waited expectantly as the administration struggled in vain to keep its promise. Meanwhile, five years after the introduction of the Carter plan, hospital costs were rising faster than ever--17.5 percent between 1980 and 1981[29]--and an impatient Congress began discussing a system of prospective reimbursement for Medicare, loosely modeled on the rate-setting programs in half a dozen states. Weary of the conundrums of competition and mindful of the concern on Capitol Hill, Richard Schweiker, Secretary of Health and Human Services, put the Health Care Financing Administration to work designing a prospective payment system. In the Tax Equity and Fiscal Responsibility Act passed late in the summer of 1982, Congress instructed the department to transmit such a plan by year's end. The department complied and the plan, attached to a bill to alleviate the problems of the Social Security System, made its way easily to President Reagan's desk in March 1983. Although it applied only to federal payments to hospitals in Medicare, the law also required HHS to report in 1985 on the feasibility of extending prospective payment based on DRGs to Medicare physicians services in hospitals, thus again returning the issue of physician remuneration to a prominent place on the health policy agenda.

Forces For Change

Apparently the late seventies' lull in the storm that had begun brewing over physician reimbursement was but temporary. The battle over changes in hospital payment had diverted attention from physicians, but in the longer-term it strengthened the case against usual and customary payment. After all, most of the criticisms of retrospective cost-based reimbursement for hospitals applied to the physician payment system too. And by making a major modification in the hospital payment system only six years after the Carter cost cap was proposed--very rapid change by the usual standards of the American legislative process--the federal government proved that it meant business. Few now doubt that lightening could soon strike physicians too. Robert Dole (R-Kans.), chairman of the Senate Finance Committee, has stated several times that "the year of the physician" is at hand. David Durenberger (R-Minn.), chairman of the Finance Committee's

Health subcommittee, recently counseled that "Hospital and physician payments must ultimately be lumped together" lest the prospective payment system create rewards" for finding ways to shift costs from hospital to physician reimbursement."[30] The Reagan administration too has contributed to the sense that change is necessary and desirable by proposing that Medicare payments to radiologists and pathologists be slashed and by calling for a year-long freeze on Medicare payments to physicians.

Apart from a general and obvious concern with uncontrollable health care spending, which has increased policymakers' taste for cost containment on all health care fronts, six more particular factors explain the willingness of politicians to pick quarrels with physicians less than twenty years after they meekly wrote Medicare payment provisions aimed at appeasing them. First, there has been a general reappraisal by both academic authorities and public opinion of the relationship between health care spending and health status outcomes. Until recently health was widely viewed as something one tried to buy (or repair) by means of the services of providers. The costs of physician training programs, hospital construction grants and loans, Medicare, Medicaid, and more were cheerfully borne, indeed viewed as blue-chip investments in social progress and justice. Research in the 1960s and 1970s introduced complexities in to this image of the production function. Many "health" complaints--perhaps well over half--are apparently psychological, not somatic, in origin and therefore raise questions of care, not cure. Some somatic problems, especially those afflicting the increasing portion of the population of advanced old age, are essentially beyond cure; still others get better by themselves without medical intervention. Indeed, too many pills, diagnostic tests, and days spent in the hospital can imperil health, not improve it. Equally corrosive of confidence in the system was new research emphasizing the importance of variables providers could not control--such "pre-institutional" factors as diet, smoking, exercise, stress, and genetic inheritance. Great strides in reducing morbidity and mortality continued to be registered and appreciated, to be sure, but policymakers and the public began wondering whether these strides were proportionate to the very rapid growth of health care spending. The public had not lost its desire to have a doctor when it needed one. It had, however, begun wondering whether it (that is, everyone besides oneself and one's loved ones) really needed doctors (and hospitals and drugs and the rest) as badly, as often, and as intensively as it thought it did.

These changes in thinking about the cost effectiveness of medical care have coincided abruptly with a second, conflicting trend, a large increase in the nation's supply of physicians. Until the early 1970s, public opinion believed that the nation suffered from a doctor shortage, and "Almost every study, and every student of the subject .... supported the belief of the developing shortage of physicians."[31] Federal policy reflected this view by making sizable

financial commitments to the training of physicians in 1963 and by expanding it significantly through 1971. By the middle 1970s analytical (and to some extent journalistic and popular) opinion began taking a more skeptical view of the number of physicians the nation needed and looked anxiously on the projections of numbers of doctors and of physician-to-population ratios in the future.[32] Between 1965 and 1977, medical school enrollment rose by about 80 percent, from 32,428 students to 58,266. By 1990, there will be an estimated 188.9 U.S. trained physicians per 100,000 population, more than 40 percent above the level in 1970.[33] It is estimated that throughout the years 1965-1990, the number of active physicians will have grown at an average annual rate about three times greater than the rate of population growth.[34] It appears that the team has many more captains than it needs. Particularly worrisome was the large, growing number of specialists; manpower legislation in 1976 sought to gear federal financial aid to the willingness of medical schools to enlarge the ranks of their students who said they intended to enter general practice. Critics argued that such declarations by entering students were meaningless; the core attraction of specialist practice is the very high remuneration it can bring, and the best way to enhance the appeal of general practice is to pay specialists less.[35]

The emerging physician surplus is widely viewed as a calamity mainly, of course, because it implies strong, steady upward pressure on charges for physician services, and therefore for other services too, flying in the face of whatever cost containment policies might be implemented. Not everyone is pessimistic. Some believe that more doctors mean more competition, which means greater acceptance of PPOs and discounted fees and faster development of cost-conscious entities such as HMOs, which offer physicians a refuge from the entrepreneurial perils of fee-for-service practice. The relationship between aggregate physician supply and HMO development is unclear, however. For example, between 1965 and 1979 the number of active physicians grew from 285,000 to 422,000[36] without triggering the explosion of HMO-formation the federal government sought, and no one knows how large a surplus would be needed to do so. Others hope that "surplus" physicians will forsake over-doctored suburbs for underserved rural sites. Perhaps they may, but a new regional equilibrium may increase costs in rural areas without bringing them down in the metropolis. On balance, the most probable prospect is the pessimistic one: more physicians mean more striving to attain "target incomes," that is, earnings large enough to allow the physician to live in the manner to which he thinks he has a right to become accustomed. This prospect has understandably placed the problem of the number, behavior, and charges of physicians high on the federal health policy agenda for the 1980s and beyond. If society cannot afford to pay them all as much as they seek, how shall it pay them?

Third, enthusiasm about the economic advantages of installing "gatekeepers" among physicians has spurred interest in changing the

reimbursement system. (As used here, "gatekeeper" refers not to the physician as certifier of patients' eligibility for insurance or other benefits, but rather to physicians acting as checks on each others' conduct.) While policymakers in the 1950s and 1960s were working to overcome the doctor shortage, they also encouraged construction of new hospital beds to overcome a supposed shortage in that sector too. In the 1970s their efforts were handsomely repaid with a doctor surplus and a growing number of communities with underoccupied excess beds. The rising cost of care and the reevaluation of the connection between services and outcomes then subjected hospitals to cross pressures: organizational imperatives told them to keep pace with each other and fill beds, while policy imperatives told them to reduce capacity, admissions, and lengths-of-stay. Meanwhile insurers came under public pressure to slow the growth of premiums by using the payment system as a means of disciplining profligate providers.

The hospitals and payers complained, with some justice, that they themselves could meet these demands only by gaining new leverage over physicians, and the more adventuresome began experimenting with arrangements that might strengthen their hands. Although these arrangements assumed different names and forms, their essence was to bring physicians into an organizatonal framework in which some might act as "gatekeepers" for the rest. The Blue Cross plans became the nation's major sponsor of HMOs. Some insurers began contracting on favorable terms with preferred provider organizations composed of physicians who had demonstrated their responsibility and economy in utilization. State Medicaid officials began contemplating restrictions on recipients' freedom of choice, and California even began awarding contracts by competitive bidding to hospitals who would provide recipients' care. Greater price discrimination among purchasers is raising the cost of poor discipline and inefficiency among providers.

Because by their nature these gatekeeping mechanisms leave, or threaten to leave, uncooperative, unattached physicians on the outside looking in, they have met considerable resistance in local medical communities and are as yet far from becoming mainstream. Although practice has yet to catch up with theory, those diverse gatekeeping experiments have colored policymakers' thinking. It has come to be widely believed that health care costs might be disciplined economically if doctors could be disciplined organizationally and that changes in reimbursement policy are a powerful tool with which public and private payers can reward the growth of such organizational discipline among physicians. The simple implication of the exercise: "In the past, the physician who ordered a lot of services was the hero... Tomorrow he's going to be the bum."[37]

Fourth, interest in changing physician reimbursement draws force from a crude sense of political equity now lively among policymakers. In times of austerity and budget-cutting, the argument goes, all

programs, providers, and clients must take their turn at the chopping block. In 1981, for example, Medicaid was cut significantly; "therefore" in 1982 it was Medicare's turn.[38] In 1983, the new prospective payment system begins imposing new constraints on hospitals; "therefore" 1984 should be the year of the physician.

Policymakers resort to these less-than-Rawlesian images of fairness not because they are ignorant of or indifferent to the complexities but because such intuitive balancing aids coalition-building in the fragmented American legislative system, by diffusing the costs of programs widely and thus reducing opposition. The politics of Medicare and Medicaid in 1965 displayed such balancing clearly. Costs were nicely parceled out among beneficiaries (payroll deductions for Medicare Part A, premiums for Part B), employers (contributions to Part A), the federal taxpayer (general revenues for Medicare Part B and for the federal share of Medicaid), the state tax-payer (Medicaid), and providers (who suffered new governmental intrusions and red tape). Fifteen years later, the cuts of the early 1980s were faithful to this political logic: higher deductibles for Medicare beneficiaries, lower reimbursement for specialists, a tighter payment system for hospitals, new copayment provisions in Medicaid, reduced federal matching payments to the states, and onward, each gallantly taking its turn in an unfortunate but unavoidable adjustment to hard times. By 1983, however, there was a sense that physicians had gotten off comparatively lightly and that they should be subjected to "reform" before others sacrifice more.

Even if it should be unwilling to single out physicians for reform in new reimbursement legislation, Congress will have a full opportunity to express its sense of equity when it turns, as it soon must, to legislative remedies for the impending deficit in the Medicare trust fund. Such legislation, like the law that originally established the program and the one that fortified the Social Security trust fund in 1983, will probably incorporate an extensive diffusion of the costs of change. Because their "turn" has come, changes in physician reimbursement may loom large in the policy package.

Fifth, the accumulation of data, and the growing technical and analytical capacity to manipulate data, have shown policymakers how great are the differences in medical procedures and costs that exist within and across geographical areas and medical specialties, and have persuaded them that many of these differences have no objective basis in the physical condition of patients. For example, Wennberg and Gittelsohn found striking variation in rates of surgical procedures in New England communities. The application of various controls left no satisfying explanation but that physicians differed in practice styles and preferences.[39] The efforts of the Professional Standards Review Organizations to collect information on regional and local diagnostic and admissions patterns, to analyze it, and to discuss and refine into a shape sufficiently normative for peer review purposes likewise

enhanced the sense that medical practice and medical costs were replete with unjustified diversity. These findings and debates built policymakers' confidence: if rates of treatment and remuneration were in so many respects arbitrary then perhaps government might impose its own more-or-less arbitrary rules and limits on reimbursement with little fear of doing harm.

Finally, physicians' spokesmen have come to recognize that the profession itself has some stake in changes in reimbursement. Parallels with the politics of the prospective payment system for hospitals may be instructive here. Threatened with the Carter cost cap bill in the late 1970s, the hospitals fought vigorously and (as it turned out) successfully in defense of the status quo. By 1982, rising rates of spending clearly demonstrated the failure of the industry's "voluntary effort" to hold costs down, the prospect that competition would transform the federal health agenda had disappeared, Congress's interest in prospective payment was unmistakable, and the status quo was doomed. Hoping to influence outcomes it could not avert, the industry decided to play a "constructive" role in designing the new payment system, and in April 1982 the American Hospital Association came forth with its own prospective payment plan. The association's president explained that cost-based reimbursement had been "so severely tightened by Government regulations" that many hospitals were willing to be paid prospectively.[40]

As a consequence of the federal government's gradual transformation of usual and customary charges into an "exacting" mechanism of control and more recently, the Reagan administration's annual eagerness to endorse extensive cuts in and freezes on reimbursement, physicians too have come to view the prevailing system as a double-edged sword. In politically favorable times the system permits individual physicians steadily to elevate their usual charges and physicians collectively to drive up the customary charges in their community. In politically difficult times federal policymakers may tighten definitions, reduce payment percentiles, disallow cost factors, and then reassure the public that all is well because physicians are being paid on the basis of their usual and customary rates. Complaining precisely of this--that despite a growing disparity between physicians' actual charges and the reasonable charges paid by Medicare, the federal government asserts that "our payment is based on what most physicians charge anyway"--[41] the American Medical Association's Council on Medical Service recommended in 1983 that the organization consider abandoning the usual and customary method. In essence, the Council argued in 1983 for what the staff of the Senate Finance Committee had proposed in 1970--"an indemnity system of payment for the majority of services provided by physicians," with the physician left "free to charge the patient what he believes to be a fair and equitable fee for his service."[42]

Prospects for Change

Certainly, important forces for change in physician payment methods are at work among federal policymakers. Probably, significant changes of some type will be adopted before the end of the decade. The content of such changes is, however, difficult to predict in detail. Certainly, the outcome will depend partly on endogenous forces (the characteristics of the political system and its players) and partly on exogenous ones (events and trends in the larger society). Considering the usual pattern of shifts and swings in electoral sensibilities, partisan support, and ideological enthusiasm, probably it is a safe guess that over the next few years the federal Executive and Congress will be no more conservative and "pro-physician" than those in office today and that the very considerable interest in changes in physician payment among today's cast of charters is unlikely to be weaker among tomorrow's--at least insofar as electoral, partisan, and ideological variables are at work. Thus it may be useful to leave aside the endogenous factors here, focusing on the exogenous as the key predictive variables.

Two exogenous variables may be expected to play a fundamental role in political outcomes--the rate of increase of spending for physician services relative to the rate of increase of spending on hospitals and in the consumer price index (CPI) generally, and the degree to which the DRG-based prospective payment plan for hospitals in Medicare is thought to be working or faltering. The two variables together define four cells and a political "scenario" may briefly be sketched for each of the four.

If spending on physicians rises rapidly while hospital spending and the CPI slow down, and if the DRG-based system for hospitals is thought to be working well (that is, slowing the growth of hospital costs without major adverse side effects), a DRG-based system will probably be applied to inpatient physician services too in short order and with comparatively little political pain. In this situation policymakers would enjoy both a call to arms and a workable model; the coincidence of the two is the major precondition of change. Apparently the intellectual basis for applying DRG categories to physician services is intact, or nearly so, (one designer of the DRG approach recently said that such an extension was conceptually--though not politically--"a snap")[43] and there would seem to be no reason to delay extending them.

If spending on physicians continues to rise rapidly but the DRG-based system is thought to be in trouble--because it fails to contain hospital costs, triggers many hospital closures, generates large uncontained cost shifts, is beset by "gaming," or for other reasons--policymakers may well impose on physician services fee schedules that lack the elaborate methodological foundations and validation of DRGs. Doing so would trigger much political conflict:

the American belief that regulatory standards should be based not merely on practicality and public interest but also on fancy scientific reasoning will inspire charges that fee schedules are "arbitrary,""inequitable," and "perverse"--the unholy trinity of anti-regulatory rhetoric and the health sector. Nonetheless, rising costs in the face of the general factors working for change will convince policymakers that they must "do something." In this situation, however, they will seek their model not at Yale but in Europe or Canada.[44]

If increases in physician spending slow down near or below the (lower) rates for hospitals and the CPI, and the DRG-based system is thought to be working well, a lively and inconclusive legislative battle over extending the system to physicians is likely. Organized medicine and its political supporters will argue that the profession should be permitted to continue putting its own house in order without radical change imposed from outside. The reform-minded will contend that equity and consistency demand an extension of the new system to physicians and will assert that any temporary decline in the growth of spending can be no more than a blip on a generally ascending curve. In this situation, incrementalism will be in full flower, and a compromise outcome might be further tightening of the usual and customary approach, particularly for specialists.

Last, spending for physicians might level off while the DRG-based system is judged to be doing poorly. Policymakers then might be expected to shelve the issue of payment reform, at least until soaring spending sounds a new call to arms, a newly-attractive model comes on the scene, or both.

Challenges Of Change

It would be surprising if physician spending declined so sharply or the prospective payment system malfunctioned so dramatically as to neutralize the forces for change now gaining strength. Extension of the DRG-based system to physician services or adoption of a European-style fee schedule will not end debate, however, but rather will shift it to another equally troublesome set of concerns, of which three deserve special attention.

First, fee schedules (DRG-based or other) for physicians in Medicare, like the new hospital payment system, will shift costs to non-medicare payers. Because about 90 percent of hospital charges are paid by third parties, cost shifting in the new system may be expected to meet with organized resistance and to generate pressure on state governments for redress. Only about two-thirds of physician charges are paid by third parties, however; shifted costs would be spread over a less cohesive constituency, which might well diffuse political pressure for an all-payers system. On the other hand, about half the

states now use fee schedules in Medicaid and their extension to the entire system should present few conceptual obstacles if the political will were present.

Second, European experience teaches that fee schedules usually generate intense battling between generalists and specialists and among categories of specialists. It would not be surprising if these issues were ignored or downplayed in legislation authorizing fee schedules for physician services, for there is now much indignation at the high fees specialists command and much sentiment in favor of trimming them down, both as a matter of equity and in order to reduce incentives for overspecialization. They play, so to speak, the political role of the hospital that charges $3,000 for a cataract removal or $8,000 for a hip replacement, in the growth of support for the prospective payment system, the egregious "high-rollers" in need of being brought down to earth. Over time, however, specialists may be expected to recover their political standing and to hone their political skills, and disputes over payment will probably come to resemble those in Europe--persistent, angry, technically complex, and time-consuming.[45]

Third, and probably of highest and most immediate importance, is the problem of balance billing. The central governments of nations with national health insurance systems can mandate that physicians accept "assignment," that is, that they take sickness fund payments in full for services as a condition of participation. Physicians who refuse to do so must usually be content to become exclusive purveyors to the small, affluent private sector, and in the nature of the case the number of physicians who can sustain themselves comfortably in this way is limited. In the United States, by contrast, the major government health programs extend only to the elderly and to some of the poor. If participating physicians were required to accept assignment, a large number, perhaps enough seriously to impair access for the programs' clients, might withdraw their services.

Recognition that political indignation sufficiently strong to lead to the extension of prospective payments to physicians would probably also carry enough power to enact mandatory assignment has sent to the AMA into what one congressional staffer called a "frenzy." When the AMA talks about indemnity payments plus balance billing, policymakers will listen. They may reject much of what they hear, however, for although they worry about rates of participation and assignment, they are also troubled by the erosion of the value of the Medicare entitlement and by the burdens that higher out-of-pocket costs impose on the elderly. As Senator John Heinz (R-Pa.) recently pointed out, on the nearly half of Medicare claims that are unassigned beneficiaries must pay not only 20 percent copayments on reasonable charges but also the difference between reasonable charges and actual cost, which (says Heinz) has risen from 14.4 percent of the total amount of a claim in 1974 to 22 percent in 1980. Therefore, if

reasonable charges were 72.4 percent of total costs (the estimate for 1982), Medicare's payment would come only to 58 percent of the physician's total bill. Largely for this reason costs of services not reimbursed by Medicare have risen from 1.9 percent of an elderly person's average income in 1970 to 2.65 percent in 1980.[46]

Few legislators will want to accentuate this trend, but few will want to drive down the rate of participation in the program. A compromise might be to allow balance billing within limits, up to a fixed dollar figure, say, or up to a set percentage of charges. Such improvisations will settle little. Mainly they will highlight the enormous difficulties the central government faces in trying to rationalize public health care programs in a system that retains and cherishes very large elements of pluralism and privatism.

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CHANGING PHYSICIAN BEHAVIOR:
In Search of the Little Blue Button*

John R. Kimberly

Summary

This paper addresses the topic of non-economic influences on physician behavior as part of the Institute of Medicine's study on strategies for reform of physician payment. The paper is not an exhaustive review of the literature; rather it is intended to synthesize what is known in a manner that highlights potential policy options. The underlying question of interest is how might what is known about non-economic influences on physician behavior influence policies designed to change that behavior. Where is the little blue button?

Five categories of non-economic influences are particularly noteworthy: education, feedback, managerial and organizational constraints, peer pressure, and patient demands. The potential value of education is based on the assumption that there is a connection between cognitive change and behavior change. If physicians know, for example, that the benefits of a particular procedure do not come close to the costs of that procedure, the hope is that they will be disinclined to use it. In the absence of such knowledge, the argument goes, no behavior change should be expected. Is having the knowledge, however, sufficient for producing the desired change?

Feedback is a potentially powerful shaper of behavior. The notion is straightforward. In the normal course of practice, physicians get feedback in a variety of informal, generally unsystematic ways. Were formal, systematic feedback on selected aspects of their practice regularly available to physicians, they would be in a position to judge whether they wanted to change any of these aspects. For the motivational potential of feedback to be realized, the physician must be able to compare not only his present practice patterns with his own past patterns but also, and perhaps more importantly, he must be able to compare his pattern with the patterns of other physicians in comparable settings.

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As professionals, physicians are susceptible to influence by other professionals whom they particularly respect. Although difficult to quantify its effects, peer influence appears to shape important dimensions of clinical practice such as test ordering, preferences for drug perscription, and technology utilization. Peer influence also shapes behavior in more subtle ways, and undoubtedly influences, at least at the margins, important non-work values and attitudes as well.

The contexts in which physicians practice medicine are changing rapidly. One of the most striking changes is the increasingly organizational character of those settings. As a result, physicians are more subject to managerial and organizational constraints than at any time in the past. Their work will be more carefully scrutinized, and organizational priorities will have to be integrated with professional priorities. The traditional autonomy that physicians have enjoyed will inevitably diminish somewhat as their work is subject to managers' needs for coordination and control. To the extent that physicians become employees of organizations (which they themselves may or may not own), they become subject to new constraints and controls which will influence their behavior, economic and non-economic.

Education, feedback and peer influence do not appear to be significant, enduring influences or behavior in and of themselves. Rather, their effects are most powerful in concert. Initiatives designed to change physician behavior, therefore, ought not to focus exclusively on one of them. To the extent that any given intervention can incorporate all three sensibly, it stands a better change of having a more profound, more enduring impact. For this reason, the increasingly organized character of medical practice is significant. Organizational settings where physicians are using their professional skills in close proximity to other physicians and where other links may be established among them provide unusually good opportunities to incorporate all three effectively.

Patient demands are perhaps less amenable to policy initiatives, but are nonetheless an influence on physician behavior which deserves mention. Assuming that the vast majority of physicians want to practice good medicine, and assuming that an important part of their sense of professional competence comes from the affective quality of their relations with patients, they may be more open to influence from their patients than we might believe. As patients become more sophisticated, ask more questions, and begin to assume greater responsibility for personal health and medical decisions, we can expect the nature of the influence process in the patient/physician encounter to change.

These five categories of non-economic influences must be considered in the context of the changing environment in which the physician practices medicine. The changing demographics of the population, the increased emphasis on efficiency in the settings in which they practice, increased competition among physicians for patients, and the spread of

corporate medicine all signal rather dramatic changes in the matrix of incentives to become a physician and in the structure of rewards for being a physician. Policy initiatives intended to influence physician behavior must be built on an awareness of differences among physicians currently in the profession and on their effects on the process of recruitment of new blood to the profession.

Introduction

This paper is designed to stimulate reflection on some of the key non-economic influences on physician behavior. It is not a comprehensive review of research on that and related topics. Such a review might be useful, but would require excursions into the disciplines of psychology, social psychology, sociology, and anthropology as well as the medical literature. The more limited objectives of this paper required a more selective review strategy.

Two questions were posed initially by the topic, and the answers helped shape the approach taken. First, what are "non-economic" influences? The answer to this question proved elusive. An effort to develop a definitive answer would have perhaps been theoretically interesting, but as a practical matter would have led us far afield. Because the boundaries between economic and non-economic influences are hazy at best, we decided to focus on factors whose primary influence appeared to be non-economic. Even this distinction is imperfect, but it permitted us to move off dead center. Theoretical purists may yearn for more rigor, and undoubtedly the issue deserves more attention than we were able to give it.

A second question posed at the outset was what kinds of physician behaviors should receive attention? It is tempting to distinguish between clinical and non-clinical behavior, and, indeed, much of what has been written uses this distinction either explicitly or implicitly. Studies of physician use of new technology, test ordering, or drug prescribing, for example, focus on clinical behavior. The distinction is useful as a way of talking about what has been written (the vast majority of which looks at clinical as opposed to non-clinical behavior) but may be less useful in thinking about policy options. We will return to this issue later in the paper, but for now let us raise the possibility that the distinction unnecessarily constrains the way we think about how behavior might be influenced.

With these two questions at least confronted--if not resolved--the literature was reviewed selectively, principal themes were identified, and implications were explored. The three main sections of the paper which follow contain the essence of this work. Section II, Primary Influences, briefly reviews some of the basic research and then synthesizes the most policy-relevant work into the five headings noted above. Fortunately or unfortunately--it is a matter of perspective--the world does not hold still. In Section III some of the more significant

changes in the environment of the medical profession and its practice are noted. The purpose is to highlight the fact that new policy initiatives need to be based on informal predictions about the direction and impact of these changes rather than on the existing order. Moving targets are more difficult to hit, to be sure, than stationary ones--particularly when there is considerable uncertainty about their direction and velocity--but treating a moving target as though it were stationary is to guarantee a miss.

The final section of the paper suggests an alternative way of thinking about influences on physician behavior and proposes a set of research questions that need to be asked if one goal is to move beyond present levels of understanding.

Primary Influences

Career Choice. A great deal of effort has been invested in understanding the various kinds of career choices that physicians make. The choices themselves are varied: choice of medicine as a profession; choice of medical school; choice of internship and residency; choice of specialty and sub-specialty; choice of academic medicine versus private practice; choice of location of practice; choice of setting for practice; and choice of kinds of patients to serve. Studies that have been done are primarily correlational or associational, that is, the outcomes of these choices for individual physicians are correlated across large numbers of physicians in an effort to detect patterns. Exceptions are studies of medical education and its influence on how future physicians are socialized into the profession.[1] These studies tend to be done in the field and examine the decision process up close. The primary findings, of course, are that medical school is a powerful socializing agent, that future physicians are often strongly influenced by faculty role models, and that one consequence is often a devaluing of general practice or primary care and an over-emphasis on specialty practice.

Non-clinical professional behavior. In this category are studies which in practice explore a relatively limited range of behaviors but which to be more useful should broaden that range. Examples of this kind of behavior are variability in physician travel to professional meetings and variabilitly in reading of scientific literature related to professional practice. Such issues are rarely the primary focus of study. More often these variables are included as part of a study of something else, and the results are generally correlational and thus of limited value in other than a descriptive sense. Studies with these variables included are relatively few in number. Fewer still are studies of non-clinical professional behaviors of considerable current interest to policy makers, such as political activity in professional associations or involvement in administrative or managerial roles. Even descriptive information here would be helpful.

The basic conclusion is that, for whatever reasons, non-clinical professional behavior has not attracted much research attention. Whether more attention would be productive is a question well worth addressing.

Clinical decision-making. A great deal of research has been done in this arena, primarily because of the potential attributed to changing certain aspects of clinical behavior for controlling the costs of medical care.[4] If physicians would order fewer laboratory tests, prescribe fewer drugs, and be less inclined to use expensive technology of questionable efficacy, the aggregate impact on costs would be significant, the argument goes.

There is considerable evidence that the problem of overutilization is real, particularly with respect to test ordering and use of technology.[5] The explanations vary. Younger physicians tend to order more tests than older ones. Internists in academic health centers tend to order more than in other settings. Is the explanation age-centered, setting-centered, or both? With respect to technology, the problem appears to be the demand of physicians for the latest developments, independent of demonstrated clinical efficacy.[6] Once the technology is available in an institution, there are pressures to use it. What explains the rapid diffusion of essentially unproven technologies? The dominant explanation appears to be, in the hospital setting, physician pressure. Yet one has to wonder whether this explanation ignores some of the complexity of the physician/institution relationship. At the very least, one has to wonder how all this may change as we move from cost-based to prospective reimbursement.

Given the widespread belief that change in clinical behavior is something that is worthwhile pursuing, a number of studies have reported the results of experiments designed to produce such change. Some experiments have involved educating physicians about the costs of the tests they order.[7] The idea is that, absent such information, there is no reason to expect physicians to change. Knowing costs, however, might affect their decisions. Other experiments have used feedback to physicians about certain aspects of their clinical behavior compared with others in their institution and others with similar patients in similar settings.[8] The idea here is that if physicians observe differences they will be motivated to change. The assumption, of course, is that physicians who see themselves, for example, as ordering comparatively more tests for their patient with similar problems will be encouraged to order fewer tests. Less attention has been focused on the case of the physician who uses relatively fewer tests. Will he be encouraged to order more?

The results of these studies provide hope if not certainty. Educational efforts have proven successful, if only for a short time. Feedback has proven to be a motivator of change, although not equally powerful under all circumstances and for all physicians.[9] Variation in

utilization of resources is real, differences in the clinical behavior of physicians accounts for a large part of this variation, and this behavior is susceptible to change. Precisely how and under what conditions remains somewhat cloudy.

Other studies cite the importance of opinion leadership in influencing the clinical behavior of physicians. Perhaps the best-known of these studies focused on patterns of diffusion of a new drug among physicians and discovered that a very few well-respected physicians had an enormous influence on their colleagues.[10] These physicians were, in effect, gatekeepers. When they began prescribing the drug, the green light quickly flashed to their colleagues. The implications of this study certainly have not been lost on the pharmaceutical industry.

Physicians in most respects are like anyone else. They have role models. They mirror the values of and try to emulate those whom they respect. They have self-doubts and anxieties. They are, in other words, susceptible to a whole range of influences on their behavior, many of which are economic but many of which are not. In a very real sense, the nature of a physician's work and more important, the attributions we make toward it make it difficult for us to see the uncertain, trial-and-error, non-scientific context of the world he inhabits. We are thus less able to appreciate the power of the motivational levers that are available and are perhaps less able to see the levers themselves. As many observers have noted, the contexts in which most physicians work most of the time are loaded with incentives for greater rather than reduced use of resources.[11] The challenge is to understand the incentives, the contexts, and human behavior well enough to know which levers are there and which to pull.

The social context and normative understructure of physician behavior. Some researchers have tried to understand physician behavior by observing it in situ. The use of anthropologically-inspired ethnographic methods has its drawbacks, as the recent controversy over Margaret Mead's early writings suggests.[12] Nevertheless, there are some themes that emerge from the research that has been done that deserve careful attention. Most significant is the power of the informal normative structure that evolves wherever physicians work together. The informal norms define the ranges of acceptable and unacceptable behavior on a whole series of dimensions. They define what clinical mistakes are and how they will be handled. They define a code of ethics for that setting.[13] And undoubtedly they define the parameters within which economic incentives will operate. What is particularly noteworthy is that these norms operate outside of formal rules and regulations. They are the equivalent of local interpretations. They may operate in concert with the formal rules or they may act as a buffer between those rules and what physicians actually do. And although there are undoubtedly certain norms that operate at the level of communities, the most powerful influences on physician behavior on a day-to-day basis are those that operate in their immediate environment. As the sites where physicians

work assume an increasingly organizational character, this will mean that influences will be felt primarily at the organizational and departmental levels.

Implications. We have skimmed over the surface of what is really a substantial body of literature on physician behavior. Much of this literature is descriptive; relatively little of it is straightforward in its implications for policy intended to change that behavior. Nevertheless, we know enough at this point both about physician behavior and human behavior in general to be able to extract from what has been written a limited set of variables on which to place our bets. Assuming that the goal is to change physician behavior, we should bet on a combination of education, feedback, peer pressure, organizational and managerial constraints, and patient demands.

It is often suggested that because of the early and powerful influence of medical education on subsequent career choices, the most direct and effective way to change physician behavior is to change the structure, context and process of medical education. I do not disagree that such change would be helpful. However, I believe that the lasting influence of the experience may be over-estimated and the difficulty of producing major change in medical education may be under-estimated by those advocating this strategy. As a practical matter, therefore, I choose to emphasize the five variables noted above. Efforts to rethink the structure, content and process of medical education should continue. In the near term, there are other initiatives that may be taken as well.

By education, I mean increasing the knowledge that practicing physicians have about selected aspects of their practice. It has been demonstrated that overuse of resources can be reduced by a program deliberately designed to educate users about such things as cost.[14] Lack of awareness of cost may contribute to overuse. Education may help solve the problem. The question which has arisen is how long we can expect education effects to persist. Given that the effects do not appear to be permanent, the conclusion is that education may be helpful, it certainly ought to be incorporated more widely, and that it is not sufficient to achieve the desired result.

By feedback, I mean providing physicians with information about selected aspects of their own past and current patterns of practice and the practice of others in similar settings with similar patients so that they can see how their patterns have changed and where they stand relative to their peers.[15] The presumption is that once they are aware of these two dimensions they may be motivated to change. The absence of feedback affords them little opportunity to raise the question about whether change should be contemplated or to make the judgment about where change should take place and why. As with education, one can question the permanence of the effects of feedback. More to the point, however one can also ask how feedback should be designed in order to enhance its

effectiveness. Here the worlds of medicine and management intersect in what might prove to be an interesting and productive way.

The influence of peers is powerful. The theme runs throughout the literature on physician behavior in more and less explicit ways. And it certainly pervades more general theories of human behavior. To oversimplify the message only somewhat, physicians, like other people, are influenced in a variety of ways by their peers. Two aspects of peer influence are particularly relevant here. First is the importance of what have been called "opinion leaders." These are the surprisingly small number of individuals to whom others look for signals about what is legitimate and valued. Identification of opinion leaders and changing their behavior is a potentially powerful and efficient way to engender broader-based behavior change.[16] Second is the development of what we referred to earlier as the normative understructure of physician behavior. These norms are held, transmitted, and enforced by peers. Change in these norms is unlikely to occur without widespread peer approval and support. The implication here, though perhaps obvious, or perhaps because it is obvious, is often overlooked by those who would create change. The result repeatedly is change in veneer without change in substance.

Managerial and organizational constraints may be the focal point for education, feedback, and peer influence. None of those three in isolation is likely to produce the enduring changes in physician behavior that many are searching for. To the extent that current trends for physicians to exercise their profession in increasingly organized settings continue, opportunities to influence their behavior will flower. Possibilities for linking educational efforts with regular, systematic feedback and capitalizing on the power of peer influence are dramatically enhanced when physicians are working in close proximity and are subject to a common administrative system, no matter how loosely or tightly defined that system may be. Enough is known about designing education and performance feedback systems and about capitalizing on the power of peer pressure to permit policy initiatives to take advantage of the increasingly organized character of the practice of medicine.

Patient demands are less amenable to policy initiatives (although second opinion experiments may have encouraged patients to be less reticent to question their own physician) than the foregoing, but their influence on physician behavior deserves recognition. In fact, as one reflects on the social context of medical practice and how physicians develop feelings of personal competence and self-worth, the influence of patients on physician behavior may be greater than we think. Two trends are noteworthy. First is the increasing sophistication of the patient. Patients appear to be more likely to ask questions about diagnostic and therapeutic regimens now than previously. They appear, in other words, to be less likely to be passive in their relationships with physicians than has been the case historically. To the extent that this trend

continues, physicians will be increasingly constrained to think through and justify their clinical decisions to their patients. One might expect that this phenomenon alone would influence physician behavior. The real question, of course, has to do with the direction of this influence. Assuming that it is in the physician's interest to be responsive to patient demands (in part as a consequence of increasing competition among physicians for patients and the need to protect markets, the second trend alluded to above), one can imagine a price-sensitive, procedure-skeptical patient influencing the physician and, in the aggregate, the system, in an ultimately cost-containing way. On the other hand, one can imagine the physician interested in being responsive to patient demands giving a price-sensitive, procedure-oriented patient what he or she wants (within limits) thereby contributing to the cost spiral. Both scenarios are over-simple, of course, but the point is that the patient may have considerable leverage on physician behavior. If this possibility is acknowledged, then one policy orientation might be in the direction of producing price-sensitive, procedure-skeptical patients. What the most efficient vehicles for doing this are is open to discussion, and many different proposals ave been advanced. The basic point is that the influence of the patient on physician behavior is substantial and its potential ought to be incorporated into thinking about policy options.

To summarize, the most significant non-economic influences on physician behavior are education, feedback, peer pressure, managerial and organizational constraints and patient demands. Working these one at a time, or not appreciating their joint effects will diminish substantially their potential to produce significant, enduring change in the way physicians do their business. Furthermore, exploration of their effects has been limited primarily to clinical behavior. Less is known about influences on career choice, non-clinical professional behavior, and behavior apart from the profession which may affect professional behavior. Each of these behavior domains could be more throughly researched with great profit.

Clinical uncertainty. In a view that leads in a parallel direction for policy, one relatively common explanation for overutilization of resources is the way in which physicians seek and use information in clinical practice. Faced with uncertainty and not wanting to commit errors of omission the argument goes, the physician tends to gather as much information as possible in the course of dealing with the patient, regardless of cost. The threat of malpractice further intensifies this tendency.

Absent incentives to the contrary, physicians will continue to seek more information than they need in many cases to do their work, thus continuing the strong upward pressure on costs. What might help develop counter pressures? One answer is for the profession to begin to define practice guidelines more carefully and more extensively. Development of such guidelines by acknowledged leaders could interact in a potentially useful way with education and feedback. Appropriateness of deviation

from the guidelines would be judged by peers. This device would not remove clinical uncertainty, but would help the individual physician judge what constitutes sound medical practice in particular cases.

Development of practice guidelines is fraught with problems, to be sure. But a variety of developmental efforts are currently underway, and they are likely to increase. Creation of the DRGs required a similar effort, and institutional management pressures will encourage similar activities. Thus, there appears to be a convergence of forces moving in the direction of the establishment of practice guidelines. These guidelines could influence physician behavior positively if developed and implemented properly. That is the policy challenge.

Environmental Changes

There is no need here to rehearse the myriad changes that are taking place in the environment of medicine.[17] Of particular interest is the increase in the supply of physicians, the increasing application of the logic of managerial efficiency to the work that health professionals do, the proliferation of organizations as the "home base" for physicians, the infusion of private capital into the health care industry, and the growth of multi-institutional arrangements of many sorts linking previously independent, autonomous health care providing institutions one to another.

Opinions differ on the desirability of many of these changes, a fact which surprises no one. At least one implication of these changes, however, is clear. The context of the practice of medicine in 1986 will be strikingly different from the context only 10 years earlier. That context will see much closer scrutiny of physicians' work at a very micro level, greatly increased pressures to keep costs down, much less solo practice, and much more "corporate medicine."[18]

It would take considerable time to do full justice to the implications of the changing environment for patterns of physician behavior. For present purposes, I would like to make only two points. First, most physicians are well aware of the fact that change is in the wind and that their lives will be affected by the shape of these changes. This awareness will produce a mixture of anxiety, anger, withdrawal, hostility and enthusiastic participation from the profession, whose members hardly speak with one voice. Second, whatever policy changes are contemplated should be based on emerging realities rather than outdated models. At some point, the solo practitioner will be exceptional. Like it or not, organized settings will be statistically the most dominant employer of physician labor. This fact will provide abundant opportunities to influence physician behavior. The challenge will not be to find the little blue button which, when pushed, will suddenly line up economic and non-economic influences in a sensible, enduring fashion. The button simply does not exist and never will. The

challenge is to use what is known about economic and non-economic influences on physician behavior creatively and responsibly.

New Research Initiatives

In this final section of the paper, I would like to sketch the broad outlines of an alternative way of looking at and doing research on physician behavior which, if more fully developed and seriously pursued, might result in greater understanding of physician behavior and the parameters that changes in policy might be expected to influence.

One striking feature of much of the research on the topic is that it is cross-sectional. Snapshots are taken, attributes of those snapshots are correlated, and dynamic tendencies are inferred. The pitfalls of such approaches are often acknowledged, yet alternative strategies have seldom, to my knowledge, been pursued.

Cross-sectional correlational studies provide useful descriptive portraits. They do not, however, enable one to determine the etiology of observed patterns. How and why did the patterns turn out as they did, and what implications do the answers to these questions have for how the patterns are likely to look tomorrow? Or next year? The answers to questions such as these are both important and elusive with present research orientations. What might a more productive orientation look like?

A combination of introspection and even the most casual of conversations with others strongly suggests that people have different priorities at different times in their lives, that they are motivated by different concerns, and that their behavior is most difficult to understand, let alone influence, without some insight into what mix of priorities has and has had significance for them. Should we expect things to be any different for physicians? It is not unreasonable to expect that physicians fresh out of training will have different priorities and will respond to different incentives than physicians who have been in practice for 20 years and whose children are through college. At any given time the population of physicians includes people who are at very different points in the development of their professional careers and personal ambitions. It would be unrealistic to assume, therefore, that this population would respond with anything like uniformity to changed incentive structures.

The research challenge is to develop a greater appreciation for the dynamics of physician personal and career development. Are there "typical" developmental patterns? If there are, what are their characteristics and how can we account for differences between clusters? What are the implications of these differences for changing behavior? Might not different strategies be more effective for different clusters? It is here that I return to the distinction between clinical and

non-clinical behavior about which I expressed some concerns earlier in the paper. The distinction is useful in the context of describing research on physician behavior, the vast majority of which focuses on clinical behavior. Both the distinction and the focus, however, tend to compartmentalize artifically the life of the physician. As all of us, the physician may play many roles: wage-earner; spouse; parent; homeowner; politician; friend; social critic; taxpayer; investor. The list is long. The influences on behavior are multiple and often conflicting. To focus exclusively on clinical behavior is to focus on one arena and perhaps to ignore or underestimate the power of other arenas and how they do or do not fit together as shapers of motivation and behavior.

The increasing supply of physicians, the increased emphasis on productive efficiency, and the increasingly organized character of much of medical practice will change the way in which the physician views the existing opportunity structure. Research and policy need to appreciate these changes and their personal and career implications. A developmental view of the meaning and consequences of being a physician will enhance this appreciation.

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THE IMPACT OF CHANGES IN PAYMENT METHODS ON THE SUPPLY OF PHYSICIANS' SERVICES

Robert H. Lee, Ph.D.

Introduction

Change in the way that physicians are paid seems likely. Not only are businesses and governments actively seeking ways to save money by restructuring their insurance programs, but the market for physicians' services is becoming increasingly competitive as the number of physicians grows. These two forces seem increasingly likely to lead to changes in the ways that physicians are paid, perhaps as a result of government policy or perhaps as a result of market pressures to adopt innovative payment methods. Physicians just beginning to practice are likely to respond in the most dramatic fashion, but changes in payment methods could affect the practice and income of every physician.

How will the supply of services be affected by changes in the way that physicians are paid? An answer requires careful specification of the changes that seem likely to occur and of what is meant by supply.

Five kinds of changes seem likely, or at least possible. Three of these changes will be due primarily to policy changes and will directly affect the fee-for-service market:

1. Restructured schedules of allowed or reasonable fees.
2. Altered assignment or participation arrangements.
3. Experiments with per-case payments.

The remaining changes will primarily be responses to a changed market, rather than explicit changes in policy.

4. Expanded numbers of physicians working in prepaid settings.
5. Increased numbers of physicians being salaried employees.

All of these changes will alter the existing fee-for-service system.

What is meant by the supply of services? A deceptively simple answer is "the amount of a particular service that is available in a particular area at a given price." An example would be the number of house calls

that physicians in Chapel Hill would be willing to provide for $30 per visit. Even this simple example becomes complex rather quickly, because the supply of house calls in Chapel Hill will depend on how many physicians have chosen to practice there, what their specialties are, and for how many of these physicians $30 is an adequate fee, which will depend on their values and on how much they can earn doing other things. Because the idea of supply is so complicated, it needs to be broken down into at least four separate components:

1. What specialty physicians choose.
2. What location physicians choose.
3. How much physicians choose to produce.
4. What mix of output physicians choose to produce.

This breakdown makes the question tractable, even if the answers are not known.

To assess precisely the effects of changes in the payment system on the various aspects of supply, two questions must be answered. First, how will a particular change affect the financial rewards of a particular specialty, location, or type of output? In the absence of specific proposals this question cannot really be addressed, but specific proposals can be evaluated if a second question can be answered. How much are physicians' decisions affected by financial considerations? A great deal, somewhat, or very little?

This paper focuses on how much supply decisions are affected by financial factors. "How much" will be expressed as the percent change in the component of supply that is associated with a one percent change in the financial variable in question. For example, Berry et.al. estimate that if gross earnings increase one percent, net immigration increases by 3.4 percent. This way of describing results avoids any confusion due to how either gross earnings are measured (i.e., in dollars per year or thousands of dollars per year). It also offers a reminder that empirical results are historical in nature and can be extrapolated only with care. That is, if a change in policy increases gross incomes by 2 percent, it is probably reasonable to use the above estimate to calculate that net in-migration will increase by 6.8 percent. Because the change falls outside the range of historical experience however, it is not proper also to infer that a 50 percent rise in gross income would result in a 170.0 percent increase in net in-migration. Either a much larger response or a much smaller response could be possible. History serves as a very uncertain guide in the face of dramatic changes.

Given these qualifications, what does existing research tell us about the impact of the payment system on physicians' specialty choices, location choices, productivity, and output mix? It tells us quite a lot, but data problems and the complexity of the existing payment system leave some important issues unresolved.

The Payment System and Physicians' Specialty and Location Decisions

There has been considerable analysis of physicians' career decisions. Much of this research, unfortunately, either has ignored the impact of financial factors on career choices or has relied on inadequate measures of the financial rewards of particular specialties or locations. Consequently, only a few studies merit careful attention.

The fundamental problem confronting analyses of physicians' career choices is inadequate data. Data on prices and incomes are often not available, and the data that exist are usually of suspect quality. As a result, even for studies that have emphasized the impact of financial factors on career choices, data problems make the conclusions somewhat suspect.

Location Choices

Most established physicians are not likely to move. Consequently, it is the location choices of young physicians that seem most apt to be influenced by financial considerations. Although other factors seem likely to determine the location choices of most young physicians, an area that promises above average incomes seems likely to attract some additional physicians as a result. By the same token, an area that promises below average incomes seems likely to discourage some physicians from setting up practice there. The strength of this effect is the principal research question.

Because Canadian data on physicians' incomes are considerably better than U.S. data, two of the more reliable studies of the impact of income on location use Canadian data. Both find a relatively large impact.

Berry et.al. (1978) examined the migration of physicians in and out of medical service areas in Quebec between 1971 and 1975. The authors concluded that net immigration (those entering minus those leaving) was quite strongly associated with average gross earnings in the service area during the previous year. Using multiple regression analysis, the authors estimated that a medical service area in which physicians average gross earnings were ten percent above average experienced net immigration of physicians who were not board certified that was 34 percent above average.

In a study with comparable results, Hadley (1978) examined annual changes in the distribution of physicians in nine Canadian provinces between 1958 and 1976. Hadley estimated that a province in which physicians' net incomes were 10 percent above average could expect to attract 33 percent more new physicians than average. Because these data covered a relatively long period of time, Hadley was also able to examine how quickly physicians would respond to these differences in potential earnings. He estimated that it would take nearly seven years before the entry of physicians would be large enough to cause net income in a

high-income province to fall to average levels. So, even though practice location decisions appear to be significantly influenced by income opportunities, the adjustment process takes time.

These two Canadian studies are of interest because they are based on much better data than comparable U.S. studies. To begin with, both had reliable income data. In addition, both had data on a number of areas for several years. This allows researchers to control for non-financial attributes of locations that may cloud the impact of financial factors. For example, one suspects that some physicians will be willing to accept a relatively low income to live in Montreal. Of primary interest, however, is the effect of a drop in potential income in Montreal relative to potential income elsewhere. To examine this question requires data for several years for each location. In addition, the Berry et.al. study focused on small areas. Since physicians choose to practice in communities, and since there can be considerable variation in a physician's potential income among communities within a state or province, such an emphasis on small areas lends credence to the results. The quality of the data used and the comparability of the results of these two studies surpass those of any studies of the U.S. It may even be plausible to argue that Canada is enough like the U.S.--despite the differences in the two medical care systems--that the results may be seen as applying to the U.S. as well. That, however, has yet to be demonstrated.

For the most part, studies of the impact of financial factors on the distribution of physicians in the U.S. have had to rely on unsatisfactory data. Information on the location of physicians is fairly good, but very little satisfactory data on physicians' prices or incomes are available. Where financial data exist, they often are too aggregate to be adequate. This may explain why U.S. studies generally have found a smaller effect of financial factors on location decisions than was found in the Canadian studies.

A notable exception was Ramaswamy and Tokuhata's 1975 study of variations in the number of physicians per capita in the counties of Pennsylvania. The authors developed county-level price indices from Blue Shield claims data and so had rather good data on prices. The authors found that counties in which physicians could charge high prices had more physicians per capita. Unfortunately, their estimates are relatively imprecise. Ramaswamy and Tokuhata calculated that a county with a price index 10 percent higher than average had between 25 and 62 percent more physicians per capita. This imprecision may be due to unmeasured characteristics of the counties that also affect the supply of physicians for reasons unrelated to price. For example, the presence of a medical school might attract specialists who deliver care to patients from other counties. In any event, the results are valid only for Pennsylvania, so this study cannot supply a general conclusion about the impact of earnings potential on the supply of physicians.

A study of a number of states by Fuchs and Kramer (1973) employed a fairly similar approach, but found smaller, if equally variable, effects. Fuchs and Kramer estimated that a 10 percent increase in prices in a state was associated with an increase in the number of patient care physicians of between 4.2 to 11.4 percent. It does not appear, however, that the data on prices were as reliable as in the Ramaswamy-Tokuhata analysis. In addition, the Fuchs-Kramer study used states as the unit of analysis, which may or may not be satisfactory.

Cantwell (1979) examined the relationship between prices and physician supply for a number of metropolitan areas and county groups. Unlike the other authors, Cantwell assumed that the impact of the supply of physicians on prices could safely be ignored. If not correct (most researchers would argue that it is not), this assumption would tend to bias downward the estimated impact of prices on supply. Cantwell found that areas with high prices had more physicians, but that the effect was smaller than in the two preceeding studies. This may be a result of the specification of the model.

Several studies have investigated the relationship between physicians' incomes and the supply of physicians. All used the state as the unit of analysis, and only one examined the post-Medicare period. Harrison and Jud examined the interaction between physicians' incomes and the number of physicians in a number of states for 1967 and 1968. They found that states in which physicians' incomes were 10 percent above average had over 16 percent more physicians than otherwise comparable states.

Held examined the impact of physicians' incomes on rates of in-migration and out-migration for some 1955-1965 graduates of U.S. medical schools. He found that high income in a state tended to increase in-migration and decrease out-migration, but the effect depended on the amount of contact physicians had had with the area to which they were migrating.

An area in which physicians' expected earning potentials are high should be attractive as a result. Existing research is consistent with this perception, but gives no real guidance as to how strongly this affects physicians' location choices. For a number of reasons, data on prices and incomes are not good enough to permit much precision. Consequently, we really have very little idea of how long it would take for physicians to respond to a change in the payment system that made one area more attractive or less attractive financially. As the market for physicians' services becomes more competitive we would expect that financial concerns would play a larger role in physicians' location choices, so even good historical evidence might not accurately predict the response in the future.

Specialty Choice

Very little research on the impact of financial factors on specialty choice exists. Even if good data on prices or incomes were available, two problems would complicate analyses of specialty choice. To begin with, if financial factors affect students' specialty choices, it is expectations about potential earnings rather than actual earnings that matter. Presumably there is a link between reported income data and students' expectations, but very little is known about this relationship. In addition to this problem, it is likely that non-financial factors disguise the relationship between earning potential and specialty choice. For example, suppose that one specialty offered a more pleasant lifestyle than another. Economic theory predicts that students will enter the more attractive specialty until income in that specialty falls enough to make it comparable with the specialty with the less pleasant lifestyle. In principle, at least, information about these non-financial characteristics is needed to assess the impact of expected earnings on specialty choice.

Only one study has directly tackled this problem. Hay (1981) uses a complex model that statistically adjusted for the effects of unobserved non-financial characteristics. Without the adjustment Hay found no significant effect of income on specialty choice. With the adjustment a higher income was found to significantly increase the probability that a specialty would be chosen. Hay concludes that failure to adjust for these non-financial effects should be seen as a significant limitation of other studies.

Only three other examinations of financial factors and specialty choice have been published. The consensus of these studies is that there is a small impact of income on students' specialty choices. Sloan (1970) examined the impact of lifetime earnings on the number of residents in various specialties. He attempted to explain the decision to specialize as being partly due to the earnings in the several specialties relative to earnings in general practice. A more recent but more limited study by Lee (1980) looked at changes in the proportion of residents entering psychiatry between 1966 and 1973. Because it looked at changes over time, the Lee study was somewhat less vulnerable to problems due to inability to measure all the relevant non-financial factors. Despite their quite different approaches, the two studies reached nearly identical conclusions about psychiatry: an increase in psychiatrists' incomes would lead to a statistically significant, but very small increase in the number of psychiatry residents. Sloan's results for other specialties also found that higher relative incomes would lead to more residents in the more financially rewarding specialty. A study by Hadley (1979) found relatively little support for the hypothesis that higher relative incomes increase the number of students choosing the more rewarding specialty. Only for internal medicine was there evidence of this effect.

The conventional wisdom is that income expectations have some impact, but not too much, on specialty choice. Available data, however, permit only very tentative conclusions. In addition, Hay's findings suggest that earlier studies may have underestimated the effects of earning potential on specialty choice. In any event, a change in the payment system that significantly changed expectations about earnings in a particular specialty might well lead to a fairly dramatic shift in that specialty's popularity. Such changes in earnings have not been observed, however, so the response cannot be forecast accurately.

Physicians' Productivity

Economic research on physicians' productivity has two sides: theoretical and empirical. Its theoretical side makes a number of straightforward predictions that have immediate policy relevance. Its empirical side faces extremely difficult data problems and offers fewer unambiguous conclusions. From an empirical standpoint, the fundamental problem is that defining a physician's output in a satisfactory way is difficult. Consequently, there is always the lingering concern that empirical studies are measuring changes in the kind of output as well as the volume of output being produced.

A brief overview of the main issues will help set the stage for the discussion to follow. First, physicians in solo, fee-for-service practice have incentives to be as efficient as possible, but it may not be possible for a physician in solo practice to be as productive as a physician in group practice due to the inherent advantages of group practice, which are termed economies of scale. Second, although the potential productivity of a physician in a fee-for-service group practice may exceed that of his or her solo counterpart, being in a group may dilute incentives enough to offset this advantage. Third, there is a strong suspicion that physicians in prepaid group practices--especially those who are salaried--will be less productive than their fee-for-service counterparts.

Defining Efficiency and Productivity

There are two ways of defining efficiency for physicians: narrowly, in terms of the cost of producing services, or broadly, in terms of the social cost of illness. The two concepts are related but not identical. The connection is that efficiency in the broad sense requires efficiency in the narrow sense, but efficiency in the narrow sense does not guarantee efficiency in the broad sense.

Efficiency in the narrow sense entails producing a given output as inexpensively as possible. Alternatively, it could be described as producing as much as possible given the resources at hand. The two ways of characterizing efficiency are mirror images of one another; which is most useful depends on the situation at hand.

Efficiency in the broad sense involves pushing the social cost of illness as low as possible. This concept may entail courses of action that are not purely medical in nature, such as prevention through education or exercise. It also may entail hard decisions about where resources should be focused, since what is possible depends on how resources are divided among individuals' and society's competing goals. Still, efficiency in this broad sense requires efficiency in the narrow sense. If it were possible to use fewer resources to produce the amount of medical care that is desired (that is, if we were inefficient in the narrow sense), efficiency in the broad sense could not have been attained either. It is possible, of course, to produce medical care as inexpensively as possible, but to be producing the wrong mix of care, so efficiency in the narrow sense cannot ensure efficiency in the broad sense.

For understandable reasons, the literature on productivity emphasizes the narrow sense of efficiency. Since what to produce and how to produce it as efficiently as possible are separate issues, this is an understandable approach. It limits, however, need to be remembered.

Productivity in Solo, Fee-for-Service Practice

Economic theory predicts that solo practitioners in fee-for-service markets should be as efficient as possible. Whatever the physician's goals--more income, more leisure, better patient care--increased efficiency lets the physician get more of it. In short, economic incentives encourage efficiency.

Interestingly, despite this unambiguous prediction, the conventional wisdom is that physicians in solo, fee-for-service produce less than they profitably could because they have too few aides and too little equipment (Reinhardt, 1972). Although widely believed, this conclusion seems likely not to be correct for two reasons. First, it hinges on the assumption that physicians are price takers, meaning that a physician's patients would seek care elsewhere if his or her prices were even slightly above the going rate. This is a fairly difficult assumption to accept, and it conflicts with other evidence (Lee and Hadley, 1981). Second, some technical criticisms of Reinhardt's work have been advanced, and a similar analysis of other data by Brown and Lapan (1980) finds results somewhat at variance with Reinhardt's.

Further research on physicians' productivity is needed, but alternatives to the current approach should be considered. To challenge the theoretical presumption that physicians in solo, fee-for-service practice are efficient (given the constraints imposed by solo practice) requires more robust evidence.

It is possible, of course, that even though as efficient as possible, physicians in solo practice are intrinsically less productive than physicians in groups. The primary reason, it appears, is the size of the

typical solo practice: most solo practices are too small to permit the most efficient use of aides and equipment. There may be, in other words, economies of scale in medical practice, so that group practices have an inherent cost and productivity advantage. Although not all observers are convinced, several studies have found evidence of returns to scale (Reinhardt, 1972; Kimbell and Lorant, 1977).

The data in Table 1 are fairly typical of the evidence on scale economies. They suggest that physicians in solo practice are less productive and earn less than physicians in small groups. Part of the difference in productivity is due to the greater use of aides and equipment by group physicians, but group physicians appear to be more

Table 1

Output and Net Revenue per Hour by Practice Organization

Type of Practice	Total Patient Visits Per Hour	Net Income Per Hour
1 MD	2.17	$33.18
2-3 MDS	2.48	35.03
4-7 MDS	2.52	37.32
8 + MDS	2.21	34.65

Source: Profile of Medical Practice 1981, American Medical Association.

productive even after this is taken into account. Part of the difference may be due to differences in the type of output produced. Whatever the source of the differential, group practice appears to be more profitable than solo practice. Average net revenue per hour is between 4.4 and 12.5 percent higher for physicians in groups.

Productivity in Group, Fee-for-Service Practices

Two offsetting factors affect the productivity of physicians practicing in groups. First, there appear to be economies of scale that make physicians in groups more productive than solo practitioners, although the conventional wisdom is that the productivity gains of group practice are realized by groups that are relatively small (Kimbell and Lorant, 1977; Bailey, 1968; Golladay, Manser, and Smith, 1974). As groups become larger, however, incentives for individual physicians to be as efficient as possible become diluted, and productivity may begin to fall (Sloan, 1974). The data in Table 1 are consistent with this story. Solo practitioners see the fewest patients per hour and earn the least,

physicians in groups of eight or more see fewer patients and earn less than their counterparts in smaller groups.

The incentive issue merits careful study, for increasing numbers of physicians are practicing in groups. If in fact the pattern in Table 1 reflects variations in efficiency rather than variations in case mix or the characteristics of physicians who choose different practice styles, then increasing efficiency in groups may be one way for physicians to maintain net incomes even though the market has become increasingly competitive.

The nature of the incentive problem is that in large groups the effect of a physician being inefficient can be spread throughout the group. For example, if a physician insists on overstaffing his or her practice with aides or underutilizing aides, if costs are shared, every physician in the group will experience a rather small drop in net income. A solo practitioner would, on the other hand, suffer the entire amount of the drop in net income. How costs are shared and how resources are allocated within groups may play a role in the efficiency of physicians in group settings.

Compensation arrangements appear to affect productivity. In particular, salaried physicians generally work less, see fewer patients per hour, and earn less than physicians whose earnings depend more directly on their own efforts (Bobula, 1979). In part this may be due to self selection of physicians seeking lighter workloads into salaried practices, but it also seems likely that this is partly due to the reduced rewards to efficiency and additional effort that salaried practice entails. As can be seen in Table 2, salaried physicians see an average of 11.7 percent fewer per hour than physicians paid on an incentive basis. Productivity differentials of this magnitude merit closer attention.

Given the increasing importance of group practice, better evidence on the importance of incentives and organizational structure is needed. At the same time, care must be taken to control for self selection of physicians into types of practice organizations and differences in the types of patients being treated.

Productivity in Pre-Paid Group Practice

Viewed narrowly, productivity in prepaid group practices is likely to be lower than productivity in fee-for-service groups or even in solo practices. Pre-paid groups are usually fairly large and usually have salaried physicians, two factors associated with reduced incentives for efficiency. Although the evidence is limited, physicians in prepaid groups do seem to be less productive than other physicians (Mechanic, 1975).

Table 2

Visits per Hour by Specialty and Method of Remuneration for Non-Solo Physicians, 1973

Specialty	Remuneration Method		
	Salary	Shared Group Income	Revenue from own Patients
General and Family Practice	4.29	5.42	5.12
Internal Medicine	3.14	3.45	3.19
Pediatrics	4.20	5.17	5.38
Surgery	2.88	3.16	2.83
Obstetrics-Gynecology	3.78	3.97	3.79

Source: Bobula, 1979.

A potentially important area of research, therefore, is the impact of alternative rules and financial incentives on the productivity of physicians in prepaid groups. The competitive position of HMOs would surely be enhanced were it possible to reduce costs through increased productivity, and compensation arrangements that combine salary with output-related pay might represent a promising mechanism.

The definition of productivity used above is a limited one. It refers only to efficient use of resources supplied by the physician. Medical care, however, is produced using many resources supplied by other sources, and fee-for-service physicians have an incentive to underestimate the cost of these resources and overuse them. This is particularly important regarding use of hospitals, because the social costs of emergency and inpatient care are so high.

In a prepaid plan spending on hospitals usually reduces net income to the plan, so there are incentives to use hospital services efficiently. Indeed, savings due to reduced use of hospital services appear to be the principal way that successful prepaid plans lower costs (Luft, 1978). Making sure that these incentives affect the behavior of physicians in the group can be a difficult task, given the dilution of economic incentives that occurs in large groups. The problem is most acute in IPAs. Overuse of the hospital reduces the physicians' net income by a

comparatively small amount because the cost is spread over all the physicians in the plan. To reduce use of hospital care, IPAs must rely on non-economic mechanisms. So, of course, must staff model HMOs, but these plans have the advantage of being able to recruit physicians that are inclined to use hospital services sparingly.

This discussion of productivity is rather bloodless. An example, therefore, may clarify the issue somewhat. Compare the output of an internist in a group practice who shares income with his or her colleagues to the output of a salaried internist working in a staff model HMO. A reasonable estimate appears to be that the first physician would see 3.45 patients per hour, 52.3 hours per week, 47 weeks per year and that his or her salaried counterpart would see 3.14 patients per hour, 51.0 hours per week, 46.5 weeks per year. Were this the case, the salaried physician would provide over 1,000 fewer visits (12.2 percent fewer) than the non-salaried physicians. In short, even fairly modest changes in effort or productivity would have fairly dramatic effects on the supply of physicians' services.

Participation in Health Insurance Programs

In structuring a payment system insurers are often faced with three conflicting objectives: holding down the costs of the program, limiting beneficiaries' out-of-pocket costs, and setting rates that most physicians will accept. Although patients and physicians might initially welcome a system that paid a fixed percentage of charges, this arrangement does not appear to be satisfactory over the long run. Some screens are needed to catch clearly excessive charges. It also appears that, at least for insurers covering a substantial portion of the population, such a system leads to a rapid increase in billed charges. Limits on an insurer's allowed fees (often called reasonable fees) may expose patients to considerable out-of-pocket expense if physicians charge more than the allowed fee. If insurers attempt to limit allowed fees and to require that physicians accept the allowed fees as payment in full, beneficiaries' costs are held in check but physicians are likely to become increasingly unwilling to participate in the program.

A good deal is known about the impact of the structure of the payment system on physicians' willingness to participate in insurance programs. The basic model was laid out by Sloan and Steinwald (1978) in their analysis of participation in the Blue Shield service benefit program. In fairly short order the approach was applied to Medicare and Medicaid by Sloan, Cromwell, and Mitchell (1978); Lee and Hadley (1978); and Rogers and Musacchio (1983). Some disagreements about fine points remain, but a consensus seems to have been reached about the general conclusions.

Willingness to treat Medicaid patients is the simplest of the three cases, so examination of it allows us to see the outline of the standard approach. The basic rule is quite simple: The greater is the additional

revenue from a private patient relative to the Medicaid fee, the less likely is a physician to treat Medicaid patients. In short, financial incentives depend on a comparison of revenues in the private market and revenues from Medicaid. For some physicians, revenues in the private market are high enough so that only a very significant increase in Medicaid fees would make treating Medicaid patients financially attractive. These physicians will, except for occasional acceptance of a Medicaid patient for humanitarian reasons, essentially opt out of the Medicaid program. For physicians with less profitable private practices however, Medicaid fees look more attractive, so an increase in Medicaid fees can significantly increase willingness to treat Medicaid patients. Paringer (1980) has shown that physicians who treat significant numbers of Medicaid patients charge their private patients an average of 5 percent less than physicians who do not. Sloan, Cromwell, and Mitchell (1978) estimate that for the 71 percent of physicians in their sample who treated Medicaid patients on a consistent basis, a 10 percent increase in Medicaid fees would lead to a 9.5 percent increase in the supply of services to Medicaid beneficiaries. At least for this group of physicians, a fairly strong response to changes in fees appears to exist.

Even though the institutional arrangements are different for Medicare, similar results have emerged: The greater is the Medicare reasonable fee relative to the revenue expected from private patients, the more likely is the physician to accept the Medicare fee as payment in full. This finding has been replicated a number of times: Paringer, 1980; Rogers and Musacchio, 1983, Hadley and Lee, 1978. Two questions remain however. How much will an increase in the Medicare reasonable fee affect the proportion of cases in which the Medicare fee is accepted as payment in full? What impact will changes in Medicare fees have on the prices charged private patients?

There are probably several different answers to the first question. Some physicians will find that fees are so low relative to the prices that they charge private patients that small changes will not affect their decisions not to assign claims. Some physicians will find that fairly modest increases in Medicare fees will make assignment an attractive option. Still other physicians will conclude that assignment was the best strategy before the Medicare fee increase, and the increase will not affect their decisions. Empirical evidence of this diversity of responses is supplied by Paringer (1980). For physicians who treat substantial numbers of Medicaid patients (and thus accept fees less generous than Medicare), Medicare fees have little or no effect on assignment rates. For physicians who treat fewer Medicaid patients and whose private prices are higher, a 10 percent increase in Medicare fees is estimated to result in a 13.5 percent increase in the assignment rate.

Overall, it does not appear that an increase in reasonable fees would dramatically increase assignment rates. Rogers and Musacchio estimate that a 10 percent increase in reasonable fees would increase assignment

rates by 3.8 percent. A weighted average of Paringer's estimates predicts a comparable 4.8 percent increase.

An increase in program fees is likely to result in higher private fees as well as increased willingness to treat program beneficiaries. In essence, an increase in program fees increases the demand for physicians' services, and some physicians will raise prices as a consequence. No direct test of this hypothesis has been attempted, although the theory is generally accepted and there is evidence consistent with it (Lee and Hadley, 1981).

Two basic premises about payment systems are illustrated by research on participation in health insurance programs. First, the best strategy for a payment system depends on the strategies that others are following. So, whether a Medicaid fee is too high or too low depends on what patients and other insurers are willing to pay. Second, for large programs the impact of changes in the program on others in the system--providers, insurers, and patients--must be recognized.

Considerable research on fee-for-service care and insurance programs has been undertaken, much of it at the behest of the Health Care Financing Administration. Very little is known about the role of prepaid plans and Medicare or Medicaid. To begin with, the public insurance programs were not designed to be compatible with prepaid groups. In addition to such legal and administrative barriers, Medicare and Medicaid beneficiaries have not been viewed as particularly good candidates for enrollment in prepaid plans. Medicaid beneficiaries tend to move off and on the rolls as their economic circumstances change. Such intermittent eligibility makes them unsuitable candidates from the viewpoint of prepaid plans. Medicare beneficiaries could be candidates for prepaid plans, but many of the elderly have established physician-patient relationships, reducing the attractiveness of prepaid plans (especially in the absence of financial incentives to join).

Recently, a number of prepayment demonstration projects have been funded by the Health Care Financing Administration. Only preliminary results are available, but it appears that it is possible to establish a capitation rate that will reduce Medicare costs, permit an extensive enough benefits package to attract Medicare eligibles and be consistent with the financial health of the HMO (Greenlick, et al., 1983). It may be that prepaid plans will play a significant role in the payment system of the future.

Conclusions

In 1982 nearly 2 dollars of every 3 earned by physicians were paid by either public or private insurance (Gibson, et al., 1983). As a result, changes in the structure of insurance programs have the potential to alter the financial rewards of different medical practices quite substantially. Growing pressure on insurers to control costs, combined

with a continuing rise in the number of physicians per capita, increases the likelihood that changes in the system of paying for physicians' services will emerge. These changes will probably result in lower fees for some services, hence lower incomes for physicians in some areas and in some specialties.

How will physicians respond to such changes? A number of responses seem likely, including changes in specialty choices, changes in location choices, changes in practice settings, and changes in the mix of output produced.

It appears that the impact of financial considerations is much greater for some career choices than for others. For example, the evidence thus far assembled suggests that differences in earnings have a much greater effect on physicians' location decisions than on their specialty choices. For several reasons, however, even this tentative conclusion should be viewed with caution. To begin with, no real consensus on the impact of earnings on location choices exists. Second, the data and methodological problems associated with analyses of specialty choices appear to be even more formidable than those associated with analyses of location choices. Consequently, relatively few studies of earnings and location choices have been attempted. Finally, even if existing studies accurately portrayed the historical relationship between earnings expectations and location and specialty choices, those estimates might not predict the response to major shifts in relative incomes. In the face of significantly altered relative incomes, extrapolation from historical experience might well understate the response.

In short, existing research does not allow us to predict with much confidence how much the pattern of location and specialty choices will shift if the payment system changes.

Practice organization appears to have a major impact on physicians' productivity and earnings. Physicians in small groups see more patients and earn more per hour than their counterparts in solo practice or in large groups. Compensation methods within groups also appear to affect productivity, as salaried physicians work fewer hours and see fewer patients per hour than physicians paid on an incentive basis. The meaning of this evidence is far from clear, however. To begin with, physicians in different settings may be producing quite different products. Consequently, simple comparisons of visits may be misleading. Even so, differences in earnings reinforce the belief that there are real advantages to group practice and to incentive compensation methods.

It remains to be shown to what extent it is the incentive structure <u>per se</u>, rather than the attributes of the physicians who choose different practice milieus, that lead to differences in productivity and earnings. Simple extrapolation of observed differences to physicians in general may prove to be misleading.

How much would physicians change their patterns of treatment if the relative prices of various services changed? We do not know. Studies of the impact of relative prices on the mix of patients that physicians choose to treat tend to find rather large effects, so the suspicion that changes in relative fees might also lead to substantial changes in the mix of services provided cannot be dismissed out of hand. Careful analysis of this issue is long overdue.

Primarily as a result of the resources that have been brought to bear on the question, the impact of relative fees on participation in insurance programs is the best understood of the issues discussed in this paper. Put simply, research consistently shows that physicians are more likely to participate in an insurance program the higher is the program fee compared to other fees.

Analyses of participation in various insurance programs also show that the complex mix of private insurance, public insurance, and self payment forms a system, albeit an unplanned one. Changes in one component have repercussions for the rest of the system. By the same token, the impact of a policy change in one program depends on the policies being pursued by other insurers. For example, an increase in Medicaid fees may affect the prices that other payers are charged. Alternatively, the impact of a Medicaid fee increase depends in part on how it compares to others. This points out the advantages of coordinated public and private policy making. At the very least the interaction among insurers should be taken into account when strategies are being devised.

This synopsis of research has focused on the most recent and most reliable evidence. Other, less satisfactory studies exist, but the studies cited here give a fair representation of the best evidence that we now have. It may be disheartening to see how significant are the gaps in our knowledge about the effects of the payment system on the supply of physicians' services. Still, even though the problems are difficult and resources are scarce, progress has been made. The limited good evidence that we have today would have seemed like a wealth of knowledge to the designers of payment systems 20 years ago.

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THIRD PARTY CARRIER PERSPECTIVE ON PHYSICIAN PAYMENT

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This discussion of insurance carrier systems for payment of physicians will address the underlying problems in physician payment system design, which are simply to determine how the carrier is going to spend other people's money for services whose quality and quantity the carrier can influence, but only to a limited extent. The goal is a system that is efficient to administer, encourages economical use of benefits, and offers distinctive values for subscribers and insurers when compared to the payment systems of competitive carriers. The analysis here does not deal with the so-called alternative, risk-sharing payment systems. This is not because they can be dismissed lightly; on the contrary, they are a significant and growing segment of the health care economy. But the concern of this paper is for conventional fee-for-service payment system design.

Given these goals and these limitations, the approaches to the design of a carrier's physician payment system are governed by a number of principles that may be summarized and explained here:

Payment Is A Means, Not An End
A Payment System Must Proceed Toward Specific Objectives

In the private market there are five parties at interest, each pursuing objectives that are reasonable and legitimate, but different. Thus, payment always takes place in the context of conflicting objectives. The challenge to the carrier is to work out effective compromises to (a) establish attractive products or benefits, (b) differentiate those products in a highly competitive market, and (c) offer a significant variety of products to appeal to a range of philosophies, degrees of commitment to varying objectives, and abilities to pay. The parties at interest are:

The Patient

He is interested primarily in predictability of outcome. Ideally, he prefers full payment and free choice of physician. However, he will compromise these desires, so long as the terms of the compromise are made clear in advance of the transaction. He does not react well when he finds after the fact that his expectations have not been met.

The Physician

He also is interested in predictability, and in consistency of results. He needs to know what to expect from the carrier and what to bill the patient, and he is understandably intolerant of different payments for what he perceives as similar cases. He also expects that there will be exception processes for unusual cases.

The Payor

Eighty-five to ninety percent of people with private health insurance receive employer or union contributions to the cost of the insurance. Thus the payor and the patient are not the same, and they have different objectives. The payor (or employer or union) is interested in minimization of expenditures and maximization of value. He intends to support a good quality of care. He is interested in avoiding either extravagance or waste. If the program does not contemplate full coverage of all charges, he still wants a reasonable distribution of the available funds. Since expenditure is a product of price and utilization and intensity, he expects all three to be controlled. Thus he does not view the payment system in isolation; he sees it as part, but only part, of a financing system that must be complemented by other functions.

The Public

The public expresses itself not only as a buyer of health insurance but also through regulatory and legislative processes. Regulatory activity has two thrusts: The state insurance department is interested in protecting the public from being misled, treated unfairly, overcharged for a particular set of benefits, or victimized by default. The law enforcement agencies are concerned with maintenance of an orderly, non-collusive market. As this "free market" concern has developed in recent years, it has proscribed negotiation of payments between carriers and physicians who do not share a common practice, and it is also concerned with restriction of access to the market by practitioners on the basis of license type, arbitrary qualifications, or collusive activity. Legislatures may respond to various pressures to mandate coverage of specific diseases (e.g., end stage renal disease); categories of care (e.g., mental health); or practitioners (e.g., chiropractors).

The Carrier

The carrier wishes to compete successfully in the market. Usually it tries to establish a niche, and a product appropriate to that niche. This implies differentiation from the objectives of others, as in price, predictability, acceptance or avoidance of poor risks, contractual relationships with physicians, or in other ways.

The important point is that no system can be all things to all interests. Instead, each system represents some degree of compromise acceptable to its own parties at interest.

There Are Fundamental Differences Between Institution-Carriers And Professional-Carrier Relationships

The relationships between institutions and carriers in a way are like those between labor and management, in that they are interdependent, but with divergent interests. Since the patient is typically incapable of paying large hospital bills without assistance, and since risk avoidance, inherent in the purchase of coverage, typically biases toward the coverage of the more threatening hospital costs, the hospital and the carrier either reach an accommodation of their interests, or both enterprises fail.

The physician, in contrast, can look to the patient for at least some payment of most of his charges. From this he gains a degree of autonomy, which varies by specialty. Furthermore, physicians are personalities, whereas institutions are organizations. Personal philosophy, likes and dislikes, habits and relationships intrude on the physician's economic decisions to a degree not found in organizational behavior. Economic factors influencing physician behavior may include:

Specialization

Return on investment of time and money; education to a broader variety of treatment alternatives.

Location

Cost of doing business; economic capability of patients; social and economic goals of the practitioner.

Target Income

Ability to adjust either price or utilization to meet income goal.

Controls

Perceived need to adjust prices in anticipation of such controls as wage-price stabilization programs and Medicare reform.

Competition

Price or utilization adjustments to improve competitive position.

Dissatisfaction

A perception of imbalance in the economic value of cognitive and technical procedures in a physician's practice, motivating to the employment of questionably useful procedures.

Indirect economic factors may also influence physician behavior. For example, exposure to data on physician practices may induce a reluctance to stand out from community norms of price or utilization. Education may also influence behavior indirectly. Thus lengths of stay and use of ancillary services are influenced by patterns learned during undergraduate and postgraduate training. Fear of external control is still another influence; an example is the AMA Council on Medical Service Report D (June 1983) suggesting that physicians deal only with patients on charge issues, and that the relationship between carrier payments and physician charges be severed. (This report was not adopted by the AMA.)

Finally, location is significant to practice patterns. Different parts of the country have quite different traditions in contracting with carriers, length of stay, admissions practice, and other behaviors.

A Payment System Should Be In Reasonable Synchronization With The Evolution Of The Social And Delivery Systems

Health care coverage first became widespread under depression conditions categorized by scarcity of financial resources. At the same time, the level of specialization was low, resulting in relatively ongoing patient-physician relationships, with patients' economic circumstances well-known to physicians, and fees varying accordingly. The technology was limited, inflation was either negative or negligible, and the general assumption was that negotiation of fee schedules between physician groups and carriers was legally permissible.

In this environment, the most common method of paying physicians was the fee schedule. The result was either indemnity--specified payment against an unspecified charge--or service/indemnity--full payment below a stated patient income level and indemnity above that level.

Indemnity is still widely held coverage, a common mechanism for distributing a given amount of money that is inadequate for full payment. It is usually administered through fee schedules. Whereas in the 1930s and 1940s such schedules were sometimes negotiated with medical associations, the current application of the antitrust laws requires that schedules be set unilaterally by the carrier. The

implication that resultant levels of payment may not be equitable in the eyes of the physician has not been lost on the medical profession.

The service/indemnity contract facilitated the concept that the fee should be consonant with the patient's ability to pay. The concept still exists, but the practice has become rare. Factors leading to its practical demise included the rise of specialization, with many physicians seeing a patient for only a single episode of care. With no ongoing relationship, and with little knowledge of the patient's finances, many physicians have moved to a single fee for all comers. The rise of high technology also contributed to disappearance of the "ability to pay" concept. The high overhead implicit in many procedures does not lend itself to significant discounting. Further, specialists are frequently dissatisfied to receive the same fee schedule as non-specialists.

The evolution of the blue-collar worker into the middle class has been still another factor. There is now less perceived need to discount fees for this group. Attainment by many workers of wages beyond the patient income levels for fully paid benefits meant that workers in the same bargaining unit might get quite different results from the same negotiated coverage. Moreover, there were practical and potential legal difficulties in negotiating schedules in such relatively heterogeneous environments.

In response to these problems, the "usual, customary, and reasonable charge" method was developed. It is important to note that conceptually there is no such thing as a usual and customary fee. There are, rather, a usual fee, a customary fee, and a reasonable fee. "Usual" refers to the charge made by a specific physician to the majority of his patients for a specific procedure. "Customary" refers to a range of charges for the same procedure by physicians of like qualification in the same area. The customary range is typically cut off at the 80th to 90th percentile of physician charges. "Reasonable" refers to a fee which is both usual and customary, or which may be neither usual nor customary, but justified by the specific clinical circumstances of the case. In practice, many carriers do not have sufficient market penetration or data to establish and maintain usual fee profiles. This can be a major weakness in purported UCR programs.

UCR is based on several assumptions. First, it is assumed that differences in charge stemming from specialty, location, and overhead factors are legitimate and should be recognized. Secondly, most physicians do in fact charge one fee to all patients, and, third, UCR was originally conceived as top-of-the-line coverage and not for the majority of the insured population. Thus there existed a validating mechanism for usual charges in the charges made by self-paying and indemnified patients. This last assumption has been severely eroded by the adoption of a form of UCR by Medicare and its subsequent establishment as a standard in the market.

Usual fees can be determined either by a filing of fees by the physician or from claims data. Probing for the top of the range is common. Updates vary with respect both to the time interval and the amount allowed. It is fairly common to permit updates only annually and to limit them by some index. The Consumer Price Index is frequently used.

Originally, the customary range was a pure statistical derivation. It is vulnerable to collusion, however, particularly in the smaller specialties, and to the effects of probing for the limits. The Blue Cross and Blue Shield Association, for example, has adopted a membership standard requiring controls on the customary range. Again, the rate of increase in the Consumer Price Index is a commonly used control. Medicare, in contrast, uses an index felt to be reflective of overhead factors and the cost of living. Medicare also determines payment on the basis of data from the calendar year preceding the fiscal year, data 10 to 22 months old. This approach is not available in the private market, because given competing programs, the low acceptance rate by physicians does not satisfy the market.

Some programs pay a percentage of the usual fee. The percentage is typically 80 percent, but this may vary. The purpose may be to decrease premiums to an affordable level, inhibit utilization, or both. Programs with physician participation contracts frequently limit the total charge to that permitted in a full UCR program.

In the 1980s, the environment is changing again. It is now characterized by limited resources, the emergence of progressively higher technology, and a much more competitive physician community. Furthermore, a more aggressive attitude on the part of payors has resulted in the application of more stringent cost controls.

Clearly, there is wide recognition of risk-sharing systems as a desirable means of constraining expenditures. There is somewhat less recognition of risk-sharing as a means of rewarding desirable behavior. Risk, however, implies organizaion capable of organizing and managing it. While there are some programs which have applied risk principles to open-panel programs, these remain exceptions. The evolutionary course of these systems is still unclear.

Payment Systems Are Designed For Specific Benefit, Administrative, And Legal Circumstances

Insurers deal with large volumes of claims. The volume could not be accommodated without averaging prices and procedure descriptions.

All coding systems embody philosophies. At one extreme are systems with multiple modifiers and detailed descriptors, intended to

identify as many variables as possible in reporting cases. These are useful for medical records and the management of research data, but they are inflationary for payment purposes. Diagnosis Related Groups represent the opposite extreme, conveying little information except diagnosis and price. In current practice, carriers attempt to adopt coding sufficient to identify real differences in payment value or benefit coverage without weakening price and utilizaton profiles more than necessary. Importantly, coding does implement both the medical policy of the carrier and the contractual requirements of the purchaser. As an example, some contracts cover abortions and sterilization, and some do not; the coding system must differentiate the purposes as well as the description of the procedure.

Negotiation at one time was an accepted method of establishing payment levels. This is no longer legally permissible. Accordingly, most fee-for-service payment is made now on the basis of unilaterally established fee schedules or some variant of the UCR profile system.

Finally, the data resources of the carrier are important. If UCR charge programs are to be implemented literally, the carrier must know and apply the usual charge information at the individual physician level. This implies substantial information and processing resources.

Fee-For-Service Payments Are Governed Primarily By The Market

In an open-panel system, the payment system will not create equity where it had not previously existed. Neither is there any known and consistent relationship between the price of a service and its quality.

This market principle is true of both fully paid and indemnity programs. Indemnity programs usually strive for consistency of result. In the full payment programs, there are three fundamental alternatives: Pay the market price, change the nature of the market (HMO, Preferred Provider), or regulate either the buyer or the seller.

The payment of market price does not necessarily imply unrestricted payment of all billed charges. Cutoffs establish how far a carrier will go. This is necessary to protect the average payer from extravagant expenditure (or high charges) on the part of a few. The implication, of course, is that even programs designed for full payment do not make full payment in every case. There are both exploitive and non-exploitive (e.g., the physician who gives extraordinary attention and charges for it) charging patterns which cannot be absorbed collectively. An important means of improving the program's performance is for the carrier to contract directly with physicians to accept its payments as payment in full. There are some important non-price incentives that can be used to make such arrangements attractive to the physician. In these circumstances,

real differentials may arise between what the physician will accept from the contracting carrier and his charges to others.

It is unfortunate that some types of practice and some services command lower payment than others requiring equivalent training and time. However, the carrier has no means of changing this pattern except to raise payments for the first group, incurring unnecessary costs, or lower them for the second, perhaps sacrificing full payment. In some specialties, particularly anesthesiology and psychiatry, a fee-for-time approach has been adopted. This provides a means of paying for treatment in which it is difficult to specify exactly what was done and exactly how it was accomplished. The method is conceptually available to other specialties, but most have not accepted it. Surgeons come closest, with a "global fee" concept embracing preoperative examination, the operation itself, and postoperative care. Negotiation of the trade-offs required to implement comparable payment systems in medicine are significantly inhibited by the antitrust laws.

Most alternatives to a market price system depend on the existence of organizations, with organizational objectives. For example, an HMO needing a particular specialty may have to negotiate salary and benefits to secure a specialist. The same thing occurs in the division of income in fee-for-service group practices. This ability to make internal trade-offs requires formal organization, and is not sufficiently widespread to support a predominant payment system at this point.

It is possible, however, to modify the payment system in order to provide incentives to efficient care. An example is ambulatory surgery, for which some carriers pay more than they would if the procedure were done on an inpatient basis. It is important to differentiate procedures, so that incentive payments are not wasted on surgery that should never justify admission.

Once the carrier establishes its payment levels, it may vigorously defend them. Blue Shield Plan participating contracts, for example, obligate the physician to accept Plan payments as payment in full. Several carriers use a "hold harmless" approach. The hold harmless arrangement arises from the carrier's obligation to pay a reasonable fee. In the event that carrier and physician cannot agree on a reasonable fee, the carrier will ordinarily make its best offer. If the physician accepts it, nothing more happens. If the physician continues to bill the patient, and the patient does not pay, still nothing more happens. But if the physician brings suit against the patient, the determination of what is reasonable has been transferred to the courts. The carrier is still obligated, and will present its case in court. If the physician prevails, the carrier will make the additional payment. In such circumstances, the carrier may assume the

patient's costs of litigation, on the ground that its own liability was being litigated.

Some participating contracts include hold harmless provisions for utilization judged to be medically unnecessary. The principles here are exactly the same: The carrier defends its determination and remains liable for the outcome.

All Payment Systems Carry Incentives For Specific Types Of Behavior

Any payment system must be complemented by programs to monitor and control those incentives.

As is now rather widely understood, fee-for-service payment systems carry an incentive to increase utilization. Thus to be effective in the overall financing of care, such a payment system must be supported by a variety of programs intended to counter the "perverse incentives" and thus constrain total expenditures. The major components of a total system, excluding alternative delivery systems, are:

The Payment System

Administrative procedures must be in place to assure that the payment system is executed precisely and that payments are made for covered services, and only covered services. Physicians can be motivated to enter into contracts with the carrier through non-price incentives. Ordinarily, Blue Shield Plans, unlike Medicare, do not permit assignment on a per case basis. The physician contracts to accept assignments on all cases, or he receives assignment on none. Non-price incentives include direct payment to the physician, simplifying his billing; prompt payment; avoidance of bad debts on covered services; a predictable cash flow; access, in some Plans, to paperless processing; an improved competitive position or referrals; services of a field staff in the handling of problem claims, and improved patient relations.

The Utilization Control System

Utilization review historically has dealt with retrospective pattern analysis. An individual physician's patterns of practice are studied for significant deviations from the norm. Sometimes these are quite justified, sometimes not. If necessary, education and even recoupment of funds may be pursued. More recently, the emphasis in utilization control has shifted to concurrent review and preadmission certification.

Benefit Design

Most basic to benefit design is the need to provide outpatient alternatives to inpatient procedures. Carriers frequently draw a distinction between services which are physician-controlled and services which are patient-controlled. Thus first dollar coverage for inpatient medical care is common, whereas outpatient care is frequently covered only with coinsurance. Other aspects of a company's total benefit package may have to be examined. For example, it is extremely difficult to have a patient discharged in six days if the company's disability program requires seven days of hospitalization for eligibility.

Medical Policy

Refusal to pay for routine laboratory and x-ray work, without specific indication, upon admission to a hospital, will, for example, have a perceptible effect on service charged to the carrier. Contracts typically exclude experimental and investigational procedures, in the interest of overall community cost and quality of care.

Physician Education

Physicians generally do not want to stand out from the norm as "high chargers." Frequently they are unaware that they do. Demonstrating to a physician that he is in the uppermost ranges of community charges will often result in a reduction of his charges.

Claims Analysis and Intervention

Claims analysis calls for a careful examination of claims experience to guide the application of education, benefit change, and occasionally (if the analysis is conducted by a contracting carrier) cancellation of the physician's contract. Solutions to specific problems such as mandatory second surgical opinions or preadmission certification also may be recommended.

It is generally agreed that risk systems, involving the physician in the economic consequences of his decisions, can be successful in constraining cost. However, it is critical that the risk a physician accepts should be within his resources and within his control. A primary physician, for example, can manage his own time on a capitated basis. But he usually cannot by himself assume the risks of hospitalization and referred care for his patients. Thus an effective risk system requires either a group of physicians or at least a grouping of individual physicians together on paper for accounting purposes.

There has been at least one pilot program in payment for medical, as distinct from surgical, care by diagnosis. The program encountered substantial difficulty with secondary and tertiary diagnoses, and somewhat less difficulty with consultations and concurrent care.

Some programs currently link the payment level for physicians with their utilization experience. If utilizaton is at or below a target level, per service payments rise more than they would if the targets were not met. If the utilization target is missed by a wide margin, payments do not rise at all.

There are also successful programs capitating primary care and paying for referred care only on demonstration of actual referral. This "gatekeeper" function can be quite effective in reducing total expenditure. Referral care is difficult if not impossible to capitate in a free-choice system.

Payment Systems Are Constrained By The Objectives Of The Buyer And By His Philosophy And The Degree Of Committment To Those Objectives

The usual demands made of a payment system are free-choice of physician, full payment of charges, and premium containment. Essentially, any payment system is capable of delivering two of these three. Indemnity offers free-choice and premium containment, although it does not necessarily contain costs for the individual patient. Most full payment programs offer both freedom of choice and payment in full, although this may be achieved by paying billed charges. Full payment and premium containment are available through HMOs and PPOs, although at sacrifice of the unfettered choice of physician.

It is possible to provide full payment, freedom of choice, and premium containment within the same program. However, this requires exceptional design and administration, including hold harmless agreements and account-specific programs.

It should be clear that payment determination is only one component of a financing system, and not necessarily the most important component. In current practice, most of the others temper the incentives of a payment system that tends to increase utilization. Some carriers are actively involved in capitation, risk, and selective contracting systems, not only to provide alternative methods of financing, but on the hypothesis that changes in practice patterns (admission criteria, lengths of stay) developed in such programs will carry over to conventional practice. Most buyers of coverage place high value on employee satisfaction and are reluctant to intrude on the patient-physician relationship. This attitude requires that the carrier develop programs that yield predictable results in the majority of cases and accommodate the delivery system as it is. Hold harmless programs, mandatory second opinions,

preadmission certification, and similar approaches can be implemented only with the cooperation and support of the buyer.

ANTITRUST AND PHYSICIAN PAYMENT

Michael R. Pollard

The purpose of this paper is to review antitrust principles and laws as they relate to physician payment. On their face, the antitrust statutes are deceptively simple. Unlike many federal statutes, the antitrust statutes are very brief and written in a relatively straightforward style. However, the body of antitrust law is largely the result of judicial interpretations of those statutes, and the opinions in antitrust cases can be long and complicated expositions of fact, law and economics. Antitrust cases typically raise many factual questions and the resolution of those questions often turns on sophisticated economic analysis of the competitive effects of the business practices under review by the court. Because this paper is intended for a well-informed but essentially nonlawyer audience, it is not heavily footnoted and most statements are not qualified by numerous caveats as they would be were it written for antitrust attorneys or economists. My intent here is to inform and guide the interested reader through an area of the law that is increasingly relevant to the issue of physician payment.

The Origins and Elements of Antitrust Analysis

Historical Underpinnings

Every society must order its economic activity according to a basic framework. Despite a heavy overlay of government regulation, the United States economy is based on the price system and competition. The price system conveys information to both producers and consumers and it creates incentives to produce goods and services efficiently. It also stimulates producers to innovate and offer new services that generate as well as respond to consumers' preferences. In competitive markets, producers will deliver goods and services that the majority of consumers demand. Competitive markets operate on the basis of consent and do not force individuals to act against self-interest.[1] The federal antitrust statutes were enacted to ensure that market competition is not unreasonably restrained by certain private agreements or practices. These statutes attempt to promote vigorous competition among many sellers: they are based on the premise that such a system will foster economic efficiencies. They were not designed to redistribute income or to achieve other social policy goals.

Contemporary antitrust and trade regulation laws find their antecedents in English Common Law.[2] During the thirteenth century in England, when commerce was primarily confined to local markets, the following activities were indictable offenses: 1) buying goods before they came to market; 2) buying goods in large quantities and selling them in smaller amounts; and, 3) buying crops before they were harvested. These were the so-called "middleman offenses": they were grounded in the belief that middlemen raised prices without achieving any useful business or social purpose.

English towns during the fifteenth and sixteenth centuries typically restricted trading by strangers through granting monopolies to local business interests, such as the trade guilds. The English Crown also engaged in granting monopolies as a means for raising revenue. Restraints on trade became so ubiquitous and burdensome that the English Parliament in 1623 enacted the Statute of Monopolies which invalidated all monopolies with exceptions for patents on new inventions, some monopolies granted by towns and guilds to establish more orderly trade relationships, and Parliamentary grants.[3]

English Common Law conspiracy doctrines influenced the prohibitions against unlawful conspiracies found in current antitrust statues. These doctrines condemned otherwise lawful acts if they were committed by several individuals with the intent to achieve an "unlawful" purpose. Unlawful in this context meant "contrary to public policy."

The seeds for the antitrust statutes in the United States were sown during the rapid economic growth of the second half of the nineteeth century. This period spawned tremendous changes in industrial production and transportation, but it was marred by periodic and severe economic depressions. Populism, which arose out of discontent among agricultural and small town interests, gained many supporters and generated pressure for fundamental monetary and business reforms. The incidence of financial scandal and public corruption was high during this period, and many examples involved large trusts and monopolies such as the railroads and the oil companies. Certain markets were controlled by monopolists, but even in those markets where competition did exist, predatory pricing and other unfair business practices were commonplace.

The Antitrust Statutes

Despite the scandals and corruption that occurred during the late nineteenth century, public sentiment did not favor government takeover of basic industries or even stringent government regulation as the remedy for marketplace abuses. Instead, Congress trusted competition to police the market and free it of abusive private restraints. Accordingly, Congress enacted the Sherman Antitrust Act in 1890 which condemned monopolies and contracts, combinations, and conspiracies that restrain trade.[4]

During its first two decades, the courts relied on the Sherman Act to strike down price fixing by railroads, the merger of two large western railroads, and three large trusts that controlled the meat, oil and tobacco industries. Violations of Sections 1 and 2 of the Sherman Act are criminal offenses and can be punished by up to one year imprisonment and fines. The Act is enforced by the Justice Department.

In 1914, Congress supplemented the Sherman Act by enacting the Federal Trade Commission Act (FTC Act)[5] and the Clayton Antitrust Act.[6] The FTC Act appears to have emerged from both business concerns about the lack of an administrative commission or agency under the Sherman Act to provide guidance on which trade practices were lawful or unlawful, and those who believed business practices needed to be policed by a strong, independent commission with investigative and law enforcement powers. Members of this latter group felt that the Sherman Act was too general in its scope to provide adequate protection from unfair trade practices and that the Attorney General was not sufficiently insulated from political pressure to vigorously enforce a statute which often ran counter to strong business interests.[7]

The Federal Trade Commission Act prohibits "unfair methods of competition" and "unfair or deceptive acts or practices" affecting interstate commerce. Under judicial supervision and congressional oversight, the FTC is free to work out the exact meaning of unfairness or deception in the context of particular cases. In addition, as the result of amendments to the FTC Act in 1975, the Commission is authorized to promulgate trade regulation rules delineating and prohibiting unfair acts or practices on an industrywide basis. This rulemaking authority has embroiled the FTC in several heated controversies with industry groups. The FTC issues cease and desist orders and can impose civil penalties or require consumer redress in certain cases.

The Clayton Antitrust Act was enacted to provide legal remedies for certain practices that were not specifically covered by the Sherman Act. It prohibits: 1) price discrimination; 2) sales on the condition that the buyer must stop dealing with the seller's competitors; 3) certain corporate mergers; 4) interlocking corporate directorates; and 5) certain common carrier transactions. The Clayton Act is enforced by both the Justice Department and the Federal Trade Commission, and violations of the Act are civil in nature.

Elements of Analysis

The antitrust laws are aimed at "unreasonable" restraints on trade and competition, even though a literal reading of Section 1 of the Sherman Act might imply that all contracts and agreements that restrain trade are prohibited. In the 1911 case of Standard Oil Company v. United States,[8] Chief Justice White first articulated the standard of reasonableness, or "rule of reason," that guides the courts in reviewing the legality of particular trade restraints. The elements of the "rule

of reason" test were further elaborated in the case of Board of Trade of Chicago v. United States.[9] Here, the Supreme Court held that the true test of legality for a restraint of trade is whether it merely regulates and promotes competition, or whether it suppresses or destroys competition. In order to make this determination, courts must review the nature of the business in question, its condition before and after the restraint was imposed, the history of the restraint, and the purposes or ends for which it was adopted.

The "rule of reason," adopted by the Supreme Court more than 70 years ago, is the principle that still guides judges today in antitrust cases. However, it is a somewhat vague standard and it leads to extensive factual analysis, including costly economic studies. Thus, the courts have decided to dispense with a full-blown rule of reason analysis in certain cases involving restraints so blatantly anticompetitive that they are deemed to be per se unreasonable and illegal.[10] The courts have held the following activities to be per se violations of the antitrust laws: price fixing, division of markets, group boycotts, and tying arrangements.

Application of the Antitrust Laws to the Professions

Prior to 1975, the antitrust laws were of little concern to the professions. But, in that year, the Supreme Court struck down a minimum fee schedule imposed by a bar association in the case of Goldfarb v. Virginia State Bar.[11] The case is significant because the Court rejected the argument that the learned professions were exempt from the antitrust laws and did not engage in "trade" or "commerce" as those terms are used in the antitrust statutes. The Court concluded that Congress did not intend for professionals to be exempt from antitrust scrutiny[12].

Three years later, the Court ruled on an ethical prohibition on competitive bidding imposed by the National Society of Professional Engineers and reiterated that the professions must comply with the antitrust laws[13]. The Court emphasized that the primary objective of antitrust is to promote competition and that courts, in reviewing antitrust cases, are limited to making judgments about the competitive impact and economic significance of the challenged restraint. The Court rejected the argument that judges should decide whether competition in a particular context is socially good or bad: the justices said that such questions should be decided by Congress[14]. However, the Court did acknowledge that the professions may merit special antitrust consideration because they do differ from other business services.

These decisions laid the groundwork for numerous investigations of restraints on professional practice by antitrust enforcement agencies, both at the federal and state levels. The Department of Justice has investigated architects, accountants, civil engineers, mechanical engineers, and physicians' specialty societies. The Federal Trade Commission has reviewed restraints imposed by lawyers, accountants, real

estate brokers, physicians, dentists and veterinarians. States like Ohio, West Virginia, and Arizona have focused their investigations primarily on health professionals.

The most important law enforcement action brought by the Federal Trade Commission against a professional organization was the American Medical Association case decided in 1979[15]. Here, the Commission found that the AMA had prohibited almost all forms of truthful advertising and solicitation through enforcement of various provisions of its code of professional ethics. Although the Commission found the AMA's restrictions on truthful advertising to be illegal, its opinion in the case states that the "...AMA has a valuable and unique role to play with respect to deceptive advertising and oppressive forms of solicitation by physicians." The Commission's order expressly provides that the AMA may adopt and enforce rules to prohibit such practices.

The FTC's AMA case was also a challenge to the AMA's so-called "contract practice" rules. Under those rules, it was unethical for a physician to sign a contract with a "lay" hospital, or HMO, if there was "underbidding" for the contract, or if the compensation was "inadequate" based on the fees usually charged in the community. These restrictions were, in some respects, quite similar to the rules against competitive bidding that the Supreme Court found illegal in the Professional Engineers case. The commission ordered the AMA to eliminate these restrictions on price competition, which they did in their revised Principles of Medical Ethics.

Effect of Antitrust on Professional Practice

The fact that the antitrust laws are fully applicable to health professionals does not mean that they cannot engage in self-regulation or that restraints on their conduct will be treated in exactly the same way as a similar restraint on the conduct of a group of businessmen. Certification by medical specialty groups is an example of self-regulation that is reasonable provided the certification criteria and procedures are fair and the certification decisions are made objectively, on the basis of competence. Ethical rules that have the purpose and effect of prohibiting false or deceptive advertising are another example of permissible, in fact highly desirable, self-regulation. Insofar as health and other professional services markets are truly unique, traditional antitrust analysis is sufficiently flexible to take such conditions into account in considering whether a particular practice has had an unreasonably anticompetitive effect.

It is also clear that the antitrust laws do not interfere with state regulation of the professions. In Bates v. Arizona State Bar[16], the Supreme Court rejected an antitrust challenge to restrictions that the Arizona Supreme Court had imposed on attorney advertising. The reason the Court did this was because the antitrust laws proscribe certain

private actions but do not extend to anticompetitive practices that are sanctioned by the states. The Court has said on numerous occasions that immunity from the antitrust laws is warranted when the anticompetitive activity is conducted pursuant to a clearly articulated and affirmatively expressed state policy that is actively supervised by the state itself: this is the so-called "state action" doctrine[17].

Despite the above mentioned limits on the scope of antitrust scrutiny, whenever professionals seek to influence fees or payment, antitrust concerns will be raised. Following Goldfarb's condemnation of minimum fee schedules as price-fixing, two elements of how fees are structured in medical markets became targets for antitrust scrutiny by law enforcement officials--i.e., relative value studies[18] and medical society control of Blue Shield plans[19].

Relative value studies attach a series of numerical weights to medical procedures. The weights indicate the proportional value of each procedure to all others included in the study. Such tables are not fee schedules, but they can be easily converted to them by multiplying each proportional value by a dollar conversion factor. The Justice Department and the Federal Trade Commission saw the relationship between relative value studies and the illegal pricing formulas used by other industries to set prices, and enjoined them or obtained consent decrees governing their future development and use. More recently, however, a federal district court rejected the argument that a relative value study was a form of price-fixing that constitutes a per se violation of the Sherman Act[20]. It is not clear how the case would have been resolved had the Justice Department introduced evidence on the adverse economic effects of the scheme and the court had based its decision on a rule of reason analysis.

Medical society control of Blue Shield was, at one time, a target for antitrust enforcement agencies. During the late 1970's, it looked like the Federal Trade Commission might initiate a rulemaking proceeding challenging the medical profession's influence over the policies and practices of Blue Shield plans. This initiative ultimately was abandoned by the FTC, but not before other medically dominated organizations had taken some steps toward including more nonmedical representation on their governing boards.

In the area of physicians' fees and payment arrangements, the antitrust laws clearly prohibit economic boycotts, both maximum and minimum price fixing, and attempts to monopolize the provision of services in a market. The antitrust laws do not prohibit professional consultation with health insurers, peer review of professional practices or utilization of hospital facilities, disciplinary actions by professional societies, or the formation and participation in prepaid health care plan where the physicians are sufficiently integrated into the financial structure that they would share in the risk of loss should the plan fail to meet its commitments. The legality of relative value

studies, professional participation in peer review of fees, exclusive contract arrangements with hospitals or other institutional providers, and participation in less than fully integrated health care plans is unclear at this time.

The Effect of the Antitrust Laws on Insurers

The McCarran-Ferguson Act exempts from the antitrust laws the "business of insurance" to the extent that it is regulated by state law and does not involve acts of "boycott, coercion, or intimidation."[21] In a series of cases, the Supreme Court has explained and progressively narrowed the scope of this exemption. In St. Paul Fire & Marine Insurance Company v. Barry[22], the Court stated that the term "boycott" included concerted refusals to deal with consumers, as well as competitors, within an industry. In Group Life & Health Insurance Company v. Royal Drug Company[23], the Court set out three criteria for deciding whether a practice falls within the business of insurance: 1) the practice must transfer or spread a policyholder's risk; 2) the practice must be an integral part of the policy relationship between the insurer and the insured; and 3) the practice must be limited to entities within the insurance industry. Last year, the Supreme Court held that the McCarran-Ferguson Act does not remove peer review of professional fees from the purview of the antitrust laws[24]. This does not mean that peer review is illegal, but merely that it is not exempt from antitrust scrutiny.

The McCarran-Ferguson Act exemption has been asserted by professionals in the context of antitrust cases when their activities were related to health care financing considerations and, arguably, were part of the business of insurance. While considerable ambiguity continues to exist concerning the scope of this exemption, the Supreme Court's decisions make it clear that it, like all exemptions from the antitrust laws, will be narrowly construed.

For several years, the commercial health insurance companies have asserted that they are unable to compete effectively with Blue Cross/Blue Shield plans in most markets because their market shares are too small for them to bargain aggressively with hospitals or other providers. In order to attain more leverage in these markets, they suggest that they should be able to share data among themselves on costs and utilization but claim that they are precluded from doing so because of the antitrust laws. The insurers never clearly stated just what types of information they wanted to pool and share with their competitors, and they never officially requested either the Justice Department or the Federal Trade Commission to review the matter and provide either informal or formal advice on the legality of such arrangements. In November 1983, Senator Arlen Specter introduced a bill entitled the "Health Care Cost Containment Act of 1983" which, if enacted, would grant antitrust immunity to insurers who collaboratively collect data on health care

costs and jointly negotiate prices with hospitals, physicians and other health care providers[25].

New Methods for Paying Physicians

Antitrust has long been a tool that proponents of alternative delivery systems have used to ease their entry into traditional health care markets. When traditional fee-for-service physicians have threatened to boycott HMO's, or the physicians who affiliate with them, the antitrust laws have been an effective means for stopping such anticompetitive practices from coming to fruition. Similarly, efforts by organized medical groups to discourage price competition or prohibit the disclosure of fees have been successfully challenged under the antitrust statutes. Today, the pressure to curb rising health care costs is forcing even traditional physicians to consider participating in a variety of new organizations that promise to be more cost conscious than older methods for paying physicians but that also preserve most of the characteristics of fee-for-service practice.

The growth and development of these organizations has been concentrated primarily in California and other western states[26]. The term "preferred provider organization", or PPO, was coined by InterStudy to describe many of these new physician groups. Although PPO's can be sponsored by underwriters, providers, employers, or others, they seem to share four basic characteristics: 1) insurers or other third party payers contract with a panel of providers to furnish services; 2) a negotiated fee schedule (normally discounted from what the provider usually charges) and a promise to pay the providers promptly; 3) some form of utilization review; and 4) patients are not limited to the PPO panel but instead are encouraged to use the panel members through incentives such as reduced deductibles or no copayments. PPO's appear to have the potential for creating competition in both the financing and provision of health care by offering price and coverage options that increase the economic incentives for physicians to control fees and utilization levels.

Structuring the fee schedule or discount may pose problems for some PPO's given the Supreme Court's 1982 decision in Arizona v. Maricopa County Medical Society[27]. Here, the Court held that it was per se unlawful for physician members of a foundation for medical care to agree jointly on the maximum fees that could be claimed in payment for services rendered to policyholders of foundation-approved insurance plans. For a variety of reasons, not least of which that the case was decided by a 4-3 vote, the Maricopa case has left the law in this area uncertain.

The decision is clear that the peer review and administrative functions performed by the medical care foundations did not prevent application of the per se rule; it also clarifies that competitors who have achieved sufficient operational integration by forming some sort of

partnership or joint venture can jointly set prices without per se condemnation. But, by failing to supply us with an analytic framework, the Court missed an important opportunity to clarify a complex and critical aspect of price fixing law. Maricopa does not make it easier to discern when competitors acting in a joint enterprise have sufficiently integrated their operations so that an agreement they reach on price would be analyzed by the courts under the rule of reason as a joint productive arrangement, rather than being automatically condemned as naked price fixing. The Court gave no useful guidance for physician groups that may be willing to integrate more than was evident in Maricopa, but who might not wish to go as far as establishing partnerships or other joint ownership arrangements. This uncertainty may discourage the formation of alternative delivery systems with the potential for enhancing price competition and efficiency.

While the Supreme Corut's decision in Maricopa certainly does not tell us much about what physicians can do in relation to prepayment plans, it surely does not mean that physicians who have achieved significant integration can never control payment decisions in a prepayment plan. Despite Maricopa, there are some observations I can make about provider groups and PPO's:

-- A group of providers could combine their practices into a single group practice or clinic and serve as the provider component of a PPO.

-- A group of providers also could establish an entire PPO by going into the financing and underwriting business (the latter could be accomplished through a joint venture with an insurer).

-- Maricopa tells us that simply performing certain administrative functions, such as peer review and claims adjustment, does not take joint price setting activities out the per se category of antitrust violation.

Summary and Conclusions

The antitrust laws do impose limits on the ability of physicians to engage in joint fee setting and from employing unfair tactics to discourage or penalize competitors. At the same time, antitrust does not favor one method of payment or one type of physician organization over another. Rather, it is directed toward preserving open and fair competition in the market for health services.

The doctrines and theories of traditional antitrust analysis are expansive and flexible enough to deal with new forms of physician payment that have already been introduced as well as those which are still a

gleam in someone's eye. As in other antitrust matters, the following concerns and questions will be addressed if any of the new payment methods are subjected to antitrust scrutiny:

-- What are the probable effects of the challenged practice? Will it enhance or dampen competitive forces in the market?

-- What is its purpose?

-- Who is involved? Are they competitors or are they buyers?

-- What is really happening? Is the practice under scrutiny a competitive restraint or is it really ancillary to a larger arrangement that will promote greater efficiency and enhance competition?

Footnotes

1. Schultze, The Public Use of Private Interest, Harpers (May 1977) at 43.

2. See Letwin, The English Common Law Concerning Monopolies, 21 U. Chi. L. Rev. 335 (1954).

3. 21 Jac. 1, c.3 (1623). See Darcy v. Allen, 11 Coke 84, 77 Eng. Rep. 1260 (K.B. 1603).

4. 90 Stat. 1397; 15 U.S.C. 1.

5. 38 Stat. 717; 15 U.S.C. 41.

6. 38 Stat. 730; 15 U.S.C. 12.

7. For a fuller discussion of the origin of the FTC Act, see Cushman, The Independent Regulatory Commissions, 177-213 (1941).

8. 221 U.S. 1 (1911).

9. 246 U.S. 231 (1918).

10. Northern Pacific Ry. Co. v. United States, 356 U.S. 1,5 (1958).

11. 421 U.S. 733 (1975).

12. Id. at 787.

13. Nat'l Soc'y of Professional Engineers v. United States, 435 U.S. 679 (1978).

14. Id. at 692.

15. American Medical Association, 94 F.T.C. 701 (1979), aff'd, 638 F. 2d 443 (2d Cir. 1980), aff'd by an equally divided court, 455 U.S. 676 (1982).

16. 433 U.S. 350 (1977). The advertising restrictions at issue in this case were struck down as a violation of the First Amendment's protection of commercial speech. The "state action" doctrine was first articulated by the Supreme Court in Parker v. Brown, 317 U.S. 341 (1943).

17. California Retail Liquor Dealers Ass'n v. Midcal Aluminum, Inc., 100 S. Ct. 937 (1980).

18. Several consent orders have been signed by professional groups agreeing not to enforce relative value scales. See California Medical Ass'n, 93 F.T.C. 519 (1979); Minnesota State Medical Assn., 90 F.T.C. 337 (1979); American College of Radiology, 89 F.T.C. 144 (1977); American College of Obstetricians and Gynecologists, 88 F.T.C. 955 (1976); American Academy of Orthopaedic Surgeons, 88 F.T.C. 968 (1976).

19. The states of Ohio and West Virginia brought and settled cases to end medical control of Blue Shield plans. See Ohio v. Ohio Medical Indemnity, 1978-2 Trade Cas. 62,154 (S.D. Ohio 1978).

20. United States v. American Soc'y of Anesthesiologists, 473 F. Supp. 147 (S.D.N.Y. 1979).

21. 15 U.S.C. 1011 et seq. (1976).

22. 438 U.S. 531 (1978).

23. 440 U.S. 205 (1979).

24. Union Labor Life Insurance Co. v. Pireno, 102 S. Ct. 3002 (1982).

25. S. 2051, 96th Cong., 1st Sess. (1983).

26. Medical World News (Feb. 28, 1982).

27. 102 S. Ct. 2466 (1982).

PHYSICIAN PAYMENT METHODS: FORMS AND LEVELS OF PHYSICIAN COMPENSATION

Sunny G. Yoder

The purpose of this paper is to examine how physicians in the United States are compensated. This is a matter of some interest since the method of compensation, that is, how the physician ultimately receives payment for his or her services, is an important element of the physician's economic environment. Another important element is the system of third-party payments: the policies and practices of government programs and private insurers defining the services for which they will pay, the conditions for payment, the form of payment, and its amount. Taken together, these two elements largely determine the relationship between the number and types of services a physician provides and the physician's gross income.*

For most solo practitioners, the payment method and the compensation method are identical, so that the relationship between payments for services provided and the physician's income is direct. For practitioners who are part of a group practice or HMO, however, the payment method generally differs from the compensation method. For example, although the physicians in a group practice may bill patients and third parties on a fee-for-service basis, individual group members may receive a salary. In an HMO, where payments are on a capitation basis, physicians also may receive compensation in the form of salary. In such instances the relationship between payments for the physician's services and the physician's income is more complex.

Students of the U.S. health care system express considerable concern about the economic incentives for physicians under different forms of compensation. While none of these observers believe that physicians conduct their medical practice solely for pecuniary gains, they do believe--and there is some, albeit limited, evidence to support this belief--that such motivations do influence physicians'

*Other important pieces of the economic environment of the physician are the tax system and the system by which funds are raised for meeting the costs of medical services. They largely define the boundaries of physicians' aggregate claims on society's resources as well as the public-private mix of funding sources to meet those claims.

behavior. To understand the nature of a physician's economic incentives it is necessary to understand how the physician is compensated as well as how payments for services are generated. This paper describes the different physician compensation methods, presents published data on levels of compensation, and estimates the distribution of U.S. physicians among the different compensation methods. The latter estimate is constructed in three steps. First, published data from the American Medical Association Masterfile are used to group physicians on the basis of their reported employment setting and professional activities. Second, for each of the groups, available evidence is used to estimate how the physicians in the group are distributed among compensation methods. Finally these estimates are combined to estimate the overall distribution.

Summary of Findings

On the basis of published data, I estimate that in 1980 approximately half the active physicians, excluding residents, were compensated by fee-for-service. This figure includes all solo practitioners, 7 percent of physicians in group practice, and 60 percent of hospital-based physicians. Just under 20 percent were salaried. The remainder of U.S. physicians--roughly 30 percent--received a mixed form of compensation, with a fixed component analogous to salary and an incentive component analogous to fee-for-service.

Compensation levels vary widely depending on employment setting, specialty, and other variables such as years in practice. The published data on physician compensation do not permit conclusions about the relationship between compensation levels and methods. According to AMA data, the average net income of U.S. practitioners in 1982 was $99,500. The average for practicing physicians specializing in pediatrics was approximately $70,000, while for surgeons the average was approximately $130,000. Academic physicians had earnings ranging from $42,000 to $122,500 in 1983, depending on faculty rank and method of compensation. The higher earnings are for faculty who receive a base salary plus supplemental practice earnings. Entry level earnings for physicians employed by the Federal Government range from $32,000 to $48,000 depending on their grade and on where they are employed. The military services, the Public Health Service Commissioned Corps, and the Veterans' Administration also provide physicians with an array of allowances and special pay over and above their base salaries.

Distribution of U.S. Physicians Among Employment/Activity Groups

According to the American Medical Association Masterfile (see Table 1), in 1980 there were approximately 415,000 active physicians who provided sufficient data to be categorized by employment setting and main professional activity. Four-fifths of all physicians were

either residents enrolled in graduate medical education programs (15%) or were engaged in office-based practice (65%). Most of the remainder were federal employees, hospital-based practitioners, or were engaged primarily in teaching, administration, and research. A description of the methods and levels of compensation for each group in Table 1, based on available information, follows.

Table 1

Number and Percentage Distribution of U.S. Physicians by Employment/Activity Category, 1980

Employment/Activity Category	Number Of Physicians	Percent Of Total
All	414,916[1]	100.0
Residents (including federal)	62,042	15.0
Federal physicians (all activities)	15,360	3.7
Office-based practice	271,268	65.4
Hospital-based practice	31,032	7.5
Medical teaching	7,379	1.8
Administration	10,846	2.6
Research	14,298	3.4
Other	2,691	0.6

Source: Adapted from Catherine M. Bidese and Donald G. Danais, Physician Characteristics and Distribution in the U.S., 1981 ed., American Medical Association, Tables 2 and 6, pages 38 and 64, respectively.

[1] In 1980 there were 461,289 physicians in the U. S. and possessions of which 25,744 were inactive and 20,629 could not be classified. This leaves a total of 414,916 that can be distributed among employment/activity categories.

Residents. In 1980, 62,000 physicians were enrolled in graduate medical education programs. Their compensation is in the form of salary, sometimes referred to as a stipend (Association of American Medical Colleges, 1980, page 169). Compensation levels for these physicians have grown significantly from the era when they literally resided in the hospital. Today residents' salaries reflect their apprenticeship role in providing medical services to hospitalized patients, ranging from a median of $18,900 for the first post-M.D. year to $23,200 for the 5th post-M.D. year in 1982-83 (Department of Teaching Hospitals, 1982).*

Federal physicians. In 1980, 15,360 physicians (excluding residents) were employees of the Federal Government. Roughly 7000 of these were in the military service, and another 6000 employed by the Veterans Administration. The remaining 2400 federal physicians were employed by the Public Health Service (including the Commissioned Corps) or other parts of the Federal Government (Kahn and Orris, 1982; Eiler, 1983). The basic form of compensation for these physicians is salary, although the details of compensation arrangements vary depending on where the physician is employed. In the military and the Commissioned Corps, the base salary is augmented with non-taxable housing and subsistence allowances, dependents allowances, and bonus pay for board certification and years of service. In addition, these physicians receive a lump-sum retention bonus for each year they remain in the service. Taking all these components of compensation into account, a physician entering the military or the Public Health Service Commissioned Corps earns approximately $40,000. Elsewhere in the Federal Government physicians are paid according to special GS pay levels, which at entry are $31,900 for GS-11, $32,000 for GS-12, and $45,400 for GS-13. An exception is the Veterans Administration which has its own pay schedule. Physicians may enter the VA at a senior grade, equivalent to a GS-14, at $41,277 per year, or at a chief grade at $48,553. In addition, the VA also has a system of special pay for board certification, tenure, responsibility level (e.g. service chief), and geographic location. This special pay can add as much as $22,500 annually to VA physicians' earnings.

Office-based practitioners. The nation's 271,000 office-based practitioners are compensated in several different ways, depending upon whether they are in solo or group practice and, if in a group, how the group's practice income is distributed. According to estimates from the AMA Periodic Survey of Physicians (a detailed survey of a 5% sample of office-based, non-federal physicians), 54 percent were in solo practice and 46 percent in group practice in 1980 (Kahn and Orris, 1982, page

*Graduate medical education programs range in length from three to seven years, although most programs are in the three- to five-year range.

286). The physicians in groups reported the following income distribution methods:

Equal distribution	11%
Straight salary	8%
Salary plus profit share	16%
Fee-for-service	7%
Other or unknown	4%
	46%

(Kahn and Orris, 1981, page 286.) These percentages should be viewed as very rough estimates, subject to considerable error due to a relatively low (50%) response rate for the survey. Too, these categories are highly simplified characterizations of income distribution plans that often are quite complicated (see, for example, Medical Group Management Association, 1978).

Information on the net incomes of office-based practitioners in 1980, by specialty, are available from the Periodic Survey of Physicians. As published, these figures do not differentiate between physicians under different compensation methods, but are reported by specialty. As summarized in Table 2, physician net incomes in 1980 ranged from about $63,000 for pediatricians and general practitioners to about $99,000 for surgeons. Overall, average net incomes rose at a compound rate of 6.8 percent between 1970 and 1980. Average net income for all specialties, according to this survey, was $80,900 in 1980 (more recent AMA figures on net incomes of all practicing physicians are presented in a later section).

Hospital-based practitioners. Roughly 31,000 non-federal medical practitioners are hospital-based. These physicians are concentrated in certain specialties, primarily radiology, anesthesiology, and pathology. Information on methods of compensation for these physicians was collected in a special 1979 hospital survey by the American Hospital Association. Steinwald (1983) summarized the compensation methods for these physicians as salary, percentage arrangements, and fee-for-service. Table 3 shows the distribution of hospital departments of anesthesiology, pathology, and radiology among these methods.

If one assumes that these distributions apply to the physicians in these specialties (an assumption that is partially supported by comparing Steinwald's results to those of a 1979 survey by the American College of Radiology) and weight these distributions by the number of physicians in each specialty, a rough estimate of how hospital-based physicians are compensated would be as follows:

Salary	20%
Percentage	18%
Fee-for-service	62%

Table 2

Average Net Income from Medical Practice by Specialty, 1970, 1980, and Compound Percentage Growth 1970-1980

Specialty	1970	1980[1]	Compound Percentage Growth 1970 - 1980
ALL[2]	$41,800	$80,900	6.8%
General Practice	33,900	63,300	6.4
Internal Medicine	40,300	79,100	7.0
Surgery	50,700	98,600	6.9
Pediatrics	34,800	63,300	6.2
Obstetrics/gynecology	47,100	92,500	7.0
Psychiatry	39,900	65,100	5.0

Source: David L. Goldfarb, editor, Profile of Medical Practice 1981. AMA, Center for Health Services Research and Development, 1981.

[1] 1980 net income figures were projected by survey respondents.
[2] This category includes all other specialties.

Table 3

Percentage Distribution of Hospital Departments By Compensation Method

	Salary	Percentage	Fee-for-service
Anesthesiology	19%	4%	77%
Pathology	32	27	41
Radiology	9	27	64

Source: Steinwald, 1983, Table 1, page 20.

This estimate applies only to hospital-based physicians, that is, physicians who spend the majority of their time in hospital-related activities. Among physicians who have any financial arrangements with a hospital, almost 60 percent have a salary arrangement (AMA, 1982).

Hospital-based physicians are among the highest earning specialties in medicine. Net practice income for radiologists for 1982, as estimated by the AMA, were almost $137,000; anesthesiologists were estimated at $131,400. Pathologists' earnings were not separately reported (AMA, 1983). Steinwald analyzed the relationship between compensation methods and earnings levels for these physicians. Radiologists and anesthesiologists who received fee-for-service compensation had the highest gross, and net, incomes; salaried physicians in these specialties had the lowest incomes. The highest earning pathologists received a percentage of department revenues, while the lowest-earning pathologists were salaried (Steinwald, 1980, Table 4, page 72). Recent restrictions on reimbursement levels for hospital-based physicians by the Health Care Financing Administration may lessen the differences in incomes between salaried hospital-based physicians and the others.

Incomes of all practicing physicians. In 1981 the AMA instituted a new series of surveys that include all practicing physicians, both office-based and hospital-based. Data on physician net incomes from this new Socioeconomic Monitoring System therefore are not strictly comparable with those from the former Periodic Survey of Physicians, and thus conclusions about trends in incomes must be made cautiously. In particular, since hospital-based physicians tend to be in the higher ranges, the new figures may overstate gains in income between 1980 and 1981. Table 4, based on the new survey, shows physicians' earnings for 1981 and 1982, and the percentage increase from 1981 to 1982.

Table 4

Average Net Incomes of Practicing Physicians by Specialty, 1981, 1982, and Percent Increase 1981-1982

Specialty	Average Net Income 1981	Average Net Income 1982	% Increase 1981-1982
All specialties	$93,000	$99,500	7.0%
General practice	72,200	71,900	- 0.4
Internal medicine	85,100	86,800	2.0
Surgery	118,600	130,500	10.0
Pediatrics	65,100	70,300	8.0
Ob/gyn	110,800	115,800	4.5
Psychiatry	70,600	76,500	8.4

Source: AMA, SMS Report, Vol. 2, No. 4, July 1983.

There is considerable variation around these averages, depending upon length of time in practice, practice mode and form of compensation, geographic location, and the extent to which a physician's services and patients are covered by health insurance. In his or her prime earning years, e.g., between the ages of 35 and 55, the average physician would be earning about $110,000, rather than the overall average of $99,500. These data indicate that 20 percent of physicians had net incomes of under $50,000 in 1982, while 25 percent earned over $125,000. Net incomes exceeded $200,000 for approximately 7 percent of physicians.

Academic physicians. Most of the non-federal physicians whose main professional activities are teaching, research, and administration are employed as faculty in the nation's medical schools. These physicians typically are compensated in one of two ways: (1) a fixed salary or (2) a base salary with the opportunity for supplemental earnings from medical practice. The degree of medical school control over practice earnings varies a great deal. Some medical faculty simply bill and collect their own fees independent of the school. However, in the majority of medical schools, practice earnings are channeled through an organized faculty group practice, or practice plan. These plans, not unlike private practice groups, have rules governing the collection and distribution of practice earnings among the group members and the medical school (Institute of Medicine, 1976; Hilles and Fagan, 1977). Legally, they may be independent corporations, partnerships, or administrative units of medical schools (Jolly and Smith, 1981).

Data on medical faculty salaries are collected by the Association of American Medical Colleges and reported, by faculty rank, for the two forms of compensation. In 1983, 53 percent of faculty received a fixed salary, while 47 percent received a base salary plus supplemental compensation from practice. Their annual salaries, according to these data, were as follow:

	Salary	Base + Supplement
Instructor	$42,000	$51,300
Assist. professor	62,700	66,000
Assoc. professor	64,100	79,900
Professor	71,600	94,100
Chairman	78,100	122,500

(Smith, 1983, Tables 5 and 6). For faculty who receive supplemental earnings from practice, these data include only those whose supplemental income is actually reported. Since many medical faculty have uncontrolled--and therefore unknown--outside earnings, the figures above probably understate average earnings for this group.

Other physicians. According to the AMA, "Other" physicians are those who work in insurance companies, corporations, pharmaceutical companies, voluntary organizations, medical societies, and other organizations.

Presumably they work as salaried employees in these settings; no data are available on their earnings.

Overall payment methods. The data presented above, with some assumptions, can be used to construct a rough estimate of the numbers of physicians compensated by each of three basic methods: (1) salary, (2) incentive, and (3) fee-for-service. The salary and fee-for-service methods are self-explanatory. "Incentive" refers to physicians whose incomes are positively influenced by revenues they generate, including medical school faculty receiving salary supplements, hospital-based physicians under percentage arrangements, and group practice members receiving incentive compensation. Assuming that all solo office-based practitioners are fee-for-service, that all federal physicians are salaried (since their bonus arrangements are independent of the volume of services rendered), and distributing the rest of physicians among compensation categories according to the percentages presented above, I estimate that in 1980, excluding residents, 63,000 (18%) of physicians were salaried, 105,000 (30%) received incentive compensation, and 185,000 (52%) were fee-for-service.* If federal physicians also are excluded, then these percentages would be salary 14%, incentive 31%, and fee-for-service 55%.

Comparison with Other Estimates. Kahn and Orris (1982) employed a similar approach to estimating the distribution of U.S. physicians among compensation methods, but their results differ considerably from those reported here. They estimated that, including residents, approximately 53 percent of active physicians were salaried (my estimate, including residents, is 30%) and 47 percent were compensated by other methods (I estimate 70%). The estimates differ for several reasons. Kahn and Orris used two compensation categories, "salary" and "other", rather than three, and included under salary a number of physicians such as medical school faculty who received salary plus incentive payments. Too, they assumed that 100 percent of hospital-based physicians, in comparison to my estimate of 20 percent, were salaried. Finally, their estimates are based on 1979 rather than 1980 Masterfile data.

Gabel and Redisch (1979) have estimated that, including residents, 71 percent of U.S. physicians are paid under fee-for-service, and 28 percent are on salary. They do not report their method of arriving at these figures, but the distribution is very close to mine if they counted physicians receiving incentive compensation with those on straight fee-for-service. A substantial number of physicians receive a mixed form of compensation; how they are counted makes a great deal of difference in estimates such as these.

The data presented here do not support any firm conclusions about the relationship between physicians' compensation methods and incomes.

*See Appendix for details.

Physician earnings are affected by many variables, and a careful analysis is needed, taking into account specialty, years in practice, geographic location, hours worked, and other variables, in order to establish any systematic relationship between how physicians receive their income and their income levels. In any event we can be sure that the relationship is a subtle one, since a physician's earnings are not independent of his/her choices among specialties, locations, or practice modes, nor of decisions about medical practice. Even salaried physicians' incomes often bear some relation to the quantity of services they provide, even though the relationship is less direct than for fee-for-service practitioners. As one observer notes, to assess the economic incentives in salaried practice it is necessary to consider the incentives and reward structure of the institution paying the physician's salary (Reinhardt, 1983).

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Appendix

Estimated Distribution of Physicians by Work Setting and Type of Compensation, 1980

Work Setting	Type of Compensation			
	All	Salary	Incentive	Fee-For-Service
All	352,874 (100%)[1]	63,195 (18%)	104,965 (30%)	184,714 (52%)
Federal	15,360 (100%)	15,360 (100%)		
Solo practice	146,485 (100%)	-	-	146,485 (100%)
Group practice	124,783 (100%)	21,701 (17%)	84,093 (67%)	18,989 (15%)
Hospital-based practice	31,032 (100%)	6,206 (20%)	5,586 (18%)	19,240 (62%)
Teaching, administration & research	32,523 (100%)	17,237 (53%)	15,286 (47%)	
Other	2,691 (100%)	2,691 (100%)		

Source: See text

[1] This total excludes residents. If they are included, the distribution of physicians by type of compensation is salary 30%, incentive 25%, and fee-for-service 45%.

APPENDICES

Appendix A

Conference
on
"STRATEGIES FOR REFORM OF PHYSICIAN PAYMENTS"

October 27 - 28, 1983

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Appendix B

INSTITUTE OF MEDICINE
NATIONAL ACADEMY OF SCIENCES
2101 Constitution Ave., N.W.
Washington, D.C. 20418

October 27-28, 1983

CONFERENCE PROGRAM

"STRATEGIES FOR REFORM OF PHYSICIAN PAYMENTS"

Thursday, October 27

3:00 p.m. OPENING PLENARY SESSION — Lecture Room

Introductory remarks

Frederick C. Robbins, M.D., President,
Institute of Medicine
Paul B. Beeson, M.D., Conference Chairman

Perspectives on Physician Payment Issues

Carl J. Schramm, Ph.D., J.S., Associate
Professor, Johns Hopkins University
and Director of Center for Health
Finance and Management, Johns Hopkins Medical
Institutions
R. Don Blim, M.D., Pediatrician
Richard S. Wilbur, M.D., Executive Vice
President, Council of Medical Specialty Societies
John D. Crosier
Executive Director, Massachusetts Business
Roundtable

4:30 p.m. OPENING DISCUSSION OF ISSUES AND
CONFERENCE OBJECTIVES

5:30 p.m. ADJOURNMENT

Conference participants are invited to a wine and cheese
reception in the Great Hall immediately following
adjournment

Friday, October 28

8:30 a.m. WORKSHOPS (See room assignment below)

Each workshop will address these questions

1. What are the appropriate objectives for a method of paying for physicians' services?
2. How do existing methods meet or fail to meet those objectives? How strong is the evidence?
3. What new methods have been proposed or implemented, and what is known about their effects?
4. What mechanisms exist for modifying methods of payment today and what new mechanisms might emerge in the future?
5. How might the Institute of Medicine contribute to a reconsideration of physician payment practices by government, private purchasers of health care, physicians, and the public?

GROUP I	Stanley B. Jones, Chairman	Room 150
GROUP II	John R. Hogness, Chairman	Room 180
GROUP III	Robert W. Jamplis, Chairman	Room 250
GROUP IV	Neil J. Elgee, Chairman	Room 280
GROUP V	William R. Roy, Chairman	Lecture Room
GROUP VI	Arthur E. Hess, Chairman	Board Room

11:30 a.m. CONCLUDING PLENARY SESSION — LECTURE ROOM

Reports by workshop chairmen and open discussion of suggestions for Institute of Medicine

1:00 p.m. ADJOURNMENT

Appendix C

Workshop Groups

GROUP I

Chairman: Stanley B. Jones

Participants:

Marsha Rosenthal
Alexander D. Langmuir
Fred I. Gilbert, Jr.
William R. Felts
Caramult B. Jackson, Jr.
Richard G. Farmer
Mark S. Blumberg
Patricia Taylor
Michael R. Pollard
Jon Gabel
Paul Rettig
Jack Werner
E. Langdon Burwell
Ralph Crawshaw
Gilbert S. Omenn

Rapporteur: Jane Takeuchi

GROUP II

Chairman: John R. Hogness

Participants:

R. Don Blim
James R. Cantwell
Jack Elinson
A. Alan Fischer
William A. Glaser
Jack Hadley
Donald C. Harrington
Francis D. Moore

Rapporteur: Paul A. Nutting

GROUP III

Chairman: Robert W. Jamplis

Participants:

Robert Strauss
J. Jerome Wildgen
Melvin A. Glasser
John R. Kimberly
Joe Isaacs representing John F. Sherman
Lawrence C. Morris
Ronald Carlson
Bryan R. Luce
Manfred Lichtman

Rapporteur: Jessica Townsend

GROUP IV

Chairman: Neil J. Elgee

Participants:

Ben R. Lawton
Henry Desmarias
Michael Zubkoff
John L. S. Holloman, Jr.
Ernest Saward
Lawrence D. Brown
H. Michael Schiffer
Marvin Shapiro

Rapporteur: Sunny G. Yoder

GROUP V

Chairman: William R. Roy

Participants:

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Robert L. Black
George Schieber
Bruce Steinwald
Eugene A. Stead, Jr.
Lawrence K. Altman
Judith Miller Jones

Rapporteur: Eileen Connor

GROUP VI

Chairman: Arthur E. Hess

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Irving J. Lewis
JoElyn McDonald
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Ralph O. Wallerstein
Roger Egeberg
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