
Chapter 7

Cavitation Payment

. the point remains that rationing is inevitable for all resources in all societies. The issue is simply that of how: through what institutional framework?

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Cavitation Payment

INTRODUCTION

Policymakers' interest in cavitation payment has grown continually over the past decade as pressures to control health expenditures have mounted and as experience with health maintenance organizations (HMOs), which are paid by cavitation, has become more widespread. In prepaid group practices, a kind of HMO, total expenditures 10 to 40 percent lower than in solo fee-for-service practices have been documented, primarily because of lower hospitalization rates (279,285). Furthermore, studies have found quality of care in these HMOs equal to or better than that provided by other practices (97,279). Since relatively few Medicare beneficiaries (4.2 percent in December 1985 (533)) or Medicaid eligibles have historically been enrolled in HMOs the question arises of whether the Medicare program could constrain its expenditures by adopting capitation payment for all beneficiaries.

Beneficiaries now have the option of having Medicare pay for their medical care by cavitation. Provisions of the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA) (Public Law 97-248) enable Medicare to pay risk-sharing plans on a cavitation basis without subsequent adjustment.

The act in effect set up a voluntary voucher system whereby Medicare may pay a predetermined amount to enroll beneficiaries in plans of their choice (148).

This chapter considers the expansion of capitation payment to a mandatory voucher system for all Medicare beneficiaries. The chapter first describes the concept of cavitation payment and variations possible within the Medicare program. A brief historical review then documents Medicare's experience with cavitation payment, including present payment for HMO contracts and demonstration projects. Because of the importance of the cavitation rate, which is the price that Medicare would pay plans for beneficiaries' care, research on cavitation rates is discussed in a separate section. Medicare could make cavitation payments to risk-sharing plans or to fiscal intermediaries responsible for a geographic area. An analysis follows of the likely implications of different forms of cavitation payment across the dimensions and medical technologies introduced in chapter 3. The chapter concludes with findings regarding the dimensions and variations of capitation payment.

THE CONCEPT OF CAVITATION PAYMENT AND POSSIBLE VARIATIONS

Cavitation payment is a yearly or monthly amount per person that is fixed in advance and independent of the medical services used. Capitation arrangements may vary according to the recipient of the cavitation payment and scope of services covered in the payment (table 7-1). How the rate is set may also vary, a matter discussed in a subsequent section of this chapter.

This chapter examines cavitation payment for all beneficiaries to two different kinds of fiscal intermediaries: risk-sharing health plans, such as HMOs, which would assume the financial risk of

arranging for or providing care to their enrollees; and geographic intermediaries, which would assume the financial risk for the care of all the beneficiaries in a geographic area. Although there are historical examples of cavitation payments directly to individual physicians, recent experience under Medicare and Medicaid and in the private sector has centered on payments to fiscal intermediaries, and Medicare cavitation payment to individual physicians is not considered here.

For payment to both kinds of fiscal intermediaries, Medicare would pay for beneficiaries' care

Table 7-1.-Alternatives for Cavitation Payment

Recipient of payment	Scope of services		
	Ambulatory services (physician and ancillary)	Ambulatory services and physician inpatient services	Ambulatory services and physician and facility inpatient services
Physician			
Health plan.		x	x
Geographic fiscal intermediary		x	x

X= Alternative considered in this report.
 SOURCE: Office of Technology Assessment, 1985

by cavitation, but the fiscal intermediary could pay physicians and other providers by other methods, including fee-for-service, salary, or capitation. Both recipients of cavitation would receive payments from the Medicare program and arrange for medical care to beneficiaries. But geographic cavitation could add another level between Medicare and providers (see figure 7-1) (70,564). The intermediary-at-risk would negotiate arrangements with area providers and might sponsor its own HMO or preferred provider organization (PPO). The Health Care Financing Administration (HCFA) could continue to contract directly with HMOs and competitive medical plans (CMPs) not sponsored by the geographic intermediary.

Through vouchers or some other mechanism, beneficiaries could choose among alternative arrangements under both kinds of Medicare capitation payment. In both cases, continuation of present Medicare coverage and cost-sharing provisions and of care through physicians paid fee-for-service would remain an option for beneficiaries.

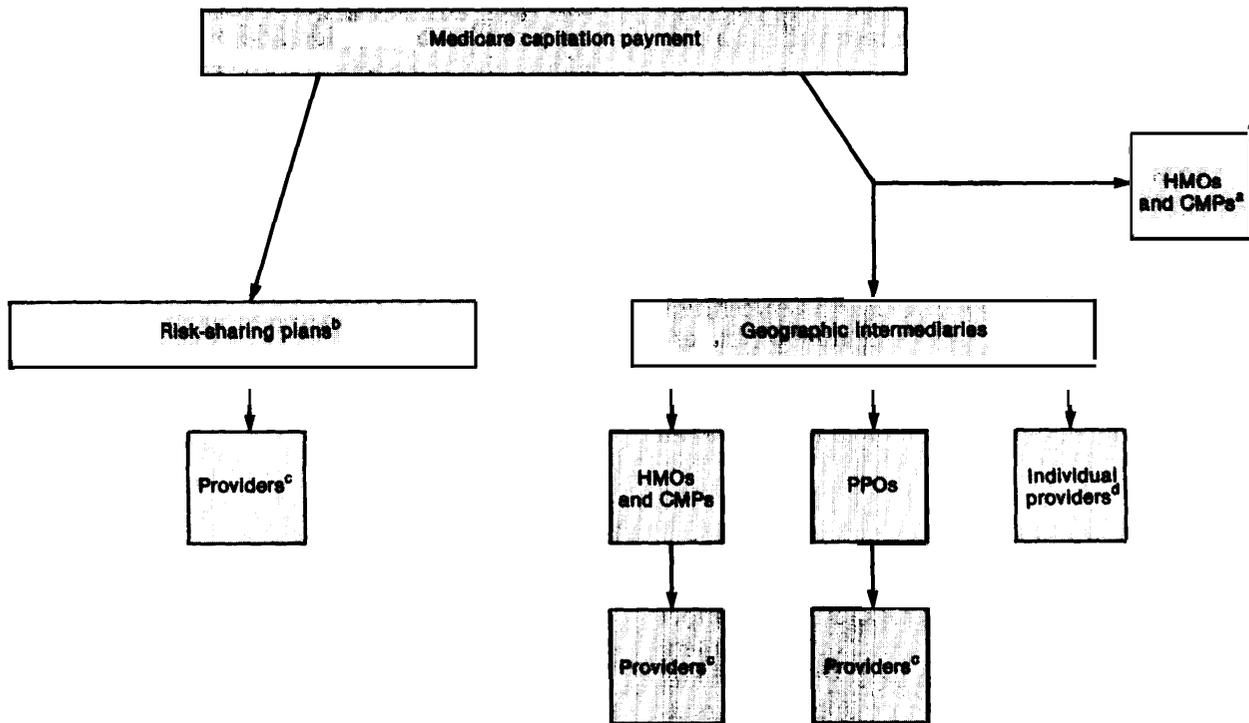
This chapter examines two variations in the scope of services included in the cavitation payment: ambulatory services (physician and ancillary) and inpatient physician services; and ambulatory services, plus physician and facility inpatient services. The first variation approximates coverage of Medicare Part B services and has been used in some Medicare plans (health care prepayment plans) for beneficiaries who have coverage for Part B but not Part A. The second variation, which is similar to coverage for Parts A and B, is the scope of services that has been included in most Medicare contracts and demon-

stration projects and by most prepaid group practices and other HMOs. The chapter does not examine two other variations in the scope of services. Some Medicaid programs, such as New Jersey's, are making cavitation payments for ambulatory services alone, including ambulatory physician and ancillary services but excluding inpatient physician and hospital services (197,558a). The chapter also does not consider the variation in scope of services that adds social services and long-term care to routine acute- and chronic-care coverage and that is being used in Medicare demonstrations of social HMOs. Since long-term care lies outside the scope of this report, social HMOs will not be considered further.

This chapter thus considers the four variations in cavitation payment indicated in table 7-1: payment to risk-sharing health plans for all physician and ambulatory services, payment to risk-sharing health plans for all ambulatory and inpatient services, payment to geographic intermediaries for all physician and ambulatory services, and payment to geographic intermediaries for all ambulatory and inpatient services.

The concept of cavitation payment has three important elements. First, the enrollee, or Medicare beneficiary, is the unit of payment. The way a recipient of cavitation payment gains more revenue is by enrolling additional people into the plan. In addition, the entity knows at the start of the coverage period the number of people for whom it is responsible and can plan the facilities and personnel needed to provide care. Unlike providers who are paid fees after they provide services or insurers who pay claims for services used, an entity paid by cavitation is obligated to provide or arrange for covered care during the applicable time period.

Figure 7-1.—Medicare Capitation Payment to Different Fiscal Intermediaries



a Medicare could continue to contract directly with HMOs and other CMPs not sponsored by geographic intermediaries.

b Risk-sharing plans could include HMOs, other CMPs, or plans sponsored by insurers that offered present coverage, cost-sharing, and fee-for-service payment to providers.

c Physicians and other providers could be paid by different methods, such as fee for service, capitation, or salary.

d This arrangement would allow beneficiaries to continue present coverage, cost sharing, and fee-for-service payment to providers.

SOURCE: Office of Technology Assessment, 1985

Second, the amount paid does not depend on the services used. Although some HMO patients may have to pay minimal amounts when they use services, such as \$5 for an office visit, these charges enable plans to have lower premiums and do not generate substantial revenue. Since cost-sharing when services are used is so low, enrollees face little financial deterrent to seeking care. In actual experience, people who have faced lower cost-sharing at the time of use have been more likely to have a physician visit (343), and members of prepaid groups have been more likely than other insured people to have at least one physician visit during the year (279).

On the other hand, a provider that receives a fixed capitation payment set in advance and receives little extra revenue from additional services has no financial incentive to provide them. Within the scope of services covered by capita-

tion, the provider has a financial incentive to use the number and mix of medical services to care for a patient's condition most efficiently and to produce each service with the greatest technical efficiency. In fact, to the extent that the provision of services adds to cost and not to revenue, that is, to the extent that the provider is at financial risk, the provider on a fixed budget also has a financial incentive against providing additional services. A countervailing incentive is that the failure of the plan to give enrolled beneficiaries desired services may lead to loss of enrollees and gross revenue.

The third important element is that the payment rate is set in advance of the time period during which it is to apply. As noted above, this prospective aspect implies that the entity paid by capitation has a defined population for which it is responsible for providing care and a fixed budget

within which to provide that care. Within the period of time that the rate applies, the provider cannot influence the revenue received for a person's care.

Although this chapter takes the perspective of Medicare, which would pay a cavitation payment to a fiscal intermediary, the intermediary may distribute that revenue to individual physicians on bases other than cavitation. How the intermediary pays physicians and other medical professionals determines where the financial incentives of cavitation payment fall. Individual physicians who are paid by cavitation or share in a risk pool for referrals of ancillary or specialist services have a financial incentive to use judiciously and even

underuse the services for which they are at financial risk. Physicians paid fees for services have an incentive to provide additional services providing the extra revenue exceeds the extra cost. Salaried payment to physicians promotes neither underuse nor overuse of services, but by itself does not provide incentives for physicians to use their time productively. In 1978, groups paid mainly by cavitation distributed 67 percent of their incomes to physician owners by salary. Perhaps to compensate for the financial incentives of salaried payment, 53 percent of prepaid groups, compared with only 16 percent of fee-for-service groups, had explicit productivity guidelines (205).

MEDICARE EXPERIENCE WITH CAVITATION PAYMENT

Although the Medicare program in December 1985 had contracts with close to 200 prepayment plans that had enrolled almost 1.3 million beneficiaries, its experience with *prospective* capitation payments has been much more limited (see table 7-2). Until the January 1985 regulations implementing TEFRA, almost all of Medicare's contracts reimbursed prepayment plans on the basis of their costs, under arrangements similar to cost-based reimbursement of hospitals (see app. C). In June 1984, before changes in plans' status as

a result of TEFRA, 44 "health care prepayment plans" had cost contracts for Part B services and 62 plans had "cost contracts" for services in Parts A and B (50 FR 1341). These two types of cost-based contracts covered 77 percent of the beneficiaries then in prepayment plans. TEFRA stipulated that after January 1, 1986, payment to cost-based plans would be limited to the average adjusted per capita cost (AAPCC) of different categories of Medicare enrollees (42 CFR 417.532), as defined below.

Table 7-2.—Participation of Prepayment Plans in the Medicare Program, 1984-85^a

Type of contract	Number of plans		Medicare enrollment (thousands)	
	1984	1985	1984	1985
Cost contracts:	108	87	675	774
Health care prepayment plans and group practice prepayment plans ^b	44	35	575	637
Cost contract ^c	62	52	100	137
<i>Risk-sharing contracts:</i>	27	104	200	498 ^d
Pre-TEFRA risk-sharing contract	1	4	30	43
Demonstration	26	10	170	14
TEFRA risk contracts	NA	90	NA	441
Total	133	191	875	1,272 ^e

NA=Not applicable.

^aJune 1, 1984 and Dec. 13, 1985.

^bHealth care prepayment plans and group practice prepayment plans cover Part B services.

^cPlans in this category cover services in Parts A and B. Total for December 1985 includes 56,971 enrollees in TEFRA cost plans.

^dThis figure represented 2.0 percent of all Medicare beneficiaries.

^eThis total represented 4.2 percent of all Medicare beneficiaries.

SOURCES: U.S. Department of Health and Human Services, Health Care Financing Administration, Division of Group Health Plan Operations, Baltimore, MD, personal communication, Dec. 13, 1985; 50 FR 1314-1418.

By June 1984 only one plan, Group Health Cooperative of Puget Sound, had elected the risk-sharing option made available to plans by the Social Security Amendments of 1972 (Public Law 92-603).¹ In light of the disadvantages of this option for HMOs and other prepayment plans, it is not surprising that interest was low. Although a risk-sharing HMO received a capitation payment for beneficiaries, Medicare's actual payment was still determined retrospectively, based on a comparison of the plan's costs for its Medicare enrollees and Medicare expenditures for comparable beneficiaries in the service area. Moreover, a plan was limited in the surplus that it could retain, but had to absorb all losses (see app. C).

TEFRA and the regulations effective February 1, 1985 (50 FR 1341), broadened the definition of plans that are eligible for Medicare contracts and enabled Medicare to pay plans on a capitation basis without retrospective adjustment.² In addition to plans that are considered qualified HMOs under the Public Health Service Act, Medicare may now contract with CMPs. Although the requirements for enrollment in their private lines of business are more restrictive for qualified HMOs than for CMPs, both CMPs and HMOs face the same requirements for Medicare enrollees. Both kinds of plans must provide Medicare covered services³ to enrollees for a fixed prospective payment that does not depend on the frequency, extent, or kind of service actually provided. In both cases beneficiaries' premiums and cost-sharing are limited to the actuarial equivalent amounts that enrollees would have paid for Medicare-covered services if they had not enrolled in the plan. CMPs and HMOs also face the same requirements for their Medicare business regarding such matters as open

enrollment, enrollment literature, and grievance and hearing procedures.⁴

Under TEFRA provisions for risk contracts, Medicare pays for each Medicare enrollee in a plan a monthly payment that is based on the estimated average per capita cost of providing care to beneficiaries in that geographic area who are not in prepayment plans. The actual capitation payment is to be 95 percent of the AAPCC, that is, the average per capita cost adjusted for age, sex, disability, and, if available and appropriate, welfare and institutional status and other relevant factors (42 CFR 417.588, 50 FR 1369). Before the contract period, the CMP or qualified HMO must compute its adjusted community rate (ACR), the rate equal to the premium that the plan would have charged non-Medicare enrollees for Medicare covered services adjusted for utilization characteristics of the plan's Medicare enrollees and reduced by the value of Medicare coinsurance and deductibles (42 CFR 417.594, 50 FR 1369). If the plan's ACR is less than the average of the Medicare capitation payments to be made to the plan (which it usually is (533)), the plan is required to provide Medicare enrollees additional benefits, to reduce premiums or other charges to Medicare enrollees, to contribute to a benefit stabilization fund,⁵ or to request a reduction in its monthly capitation payment from Medicare (42 CFR 417.442, 50 FR 1354). HCFA pays each plan based on the rates for the rate cells each enrollee occupies and adjusts the plan's capitation payment if actual Medicare enrollment differs from the estimates (42 CFR 417.598).

¹International Medical Centers, Inc., in Miami, FL, had a risk contract with Medicare prior to entering a demonstration project in 1982 (539). By Aug. 1, 1985, three additional plans had pre-TEFRA risk-sharing contracts: Community Health Care Center Plan in New Haven, Connecticut; Total Health Care in Missouri; and Prime Health in Missouri (533). An advantage in converting to a risk contract before TEFRA regulations were promulgated was that the regulations specify that a plan with a risk contract must enroll two new Medicare beneficiaries for every one for whom payment is converted from a reasonable cost to a risk basis (42 CFR 417.432).

²TEFRA eliminated the previous risk-sharing option but retained the reasonable cost option.

³The plan must provide Parts A and B or only Part B services, depending on an enrollee's Medicare coverage.

⁴A major difference between CMPS and federally qualified HMOS is that such HMOS must charge community rates, that is, their rates must be equivalent for similar individuals or families (42 CFR 110.105). In addition, employers with 25 or more employees must offer a federally qualified HMO, but not a CMP, as a health benefit option. CMPS, on the other hand, may experience rate, that is, they may base the premiums for an enrollment group on the experience of that group. Unlike qualified HMOs, CMPS for their commercial enrollees have no restrictions on the copayments and deductibles that they may charge; have no requirement to cover mental health care, substance abuse, or home health care; and have no requirement to offer enrollment to a population broadly representative of people in the service area. CMPS need not be a separate legal entity; they may be a line of business (533).

⁵The plan may request that HCFA withhold part of its monthly per capita payment in a benefit stabilization fund to prevent excessive fluctuation in the cost of additional benefits in subsequent contract periods. Contributions to the fund may not exceed 15 percent of the difference between the ACR and the payment rate.

TEFRA's risk-sharing provisions are considered more favorable to prepayment plans than previous risk arrangements. Although cavitation payments to TEFRA plans are based on 95 percent instead of 100 percent of the AAPCC, the rate is set prospectively and does not depend on the costs incurred by the plan's enrollees. A plan can count on that revenue, subject to variations in enrollment, and set its budget accordingly. TEFRA plans may realize the same profit rate on its Medicare enrollees as on its commercial enrollees, without limits on the profit that the plan may earn. Given the restrictions noted above on the relationship between the ACR and 95 percent of the AAPCC, TEFRA permits risk-sharing plans to retain any surpluses, rather than having to share them with the Medicare program. Although TEFRA plans, like previous plans at risk, must absorb all losses, TEFRA plans may obtain reinsurance or share risk with providers (42 CFR 417.407).

At the same time, financial benefits may flow to the Medicare program and to beneficiaries because of the TEFRA provisions that link capitation payments and enrollee benefits to conditions in the local marketplace. A plan's ACR, which depends on premiums charged for the plan's commercial business and hence must be competitive with other health insurance, acts as a ceiling for Medicare payments that may be retained for the plan's own use and as a threshold for increasing benefits to Medicare enrollees or reducing payments from Medicare. Although the law gives HMOs and CMPs several options for dealing with the difference, they generally return the difference to the beneficiary by reducing premiums or adding benefits (533).

From June 1984 to December 1985, Medicare enrollment in risk-sharing plans more than doubled from 200,000 to 498,000 beneficiaries (see table 7-2). In addition to 32 plans that converted from demonstrations, by December 1985 58 other plans had negotiated TEFRA risk contracts and 78 applications were pending (533). In addition, 4 plans have pre-TEFRA risk-sharing contracts (533).

Despite the rapid and continuing increase in TEFRA risk contracts, it is apparent that Medi-

care's experience with prospective cavitation payment has been limited mainly to 32 demonstration projects and 1 pre-TEFRA risk contract (see box 7-A). In 1980, eight HMOs in five market areas began enrolling Medicare beneficiaries in "cavitation" demonstrations that involved prospective cavitation payments (411). The seven plans that continued on a cavitation basis had 51,327 Medicare enrollees as of January 1985. Under subsequent "competition" demonstrations, 21 plans (including 1 in the cavitation demonstrations) in 12 market areas were awarded contracts and were operational by mid-1984 (411). By the end of March 1985, 13 plans remained in the demonstration projects (see table 7-3). The enrollment of almost half a million Medicare beneficiaries in risk-sharing plans by December 1985 indicates that such plans are capable of marketing to and enrolling this group.

HCFA has contracted with Mathematical Policy Research to evaluate the competition demonstrations (59). The project is examining determinants of beneficiaries' choice of plan; effects of enrollment on the use, quality, and cost of care; competition among providers in a market area; and the effects on the fee-for-service sector of prospective cavitation payments by Medicare to risk-sharing plans (539). Although the evaluation is not scheduled for completion until the end of 1987, preliminary results will be available in the interim.

Previous studies have examined the experience of Medicare beneficiaries in seven prepaid group practices paid on a cost-reimbursement basis and in four plans paid under risk-sharing arrangements. These studies suggest that prepaid groups can deliver care to Medicare enrollees at lower cost than the care provided to other beneficiaries in an area, but the studies of risk-sharing plans raise questions about the extent to which plan beneficiaries have been representative of other area beneficiaries in the same payment categories.

In the first set of studies of prepaid groups, Medicare payments to "group practice prepayment plans" (later health care prepayment plans, as described above) were based on their costs and covered only Part B services within the plan. Medicare paid separately for enrollees' use of Part B

Box 7-A. -International Medical Centers, Inc. (IMC), Miami, FL

IMC is a for-profit HMO that provides health services to enrollees through a combination of salaried physicians who practice in its own clinics and affiliated medical groups operating as a network. Its service area covers the Miami and Palm Beach area on the East coast of Florida and a three-county area around Tampa Bay.

The physicians on & staff of INK-owned clinics are salaried employees of IMC whose financial incentives are not formally tied to their utilization of services. Their individual productivity and utilization rates are monitored, however, and affect their continued employment by IMC. Outside specialists to whom patients are referred by the staff physicians in the clinics are paid by IMC according to a standard fee schedule.

All the affiliated provider groups in the network receive cavitation payment for their professional services. IMC withholds 15 percent of the capitation payment for administration and marketing expenses. For Medicare enrollees, the payment arrangements are somewhat different. IMC immediately transfers the entire payment for Part B services to the affiliated groups, but retains the Part A payment in a hospitalization risk pool for the group and splits any excess or surplus equally with the group. The affiliated provider groups distribute the cavitation payments to their constituent physicians at their own discretion, using a wide variety of arrangements including fee-for-service, salary, and cavitation, with and without utilization incentives. The affiliated providers are responsible for making their own payment arrangements, subject to IMC approval, for all specialist services that they themselves cannot provide. But since the payment that the affiliated provider groups receive from IMC is intended to cover all professional services, these groups must bear the risk for the use and cost of those services.

Under a variety of contractual arrangements ranging from negotiated charges to per diem payments, hospital costs are paid by the plan to several area hospitals. However, most admissions are directed to a hospital that is a subsidiary of the holding company that owns but is administratively separate from IMC. In addition, IMC self-insures for all adverse utilization experiences, i.e., it bears all risk for catastrophic costs, without stop-loss or reinsurance.

Utilization control begins with the assignment of a personal physician to each member as a primary-care case-manager who must approve all services and specialist referrals. All hospital admissions

require pre-authorized from a physician panel, which is staffed 24 hours a day. A nurse-staffed utilization review team provides concurrent review, reigning an anticipated length of stay to each inpatient and monitoring the patient's progress. The team also reviews the daily reports of an automated management information system on the use of services all hospital patients, sorted by patient, by provider group or clinic. Individual primary-physician provider groups are responsible for their own utilization review procedures outside of the hospital, and the IMC staff physicians are subject to monitoring for productivity, use of laboratory services, drugs, and referrals.

A quality assurance committee meets monthly to evaluate a sample of medical records, to evaluate services and programs, and to prepare a report to the administrator. A separate physician peer review committee reviews individual physicians by examining a random sample of their patient records and by conducting complete reviews of any providers who may be suspected of substandard care. An additional quality assurance team consisting of a nurse practitioner, a physician, and a health administrator was begun in response to the rapid growth of the plan. The team visits each medical center and affiliated provider every 3 or 4 months to conduct an audit.

IMC is heavily dependent on Medicare for its enrollment, with some 40,000 out of a total of 75,000 members being Medicare enrollees as of early 1984. Before entering the Medicare competition demonstration in August 1982, IMC had 12,000 Medicare enrollees under a Section 1876 (of the Social Security Act) Medicare risk contract. Its rapid expansion has been met by expanded utilization review and quality assurance programs, as well as the management information systems mentioned previously. However, allegations of deficiencies in the services provided to Medicare beneficiaries led to an investigation by the General Accounting Office of IMC and other HMOs in the south Florida demonstration project. Most of the problems seemed to have been caused by Medicare beneficiaries not understanding the requirement of HMO enrollment that they seek care only from plan doctors and by difficulties in maintaining records on enrollment and disenrollment of Medicare beneficiaries in HMOs (476).

SOURCE: Drawn horn A, Brewster, K, Langwek E', McMenamin, et al. *Evaluation of the Medicare Competition Demonstrations: Preliminary Implementation Case Studies of Four South Florida AHPs* (Washington, DC: Mathematical Policy Research, inc., April 1984).

Table 7.3.—Capitation Payment for Medicare Beneficiaries in Demonstration Projects, as of Mar. 31, 1985^a

Plan	Unit of payment to physicians	Unit of payment to hospitals	Government-plan risk-sharing	Plan-provider risk-sharing	Beneficiary cost-sharing
IMU, inc. Miami, FL	Staff-salary, network-capitation	Per diem and discounted charges	Plan bears all ^b	Groups bear risk for referrals	None
AV-MEU Miami, FL	IPA-capitation	Per diem and discounted charges	Plan bears all ^b	10% withheld for bonus fund	Nominal copayments
C.A.C. Health Plan Miami, FL	Staff-salary and bonus ^c	Negotiated ^d	Plan bears all ^c	None	None
HealthCare of Broward Plantation, FL	Staff-salary and bonus	Charges ^e	Plan shares with parent corporation	None	Premium and drug copayment
Group Health Plan of Southeast Michigan Troy, MI	Staff-salary, referrals-some capitated	Negotiated ^e	Plan bears all ^b	None for staff; capitated specialists for professional services only	Premium; copayment for drugs and mental health
Metropolitan Health Council of Indianapolis Indianapolis, IN	Staff-salary, referrals—<5% of contracting specialists on capitation	Per diem	Plan bears all ^b	None for staff; capitated specialists risk costs of professional services only, plan splits hospital savings with hospital	Premium and drug copayment
Medical East Community Health Plan Braintree, MA	Staff-salary, referrals on capitation	Per diem (State rate-setting)	Plan bears all ^b	None for staff; capitated specialists' professional services only	Premium and drug copayment
Genesee Valley Group Health Association Rochester, NY	Group-members paid salary and bonus ^c	Per diem (State rate-setting)	Plan bears all ^b	None tied to utilization	Premium and nominal copayments for visits
Genesee Health Plus Flint, MI	IPA receives capitation for physician services, 12% withheld for excess utilization fund; individual physicians paid capitation or FFS	Charges paid by HMO, IPA shares no risk for inpatient hospital services	Plan shares risk in AMCRA risk pool ^f	IPA bears risk for professional services and ancillaries; hospital surplus shared with IPA; individual providers not at risk	Premium and nominal copayments
Family Health Program, Inc. Long Beach, CA	Staff-salary at + bonus ^g	Discounted ^e	Plan bears all ^b	None	Premium for high option only
Delmarva Health Care Plan Easton, MD	IPA-capitated case managers; referrals at FFS charges	Unspecified	Plan shares in AMCRA risk pool ^f	Case managers at risk for maximum \$1,000 services per patient, including hospital charges	Premiums and copayments

Table 7-3.—Capitation Payment for Medicare Beneficiaries in Demonstration Projects, as of Mar. 31, 1985a—Continued

Plan	Unit of payment to physicians	Unit of payment to hospitals	Government-plan risk-sharing	Plan-provider risk-sharing	Beneficiary cost-sharing
Health Options of South Florida Miami, FL	HMO pays IPA, which pays case managers capitation, minus withhold to fund hospitalization and referrals; referred specialists paid FFS	Per diem	Plan shares in AMCRA risk pool ¹	Case managers at risk for withhold in referral and hospital fund, pooling risk among case managers	Premium and nominal copayment
Central Massachusetts Health Care, Inc. Worcester, MA	IPA pays members UCR, minus 20% from ambulatory services and 25% from hospital services to fund risk pool	Unspecified	Plan shares in AMCRA risk pool ¹	20% of ambulatory	%

services outside the plan and for Part A services. Thus, the experience with these plans does not relate to the incentives of prospective cavitation payment. Nevertheless, for five of the seven plans, Medicare expenditures including in- and out-of-plan care were lower for plan enrollees than for control groups (91,566). Unlike the two other plans, these five owned or controlled their own hospitals and operated outside of New York City. In all instances, Medicare expenditures per enrollee were higher for physician and related services but lower for inpatient services and, with one exception, for hospital outpatient services (91).

Conflicting hypotheses have been advanced to predict utilization and medical expenditures for people who enroll in HMOs (279). According to one theory, people who feel at higher risk of expensive care are more likely to join HMOs for the comprehensive coverage and financial protection offered. The greater coverage of HMOs may also attract people who favor preventive care and are likely to seek care when illness occurs. Other explanations would predict that HMO enrollees may be predisposed to use less expensive care than average either because they prefer not to use medical care or because enrollees are less likely to have ties to an existing provider, an indication that they were in good health. Studies of non-Medicare enrollees have indicated the importance of an existing physician relationship, but have found conflicting results concerning indicators of prior health status.

The second set of Medicare studies examined the prior use and cost of beneficiaries who joined four risk-sharing plans during the mid to late 1970s (120,121). Enrollees in a plan with a pre-TEFRA risk-sharing contract had inpatient use and expenditures about 50 percent lower than a comparison group (120). Two out of three plans studied from the Medicare cavitation demonstrations also had indications of nonrandom selection, since their enrollees had previously had 20 percent lower Medicare reimbursements than comparison groups (121). A greater degree of biased selection by low-risk people into HMOs was found in four Medicare demonstration projects in which HMOs were permitted to screen the health of applicants before offering high- or low-option coverage (278).

The results of these studies and of others indicating biased selection by low-risk non-Medicare enrollees into HMOs may not be generalizable (32,278). First, all cases of lower risk enrollment concerned prepaid group practices. Higher risk people may be attracted to the individual practice association type of HMO since they can maintain previous relationships with physicians. Second, with one exception, only one fee-for-service alternative was offered. A study of Federal employees' enrollment in health plans found lower users gravitated not to HMOs but to low-premium, high-cost-sharing, fee-for-service plans (433). Third, with one exception, the studies reported on cases where an HMO option was being offered for the first time. Furthermore, countervailing information for people under age 65 suggests, for example, that although enrollees of prepaid group practices in the West were younger than those in competing plans, prepaid group practice enrollees in most age-sex and diagnostic categories had greater need for hospital care (47).

Enrollment in HMOs of beneficiaries likely to have medical expenses much below average could occur because of the preferences of enrollees or the marketing techniques of the plan. Holding an open enrollment period, during which beneficiaries choose among options and plans must accept people on a first-come first-enrolled basis, has been suggested as a partial means of avoiding biased selection (1.29). In some of the instances cited above, however, apparently nonrandom selection resulted from an open enrollment process. It should be noted that Enthoven also called for community rather than experience rating, limitations on switching plans, and minimum benefit coverage.

As part of the Medicare cavitation demonstrations, beneficiaries in the Minneapolis-St. Paul area had the choice of enrolling in one of four HMOs or of retaining traditional fee-for-service arrangements. In 1982, a comparison of HMO enrollees and nonenrollees found that beneficiaries who had joined an HMO during the early part of the demonstration tended to have had less private health insurance than nonenrollees and were more dissatisfied with their usual source of care, especially in the areas of cost and paperwork (155). The beneficiaries who chose HMOs char-

acterized themselves as healthier than those who remained with fee-for-service arrangements. HMO enrollees were more socially active and less likely than nonenrollees to report having a serious medical condition associated with a greater likelihood of high medical cost. This finding may have been related to the fact that until 1984, HCFA permitted the four HMOs to screen beneficiaries' health before enrollment in a high-option plan.

The issue of biased enrollment is of great importance to the Medicare program. Whether there

is a selection bias will affect whether Medicare gains or loses from greater enrollment in risk-sharing plans. Medicare will gain if it pays plans 95 percent of the AAPCC for enrollees who would have incurred greater expenses outside of the plan, but Medicare will lose if it pays plans 95 percent of the AAPCC for beneficiaries whose expenses would have been far below that amount outside of the plan.

ESTABLISHING THE CAVITATION RATE

It is in the interest of the Medicare program, its beneficiaries, and society as a whole to pay for medical care in such a way that plans have financial incentives to work with providers to deliver care efficiently. If great differences exist in the profit that can be made from enrolling low-risk vs. high-risk beneficiaries, plans will find it in their interest to stress marketing strategies rather than efficient delivery of care. Competing through marketing techniques to enroll low-risk people and to avoid high risks would be consistent with the expertise of health insurance companies, which may sponsor risk-sharing plans.

Because of the substantial variation in medical expenses among Medicare beneficiaries, risk-sharing plans could face great losses. In 1977, Medicare paid \$4,000 or more per patient for only about 5 percent of its beneficiaries, but the expenses of these beneficiaries accounted for 52 percent of Medicare's total expenditures (182). Medicare paid more than \$20,000 per patient for only 0.09 percent of all beneficiaries, and these payments totaled 2.8 percent of program expenditures. A risk-sharing plan with a random group of beneficiaries could thus be hurt financially if even a small number of these expensive cases enrolled in excess of the predicted average. The risk would be greater for smaller plans because they would be subject to relatively more random fluctuation. An HMO with 1,000 enrollees could experience a 5 percent or greater cost increase from the enrollment of three beneficiaries instead of the expected one in the category over \$20,000. Such

a plan would probably bear an even greater risk because HMOs, unlike Medicare, typically provide catastrophic coverage.

At the same time, a risk-sharing plan has the potential to reap sizable gains. In 1977, Medicare incurred no expenses for about 36 percent of its beneficiaries (182).⁷ In addition to people who used no services during the year, these beneficiaries included people who did not reach the deductible and people who did not bother to submit claims. However, most of the variance in Medicare expenditures (about 92 percent) was associated with differences among people who incurred costs, especially with whether or not people had hospital costs (about 38 percent of the total variance),

A risk-sharing plan uncertain whether or not Medicare's payment will cover the expenses of enrollees may attempt to enroll lower risk beneficiaries. A greater degree of favorable selection will be required to cushion a plan against such uncertainty the smaller the plan's enrollment, the less uncertainty the plan's management is willing to bear, the lower the savings that the plan expects from more efficient delivery of care, and the less the difference between the AAPCC and Medicare's payment (182). On the other hand, by reducing hospitalization rates, HMOs may realize greater net revenues (revenue from AAPCC payments minus expenses of care) from high-risk en-

⁷In 1982, Medicare incurred no expenses for 31 percent of elderly beneficiaries and 45 percent of disabled beneficiaries (525).

rollees who are especially likely to use hospital care under fee-for-service arrangements. It should also be noted that the regulations implementing TEFRA prohibit plans from using health screening or discriminatory marketing practices.

Private health insurance has not developed means to adjust rates for different risk groups that are applicable to Medicare (461). Only about 15 percent of all individual applications for medical insurance are rejected because of adverse medical histories, are offered policies that exclude certain medical conditions, or are insured for an excess premium that reflects such high-risk factors as health status and occupational hazards. Because companies have rejected the worst risks or have restricted their coverage, the experience of the private sector provides little basis for calculating rates according to risk category.

On the other hand, the insurance industry's experience with coverage for affinity groups may be transferable to the Medicare population. Insurers have provided coverage for employers who wished to furnish health insurance to their elderly workers. More importantly, insurance companies have sold policies to beneficiaries to supplement their Medicare coverage. A related development is coverage of long-term care as an insurance product.

A desirable approach to establish Medicare cavitation rates would contain incentives for plans to deliver cost-effective care and attract plans to participate, while allowing Medicare to reap some of the savings from more efficient delivery of care. The approach would also discourage manipulation by plans, including selection of low risks, and would require minimal additional data and expense to implement and administer.

Alternative Methods of Refining the Average Adjusted Per Capita Cost (AAPCC)

In 1983, an actuarial firm advising HCFA concluded that the AAPCC method was the best then available for determining Medicare payment to risk-sharing plans (311). However, the AAPCC explains very little of the variation in Medicare expenditures for its elderly beneficiaries (32). Ap-

plied to 1979 expenditures per beneficiary, for example, age, sex, and welfare status explained only 0.6 percent of the variation.⁷ Research is underway to refine the AAPCC to incorporate factors that would identify low- and high-risk beneficiaries, namely prior use of medical care (19,32), functional limitations and disability from chronic illness (181,456), or demographic and socioeconomic characteristics (48).

One model used as prior use variables the hospital days used in the previous 2 years, whether or not the enrollee was hospitalized in the previous year, and whether or not the Medicare Part B deductible was met in the previous 2 years (32). Although this model was superior to the current AAPCC and to whether or not a person was hospitalized in the previous year, the hospital days-Part B model explained only 4.3 percent of the variance in Medicare expenditures per beneficiary.

The prediction for groups of enrollees is the important result because Medicare would pay risk-sharing plans for groups of beneficiaries. As one would expect, the predictions for groups were more accurate.⁸ The hospital days-Part B model was again superior to the others. For groups of beneficiaries biased by prior use, age, or welfare status, the ratio of the predicted reimbursement for the biased group to the actual reimbursement for the population from which the biased group was selected differed no more than 5 percent. This model is being used in a demonstration project in Minneapolis, in which an HMO is trying to attract frail elderly beneficiaries (see table 7-4) (278). The main shortcoming of this refinement is that it does not distinguish high users who had self-limiting acute conditions from those with chronic conditions that will continue over time (183,278). If an HMO would enroll fewer (more) chronically ill people among its high users, Medicare would be likely to have greater losses (gains).

Another refinement of the AAPCC related to prior use would add information about diagno-

⁷The proxy for welfare status was whether or not States had purchased Medicare Part B coverage for beneficiaries who were also eligible for Medicaid. Institutional status, although used in the AAPCC formula, was excluded because it is available only from special surveys.

⁸The random errors of predictions for individuals tend to cancel out for large groups (278).

Table 7-4.—Medicare Demonstrations of Cavitation Payment, December 1985

Prior Use Modification of AAPCC. Senior Health Plan, Minneapolis, MN	Medicare Payment at 85 Percent of AAPCC. Finlay Health Plan, Miami, FL
<i>General/ Description:</i> For all Medicare enrollees who have been in the program at least 2 years, i.e., those 67 or older, data from the Health Insurance Master File on prior hospital days used and whether they met the Medicare deductible, rather than institutional category, are used along with age, sex, and Medicaid status to produce an individually adjusted Average Adjusted Per Capita Cost (AAPCC). Medicare's cavitation payment to the plan is 95 percent of the adjusted AAPCC. Medicare pays for enrollees without 2 years of utilization experience in the Master File at 95 percent of the standard AAPCC, adjusted for age, sex, Medicaid, and institutional status.	<i>General Description:</i> Medicare pays plan a cavitation payment of 85 percent of the AAPCC, instead of 95 percent as mandated by regulations implementing the provisions of Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA) (Public Law 97-248). In return, the plan can keep any surplus revenues from the cavitation payment, rather than having to report an Adjusted Community Rate and make adjustments required by TEFRA regulations.
<i>Scope of Services:</i> Medicare Parts A and B, with no limit on days of use for inpatient and nursing facility services. Plan makes arrangements for some community-based social services, but not to the same extent as a Social/Health Maintenance Organization.	<i>Scope of Services:</i> Medicare Parts A and B, with no day limits on hospital care and additional coverage for routine medical care, prescription drugs, routine dental care, eyeglasses.
<i>Payment to Physicians:</i> Network model. Plan pays a capitation payment for both physician and hospital services to 6 riskpools made up of both physicians and hospitals. Each pool uses different arrangements to share risks and pay providers.	<i>Payment to Physicians:</i> Network model. Cavitation payments are made to plan-owned clinics with staff physicians and also to contracting affiliated providers (including both group practices and solo practitioners). For Medicare enrollees, the plan makes one cavitation payment to cover ambulatory service, and a separate payment to cover inpatient, home health, skilled nursing facility, and hospital-based outpatient care. For the latter payment, risk is shared between the plan and the providers, with 75 percent of any surpluses or deficits accruing to the plan and the remainder to the contracting unit.
<i>Payment to Hospitals:</i> In all cases the plan puts both the hospital and primary care physicians acting as gatekeepers at risk for some portion of their services. The level of risk borne and the payment rate are negotiated between the plan and representatives of the risk pool. Physician referrals are paid according to arrangements made by each risk pool. However, the plan withholds a negotiated portion of the pool's cavitation payment to fund referrals.	<i>Payment to Hospitals:</i> Negotiated per diem contracts.
<i>Risk-Sharing With HCFA:</i> None. Plan may arrange independently for stop-loss insurance.	<i>Beneficiary Cost-Sharing:</i> None. No additional premium in addition to Part B premium and no deductible or copayment liability.
<i>Beneficiary Cost-Sharing:</i> Premium is \$21.75, in addition to standard Part B premium. Beneficiary is not liable for copayments or deductible.	<i>Risk-Sharing With HCFA:</i> None. Plan may arrange independently for stop-loss insurance.

SOURCES: R. Deacon, Office of Demonstrations and Evaluation, Health Care Financing Administration, U.S. Department of Health and Human Services, Baltimore, MD, personal communication, Dec. 4, 1985; J. Laly, Senior Health Plan, Minneapolis, MN, personal communication, Dec. 5, 1985; J. Robinson, Finlay Health Plan, Miami, FL, personal communication, Dec. 4, 1985; and R. Sirmon, Office of Demonstrations and Evaluation, Health Care Financing Administration, U.S. Department of Health and Human Services, Baltimore, MD, personal communication, Dec. 2, 1985.

ses associated with hospitalization and indicative of chronic conditions likely to result in substantial future medical costs (183,278). Including diagnosis has raised the explanatory power of the model to 9 percent of the variance (183). The University Health Policy Consortium based at Brandeis University further classified hospitalizations and found that repeated hospitalizations for cardiac conditions, cancer, or musculoskeletal conditions were associated with subsequent expenditures about 3.5 times the average (278). Research is proceeding to predict expenses after enrollment in an HMO and to focus on conditions with large unavoidable expenditures that are not discretionary and hence manipulable by the risk-

sharing plan. It is also important that the approach used does not penalize risk-sharing plans for keeping use and costs of care low.

Other Methods of Determining Cavitation Payment

Besides refining the cavitation rate, the AAPCC, to deal with the risk to be borne by plans and possible biased selection by enrollees, Medicare could change its risk-sharing arrangements with plans. Such approaches would incorporate some retrospective adjustments to the prospective payment depending on actual cost of treating beneficiaries (183).

These approaches would have Medicare share in the risk of high-cost enrollees and would thereby reduce the risk of losses for the HMO from severely ill enrollees. In exchange for Medicare's sharing the risk, the HMO would receive a lower percentage of the AAPCC. In effect, Medicare would be providing reinsurance to the HMO, and Medicare and the HMO would share the profits from greater efficiency. HMOs would be more willing to enroll all beneficiaries. For example, Medicare could pay an HMO well below the AAPCC and in addition pay 80 percent of an individual's care over \$5,000 (individual stop-loss reinsurance). Or Medicare could pay a plan 85 percent of the AAPCC and absorb any losses over 3 percent of their total cavitation revenue (aggregate stop-loss reinsurance). Both approaches would reduce but not eliminate the financial incentives for the plans to be efficient (183).

Alternatively, risk-sharing plans could rely on private reinsurance, which is permitted under the

regulations implementing TEFRA, to protect them against losses. Under this approach, Medicare would transfer all the risk to the plan, which would then pay an insurer to help bear the risk. Any savings that Medicare might then share in the form of lower cavitation payments would stem from any efficiencies in delivering medical care that were achieved by the plans.

Cavitation rates could also be determined by competitive bidding. This approach would be more compatible with cavitation payment to a fiscal intermediary than to numerous risk-sharing plans. Competitive bidding to select an intermediary would entail disadvantages similar to those enumerated in chapter 5, such as the possibility of unintentionally setting up an organization that would develop monopoly power.

IMPLICATIONS OF MEDICARE CAVITATION ALTERNATIVES

A substantial body of literature stretching over 25 years pertains to experience with providers paid by prospective cavitation payments. Most of the studies concern large, established, nonprofit pre-paid group practices, and some of the groups, such as Group Health Cooperative of Puget Sound and many of the Kaiser-Permanente Medical Care Programs (see box 7-B), owned their own hospitals.

It is difficult to extrapolate the results of these studies to other plans, both present and future. Although group practices in June 1984 still accounted for 59 percent of all HMOs and 81 percent of total enrollment, their number had stayed almost constant over the previous year, while individual practice associations (IPAs) had grown **27 percent in number of plans and 56 percent in total enrollment (240)**. More than half of all enrollees were in plans with 100,000 or more members, but by far the greatest growth in enrollment was occurring among plans of **50,000 to 99,999 members (240)**. Newer plans are also more likely than older ones to be investor owned (for profit) (121) and to have arrangements that place physi-

cians at financial risk (see box 7-C). Even before the TEFRA regulations, Medicare enrollment in HMOs was increasing more rapidly than general enrollment (212). From June 1983 to June 1984 Medicare enrollment in HMOs increased **36 percent**.

In addition to HMOs that have expanded their operations to different States, insurers and hospital management companies have entered the HMO market in substantial numbers (see table 7-5). Not only is the relative number of IPAs increasing, but, according to anecdotal information, their sponsorship is as well. Early IPAs were pre-existing foundations for medical care or were established by medical societies. By contrast, newer IPAs may be outgrowths of fee-for-service group practices or HMOs that wish to grow rapidly. Individual physicians feeling competitive pressure may join an IPA to increase their patient load, and the group practice or HMO may find "direct contract IPAs" a desirable way to expand without great capital investment in facilities.

All of these plans will be operating in a market environment much different from the past. As

BOX 7-B—Payment to Physicians the Northern California Kaiser Permanente Medical Care Program*

The Kaiser Permanente Medical Care Program, the Northern California Region, is a prepaid group practice type of HMO. It is made up of three co-operating independent organizations: The Kaiser

and group subscribers to provide comprehensive

in turn contracts with the Kaiser Foundation Hospitals to provide hospital services and with the Kaiser Permanente Medical Group to provide physician services for enrollees. As of December 1984, the Medical Care Program had 1.9 million members, of whom about 112,000 were Medicare beneficiaries.

At the beginning of the program in the early 1940s, all physicians were employees of a sole proprietorship (what would today be called a staff model HMO) and were paid a monthly salary in accordance with a schedule accounting for level of administrative responsibility, tenure, age, skills, and the going market rate for new physicians. The program found early that in order to retain physicians, total annual income had to satisfy individual physician expectations and meet the prevailing market price. By providing income parity with physicians outside the program, the plan has kept termination rates for partners (or shareholders) for other than normal retirement or long-term disability at about 1 percent per year. Only once (in 1970) when annual incomes dropped below that of the competition did the termination rate reach 3.7 percent.

In 1948, the Permanente Medical Group was spun off from the Kaiser Foundation Health Plans and Kaiser Foundation Hospitals as an independent group practice partnership. Each year the physician partnership negotiated with the Health Plan a prospective capitation payment per enrollee for the delivery of physician services for the coming year. In addition, the Health Plan reimbursed the group for fixed expenses, such as office rental and equipment.

Under the partnership arrangement, after 3 years of salaried employment by the medical group, new physicians became eligible to become partners. In order to raise working capital, each physician made a modest financial contribution to the partnership, which was returned to the physician if he or she left

*Excerpted from M. Collen, "Payments to Physicians in the Permanente Medical Group," prepared for the Office of Technology Assessment, U.S. Congress, Washington, DC, August 1985.

partnership. Physician partners received a fixed annual income and a share of income.

The program as incentive compensation arrangement among the Health Plan, Hospitals, and Medical Group was initiated in the late 1950s and is continued with modifications.

Through incentive compensation arrangements, the partnership favorable and adverse were directly involved in the financial success of the total program. The Health

dues rate for the year, a targeted amount for a contingent incentive

payment. The contingent contractual payment from Medical to the group was an additional amount in advance that became an additional level of earnings for Medical Group partners to be distributed equally among them. It was contingent because even though a mutually agreed

on target figure was included in the financial forecast, the actual amount was dependent on the overall results of operations for the year, and thus was not precisely predictable. The incentive payment was not a "surplus" or an "excess" of earnings, but a planned feature of the Medical Group's physician compensation program.

In the 1970s, to minimize fluctuations in income, a "corridor concept" was agreed on that set for the physician partners a target incentive payment, with adjustments applied for the year to decrease the additional income if over the target, or to supplement the income deficiency if under the target. Although the incentive compensation was never substantial (averaging less than 5 percent of a physician's total income), it recognized that the performance of an individual physician influenced the effectiveness and economy of the total program—Kaiser Foundation Hospitals and Health Plan as well as the Permanente Medical Group.

In 1982, the Permanente Medical Group became incorporated. All partners at the time of incorporation were designated "senior physicians." A senior physician's initial contribution to the partnership was converted to shares in the corporation providing voting rights and eligibility to receive dividends. Currently, payments to Permanente Medical Group physicians are divided into four portions: "distributed earnings," which constitute the basic fixed monthly income of senior physicians;

"undistributed income," which is placed "at-risk" in case of excess plan expenditures and is paid to the physicians on a quarterly basis; any excess of revenue over a sum targeted for distributed earnings and undistributed income, which is analogous to the "incentive compensation" of the former partnership and is divided equally between the Medical Group and Kaiser Foundation Hospitals in accordance with the earlier "corridor concept"; and a dividend, which is declared and distributed at the end of each fiscal year.

The Permanente Medical Group, Inc., in 1984 had more than 2,000 physicians and provided care to almost 2 million Health Plan members. The average ratio of full-time equivalent physicians to Health Plan members has steadily decreased over

the past 40 years, from 1/1,200 from 1944 to 1948 to 1/955 in 1976 and 1/890 in 1984. In its early years, as a small organization, the quality of professional care was the direct responsibility of the chiefs of the professional services. As the organization grew in size, it gradually added the usual programs and procedures for assuring quality of care. Utilization committees study usage patterns and "profiles" of tests ordered, and these patterns are compared by departments and facilities to suggest when significant differences could be due to differences in patient characteristics or physician practice styles. The Medical Group's quality assurance program is directed by a regional director with a committee comprised of physicians in every medical center who are responsible for carrying out all procedures needed to satisfy accreditation requirements.

before, HMOs will be competing for enrollees and physicians with fee-for-service arrangements, but the entire medical care sector is under much greater pressure to reduce the costs of performing services and to constrain total expenditures (see ch. 2). How plan managers, private third-party payers, physicians, and lay people will respond is, of course, unpredictable. But the rapid and substantial changes in market context and configuration of plans dictate caution in formulating policy on the basis of past results.

This section analyzes the implications of different Medicare cavitation arrangements for the dimensions outlined in chapter 3: **quality of care, access to care, cost and efficiency, technological change, and administrative feasibility**. In the course of the discussion, the implications are noted for five medical technologies: pneumococcal vaccination, clinical laboratory services, magnetic resonance imaging (MRI), extracorporeal shock wave lithotripsy (ESWL), and cataract surgery. The section is divided into two parts according to the recipient of Medicare payment: the first concerns cavitation payment to plans, such as HMOs, that in turn would arrange for physicians and perhaps other providers to deliver medical care to enrollees; and the other examines capitation to fiscal intermediaries, such as Medicare carriers, that would arrange for plans and providers

to deliver care. In either case the scope of services covered by the cavitation payment could vary from physician and ambulatory services to those services plus inpatient care. The discussion throughout highlights potential problems that would warrant attention as Medicare policy is designed and implemented.

Cavitation Payment to Health Plans

Under this approach, Medicare would pay to the plan chosen by a beneficiary a cavitation payment for care to be provided during a given time period. Although it is beyond the scope of this project to examine the mechanics of beneficiary choice, this alternative is consistent with Enthoven's Consumer Choice proposal regarding plans that would provide comprehensive care (129) and with the Reagan Administration's proposals that beneficiaries be given vouchers and select plans (104). Indemnity insurers as well as HMOs and CMPs could receive cavitation payments. HCFA might require that all plans meet a minimum benefit requirement and certify their financial viability. It is assumed that one of the beneficiaries' options would be to continue present coverage and present arrangements with physicians. For example, a private insurance company might offer such coverage and accept the cavitation payment as the premium.

Box 7-C.--MD-WA Health Plan, Rockville, MD

MD-IPA is a for-profit, federally qualified individual practice association HMO. The plan pays primary care physicians a monthly capitation payment. The plan is divided into two independent corporations: an association of physicians (Physicians' Health Plan of Maryland) providing the professional services of physicians and noninstitutional ancillaries, such as laboratory and X-ray services, and the administrative arm (MD-IPA), which provides administrative and marketing services, such as enrollment, premium collection, and financial planning, and contracting for institutional, pharmacy, and dental services. This dual structure, which was originally a requirement for Federal qualification as an HMO, has been retained by the plan even though this provision of the Health Maintenance Organization Act (Public Law 93-222) has since been amended. MD-IPA operates in the Washington, DC, metropolitan area, covering the District of Columbia and portions of Maryland and northern Virginia.

The administrative arm contracts with the physicians' association to provide physicians' and other services to members of the health plan in return for a cavitation payment. The physicians' association then distributes a monthly capitation payment to each primary care physician (defined as a family practitioner, internist, pediatrician, or obstetrician/gynecologist). The primary care physician acts as a case manager for her or his panel of patients. The monthly cavitation payment covers the costs of professional services rendered by that physician to each enrollee on that physician's pad, whether those services are delivered in a hospital or in an ambulatory setting, and the costs of all office ancillary services. The payment is adjusted for the age and sex of each patient in the panel, and 20 percent of each payment is withheld by the physicians' association for a risk-sharing/incentive fund.

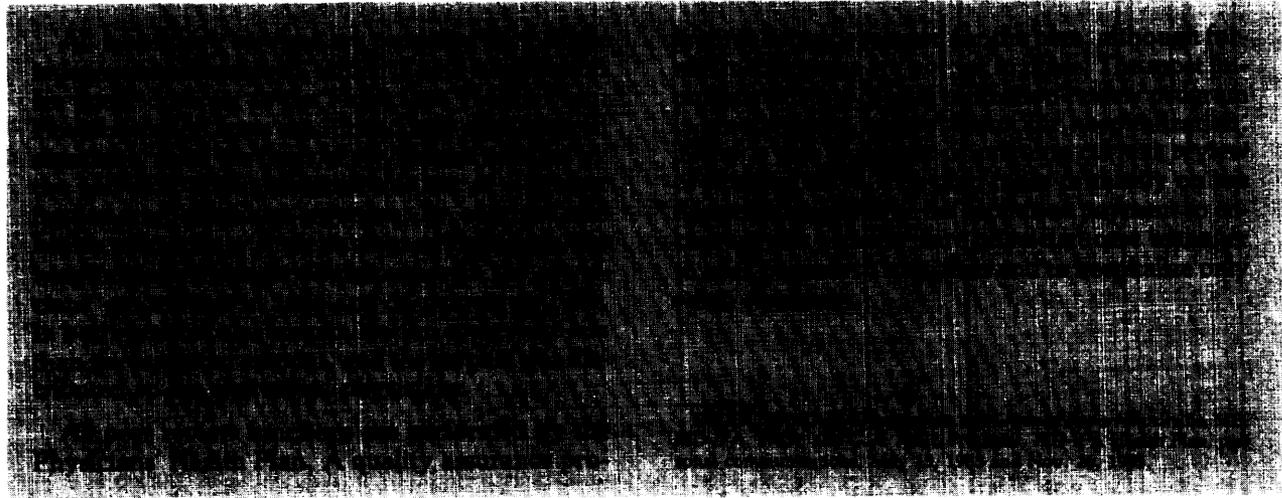
The cavitation rate for primary care physicians was originally determined through an actuarial study of "reasonable gross incomes" by specialty, divided by productivity measures, such as visits per physician. Actual fees were not used in this initial calculation. The cavitation rate has been adjusted over the operational years of the plan by comparing this actuarial rate with the actual fees that the physician would have charged for the services rendered. The annual adjustment of the cavitation rate has resulted in the primary care physicians' getting

paid about what they would have & paid if they had billed charges (333).

A second age- and sex-adjusted cavitation payment for referral and ancillary services is made by the physicians' association into a credit account administered by the primary care physician. Charges for referrals to specialist and ancillary services are debited against the individual accounts of the primary care physician who ordered them. The specialists in the physicians' association are paid from the account on a fee-for-service basis according to a predetermined maximum fee schedule. So that the specialists also share in the financial risk, 15 percent of the scheduled rate is withheld from their fees and placed in the risk-sharing/incentive fund.

If expenditures for the referrals of a primary care physician exceed the amount in the referral and ancillary services account, there is no penalty for that physician. The cost of the excess is paid out of the risk-sharing/incentive fund, which is financed from the 20 percent withheld from the primary care cavitation payment and the 15 percent withheld from specialist fees. However, if at the end of a 6-month period there are surpluses in the primary care physician's referral and ancillary services account, the excess is given to that physician, up to certain limits. Thus, the incentive is a positive one against excess expenditures; there is no negative sanction if a deficit does occur. At the end of the calendar year, after all expenses are paid, the Board of Directors of the Physicians' Health Plan distributes any funds remaining in the risk-sharing/incentive fund to the physician members of the IPA, both primary care and specialist, in proportion to the amount each physician paid in.

The risk to the individual primary care physician is limited further according to the size of his or her panel of patients by a graduated series of stop-loss provisions. A physician with only a few IPA enrollees among his or her patients maybe liable for a maximum of \$500 per patient from the ancillary and referral account. Per patient expenditures for referral and ancillary services above that amount are automatically paid from the risk sharing/incentive fund. Those with a larger number of IPA patients may be liable to pay up to \$10,000 per patient per 6-month period from their ancillary and referral account, according to the principle that a physician can spread the risk of extraordinary expenses more evenly across a larger pool of Patients.



Quality of Care

From the early studies of prepaid group practices in the 1960s through the reviews of IPAs and other HMOs of the 1980s, evaluations of practices paid by capitation have found the quality of care provided to their enrollees at least as good and usually better than that of comparison groups (97,107,194,223,279,404,483,579,581). These evaluations have incorporated measures of structure, process, and outcome. The capitation practices have had higher percentages of board-certified physicians, for example; have followed standards for process of care as well as or better than fee-for-service practices; and have had comparable or better mortality and morbidity rates. Although people in capitated plans have been as satisfied with the technical aspects of care, they have been less satisfied with interpersonal aspects than those in fee-for-service practices. More recently, a 1984 survey found HMO members more likely than eligible nonmembers to be satisfied with their health care. The greatest differences concerned out-of-pocket expenses, availability of services, and waiting time for an appointment (274).

But certain incentives of capitation payment, the results of specific studies, the public sector's experience with prepaid plans, and particular problems of Medicare beneficiaries prevent automatically generalizing the above results to Medicare beneficiaries. No study has examined the quality of care provided to Medicare beneficiaries.

Until recently, few Medicare beneficiaries have been enrolled in HMOs, which have marketed their plans mainly to employed populations. The National Medicare Competition Evaluation funded by HCFA includes an evaluation of the quality of care provided by risk-sharing plans (411). Although that part of the evaluation was expanded in June 1985, results are not expected until 1987 (541). In addition, an HCFA-sponsored evaluation of Medicaid demonstration projects may also provide relevant information (see table 7-6) (197).

Capitation payment provides financial incentives to care for enrollees at low cost. Since per capita revenue is fixed for the time period, the plan's net revenue or profit depends on the costs incurred in providing care. These incentives have many positive implications for quality. There is an incentive to avoid hospitalization and to treat people elsewhere, an approach that reduces exposure to nosocomial infections and to unnecessary procedures. In fact, lower hospitalization rates have been observed in prepaid groups for both medical and surgical care (279). In prepaid groups, admissions were lower for diagnosis and tests and for surgical procedures, including ones that have been associated with unnecessary care (hemorrhoidectomy, surgery for varicose veins, and hysterectomy) (279).

However, financial incentives, at least at the plan level, are to reduce cost, and that may be done at the expense of quality. The check on such

Table 7-5.—Major Sponsors of Health Maintenance Organizations (HMOs) and Preferred Provider Organizations (PPOs), 1985^a

Sponsor	HMOs ^b					PPOs		
	Total	Group	Staff	IPA	Network	Total	Operational	Preoperational
<i>Insurers:</i>								
Aetna	3	0	0	3	0		7	NA
Blue Cross/Blue Shield Affiliated Plans	73 ^c	14	8	23	28	34 ^d	34	NA
CIGNA Health Plans	15	2	8	5	0			
CIGNA Insurance Co.						17	17	NA
Equitable	0	0	0	0	0	4	2	2
Hancock/Dikewood	4	0	0	3	1			
John Hancock Insurance						9	5	4
Metropolitan	2	0	0	0	2	20	14	6
Provident Life Insurance (Health Point Corp.)	0	0	0	0	0	7	5	2
PruCare	17	14	0	3	0			
Prudential (PruNet)						30	2	28
Wausau Insurance Co.	5	0	0	5	0	1	1	NA
<i>Hospital Management Companies:</i>								
American Medical International	2	0		1	0	3	3	NA
Hospital Corp. of America	4	1	:	2	1	1	0	1
Humana, inc.	10	0	0	2	8	21 ^e	21	NA
National Medical Enterprises	3	0	0	3	0	5	5	NA
<i>Nationwide HMO Networks:</i>								
HealthAmerica	36	8	9	13	6	0	0	0
Kaiser Permanence	11	11	0			0	0	0
Maxicare	13	0	0	:	13	0	0	0
U. S. Health Care Systems	3	0	0	3	0	0	0	0
United Health Care Corp.	33	0		27	6	1	1	NA
SANUS Corp.	4	0	:	4	0	1		NA
Whitaker Health Services	10	0	0	10	0	0	0	0
Totals	248	50	26	156	65	161	118	43

^aData obtained from telephone survey, November 1985, except as noted. This list should not be considered exhaustive of sponsoring organizations.

^bNumber of HMOs owned and operated as lines of business by cited institutions. Does not include HMOs operated under management contracts.

^cData from Blue Cross and Blue Shield Association, June 5, 1985, and Sept. 1, 1985.

^dData from Blue Cross and Blue Shield Association, Oct. 1, 1985.

^eStates where Humana Care Plus programs are operational. "Humana Care Plus" plans are operated as HMOs or PPOs in different markets, with varying degrees of selective contracting and free choice of providers.

SOURCES: Aetna data: J. Harper, Aetna Insurance Co., Hartford, CT, personal communication, Nov. 12, 1985. American Medical International data: H. Leavitt, American Medical International, Beverly Hills, CA, personal communication, Nov. 15, 1985. Blue Cross data: Blue Cross and Blue Shield Association, "Blue Cross and Blue Shield Plan Activities in H MOS, December 31, 1964," June 5, 1965; Blue Cross and Blue Shield Association, "Blue Cross and Blue Shield Plan HMOs Operational After December 31, 1964," Sept. 1, 1965; and Blue Cross and Blue Shield Association, "Blue Cross and Blue Shield Plans Marketing Preferred Provider Products," Oct. 1, 1985. CIGNA data: R. Maag, CIGNA Corp., Hartford, CT, personal communication, Nov. 14, 1985, and S. Shulman, CIGNA Health Plans, Dallas, TX, personal communication, Nov. 7, 1985. Equitable data: J. Neely, Equitable Life Assurance, New York, NY, personal communication, Nov. 20, 1985; and R. Unman, Equitable Insurance Society, New York, NY, personal communication, Nov. 19, 1985. John Hancock data: R. Morse, Hancock/Dikewood Health Plans, Boston, MA, personal communication, Nov. 8, 1985; and C. Somers, John Hancock Insurance, Boston, MA, personal communication, Nov. 11, 1985. Hospital Corp. of America data: J. Horn, HCA Health Plans, Nashville, TN, personal communication, Nov. 15, 1985. Health Point data: R. Paden, Health Point Corp., Chattanooga, TN, personal communication, Nov. 21, 1985. HealthAmerica data: G. Nielson, HealthAmerica, Inc., Nashville, TN, personal communication, Nov. 14, 1985. Humana data: M. Hoover, Humana Care Plus, Louisville, KY, personal communication, Nov. 21, 1985. Kaiser data: Interstudy, Inc., National HMO Census (Excelsior, MN: Interstudy, Inc., March 1965); and M. Tatge, "HMO Enrollment Up 26.70/0 to 1.68 Million," *Modern Healthcare*, 15(4):138-141, June 7, 1985. Maxicare data: K. Wichser, Maxicare Health Plans, Hawthorne, CA, personal communication, Nov. 19, 1985. Metropolitan data: L. Hyman, Metropolitan Life Insurance Co., New York, NY, personal communication, Nov. 7, 1985; and T. Nimnicht, Metropolitan Life Insurance, St. Louis, MO, personal communication, Nov. 19, 1985. National Medical Enterprise data: S. Tyler, National Medical Enterprises, Beverly Hills, CA, personal communication, Nov. 25, 1985. Prudential data: T. Burke, Prudential Insurance Co., Newark, NJ, personal communication, Nov. 7, 1985. SANUS data: M. Rosen, Sanus Corp., New York, NY, personal communication, Nov. 15, 1985. United Health Care data: A. Billingstad, United Health Care Corp., Minnetonka, MN, personal communication, Nov. 21, 1985; and S. Conway, United Health Care Corp., Minnetonka, MN, personal communication, Nov. 19, 1985. U.S. Health Care data: D. Richman, "U.S. Health Care Aims at Growth With Push Into New York, Dallas," *Modern Healthcare* 15(20):50-53, Sept. 27, 1985. Whitaker data: Whitaker Health Services, Marketing Department, Los Angeles, CA, personal communication, Nov. 18, 1985.

behavior is that plans would lose enrollment if members perceived that quality was below an acceptable level. Such enrollee dissatisfaction depends to some extent on lay knowledge of what constitutes appropriate care. People would be bet-

ter able to judge technical care for conditions or technologies that they or their friends use frequently, but are dependent on physicians' guidance for infrequently used or new procedures (366).

Table 7-6. -Cavitation Payment for Medicaid Beneficiaries in Demonstration Projects, December 1985^a

Plan	Recipient of government cavitation payment	Unit of payment to physician providers	Unit of payment to hospitals	Government-plan risk-sharing	Plan-provider risk-sharing
New Jersey Medicaid Personal Physician Plan	Physician	Cavitation fund for case managers' services, referrals, and ancillaries, up to a maximum. Separate fund for hospital services	DRGs	NA	At risk for referrals, professional services, and ancillaries up to defined maximum per provider; not at risk for hospital facilities, receives 50% of savings, bonus for outpatient management of inpatient procedures
Monroe County Medicap Monroe County, NY	Medicap acts as intermediary; seeks bids from 4 competing HMOs for rights to serve Medicaid beneficiaries	HMO discretion	HMO discretion (county is exempt from State rate-setting)	HMO bids include level of risk borne; intermediary sponsors stop loss pool, which HMO can opt out of for higher cavitation payment	HMO discretion
Santa Barbara County Health Initiative Santa Barbara County, CA	County Health Authority (intermediary)	Cavitation account to case manager covers all patient services with 20% withheld for risk sharing	Per diem	Authority at risk ^b	200% withhold maximum risk to case managers, excesses in cavitation account shared with county
Arizona Health Care Cost Containment System	Prepaid plans bid on rates to serve Medicaid clients and medically indigent	Plan discretion	Plan discretion	State stop-loss per beneficiary	Plan discretion
Missouri Managed Care Jackson, County, MO	Plans contract for services at State-set rates	Plan discretion	Plan discretion	Contracting plan bears all ^b	Plan discretion
Minnesota Prepaid Medicaid Competition Demonstration	Plans contract for services at State-set rates	Plan discretion	Plan discretion	For Supplemental Security Income beneficiaries, government pays between 95% and 100% of AAPCC ^b	Plan discretion

NA=Not applicable.
^aPlans may have arrangements for beneficiary cost-sharing.
^bReinsurance may limit catastrophic losses

SOURCE: R. Deacon, Office of Demonstrations and Evaluation, Health Care Financing Administration, U.S. Department of Health and Human Services, Baltimore, MD, personal communication, Dec 20, 1985; P.L. Haynes, *Evacuating State Medicaid Reforms* (Washington, DC: American Enterprise Institute, 1985); J. Meyer, American Enterprise Institute, Washington, DC, personal communication, Oct. 10, 1985; S. Treiger, Office of Demonstration and Evaluation, Health Care Financing Administration, U.S. Department of Health and Human Services, Baltimore, MD, personal communication, Nov. 25, 1985; and J. Vertrees, La Jolla Management Corp., Rockville, MD, personal communication, Jan. 3, 1986.

As discussed above, the incentives of individual physicians depend on how they are paid by the plan. If physicians continue to be paid fees for their services, financial incentives continue to reward the provision of additional services. Physicians in prepaid groups usually derive part of their income from profit-sharing or “productivity” measures, that is, their use of services and number of patients. The percentage of such income may be quite small; at Kaiser-Permanente in northern California, for example, the incentive compensation payment, which depends on the results of overall operations for the year, has not exceeded 5 percent of the average physician-partner’s income (87). However, in spite of the specific arrangements for compensating physicians, physicians have a personal financial stake in the continued solvency of the organization.

Management practices may also be relevant to physician behavior in this regard. Kaiser-Permanente physicians retain the same responsibility for seeing a full load of ambulatory clinic patients regardless of the number of their patients who are hospitalized (223). All other things being equal, a physician in this circumstance would be more likely to prescribe return visits in the office than to hospitalize the patient and increase demands on the physician’s time.

Hornbrook and Berki have theorized that HMOs would not be expected to skimp on treatment of severe illness, such as colorectal cancer, for which definitive treatment is available (223). **HMO physicians are subject to the same community standards of practice as fee-for-service physicians and may face greater malpractice liability exposure since corporations are more likely than individual physicians to be sued.** HMOs may also excel in reassuring worried-well patients that their symptoms are self limiting or part of the aging process. But people who are subtly sick, that is, whose conditions cannot readily be identified, may experience delays in the diagnosis of potentially serious disease if HMO physicians face bureaucratic complexities in ordering diagnostic workups or in obtaining tests from outside the HMO. Of course, to the extent that enrollees are dissatisfied and believe that they would receive more prompt care under different arrangements, they can leave that plan and join another.

Results of a study in Washington State of patients with colorectal cancer are consistent with the hypothesis concerning delay in diagnosis, but not conclusive (150). **After 4 years, no differences in outcome were found between prepaid group and fee-for-service patients, and treatment was comparable once the diagnosis was made. However,** a significantly longer period elapsed in the prepaid group between initial contact with a physician and start of treatment, 47 days in the HMO and 14 days in fee-for-service practice.

It is possible, under the financial incentives of cavitation payment, that delays would occur in resorting to more expensive treatment for a condition for which there were alternative therapies. For treatment of renal stones, which depending on the stone may be treated surgically or medically, there might be a preference for the initial use of a potentially cost-saving technology, such as ESWL, perhaps on an ambulatory basis. Whether or not such a delay would compromise the patient’s outcome and quality would depend on the specific situation. Similarly, cavitation plans would have an incentive to delay surgery such as cataract removal and to have it performed by physicians who specialize in that procedure. The likely effect on quality is not clear. Delaying surgery might constitute poorer quality care if the person was unable to function effectively in her or his daily activities. On the other hand, delays in surgery can have health benefits if the surgery, such as appendectomy, is avoided or if the diagnosis is refined.

Under cavitation payment, plans would have financial incentives to take advantage of economies of scale in locating and using expensive equipment. There would be incentives to send more tests to centralized clinical laboratories, perhaps ones owned by the plan, and to perform far fewer tests in separate physicians’ offices. Such a shift has the potential to improve the quality of test results. State standards maybe more likely to apply to testing in central laboratories than in physician offices, and appropriately trained technicians may be more likely to perform the test. Although cavitation plans have financial incentives to underuse diagnostic tests, like other services, no difference in use has been detected (279).

Although greater use of preventive services has been reported for enrollees of cavitation plans, for the most part these services consisted of annual physical examinations, which have questionable efficacy (483). This greater use is consistent with lower financial barriers to initial use because patient cost-sharing has typically been lower in cavitation plans (279). There are no recent studies assessing whether HMOs are providing more of other preventive services, such as health education, nutritional guidance, and counseling. HMOs may cover preventive services and feature that coverage in advertisements as a marketing tool.

Vaccinations are often cited as an example of a cost-effective preventive technology (576). Studies that have examined rates of vaccination, including influenza vaccination, among HMO enrollees have found no consistent pattern of use: the enrollees of some plans had lower rates and the enrollees of other plans had higher rates than comparison groups (483). Pneumococcal vaccine is the only preventive service that Medicare covers for all beneficiaries. Cavitation plans have financial incentives to provide pneumococcal vaccine to elderly and high-risk people to the extent that they are likely to remain in the plan long enough for the plan to reap any savings from disease prevention. But pneumococcal vaccine is unlikely to save costs, and initial uncertainty about its efficacy probably deterred physicians from recommending its use (485). **The low use of pneumococcal vaccine, regardless of payment arrangement, is consistent with barriers that precede payment, as discussed in chapter 3.**

The financial incentives for risk-sharing plans to reduce the costs of care and perhaps to provide too few services apply only to the services covered by the payment. If the cavitation payment did not cover inpatient care, the plan and perhaps its physicians, depending on their income arrangements, would have increased incentives compared to the present situation to hospitalize patients for care. Hospitalization would enable physicians to perform tests and therapeutic procedures while incurring the cost only of physician services for the plan. Even overhead expenses would be borne by the hospital. These incentives would be compatible with those of hospitals paid according to diagnosis-related groups (DRGs), be-

cause hospitals desire additional admissions and profit from low-cost cases in a given DRG. If capitation payment covered only non-inpatient services, attention to admissions from risk-sharing plans would warrant the particular attention of the quality assurance and utilization review body.

Although Medicaid programs have increasingly been adopting cavitation payment, historically few Medicaid eligibles have been enrolled in HMOs. Some HMOs have served poor people effectively (194). At least at Kaiser-Permanente in Oregon the program entailed adding substantial outreach activities to the regular HMO (178).

During the early 1970s, substantial quality problems occurred in prepaid health plans setup for people eligible for California's Medicaid program (483). These problems were addressed by subsequent Federal and State legislation. Amendments to the Health Maintenance Organization Act in 1976 (Public Law 94-460) required that all plans receiving Medicaid funds be federally qualified HMOs, and California implemented more stringent regulations for certification and prohibited certain marketing and management practices.

More recently, concerns have been about the quality of care received by Medicare beneficiaries in certain demonstration projects in Florida (477). The problems identified in hearings by the House and in a report by the General Accounting Office related primarily to timely enrollment and disenrollment (476). The General Accounting Office is continuing to examine the situation, and Mathematica's evaluation of Medicare competition demonstrations will also cover the plans involved.

The Office of Health Maintenance Organizations in the Public Health Service determines whether plans meet the conditions of an HMO or CMP and are eligible to contract with HCFA (584). These arrangements have been continued under the regulations implementing TEFRA and apply to HMOs and CMPs (both cost and risk plans) (533). The Public Health Service reviews among other things that the plans have in effect quality assurance programs and are financially viable organizations.

The regulations implementing TEFRA also give utilization and quality control peer review organizations (PROS) the responsibility of reviewing

the care provided by HMOs and CMPs (50 FR 1341). Although the specifics are still under **discussion, the intention is to tailor review to the different financial incentives and to stress review for underprovision rather than overprovision of services (302)**. PROS would be able to delegate quality review to committees made up of HMO physicians.

The contract that HCFA requires for eligible plans stipulates that as part of its quality assurance program the organization agrees to comply with requirements in the regulations for PRO review of services to Medicare enrollees and to furnish the PRO pertinent data (Article IV General Conditions) (533). The organization also agrees to disclose required financial information and to comply with other reporting requirements designed to monitor continued compliance with the regulations. Prior to TEFRA, HMOs also had to have quality assurance programs and to agree to review by professional standards review organizations (PSROs) (533). In fact, review for HMOs like other practices pertained only to inpatient hospital cases (325).

The final set of concerns about quality stem from the characteristics of Medicare beneficiaries. Elderly poor people and elderly people generally have medical and social needs that differ from those of employed populations or even of Medicaid beneficiaries (194). Elderly people are more likely to have chronic illnesses and conditions such as impaired heart or lung function that complicate management of acute illness. Medicare beneficiaries are also more likely than the general population to have motor or sensory impairments that may affect their ability to cope with unfamiliar administrative arrangements, especially those of a large bureaucracy. On the other hand, once a beneficiary becomes familiar with HMO procedures, administrative matters may be more simple than under fee-for-service arrangements because the patient has less paperwork.

The evaluation of Medicare competition demonstrations will provide information on whether or not these concerns are well founded. In the meantime, they suggest the need for monitoring the experience of Medicare beneficiaries in capitation plans, especially if Medicare enrollment was

expanded into new and rapidly growing plans (194). Factors to monitor would include an increase in preventable deaths, reduction in functional status because of failure to provide services such as physical therapy, and deterioration in quality of life from failure to perform expensive therapies such as coronary artery bypass surgery or artificial hip replacement. If concern lay mainly with plan rather than physician incentives to provide too few services, emphasis could be directed to the availability of resources that hinge on management decisions, such as the number of certain specialists per enrolled population or the availability of certain expensive technologies.

Access and Selection Bias

If risk-sharing plans continued the low levels of cost-sharing that have typified prepaid groups and erected no additional bureaucratic barriers to access, it is likely that Medicare beneficiaries would have improved financial access to care compared to present Medicare coverage. Enrollees of prepaid groups have been more likely than people in comparison practices to have at least one physician visit during the year (279), a result consistent with the findings of the Rand Health Insurance Study that the likelihood rises with lower cost-sharing (343). The experience has been mixed with enrollees of IPAs (279). Medicaid eligibles in prepaid groups were also found more likely than controls to initiate visits (279). No such pattern has been evident for followup visits (279), a finding consistent with physicians' rather than patients' being more likely to initiate such care.

Medicare beneficiaries' geographic access to care might be reduced, especially for specialized services. Plans paid by cavitation have an incentive and the ability to match equipment, facilities, and staff to the enrolled population. An example is regionalizing facilities to take advantage of economies of scale in producing technical services. Where regionalization of services was evident in the San Francisco area of Kaiser-Permanente, some larger hospitals were fully equipped, and some smaller ones were equipped for emergency and chronic care (280). Kaiser enrollees may have had longer travel times in some cases. Reduced geographic access could pose problems for

beneficiaries who have vision or mobility impairments. On the other hand, access could be improved to the extent that more facilities are available in one place.

A major concern about access stems from the possibility that plans might attempt to enroll low-risk or low-cost beneficiaries. If such preferred selection took place, beneficiaries with conditions that put them at high risk of using expensive services might have difficulty finding plans to accept them. A standard benefit package and an open enrollment period during which plans were required to enroll people in the order they applied could alleviate this problem (129). TEFRA already mandates an annual 30-day open enrollment period during which plans must accept enrollees on a first-come, first-enrolled basis. But biased selection, whether by plans or beneficiaries, may have occurred during previous open enrollment periods (278). Constructing cavitation rates that would adequately reward plans for caring for beneficiaries in high-cost categories would reduce plans' preference for low-cost enrollees and might result in plans' preferring to enroll high-cost beneficiaries.

Cost and Efficiency

Prepaid group practices have achieved savings in total per capita costs (premiums plus out-of-pocket expenses) of 10 to 40 percent versus comparison plans (279). Earlier studies could not distinguish the role of differences in benefit coverage, characteristics of enrollees, payment methods, and scope of services (extent of vertical integration). However, Rand's National Health Insurance Study assigned people randomly and covered comparable benefits (285). In that study, the expenditure rate for enrollees of Group Health Cooperative, the prepaid group practice, was 25 percent lower than that for nongroup fee-for-service enrollees who received free care. There were no significant differences, however, between expenditures for the HMO enrollees and for people subject to 95 percent coinsurance for fee-for-service care. People with high cost-sharing had lower visit rates than prepaid group enrollees, but not significantly different hospitalization rates. These results suggest that prepaid group practice and

high cost-sharing had similar effects on expenditures and hospital use, but that prepaid group enrollees were not so deterred from seeking care (343). As described earlier, studies have found that, compared to control groups, Medicare payments were lower for beneficiaries in five of seven prepaid groups that had cost contracts (91).

Lower costs can be achieved by producing technical services at lower cost or by using a lower cost mix of services to provide the same quality care. In general, HMOs were not found to produce services more efficiently (279), although a recent study reported that within a hospital-based clinic, HMO patients had significantly fewer visits and lower laboratory charges for hysterectomies and appendectomies and lower total charges for appendectomies, but not for cholecystectomy and hernia (23).

For the general population and for Medicare beneficiaries, savings have been attributed to lower hospital admission rates for both medical and surgical diagnoses. This phenomenon is consistent with providing a lower cost mix of services. Cavitation payment contains an incentive to deliver care in the most efficient setting with the most efficient mix of technologies. Cataract removal, for example, would be likely to be performed almost exclusively in an outpatient setting, except for patients with complicating comorbid conditions. Expensive technologies with high fixed costs, such as MRI or ESWL, might be regionalized by entrepreneurs or plans in free-standing diagnostic or therapeutic centers.

As noted above, an implication of having a defined population to serve is that an organization can match facilities and staff to that population. Prepaid groups have historically had lower numbers of surgeons and hospital beds per population (483). This result, of course, may indicate not the efficient use of resources, but the enrollment of a population with lower use of those services.

Out-of-plan use has not accounted for the differences in costs between prepaid groups and other practices, and neither ambulatory physician visits nor ancillary use has been markedly lower (279). Nor have HMOs held their rate increases below those of fee-for-service practices, suggest-

ing that any reductions are one-time savings (279,343) and that cavitation plans have been able to maintain a lower level of costs over time.

Other organizational arrangements besides prepaid group practice have had low hospitalization rates (436). Two fee-for-service practices that owned their own hospitals, an ambulatory fee-for-service group, and physicians in solo practice acting as case managers have achieved low hospitalization rates comparable to those of prepaid groups. These findings suggest the importance of organization as a factor separate from payment method. Lower surgical rates but not savings in expenditures have been found for IPA enrollees compared to people insured with Blue Shield or indemnity plans (279,483). The hospitalization rates of IPAs have been much lower than those of the general population, a mean of 448 days per 1,000 enrollees compared with about 737 per 1,000 U.S. population under age 65 for 1983 to 1984⁹ (240,549). These figures were not age-sex adjusted and, like other comparisons involving HMOs, it is not known whether enrollees were representative of the population. It is also not clear whether consistent definitions of hospital days were used regarding newborns, Medicare beneficiaries, and benefits coordinated with other insurers. Among types of HMOs, network models, in which an HMO contracts with two or more group practices to provide medical services, and group models have had the lowest hospitalization rates, followed by staff models and IPAs (239,240).

Since organizational formats besides prepaid group practice appear capable of achieving efficiencies, it is not clear which type of arrangement would predominate in a situation where the incentives of cavitation payment pushed plans and providers to operate more efficiently. How plans paid by cavitation react would depend greatly on the structure of cavitation rates, which, as described in an earlier section, could reward creative marketing strategies to enroll low-cost beneficiaries or could reward efficient delivery of care.

Medicare program expenditures over time would depend on which occurred. In any case,

⁹The information on IPAs covers July 1, 1983, to June 30, 1984. Data for the U.S. population are an average of rates for calendar years 1983 and 1984.

program expenditures would be more predictable and controllable than under the current CPR system.

Beneficiaries' costs would be likely to fall if risk-sharing plans, as now, were required to share savings with beneficiaries in the form of increased benefits or reduced premiums. Beneficiaries' costs would not rise in the absence of a Federal policy decision to increase their financial liability under the program.

If Medicare's cavitation rates were comparable to payments by other payers, cavitation payment for beneficiaries would in itself be unlikely to affect the expenditures of other payers. If Medicare's rates were much below the market rate, plans and providers would find non-Medicare enrollees more attractive and would be expected to shift their marketing and provision of services to them. In either case, the ultimate effect on the costs of other payers would depend on the cost-saving activities undertaken by them (see app. D) and by the competitive pressure on providers engendered by such independent changes as increases in physician supply (see ch. 2).

Technological Change

Cavitation payment would expand the changes in market conditions created by Medicare's prospective payment system for inpatients, so that the development of cost-saving technologies would be rewarded beyond the inpatient setting. In recent decades, the prevalence of insurance coverage increasingly provided a secure and growing market for medical technologies (487). In the context of open-ended third-party reimbursement, new technologies, especially those for acute inpatient care, were valued if they provided additional benefits, such as improved diagnosis or treatment. Potential purchasers and users of technology paid little attention to cost because their charges or costs were usually reimbursed.

The constraints of cavitation payment would make providers more cost conscious about the capital and operating costs of technology. Such a change already appears to be taking place regarding inpatient care as a result of Medicare's payment by DRGs (489). Depending on Medicare's leverage from its market share, Medicare's

paying for ambulatory care on a prospective basis would extend these incentives to physicians' offices, freestanding centers, and hospital outpatient departments. Since DRG payment applies to inpatient operating expenses and some method of including capital costs seems likely, market incentives would change even if the cavitation payment applied only to ambulatory care and physician services.

Physicians' offices have become a more attractive target for technology development and marketing since Medicare DRG payment. Under capitation payment manufacturers would attempt to incorporate cost-saving features in the technologies for the ambulatory market as well as the hospital market. For example, physicians who continued to perform clinical laboratory tests in their offices would have greater interest in equipment to perform simple tests that was inexpensive to purchase and did not require expensive technicians to operate.

Most technology would continue to be developed for hospitals, because the most severe, complex, and expensive cases would be treated there and because hospitals would continue to account for a large portion of the medical market. The medical community would continue to value technologies that clearly improved diagnosis or therapy, even if they increased costs, especially since physician researchers are typically involved in technology development, evaluation, and initial adoption. It is also possible that hospitals would continue to compete for physicians and patients by acquiring new technologies. This phenomenon seems to be occurring even under DRG payment in northern Virginia, where the largest hospital wished to purchase an ESWL unit that the hospital hoped would serve the Washington, DC, metropolitan area (413).

Nevertheless, even within that context, the more cost-conscious environment would discourage the development and adoption of some technologies, especially expensive ones that added to the cost of care. No evidence has been found that HMOs have been less likely to use expensive technologies for their patients (582). But in the early phase of an expensive new technology, when appropriate use was unclear and use rates were low,

at least the larger prepaid groups have sent their patients to facilities outside the plan. Kaiser-Permanente in Northern California used this strategy for X-ray computed tomography (CT) scanning and for open-heart surgery (129,480). If higher rates of use or lower technology cost later made it cheaper for the plan to provide the service inside the plan, the facilities were added to the plan. Otherwise, the plan continued to contract outside the plan for those specialized services.

Under more generalized Medicare cavitation payment, one would thus expect more delay in adoption of an expensive technology such as MRI, especially while its demonstrated advantages over alternative modalities are fairly limited (234). As long as use inside the plan was low and the technology remained expensive, a plan would be likely to contract for MRI services outside the plan.

Cavitation payment could greatly boost the development of managerial technologies (483). Although prepaid group practices have been able to deliver medical care at lower cost than comparison practices, the capability of other organizational arrangements has not been subjected to a market test. As noted above, there are indications that other formats, such as multispecialty fee-for-service group practice, can also achieve lower costs. And IPAs appear to be evolving in the direction of cavitation payment to physicians and greater utilization controls. Greater cost constraints from cavitation payment would probably stimulate the development of other arrangements and the spread of those that were successful.

Cavitation Payment to Geographic Fiscal Intermediaries

Instead of paying individual plans a cavitation payment, Medicare could pay fiscal intermediaries that were willing to assume financial risk for services to beneficiaries in a geographic area (70,242, 564). The cavitation payment could cover only physician services and ambulatory care or could also encompass inpatient services. The intermediary or carrier in turn would negotiate arrangements with providers in the area and offer beneficiaries a choice among plans.

No such arrangement has existed under Medicare. But in response to an HCFA solicitation, at least one organization has submitted a proposal to undertake geographic cavitation as a 5-year demonstration project (290). Under the proposal, Medicare would pay Blue Cross-Blue Shield of Maryland to insure beneficiaries rather than only to administer the program in Maryland (434).¹⁰ Medicare would pay the plan a monthly amount based on the number of Medicare beneficiaries (434). Half of any profits would go to the Federal Government and the other half would be divided between Blue Cross-Blue Shield and beneficiaries, who would receive a rebate (434). Beneficiaries could choose from several options: traditional Medicare coverage, traditional health insurance, Blue Cross-backed HMOs, and a Blue Cross-sponsored PPO, whose physicians would charge lower fees. Other HMOs and CMPs would continue to relate directly with the Federal Government to be qualified and to enroll Medicare beneficiaries. HCFA is reviewing the proposal, and officials estimate that a decision will require several months (434).

Putting the fiscal intermediary at risk for medical expenditures would greatly change present incentives for carriers, who now receive a fixed amount per claim to administer the program, but who have no responsibility for the level of program expenditures. To control expenditures, a capitated carrier could encourage beneficiaries to opt for lower cost alternatives, such as HMO membership or physicians in a PPO; negotiate discounts with physicians and other providers in the context of a PPO or HMO; or pursue more stringent review of fee-for-service claims (70). HCFA'S guidelines for those who are considering the submission of demonstration proposals state that the present system of payment for physician services based on customary, prevailing, and reasonable charges should be continued as an option for beneficiaries and providers. Although a fiscal intermediary could enlist providers or plans to agree to utilization control or expenditure caps, the intermediary could not impose such constraints (465).

¹⁰Blue Cross/ Blue Shield of Maryland now acts as Medicare's intermediary for Part A services and as Medicare's carrier for Part B services.

It is not clear how several administrative matters would be handled under carrier cavitation, such as enrollment of beneficiaries, establishment and updating of cavitation payments, policy concerning case-by-case vs. mandatory assignment, and sharing of risk between Medicare and the carrier.

Quality of Care

A capitated carrier would have financial incentives to control the use of providers who continued to be paid on a fee-for-service basis. The effects on quality would depend on which services were constrained or reduced (194). Quality could improve if use decreased for services that provide little or no additional benefit, entail unreasonable risk for the potential benefit, or are employed in inappropriate settings. On the other hand, quality would be impaired if decreased use occurred for services that are now used appropriately or that are underused. An important element would thus be identifying services to target for utilization review. The carrier, perhaps with assistance from HCFA, might review the literature and work with panels of expert physicians to select inappropriately used services that would be amenable to utilization review.

If the cavitation payment did not cover inpatient care, providers and carriers would have financial incentives to contain their own expenses by admitting patients to hospitals, a move that would be welcomed by hospitals paid more for additional admissions. The entity charged with quality assurance could pay particular attention to institutionalized patients. In addition, the risk-sharing arrangements between Medicare and the carrier or between the carrier and providers could share any savings from reduced hospitalization.

Medicare would have continuing responsibility to monitor the quality of care and to ensure that appropriate covered services were not being denied to beneficiaries (70). **This function would have great importance in a situation that would be novel and perhaps initially confusing to beneficiaries.** HCFA could draw on the experience of two Medicaid programs that operate through carriers, one in Texas and the other in California (564).

Access to Care

Beneficiaries could experience problems of geographic access to physicians and other providers if the intermediary contracted with a limited number of providers in an area. Medicare could alleviate this problem by requiring that the intermediary enlist the participation of a minimum percentage of physicians of different specialties and perhaps make arrangements to pay for out-of-plan use, or by requiring that present arrangements remain an option for beneficiaries and providers. By contrast beneficiaries' access could be expanded if they were able to choose providers in PPOs and HMOs that were previously unavailable through traditional Medicare arrangements. Depending on the number of physicians and their practice preferences, beneficiaries in rural areas might not have access to an HMO or other practice forms (459).

The enrollment process could affect access to certain facilities, providers, and services. Whether Medicare or the intermediary conducted the enrollment process, it would be critical for marketing of options and enrollment of beneficiaries to be conducted fairly, without favoring or slighting any of the intermediary or nonintermediary-sponsored plans. Intermediaries would have a financial interest in encouraging enrollment in certain plans, such as the PPO, and in discouraging continuation of traditional Medicare arrangements. One possibility would be for the geographic intermediary to contract with HMOs that it did not sponsor and offer them as options to beneficiaries. That situation could inject some competition into arrangements with the intermediary and reduce the likelihood that low-cost beneficiaries would tend to be enrolled in plans sponsored by intermediary. Regardless of who conducted the process, Medicare could review the marketing material and stipulate certain procedures to be followed. In any case, it would be desirable to limit Medicare requirements to measures needed to protect beneficiaries and not to discourage plans and providers from participating.

The enrollment of large numbers of beneficiaries in HMOs in Florida identified administrative problems regarding enrollment and disenrollment (477). Delay in updating beneficiary

enrollment records led to initially incorrect payment decisions in some cases. Prior to signing TEFRA risk contracts in April 1985, HCFA initiated procedures designed to ensure that HCFA and carrier records are updated in a timely fashion (533).

Cost and Efficiency

Depending on risk-sharing arrangements and the results of utilization control, the Medicare program could achieve greater predictability over program expenditures and greater control over annual increases. Geographic cavitation has been likened to a carrier-wide IPA or CMP that covered both enrolled and unenrolled beneficiaries (70). IPAs have varied tremendously in their success, and specifically in their ability to control use and to reduce total expenditures below that of comparison practices. The achievements of an intermediary-at-risk would, like those of IPAs, depend on its ability to negotiate with providers and to control their use of services.

Under the Texas Medicaid program, the Texas Purchased Health Program, there has been a substantial increase in total expenditures and an increase in hospital outpatient visits relative to physician office visits (564). The State sets the fees to be paid for services, and the carrier attempts to control volume of services. The cavitation payment to the carrier covers hospital and physician services and ancillaries.

The Redwood Health Foundation is the carrier for all public assistance beneficiaries in three counties of California (564). Medi-Cal (California Medicaid) costs per enrollee in this area have been below the State average and the average in comparable counties, but slightly above costs per enrollee in prepaid health plans. Medi-Cal authorizes rates of fee-for-service payment. The carrier contracts risk-sharing arrangements with providers and conducts utilization and quality control.

Like cavitation payment to health plans, geographic cavitation should not entail additional costs for beneficiaries and might result in savings in additional benefits or reduced cost-sharing. The cost implications for other payers would depend on the desire and ability of plans and providers to increase their private rates and use.

Technological Change

Any change in technology would depend on changes in the market for medical services and in the incentives to use different types of care. Such implications are very tenuous, for the reasons outlined above. If geographic cavitation resulted in cost constraints and greater cost consciousness among providers, the effects on technology would be similar to those described for cavitation payment to health plans. On the other hand, geographic cavitation might produce few changes in the delivery of medical care, and present incentives for technological change could continue.

Administrative Feasibility

Use of the AAPCC to determine cavitation rates would be less problematic for Medicare under geographic cavitation than under cavitation to risk-sharing plans. A geographic intermediary would receive payments for large numbers of beneficiaries across which the risk would be spread. Payment to risk-sharing plans would require further refinement in the cavitation rate to reduce the possibility of biased selection by beneficiaries or plans.

Quality assurance activities would differ from those historically undertaken, since the incentive

CONCLUSION

Cavitation payment contains incentives for the recipients to control medical expenditures. Beneficiaries' welfare will be furthered if these incentives are expressed by providing care through a more efficient mix of services, reducing inappropriate care, or treating conditions before they become costly. Past experience of non-Medicare enrollees with HMOs, particularly with prepaid groups, has shown that cavitation plans do care for enrollees at lower costs, while maintaining quality at levels equal to or better than comparison practices.

However, there is the danger that *future* plans or intermediaries may constrain expenditures at the expense of quality of care, by reducing or de-

of cavitation payment is toward underprovision rather than overprovision of services. It is likely that some experience will be gained with these issues as PROS or their designates in the plans undertake the reviews required by the TEFRA regulations.

Both rate-setting and quality assurance would most likely require new data, for example, on health status, severity, or outcome measures (459). It would be most reasonable for HCFA to determine from research and demonstrations what kind of data was needed. HCFA might also wish to survey beneficiaries about enrollment to indicate their characteristics and motivations in selecting and changing plans. It would be important for HCFA to be judicious in its requirements for information so that intermediaries were not unduly burdened.

Both cavitation payment to health plans and to geographic intermediaries would require that procedures be established regarding enrollment. As discussed above, geographic intermediaries may have conflicts of interest with respect to beneficiary enrollment in nonintermediary-sponsored plans. Under either cavitation payment arrangement, however, it would be vital for HCFA and its intermediaries to coordinate their activities and to have timely, orderly, and accurate procedures for enrollment and disenrollment.

laying appropriate services, or at the expense of access to care, by giving preference to low-cost over high-cost enrollees. Similar trade-offs apply to sharing financial risk with providers. Placing greater financial risk on physicians gives them a stronger incentive to contain costs, but also increases the likelihood that appropriate care will be reduced.

The major disadvantage of geographic cavitation is the substantial market power given to the intermediary, not only with regards to plans competing for beneficiaries to enroll, but also in relation to the Medicare program. A geographic intermediary would be in a strong position in negotiating cavitation rates with Medicare because

of the difficulty that Medicare would face if the intermediary opted out of the arrangement after a few years. From the intermediary's perspective, an important factor would be the reliability of Medicare in continuing this payment approach and in paying rates considered reasonable by the intermediary.

The extent to which plans and providers are pushed to be efficient depends on the level of payment as well as the method of payment. At lower levels of cavitation payment, there would be a greater likelihood that lower use and cost would be achieved at the expense of quality. Moreover, if relative payment rates diverged from the cost of resources required to care for high-cost and low-cost beneficiaries, plans would be more likely to concentrate on marketing strategies to seek low-cost enrollees and less likely to urge providers to deliver cost-effective care.

It is difficult to predict the implications of widespread Medicare cavitation payment on the ba-

sis of financial incentives and past experience. Medicare enrollment in risk-sharing plans has only recently reached substantial numbers, mostly in demonstration projects that remain to be evaluated. And one cannot assume that new plans, which differ in size, sponsorship, organization, and risk-sharing arrangements from the older, well-studied ones, will achieve similar results in cost, quality, and access. Geographic cavitation for Medicare beneficiaries is completely untried as yet, and little experience exists at the State level under Medicaid.

Cavitation payment, especially to risk-sharing plans, has the potential to moderate the growth in Medicare expenditures while providing beneficiaries with good quality care. The challenge is to develop a method for setting cavitation rates that provides incentives for intermediaries and providers to deliver cost-effective care and to provide access to all beneficiaries.