

# Capitation and the Medicare program: History, issues, and evidence

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*This article reviews the history of capitation in the Medicare program and examines issues and research findings related to Medicare capitation. Specific capitation issues and related research findings reviewed include: the feasibility and extent of health maintenance organization participation in Medicare;*

*plan marketing; beneficiary choice behavior; quality of care; and the use and cost of services. In addition, areas requiring further study are noted, and the potential for extensions of capitation under Medicare are explored.*

## Introduction

During its first decade, the Medicare program paid for services provided to beneficiaries on a retrospective fee-for-service or cost basis. By 1979, rapid increases in expenditures under the program created pressures to examine the payment mechanism and to institute alternatives that would create incentives to control escalating utilization and costs and, at the same time, enhance competition in the market for health services.

A major component of this change in reimbursement policy was the expansion of the Medicare program between 1976 and 1985 to permit beneficiaries to elect to obtain services through health maintenance organizations (HMO's) and competitive medical plans<sup>1</sup> (CMP's), which are paid prospectively, on a capitation basis, for providing the full range of Medicare-covered services to enrollees. Since January 10, 1985, when the Final Regulations were published permitting all qualified HMO's and CMP's to offer services to Medicare beneficiaries, nearly half of all the existing HMO's in the country have applied for Medicare contracts.

The full impact of the Medicare program's expansion to include capitated systems will not be known for many years. However, considerable information and early evidence are available to provide some understanding of the direction of the changes in the health care system that may result from current policy.

In this article, we review the history of Medicare's capitation contracting and the current status and terms of these contracts. We also discuss issues related to capitation under the Medicare program, review and assess evidence on these issues, and describe current research in progress that will provide additional

evidence on these issues. These issues include:

- Initial feasibility and organizational experience of HMO's in the Medicare market.
- Marketing capitated systems and Medicare beneficiary choice behavior.
- Quality of care in capitated systems.
- Use and costs of services in capitated systems.

Finally, we indicate areas requiring further study, summarize the current and future status of capitation and the Medicare program, and indicate the potential for future extensions of capitation under Medicare.

## History and current status of Medicare capitation

### Early history

Between the enactment of the original Medicare legislation in 1966 and the present time, Medicare has offered a number of different contracting options to HMO's wishing to participate in the Medicare program. Although initially these options involved payment provisions that were based on the traditional benefit and cost-reimbursement philosophy of the original Medicare program, they have been expanded and have evolved over time to increase HMO participation in Medicare and to encourage beneficiary enrollment in prepaid plans.

Group practice prepayment plans (now called health care prepayment plans) were authorized under the initial legislation to contract with the Medicare program for the prospective payment of Part B services (medical and other professional services). However, payment to these plans, although prospective, is based on the projected costs of the plans and adjusted at the end of the year to equal 80 percent of reasonable costs (with beneficiary copayments making up the additional 20 percent of reasonable costs).

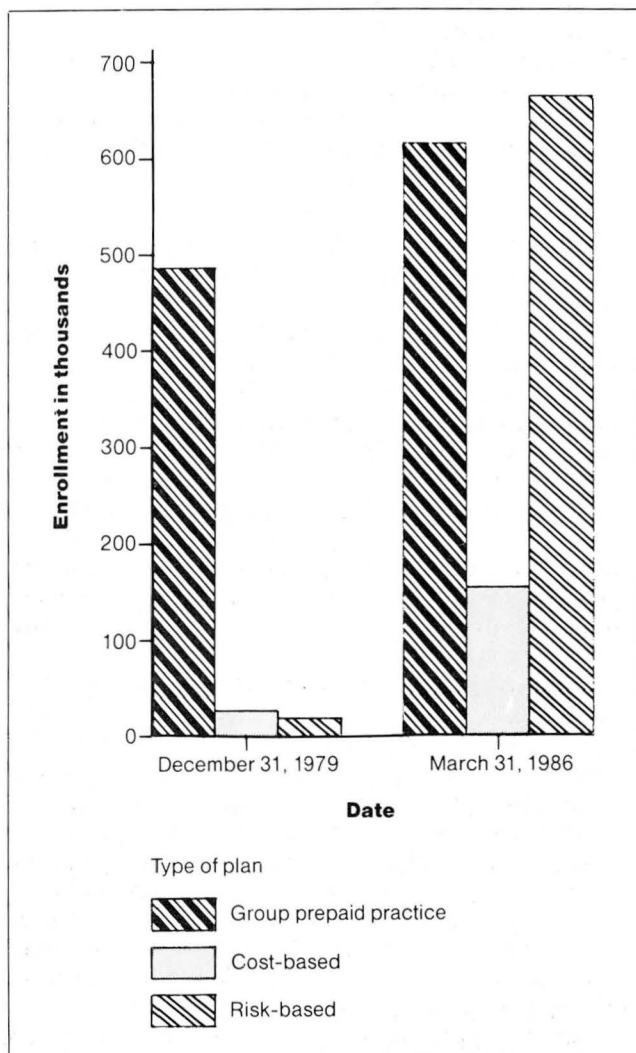
The Social Security Amendments of 1972 expanded the options for prepaid plans by allowing HMO's to enter into either cost or "risk-based" contracts with Medicare for the provision of both Part A and Part B benefits. Only HMO's that met all applicable Federal qualification requirements and had enrollments of at least 5,000 prepaid members were allowed to participate in these options. With either option, reimbursement was provided through interim monthly capitation payments, based on Medicare's estimate of

<sup>1</sup>CMP's are organizations that offer prepaid delivery systems but are not federally qualified HMO's. For details on arrangements for CMP's in the Medicare market, see the *Federal Register* for Final Regulations, January 10, 1985.

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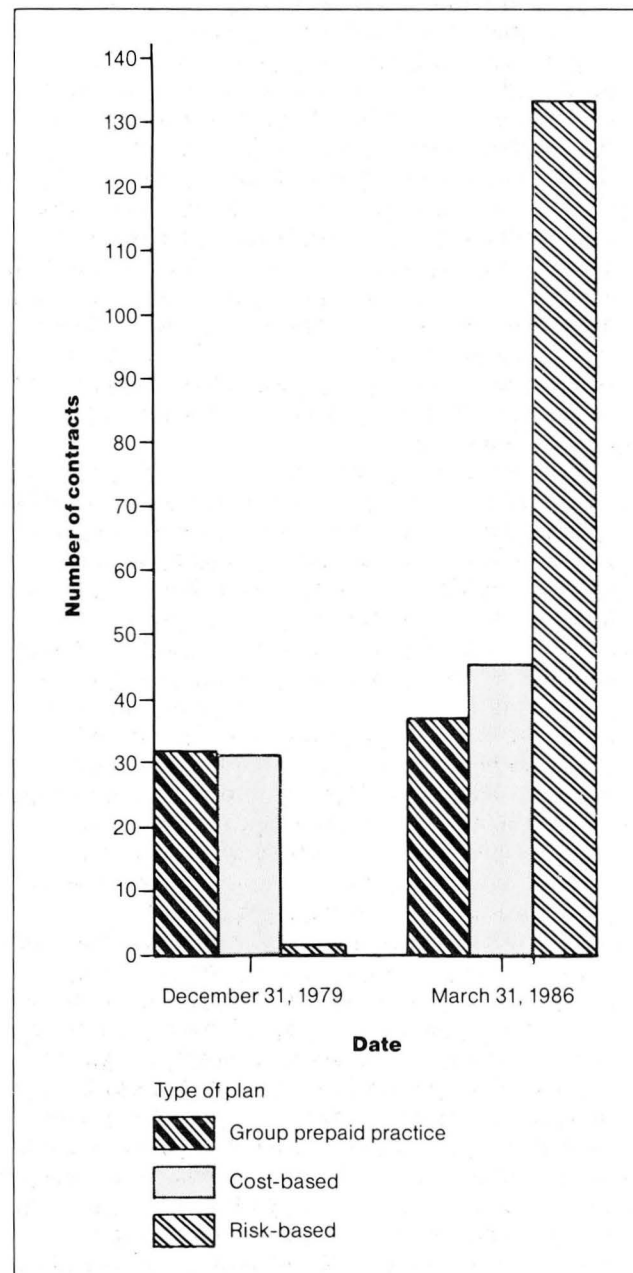
**Figure 1**  
**Total Medicare prepaid plan enrollment:**  
**United States, 1979 and 1986**



the plan's cost for providing services to its Medicare enrollees. For plans that chose the cost-reimbursement option, actual costs were calculated at the end of the contract period, based on cost reports submitted by the HMO's. As for group practice prepayment plans, prior reimbursements to the plan were then adjusted to reflect allowable and reasonable costs. For HMO's choosing the risk option, the HMO's actual costs were compared to a retrospectively determined adjusted average per capita cost (AAPCC), which represented what the Federal Government's costs would have been for the enrollees if they had been in the fee-for-service system. Under this risk arrangement, HMO's could share in savings (up to 10 percent of the AAPCC), but were required to absorb all losses.

As shown in Figures 1 and 2, by December 31, 1979 (13 years after the inception of the Medicare program), only 64 organizations, with a total enrollment of 527,521 beneficiaries, had signed contracts with the Medicare program. Thirty-two of these organizations were group practice prepayment

**Figure 2**  
**Total Medicare prepaid contracts:**  
**United States, 1979 and 1986**



plans (484,755 beneficiaries enrolled), 31 HMO's had cost contracts with Medicare (23,498 beneficiaries enrolled), and 1 plan had a risk contract with Medicare (19,268 beneficiaries enrolled). Medicare's relative lack of success in attracting HMO's to participate in the program, particularly on a risk basis, can be attributed to the fact that the contracting options offered by Medicare failed to provide HMO's with sufficient financial incentives. In addition, the retrospective cost-based reimbursement and cost-finding procedures used by Medicare differed substantially from the usual procedures of HMO's relying on prospectively determined rates.

## Demonstrations of risk contracting

In order to test other methods of contracting that might contribute to increased HMO participation in the program, the Health Care Financing Administration (HCFA) solicited interest in and developed a series of demonstration projects to test alternative forms of HMO risk contracting. In the first of these demonstrations (the Medicare Capitation Demonstrations) eight plans began operations between 1980 and 1981. Various reimbursement models were tested using these plans, with reimbursements to individual plans varying from 85 to 95 percent of the AAPCC, and were linked to a number of risk-sharing arrangements (Trieger, Galblum, and Riley, 1981). Benefit packages of the plans varied, with all plans offering at least the standard Medicare package and some plans offering expanded benefits in return for an additional premium.

Encouraged by the response of both HMO's and beneficiaries to these demonstrations, HCFA in 1982 solicited HMO's and other alternative health plans for participation in a second series of demonstrations, entitled the Medicare Competition Demonstrations. Over 50 alternative health plans were qualified by HCFA to participate in this series of demonstrations. Because regulations were already being prepared to implement a national program (described later in this article) to permit HMO's and CMP's to enroll Medicare beneficiaries on a completely prepaid capitated basis, only 26 of these plans were permitted to become operational. The first of these plans became operational in 1982, with the majority of them becoming operational during 1983 and 1984. By the end of the 1984 calendar year, 117,000 beneficiaries were enrolled in the 26 operational plans.

In these demonstrations, most participating plans agreed to accept full responsibility and financial risk for providing Medicare benefits.<sup>2</sup> All plans received, for each enrollee, a prospective monthly payment from HCFA equal to 95 percent of the AAPCC. At a minimum, the HMO's had to provide the current Medicare benefit package. The HMO could provide benefits above this level and could charge a premium to enrollees. The plans retained full control over any savings generated by operating at costs below 95 percent of the AAPCC. These plans operated as demonstrations for periods ranging from 9 months to 2 1/2 years, with all but one of them converting to program status between April 1, 1985 and June 30, 1985.

The early experience of the risk demonstrations provided important information for the development

of permanent risk-contracting arrangements. Three primary shortrun feasibility questions were addressed through these demonstration programs:

1. Would HMO's and CMP's choose to enter the Medicare market?
2. Would Medicare beneficiaries join HMO's and CMP's when these options were offered?
3. Do HMO's that enroll Medicare beneficiaries encounter significant operational problems in the initial enrollment period?

The shortrun answers to these questions provided considerable insight into the HMO market and the approach being taken by HMO's to the Medicare market.

Adamache and Rossiter (1985) have analyzed the factors associated with the decision (of individual HMO's) to apply to become a demonstration. The major finding of this study was that HMO's were significantly more likely to seek to enter the Medicare market if they were located in counties where the AAPCC level was high, indicating relatively high utilization levels in the fee-for-service sector. Since HMO's typically have experienced lower hospital use than is observed in the fee-for-service sector, a high AAPCC offers the possibility of successfully entering the Medicare market.

Clearly, the success of the Medicare program's investment in capitation relies on large numbers of beneficiaries choosing to enroll in HMO's. HMO's and prepaid practice are relatively new phenomena in many parts of the country and may be particularly unfamiliar to retirees who are less likely to have encountered an HMO option during their employed years. In addition, the elderly may be expected to have closer ties to medical providers and, therefore, to be less likely to join an HMO, even if benefits and costs are very attractive. If beneficiaries are to choose the HMO option, they must view the HMO alternative as filling a need, and HMO's must be able to successfully market their plans to beneficiaries.

In an analysis of beneficiary choice in four HMO's in Minneapolis/St. Paul, Minnesota that participated in the Medicare Capitation Demonstrations, Friedlob and Hadley (1985) found that beneficiaries who enrolled in the HMO's were less likely to have had "medi-gap" insurance than beneficiaries who chose not to enroll, were less satisfied with their fee-for-service usual source of care than nonenrollees, and described themselves as healthier than nonenrollees. Benefits and costs were cited by beneficiaries as the primary reason for joining.

While HMO's have had a great deal of experience in developing strategies and techniques for attracting the general population to a prepaid option, marketing to the Medicare population poses new challenges. In an analysis of the Medicare Competition Demonstrations, Langwell et al. (1986) reported that Medicare HMO's in most markets considered Medicare supplemental policies offered by traditional insurers (e.g., Blue Cross and Blue Shield) to be their

<sup>2</sup>An exception to this was a group of seven plans belonging to the American Medical Care Review Association (AMCRA) that had a unique risk-sharing arrangement with AMCRA, whereby AMCRA established a risk-sharing pool to which all participating plans contributed, and which would be used to limit any losses suffered by plans under the demonstration.

major competition and designed their benefit packages to be priced lower and/or to include benefits exceeding those offered by the traditional insurers. All these HMO's used a combination of mass marketing (e.g., television and newspaper advertisements) and individual marketing (e.g., telephone sales) to reach the elderly population. Low costs, good benefits, and a reduction in paperwork were the features most frequently stressed in marketing materials. The study found that plans with an aggressive marketing approach (television, billboards, and telephone sales techniques) were more likely to meet their initial enrollment targets.

Of the 20 demonstration plans for which case studies were conducted, half had achieved their initial enrollment targets by the end of 1984. Average enrollment in these plans was 5,820, with enrollments ranging from a high of 49,035 to a low of 192.

The initial implementational and operational experience of these plans also provided useful information and guidance for many new HMO's and CMP's that were interested in entering the market under the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA). For example, in analyzing operational issues related to the Medicare market, Rossiter et al. (1986) found that:

- Medicare beneficiaries are older, have more conditions, and have more severe chronic disabilities than the population under 65 years of age.
- The Medicare market is not like the group insurance market. It requires, in many cases, new management and control systems that are tailored toward dealing with individuals who require more time and attention than other enrollees.

The difference in age and health status for the Medicare population is perhaps an obvious point, but it cannot be overemphasized. Nearly all the representatives of the demonstration HMO's and CMP's reported significant and sometimes unexpected effects on their operations from this new and different population of enrollees. Most of the demonstrations reported change and growth in facility requirements, including redesign of facilities to accommodate increased handicapped parking spaces, wheelchair ramps, and space for new departments associated with the health care of the elderly.

In some plans quality assurance committees conducted studies and medical audits of specific disease entities that were relatively more prevalent among the elderly. Several plans organized subcommittees from the quality assurance committee to develop new protocols for high-incidence conditions among the elderly, such as hypertension and arthritis. Utilization controls were strengthened and modified with an influx of new Medicare enrollees in a number of plans.

A major operational issue that arose during the demonstrations was the ability of HCFA's Office of Prepaid Operations (OPO) to process and maintain enrollment and disenrollment information on a

continuing and timely basis. Since many of the demonstration plans offered continuous open enrollments, and Medicare beneficiaries were permitted to disenroll with 30 days notice, it was critical that OPO establish procedures and systems to facilitate this problem. Early difficulties generated significant criticism of HCFA's ability to process these data in a timely manner (U.S. General Accounting Office, 1985). In response to these concerns, in 1985 HCFA put in place CompuServe, a direct interactive enrollment system, that has substantially reduced delays in recording beneficiaries' status and has facilitated the rapid growth of Medicare risk-contracting under TEFRA.

The demonstration plans were converted to program status under TEFRA, which went into effect April 1, 1985. Under TEFRA, many of the concepts tested in the Medicare HMO demonstrations were put into effect on a program basis including, in particular, the AAPCC and the adjusted community rate (ACR) methodology, both from the Medicare Capitation Demonstrations.

In addition, HMO's and CMP's that had prior cost contracts with HCFA during the demonstration and under TEFRA regulations were permitted to convert one cost-contract enrollee for every two new risk-contract enrollees. The reason for this limitation on conversion was concern that the Medicare program may, on average, pay more per beneficiary under the TEFRA regulations than was being expended on behalf of these cost-contract enrollees in HMO's.

## Payment methodology

Under the TEFRA regulations, payment to HMO's for each Medicare beneficiary is determined using two combined methodologies—the AAPCC and the ACR. The ceiling for payment is 95 percent of the AAPCC per beneficiary. There are 120 separate payment rates for each county in the United States. These rates take into account age, sex, disability status, Medicaid status, and institutional status.<sup>3</sup> The AAPCC is calculated annually by HCFA, based on national historical data on expenditures under the Medicare program for beneficiaries in each category, and is adjusted to the county.

Each plan must calculate annually the expected cost of providing Medicare-covered benefits to Medicare beneficiaries. These ACR calculations may use data on HMO experience with enrollees under the age of 65 years, adjusting for higher volume and intensity of services used by Medicare beneficiaries, or they may be based directly on experience with Medicare enrollees. In either case, the resulting ACR is then compared to the AAPCC. If it is less than the AAPCC, the HMO must convert this difference into

<sup>3</sup>Beneficiaries with end stage renal disease (ESRD) are prohibited from enrolling in TEFRA HMO's. Beneficiaries who develop ESRD following enrollment are permitted to remain in the HMO, and the HMO is reimbursed at a special rate for these enrollees.

additional benefits or reduced cost sharing for Medicare beneficiaries, or it may receive less than 95 percent of the AAPCC.

Both the AAPCC and the ACR have been criticized during the early years of Medicare HMO contracting. Major criticisms of the AAPCC have focused on the sometimes significant variations in payment per county that occur from one year to the next and on the fact that the AAPCC does not directly take into account health status or prior use under the Medicare program.

In addition, there has been much debate about the appropriate percent of the AAPCC that HMO's should receive. While 95 percent may result in savings to the Medicare program (in the absence of biased selection into HMO's), it may be exceedingly generous to HMO's that are able to achieve significant savings through utilization control and greater efficiency. Finally, there is also concern about the methodology for determining the AAPCC in areas where there is high Medicare HMO market penetration, particularly if biased selection is determined to be present.

### Beneficiary and plan response

The response to the TEFRA risk-contracting option has been quite positive from the standpoint of both plan participation and beneficiary enrollment. As of March 31, 1986, a total of 119 plans had signed TEFRA risk contracts, with 556,191 beneficiaries enrolled. In addition, 64 additional applications for TEFRA contracts are currently awaiting approval.

As shown in Figures 1 and 2, the number of Medicare beneficiaries enrolled in prepaid organizations with risk contracts, and the number of risk contracts, increased dramatically between December 31, 1979 (prior to the HMO risk demonstrations), and March 31, 1986 (approximately 1 year after implementation of TEFRA).<sup>4</sup> The shift toward prepaid contracting that has occurred since HCFA first began experimenting with true prepaid capitation in the Medicare Capitation Demonstrations has resulted in an increase of almost 300 percent in the total number of beneficiaries enrolled in prepaid plans (527,521 enrolled as of December 31, 1979, compared with 1,428,309 enrolled as of March 31, 1986). If the health care prepayment plans (which cover only Part B benefits) are not counted, the figure is even more dramatic—an increase of over 3,000 percent. However, despite these increases, it is important to keep in perspective the fact that the movement of beneficiaries into prepaid plans is still in its infancy. As of March 31, 1986, the total Medicare population enrolled in some type of prepaid plan was 4.6 percent, with 2.2 percent enrolled in a prepaid plan with a risk contract.<sup>5</sup> Nationally, Medicare

beneficiaries make up approximately 7.6 percent of total HMO enrollment.<sup>6</sup>

Some selected characteristics of the TEFRA risk contracts, which constitute the vast majority of both the total number of risk contracts and beneficiaries enrolled in risk contracts<sup>7</sup> are shown in Table 1. As indicated in the table, most of the plans are HMO's, with CMP's accounting for only 5.8 percent of the total number of contracts. The majority of plans are independent practice associations (IPA's), though interestingly, group model plans account for an almost equal percentage of total enrollment. It should be noted here that the large enrollment associated with the three network model plans is primarily accounted for by one south Florida plan which, as of March 31, 1986, had 140,595 enrollees.

Table 2 shows the percent of TEFRA risk plans that offer various extended benefits beyond those provided by standard Medicare. Table 3 indicates the number of plans within various premium ranges, the percent of plans with high-option packages (i.e., enrollees may elect to purchase expanded benefits for an additional premium charge), and the percent of plans that charge copayments for at least some benefits under basic and high-option packages.

### Risk contracting: Issues and evidence

Although the Medicare program has moved to full-risk contracting with qualified HMO's and CMP's, there remain a number of issues that are of concern for the continued monitoring and refinement of the system. These issues include an appropriate rate-setting policy and the assurance of quality of care in capitated systems. In this section, we review the issues and evidence related to rate setting and quality of care. In the next section, research in progress related to these and other issues is discussed.

### Use and costs of services

Much of the present controversy about capitation and the Medicare program revolves around determination of the appropriate payment methodology. The payment level must be sufficiently high to attract HMO's into the Medicare market. At the same time, the methodology must reflect differences among beneficiaries' expected expenditures. Otherwise, if biased selection occurs, the Medicare program may incur greater costs under capitation than it would have occurred had beneficiaries remained in the fee-for-service settings.

Of considerable interest, in addition, is understanding whether HMO's actually result in savings to the government and, if so, how those

<sup>4</sup>Data from March 31, 1986, Office of Prepaid Operations, *Prepaid Contract Status Reports*.

<sup>5</sup>1985 National HMO Census-Interstudy and HCFA Office of the Actuary.

<sup>6</sup>Calculation based on Interstudy estimate of 18,900,000 HMO members in June 1985, National HMO Census.

<sup>7</sup>64,015 beneficiaries are enrolled in nine demonstration risk-based plans and four pre-TEFRA-type risk contracts.

**Table 1**  
**Number and percent of TEFRA<sup>1</sup> risk plans and enrollment, by selected characteristics:**  
**United States, March 31, 1986**

Selected characteristics	Number of contracts	Percent of total contracts	Enrollment	Percent of total enrollment
Total	119	100.0	566,191	100.0
<b>HCFA Region</b>				
I Boston	14	11.8	45,832	8.1
II New York	7	5.9	19,686	3.5
III Philadelphia	7	5.9	13,013	2.3
IV Atlanta	9	7.5	172,194	30.4
V Chicago	34	28.6	170,868	30.2
VI Dallas	8	6.7	10,820	1.9
VII Kansas City	14	11.8	13,135	2.3
VIII Denver	5	4.2	3,074	.5
IX San Francisco	19	16.0	102,641	18.1
X Seattle	2	1.7	14,928	2.6
<b>HMO/CMP:</b>				
HMO's	112	94.1	557,521	98.5
CMP's	7	5.8	8,670	1.5
<b>Model:</b>				
IPA	68	57.1	174,419	30.8
Staff	23	19.3	78,656	13.9
Group	25	21.0	172,307	30.4
Network	3	2.5	140,809	24.8

<sup>1</sup>Tax Equity and Fiscal Responsibility Act of 1982.

NOTE: Percents may not add to total, because of rounding.

SOURCE: Office of Prepaid Operations: *Prepaid Contract Status Report*, March 31, 1986.

**Table 2**  
**Percent of TEFRA<sup>1</sup> risk plans offering expanded benefits as part of either a basic or high option plan: United States, March 31, 1986**

Benefit	Percent of plans offering benefit
Extended hospital days	79
Extended skilled nursing facility days	41
Preventive care	86
Drugs	71
Eye care	69
Ear care	37
Dental care	14
Extended mental health care	34
Other additional benefits	34

<sup>1</sup>Tax Equity and Fiscal Responsibility Act of 1982.

NOTE: "Expanded" benefits mean benefits that are beyond those normally covered by standard Medicare.

SOURCE: Office of Prepaid Operations: *Prepaid Contract Status Report*, March 31, 1986.

**Table 3**  
**Percent of TEFRA<sup>1</sup> risk plans with various premium and copayment options: United States, March 31, 1986**

Premium/copayment options	Percent of plans with option
Charges basic package copayments	71
Premium ranges for basic package:	
\$00.00	16
Up to \$20.00	29
\$20.01-\$37.60	40
\$37.61 and above	15
Offers high option package	36
Charges copayment for items in high option package	81

<sup>1</sup>Tax Equity and Fiscal Responsibility Act of 1982.

NOTE: "High option package" refers to an optional benefit package containing benefits exceeding those in the basic package.

SOURCE: Office of Prepaid Operations: *Prepaid Contract Status Report*, March 31, 1986.

savings are achieved. Three sources of savings, in the absence of biased selection, may occur:

1. HMO's may reduce the use of services through case management and utilization controls.
2. HMO's may produce medical care more efficiently than do fee-for-service providers (e.g., through reduced duplication of services, use of less expensive personnel and resources).
3. HMO's may have sufficient local area market power to obtain deeper discounts from providers.

The sources and magnitude of savings achieved by HMO's may have significant implications for setting payment rates for HMO's. Changes in the payment methodology may have impacts that are detrimental to Medicare beneficiaries and to the Medicare program if they result in inappropriately strong reductions in utilization or in HMO's leaving the Medicare market entirely. Consequently, information on the financial performance of HMO's under current arrangements is a critical step in refining payment policy.

### **Evidence on biased selection**

Biased selection is present when the mix of patients who join HMO's is systematically different from that of patients who remain in the fee-for-service sector, and that difference is related to health status and patient propensity to use health services. Biased selection is only a problem if the factors that distinguish enrollees from nonenrollees cannot be taken into account in setting premium levels paid for or by enrollees. For example, Medicare HMO enrollees tend to be younger, on average, than nonenrollees (McCombs, Kasper, and Riley, 1985; Nelson, Rossiter, and Adamache, 1986), and age is related to health status and propensity to use services. The fact that the AAPCC takes into account age differences, however, makes differential enrollment by age not a biased-selection issue.

The nature and extent of any biased selection of Medicare beneficiaries into HMO's has been investigated by Eggers (1980) and Eggers and Prihoda (1982). These two studies of biased selection are based on the experiences of HMO's operating under risk contracts. Eggers and Prihoda compared the preenrollment cost experiences of enrollees in three risk-based HMO's to that of nonenrollees in the same area. They found that total Medicare reimbursements over a 4-year preenrollment period were substantially lower for enrollees in all three plans.

They next examined the extent to which the differences in preenrollment costs could be accounted for by the actuarial adjustment factors included in the AAPCC. For each plan, the nonenrollee mean reimbursement level was adjusted to control for differences between enrollees and nonenrollees in the distribution across AAPCC rate cells. In two plans, the differences in preenrollment mean costs were reduced by this adjustment, but they remained substantial. This is consistent with the findings of an

earlier study by Eggers (1980) for the Group Health Cooperative of Puget Sound. However, in the third plan, there was no statistically significant difference between the preenrollment costs for enrollees and nonenrollees following the AAPCC adjustment. This suggests that the nature of the selection process may vary among individual HMO's.

One factor that may account for the differences observed by Eggers and Prihoda is that the third plan included most of the providers in the area, so most beneficiaries did not have to switch providers to join. This was not true for the other plans studied, so these plans were likely to enroll a large proportion of beneficiaries who had no previous relationship with a provider and thus had lower prior health care costs.

The analyses of Eggers and Prihoda are based on the premise that prior use is a good predictor of future use. Thus, if the AAPCC adjustment fails to produce similar levels of preenrollment use, it is unlikely to provide a reliable way to control fully for inherent differences between enrollees and nonenrollees in their tendencies to use services after program startup. However, there are conflicting views in the literature over the issue of whether prior use is a good predictor of future use.

On the one hand, studies by McCall and Wai (1981) and Anderson and Knickman (1984) show that heavy users of Medicare-covered services in 1 year are much more likely to be heavy users in subsequent years, and that this effect persists for at least 4 years. McCall and Wai found that, of the 25 percent of beneficiaries with the highest reimbursements in 1975, about one-third continued to be in the highest quartile in each of the subsequent 3 years. Anderson and Knickman found that beneficiaries with expenses in excess of \$5,000 in 1974 were six times more likely to have expenditures that were high in subsequent years than were other beneficiaries.

On the other hand, studies by Welch (1984) and Beebe (1985) have found evidence of substantial "regression toward the mean."<sup>8</sup> That is, although individuals with above/below average expenditures in one year are likely to be above/below average in subsequent years, the size of the disparity tends to lessen over time. Thus, enrollee-nonenrollee differences in prior use may overstate the effect of biased selection on the estimated impact.

### **Evidence on use and costs**

Luft (1981) has completed an exhaustive review of the literature on the impacts of HMO's on the use and cost of services for the population under the age of 65 years. The evidence provided by past research indicates that the total costs of medical care (premiums plus out-of-pocket expenses) are lower for HMO enrollees than for comparable persons covered by conventional insurance plans. This differential

<sup>8</sup>These studies were based on statistically simulated groups, not on groups of beneficiaries who actually enrolled in HMO's.



ranges from 0 to 40 percent, depending on the characteristics of the HMO studied. The evidence indicates that the lower costs experienced by HMO enrollees are attributable primarily to a lower use of hospital services and that this is due largely to fewer admissions, rather than to shorter lengths of stay. Studies that have examined rates of hospital utilization in HMO's relative to the fee-for-service sector have found substantially different results depending on the type of HMO studied. Lower rates of hospital use of approximately 35 percent have been reported for group and staff model HMO enrollees, compared with 5 to 25 percent lower rates for IPA enrollees.

Unlike hospital care, where HMO's have strong incentives to reduce utilization, the incentives regarding ambulatory care are mixed. On the one hand, HMO's have an incentive to encourage the use of ambulatory care if such care can serve as a substitute for more expensive inpatient care. On the other hand, capitation payments provide a strong incentive to reduce the utilization of all services, including those provided on an ambulatory basis. In his extensive review, Luft found that the evidence on differentials between HMO's and the fee-for-service sector in the use of ambulatory services was mixed. While a majority of the studies reviewed found that HMO enrollees have a somewhat higher number of ambulatory visits, a substantial minority of the studies found the opposite result. However, an important pattern that emerged from these studies was that ambulatory visit rates tend to be higher among IPA enrollees than among other HMO enrollees.

The most significant study published subsequent to Luft's review has been that of Manning et al. (1984), who reported the results of a controlled trial in which a group of people previously receiving care in the fee-for-service sector were randomly assigned to receive free care from either a fee-for-service physician of their choice or from an HMO (the Group Health Cooperative of Puget Sound).

Because the HMO and fee-for-service samples were formed through a random assignment process, observed differences in utilization and cost were not contaminated by the effect of enrollee self-selection. This represents a significant improvement in methodology over previous studies. Manning et al. found that the HMO group experienced approximately 40 percent fewer admissions and hospital days than the fee-for-service group, although the number of ambulatory visits in the two groups was roughly the same.

Relatively few studies have examined the use and cost experiences of Medicare beneficiaries in HMO's. Edman and Weiss (1984) summarize the Medicare Capitation Demonstrations experience in case studies of the eight demonstration plans. Three of the four demonstration projects for which financial data were available suffered substantial losses in the initial period of operation. It is noteworthy that two of these plans were able to respond to these losses by changes

in their utilization control methods and, subsequently, become financially sound.

Carpenter and Friedlob (1985) report on the rate-setting experience and fiscal performance of three of the Medicare Capitation Demonstrations. They indicate that initial financial losses were primarily the result of the lack of HMO utilization experience data for Medicare beneficiaries and the fact that these plans used data from the Kaiser plan in California (where hospital use is very low) to develop their projections. The authors suggest that, as HMO's generate use data for this group, future projections of costs prepared by Medicare HMO's should be improved and financial losses avoided.

A set of earlier studies, which examined the use and cost experience of Medicare beneficiaries in HMO's, has been reviewed by Luft (1981) and Trieger, Galblum, and Riley (1981).<sup>9</sup> These earlier studies are of limited relevance, however, because the HMO's were paid on a cost-reimbursement basis, rather than on a risk basis. In addition, the HMO enrollees retained their Medicare coverage for services rendered by outside providers. Despite the fact that the HMO's were not at risk, these studies generally found that total Medicare reimbursements were lower for beneficiaries enrolled in HMO's than for those in fee-for-service comparison groups. The lower total costs for HMO enrollees were attributable to lower reimbursements for inpatient care, although this was partially offset by higher reimbursements for physician services. The latter was due in part to out-of-plan use.

Another important avenue of research that has relevance to the experience of HMO's in the Medicare market concerns the level of service use and cost by beneficiaries in the period immediately preceding death. There is evidence that a substantial proportion of the health care expenditures for Medicare beneficiaries in the fee-for-service sector is for care received in the final years of life (McCall, 1984; Lubitz and Prihoda, 1984; Kovar, 1983). For example, using Medicare claims data for a sample of beneficiaries who died in the State of Colorado in 1978, McCall found that total reimbursements in the final year of life averaged over \$6,000, compared to a mean of less than \$1,000 observed over a comparable period of time for a randomly selected group of survivors. When the data were examined on a quarterly basis, it was found that over 60 percent of the expenditures for those who died were incurred for services rendered in the final quarter of life. This issue will be examined further in the ongoing evaluation of the Medicare Competition Demonstrations.

A recent study by Nelson, Rossiter, and Adamache (1986) has examined aggregate use and cost data for 1984 from 22 HMO's in the Medicare Competition Demonstrations. They report that hospitals' use rates were considerably lower in Medicare HMO's than

<sup>9</sup>The cited studies are Corbin and Krute (1975), Weil (1976), Goss (1975), and Densen et al. (1978).



were experienced in 1982 among Medicare beneficiaries in local market areas who received care from fee-for-service providers. However, this finding was not unexpected since HMO enrollees were younger and less likely to be institutionalized and Medicaid-eligible than were Medicare beneficiaries nationally.

In addition to examining hospital use rates for individual HMO's, Nelson, Rossiter, and Adamache also compared use rates among plans with differing characteristics. They report that IPA HMO's experienced higher use than did staff model HMO's and that plans with lowest hospital use rates were older, had higher non-Medicare enrollments, and had strong financial incentives facing HMO management. Nelson, Rossiter, and Adamache also analyzed the financial experience of the demonstration plans and reported that nearly half the plans experienced deficits for 1984 on their Medicare line of business. However, these deficits may reflect high initial startup costs that had not been fully amortized by year end 1984.

Clearly, aggregate data on use and costs of services can only provide an indication of the experience of HMO's in the Medicare market and are not fully adequate to assist refinement of policy on the appropriate methodology and payment levels for Medicare HMO's. Further research, using individual data over a longer timeframe, is necessary to address these essential issues.

### **Price determination issues**

The existing evidence suggests that some HMO's may experience biased selection—either favorable or adverse—and that changes in the AAPCC methodology to reduce the financial impact of selection may be necessary. Research on prior use of care and regression to the mean points toward adjustments that may be appropriate. New research on biased selection and its nature in different types of settings is underway and will provide additional direction to rate-setting policy.

Similarly, the limited research currently available on use and costs of services in Medicare HMO's indicates that HMO's may be quite effective in reducing hospital days for Medicare beneficiaries. Costs may not be fully reduced by these savings from hospital use, due to equal or higher use rates for ambulatory services, lower cost sharing, and supplementary benefits provided to attract enrollees.

### **Quality of care**

In capitated systems, the HMO and, in some cases, physicians, face incentives to constrain use of services. To the extent that overutilization has been a problem in this market, the reduction in use may be desirable and even result in higher quality care than has sometimes been provided under fee-for-service. However, if the incentives are excessively strong, Medicare beneficiaries may receive inadequate services. A critical issue for the long-run feasibility of

capitation under the Medicare program is whether appropriate quality of care can be maintained and assured. The age and more fragile health status of Medicare beneficiaries makes quality an even more important issue than it is for younger populations. While Medicare beneficiaries may disenroll with relative ease if they are dissatisfied with care, it may not be within their capabilities to assess and respond to appropriateness of the quality of care they receive.

Research on HMO performance has not revealed, in general, deficiencies in quality of care (Luft, 1981; Cunningham and Williamson, 1980). However, some types of HMO's do appear to perform better on standardized comparisons of performance than do others (Rhee, 1983; Wolinsky, 1980). No research currently exists to provide evidence on the quality of care available to Medicare beneficiaries who enroll in HMO's under risk-based contracts.

An issue related to quality of care is Medicare beneficiaries' satisfaction with the health services they receive in Medicare HMO's. A study of the experience under the early Medicare Capitation Demonstrations found that Medicare enrollees reported a high degree of satisfaction with their decision to join an HMO. Between 81.5 percent and 91.5 percent of enrollees (depending on the HMO joined) reported they were very satisfied with their decision. These levels of satisfaction were comparable to or exceeded satisfaction reported by Medicare beneficiaries who were not enrolled in an HMO (Friedlob and Hadley, 1985). A similar research effort is presently planned under the evaluation of the Medicare Competition Demonstrations.

### **Future directions**

Although the Medicare program has been examining capitation alternatives for nearly a decade, there are a variety of issues that remain to be addressed. In this section, we (1) highlight HCFA demonstration programs intended to extend and refine risk contracting, (2) describe research currently underway that will provide answers to many of these questions; and (3) discuss the direction of future capitation policy for the Medicare program, indicating several issues related to these new directions.

### **Current demonstrations**

The implementation of TEFRA represents the current state of the Medicare program's development of prepaid contracting options. Medicare's approach to prepaid contracting, however, is still evolving. HCFA is currently testing and evaluating a number of refinements and variations to the TEFRA model in order to encourage more plans and beneficiaries to enter into prepaid contracts; make reimbursement more equitable for both the plans and HCFA; encourage HMO's to offer an even wider range of benefits and coverage options than they do under TEFRA; and assist beneficiaries in choosing among the expanded options available to them.

Demonstrations presently under way include:

- Two demonstrations testing the efficacy of an independent broker conducting coordinated open enrollment periods and marketing activities in an effort to assist beneficiaries in making enrollment decisions among various HMO's and the coverage options they offer.
- An HMO being reimbursed under a model that calculates reimbursement for beneficiaries based on the prior use of services (to test the possibility of refining the AAPCC by including prior-use variables).
- A demonstration to test the effects of setting the AAPCC at a lower level than 95 percent is being tested in an HMO that operates under arrangements identical to the Medicare Competition Demonstrations, except that it is being reimbursed at 85 percent of the AAPCC.
- A four-site demonstration of the social health maintenance organization (SHMO) concept, under which health and social services are integrated and placed under the direct financial management of the provider of services.

## Research under way

The Medicare Capitation and Competition Demonstrations began in 1980 and 1982. During these demonstrations, and subsequently under TEFRA, much data have been generated to permit analysis of many of the important issues raised by Medicare risk contracting. Research under way within HCFA's Office of Research and Demonstrations and under HCFA-supported contracts will be completed in the near future.

Three research projects currently being conducted seek to expand HCFA's knowledge of consumer choice and HMO marketing:

- Mathematica Policy Research is analyzing data from a survey of enrollees of 17 Medicare HMO's and nonenrollees in the same market areas to examine the factors that are associated with the decision to join an HMO, including socioeconomic variables, prior insurance, prior sources of care and satisfaction, attitudes toward health care, and self-reported health status.
- A report from the evaluation of HealthChoice, a "broker model" demonstration located in Portland, Oregon, will be produced by Brandeis University during the latter part of 1986. This report will assess the impact of an information broker counseling Medicare beneficiaries regarding HMO options and performing analyses of the marketing, beneficiary enrollment, and HCFA costs of participating HMO's.
- Another study underway, to be completed by HCFA's Office of Demonstrations and Evaluations during spring 1987, will provide additional information on the stability of beneficiary

enrollment decisions by examining beneficiary disenrollment patterns and trends.

Under HCFA's evaluation of the Medicare Competition Demonstrations with Mathematica Policy Research, three studies related to quality of care issues are being conducted (Luke and Brown, 1986):

- An analysis of the structure of the quality assurance programs in place in 20 of the Medicare Competition Demonstration HMO's.
- A comparison of the quality of basic care in general and for selected diagnoses between Medicare HMO's and fee-for-service providers in the same market areas.
- An analysis of patient satisfaction with health care and process for Medicare HMO enrollees and for a comparison group of Medicare beneficiaries receiving care from fee-for-service providers.

In addition, studies of use and costs of services by beneficiaries enrolled in three of the Medicare Capitation Demonstrations are being conducted by HCFA staff (McCombs, Kasper, and Riley, 1986).

Mathematica Policy Research, under its evaluation contract with HCFA, is conducting a comprehensive study of biased selection in 17 Medicare HMO's that were demonstration plans under the Medicare Competition Demonstrations. This study will use 2 years of Medicare claims data to examine prior use for 17,000 Medicare beneficiaries who enrolled in Medicare HMO's during 1984, and for 17,000 Medicare beneficiaries who remained in the fee-for-service sector during the same period. For a subset of these enrollees and nonenrollees, additional data on living arrangements, perceived health status and symptoms, care-seeking behavior, and attitudes toward health providers have been collected by telephone survey. These data will be used to estimate the nature and magnitude of biased selection into Medicare HMO's and whether selection varies by type of HMO or other organizational or market characteristics.

In addition, under the evaluation of the Medicare Competition Demonstrations, a comprehensive analysis is being conducted of use and costs of services provided over a 2-year period to individual Medicare beneficiaries enrolled in 12 Medicare HMO's and to a comparable group of beneficiaries in the fee-for-service sector. The primary focus of this analysis will be on estimating the impact of risk contracts on enrollees' use and cost of services, after accounting for biased selection, and on the methods by which HMO's achieve savings.

The Office of Research and Demonstrations is sponsoring several studies of the AAPCC methodology, including the feasibility of incorporating health status adjustments and examination of the lagged 5-year moving average methodology for calculating county adjustment factors. Most of these research activities will be completed in 1986 and 1987, providing HCFA with substantial information for refining the current

Medicare HMO program and for developing new directions for capitation policy.

## Capitation in the future

Although the discussion to this point has focused on HMO's and CMP's, which provide a full range of Medicare Part A and Part B services directly to Medicare beneficiaries, there are a number of other extensions of capitation that have been suggested or are under consideration by HCFA.

First, a full-fledged expanded choice program under Medicare would permit beneficiaries to choose from a much wider set of insurance and delivery system alternatives, in addition to the HMO and CMP choices currently available. The Medicare Voucher Act of 1986, a bill introduced by Senator Durenberger in December 1985, would implement such a program. Under this legislation, organizations that currently provide insurance to retirees (e.g., employers and unions) would have the opportunity to manage the Medicare benefits for their members in return for accepting a capitation payment. Other organizations, such as private insurance companies, might also develop acceptable programs.

Second, another approach that has received attention recently is direct physician capitation (Pauly and Langwell, 1986; U.S. Congress (OTA), 1986; Langwell and Nelson, 1986), which would extend to medical groups and/or individual physicians the opportunity to coordinate and receive capitation payments for all services provided to Medicare beneficiaries who elect to participate in the program. Direct physician capitation would make it possible to expand capitation into areas with no HMO's, or where HMO capacity is significantly constrained.

HCFA's Office of Research and Demonstrations has sponsored a number of studies of issues related to capitation impacts that will provide information for the final determination of the nature of capitation policy for the Medicare program. It is worth noting that the President's Cabinet Council on Domestic Policy has recommended that the Department of Health and Human Services (DHHS) move toward testing and implementing a comprehensive capitation system that extends the present Medicare HMO program to permit capitation payments to other insurers and medical groups.

## Conclusion

The Medicare program has included capitation as an integral component of its payment policy since early 1985. Capitation payments to HMO's and CMP's on behalf of Medicare beneficiaries have been demonstrated to be feasible, both in terms of logistics and the ability of HMO's and CMP's to attract and retain Medicare beneficiaries as members. Most HMO's and CMP's are able to provide all Part A and Part B Medicare benefits for less than 95 percent of

the AAPCC and, therefore, can offer more generous benefits and reduced cost sharing to beneficiaries. Early evidence suggests that HMO's and CMP's are generating modest surplus revenues, even when providing more services.

However, there is concern and some evidence that some HMO's are benefiting from favorable selection (i.e., Medicare beneficiaries who tend to use fewer services are more likely to join HMO's). If so, then the Medicare program may be spending more for HMO enrollees than would have been expended had they remained in the fee-for-service sector. A HCFA study currently underway will provide considerable information on this issue by early 1987.

Quality of care in capitated systems is also a concern, because physicians face financial incentives to provide fewer services. There is little evidence that there are differences in quality for the population under the age of 65 years enrolled in HMO's. However, the Medicare population is more vulnerable to deficiencies in quality, and determining that capitation can provide lower cost but equal quality health care is a priority for HCFA. A HCFA study of quality of care in Medicare HMO's is currently underway, and results are expected to be available in mid-1987.

HCFA is currently discussing a number of expansions of the capitation concept to extend the positive incentives of capitation to a wider set of providers under the Medicare program. The experience, to date, with the Medicare HMO program strongly suggests that capitation is feasible and has the potential to be an effective mechanism for containing Medicare program costs.

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