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**THE CONSEQUENCES OF PAYING MEDICARE
HMOS AND HEALTH CARE PREPAYMENT
PLANS THEIR COSTS**

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EXECUTIVE SUMMARY

Cost **HMOs** and health care prepayment plans (HCPPs) are Medicare managed care plans that are paid their estimated actual costs for all Medicare-covered services they provide to their enrollees. Cost **HMOs** are required to provide all Medicare-covered services, and many aspects of their operations are regulated by the Health Care Financing Administration (**HCFA**). HCPPs, on the other hand, provide only some Medicare Part B services and are subject to fewer HCFA regulations. Beneficiaries enrolled in cost **HMOs** and HCPPs are covered for all Medicare Part A and Part B services regardless of whether they use network providers. When enrollees use network providers, the plan pays their deductible and co-insurance amounts. When they use non-network providers, the enrollees are (typically) responsible for the deductible and coinsurance amounts, and the provider bills Medicare for the services rendered. HCFA contracted with **Mathematica** Policy Research, Inc. to evaluate the two programs. This report presents our findings from this evaluation.

The two key objectives of this evaluation were (1) to learn more about how cost **HMOs** and HCPPs operate and (2) to determine whether these plans are cost-effective relative to fee-for-service (FFS) Medicare and risk contracting. Little is known about HCPPs because they are subject to very few HCFA regulations or reporting requirements. To learn more about plan operations and to assess whether any additional regulations are needed to protect enrollees, we examined plans' utilization management and quality assurance programs, marketing practices, and contingency plans that would become effective in case of insolvency. We also asked cost **HMOs** and HCPPs about their procedures for detecting and collecting duplicate claims, which can occur when providers are paid by both the plan and HCFA for the same service.

Although cost **HMOs** and HCPPs are managed care organizations that are supposed to manage care efficiently, the incentives to do so are weak. HCFA pays the plans an amount equal to their estimated actual cost. This amount is obtained by allocating the plan's actual total costs between its Medicare and non-Medicare clients. The plans are therefore at risk only for the deductible and coinsurance amounts for the services they provide, for which they charge a premium. However, plans are expected to have lower costs than Medicare FFS. As managed care organizations, they are likely to have utilization management procedures in place for all their members, and are presumed to be negotiating to favorable rates with network providers.

We find *that costs to HCFA are **actually substantially increased rather than decreased*** under both the cost HMO and HCPP programs. The cost increases relative to Medicare's traditional fee-for-service method of paying *for services are larger than those that would occur **if the cost contract plans had been paid on the same basis as Medicare risk plans.*** However, cost contracting leads to higher cost than either of these payment alternatives. The losses to HCFA are widespread. Only a handful of the 63 plans examined appear to have generated savings for HCFA. We *also* find that ***most plans experience favorable selection.***

BACKGROUND

The cost HMO and HCPP programs are fairly small. We evaluated cost **HMOs** and HCPPs for calendar year 1993 because this was the most recent year for which we could obtain cost data. In

December 1993, the 59 active HCPP contractors enrolled 559,702 Medicare beneficiaries, and the 23 cost **HMOs** had 153,275 Medicare enrollees. Most plans were small. The three largest HCPPs in 1993 accounted for almost two-thirds of the enrollment in the HCPP program; the other 56 HCPPs each had fewer than 15,000 Medicare enrollees. The three largest cost **HMOs** had 40 percent of the enrollment in the cost HMO program. The 20 smaller plans each had fewer than 15,000 Medicare enrollees.

At the time this study was funded, many plans were leaving the Medicare program and converting to cost contracts or HCPP contracts. This created substantial interest in learning more about these plans. However, since that time, consumer enrollment in these programs has dropped, while enrollment in the risk program has grown rapidly. As of October 1996, there were 36 cost **HMOs** serving 192,000 Medicare enrollees and 50 HCPPs with 296,000 Medicare enrollees. Enrollment in risk plans has increased sharply from 1.8 million beneficiaries in December 1993 to nearly four million as of October 1996.

METHODOLOGY

The evaluation period for our analysis of cost **HMOs** and HCPPs is calendar year 1993. We conducted a case study analysis to examine plan operations and a statistical analysis to measure biased selection and cost-effectiveness. The case study analysis of cost HMO and HCPP operations was conducted through the use of on-site and telephone interviews with plan **staff**. Between May and July 1994, we visited nine HCPPs and attempted to contact by telephone all other cost **HMOs** and HCPPs with 1,000 or more enrollees as of December 1993. Twenty-seven HCPPs and 17 cost **HMOs** participated in telephone interviews, so our final case study analysis sample consisted of 36 HCPPs and 17 cost **HMOs**.

For the analyses of biased selection and cost-effectiveness, we evaluated 18 cost **HMOs** and 45 HCPPs with at least 1,000 enrollees as of December 1, 1993. Three HCPPs with more than 1,000 enrollees were excluded **from** our sample. One plan, the United Mine Workers, was excluded at HCFA's request because it was already participating in a demonstration. Another plan did not have a cost report for 1993, and the last plan was in operation for only three months in 1993.

We examined biased selection and cost-effectiveness **for** each plan. We selected a sample of enrolled beneficiaries and a comparison sample of beneficiaries not enrolled in a managed care plan in 1993 who resided in the same counties from which the plan drew its members. For sample plans with more than 10,000 enrollees, we drew a random sample of 10,000 enrollees. For plans with fewer than 10,000 enrollees, we included all eligible beneficiaries. All sample members had to be alive as of January 1, 1993, and have Medicare as their primary payer. The nonenrollee sample was drawn to have a zip code distribution similar to that of the enrollee sample members. For each sample plan with fewer than 2,500 enrollees, we drew a nonenrollee sample of 5,000 beneficiaries. For sample plans with 2,500 or more enrollees, we drew a nonenrollee sample that was twice as large as the enrollee sample.

To determine whether cost **HMOs** and HCPPs are cost-effective, we compared the actual total costs to HCFA for each plan's enrollees to estimates of what HCFA's costs would have been under FFS Medicare. We also compared actual costs to HCFA for plans' enrollees to estimates of the cost that HCFA would have incurred for enrollees under risk contracting. Under the Medicare risk contracting program, Medicare pays risk plans a **capitated** amount per enrollee on the basis of enrollee risk factors (age, gender, Medicaid status, and whether he or she resides in a nursing home). From 1990 to 1992, 20 risk plans converted to cost or HCPP contracts. We paid particular attention to these plans.

OPERATIONAL FEATURES OF COST HMOS AND HCPPS

Most sample plans appear to have reasonably aggressive inpatient utilization review procedures but lacked aggressive utilization review procedures for ambulatory services. Over half the sample plans use five or more inpatient utilization review procedures (such as preadmission authorization, concurrent review, and retrospective review). Only one-third of the plans monitor ambulatory service use by requiring a physician visit or telephone pre-authorization for referral to a specialist. Twenty-eight plans (over half the case study sample) do not manage Part B service use either through comprehensive utilization management procedures or by providing physicians with financial incentives to manage care. Even for plans that do have utilization review procedures, however, we were unable to assess how vigorously they are applied.

The HCPPs have seemingly good quality assurance programs and grievance procedures, even though HCFA does not require them. As part of their quality assurance efforts, over three-fourths of the plans audit patient records, monitor patient complaints and cancer screening rates, and/or credential providers. All plans had grievance procedures that appeared (from their description) to be well-disseminated to enrollees.

Only one-fourth of the organizations actively market their HCPP product because the HCPP is not the organization's main product line. Their primary focus is their commercial products. Many plans decided to offer an HCPP product at the request of their commercial clients.

Enrollees in about one-fourth of the HCPPs are not protected against plan insolvency. With one exception, the plans lacking a contingency plan in case of insolvency are either clinic or union/employer-sponsored plans.

Most cost **HMOs** and HCPPs check for duplicate payments and believe they detect them. However, many plans could be more aggressive in identifying and recovering duplicate claims. For example, some plans only check a sample of their records. Some plans have also discovered additional duplicate claims from the "explanation of Medicare benefits" documents that enrollees bring into the plan. A few plans do not check for duplicate payments because they did not receive the appropriate documents from their carriers. Representatives from the plans indicated that they could do a better job of checking for duplicate payments if their carriers gave them the payment data on magnetic tape so that they could automate their checking process. Their work could also proceed more efficiently if the carriers sent them payment data only for the services the plan provides instead of including payment data for Part A services, which are not provided by HCPPs. The plans' average estimate of the cost of checking for duplicate payments--a cost passed on to HCFA--slightly exceed the plans' average estimate of the amount of duplicate payment uncovered (about \$1,800 per 1,000 enrollees).

BIASED SELECTION

Knowledge of the extent of favorable or adverse selection in cost **HMOs** and HCPPs is useful for assessing the implications of conversion from or to a risk contract. Cost plans that have adverse selection and converted from a risk contract to a cost contract could be saving money for HCFA while protecting themselves from losses. We assessed biased selection by comparing enrollees to nonenrollees in terms of (1) mortality rates, and (2) rates of admission for diseases for which admission is not discretionary and which are associated with high **future** Medicare costs after discharge. Nondiscretionary high cost

hospitalizations are those identified by the Diagnosis Cost Groups (**DCGs**) developed by Ellis and Ash (1995/1996). We used **logit** models in the comparisons, to control for differences between enrollees and nonenrollees in demographic characteristics.

Over two-thirds (44) of the 63 sample plans experienced statistically significant favorable selection on one or both of our measures in 1993. Nine plans experienced adverse selection. For 30 plans, the values for both measures were statistically significant and indicated favorable selection, and for 14 more plans, the value for one measure was statistically significant and indicated favorable selection. Only 5 plans had statistically significant adverse selection on both measures. For another 4 plans, the **nondiscretionary** high-cost **hospitalizations** measure showed **significant** adverse selection but the difference on mortality was insignificant. For 8 plans, the estimated differences for the two measures were statistically significant, but they contradicted each other, indicating both favorable and adverse selection. For 2 plans, neither of the measures showed a statistically significant difference.

Comparisons of enrollees and nonenrollees' AAPCC risk factors (age and Medicaid status) also indicate favorable selection into cost **HMOs** and **HCPPs**. On average, enrollees in these plans are younger than area nonenrollees, and less likely to receive Medicaid. They are also less likely to have been originally entitled to Medicare as the result of a disability.

On average, there appears to be less favorable selection into cost **HMOs** and **HCPPs** than into risk plans. Hill and Brown (1990) found that risk enrollees' probability of having a DCG admission in the year prior to enrollment was about three-fourths the adjusted probability for nonenrollees on average. The estimated average difference of -1.5 percentage points across the 98 risk plans studies is substantially larger (in absolute terms) than the average differences computed here for cost **HMOs** (-0.5 percentage points) and **HCPP** plans (-0.7 points). None of the risk plans had statistically significant adverse selection, compared with one out of seven (14 percent) of the cost-based plans. Adjusted mortality rate differences also appear to be somewhat larger for risk plans. Riley et al. (1991) found adjusted enrollee mortality rates to be about 25 percent lower on average than nonenrollee rates for risk plans, compared with the 17 percent lower average rate we estimated for cost **HMOs** and **HCPPs**. Enrollees in cost and **HCPP** plans also tend to be older than enrollees in risk plans.

COST-EFFECTIVENESS COMPARED TO FFS MEDICARE

In 1993, **HCFA's** costs were increased rather than decreased by the cost **HMO** and **HCPP** programs. The agency's total payments for enrollees in cost **HMOs** were 16.5 percent (\$49 per member month) more than estimated FFS payments. Payments for enrollees in **HCPPs** were 5.8 percent (\$19 per member month) more than estimated FFS costs would have been. **HCFA's** costs increased for 55 out of 63 plans. On average across plans, **HCFA** lost 20.7 percent relative to FFS cost on cost **HMOs**, and lost 18.6 percent on **HCPPs** on average. We estimated the effects of cost contracting for each plan by comparing Medicare's actual costs for enrollees (payments to the plan plus direct payments to providers) to estimates from regression models of what FFS costs would have been for enrollees, controlling for mortality, DCG admissions, and demographic characteristics. Plan-specific estimates of savings to **HCFA** were then summed to yield the program-wide effect on costs. We also subtracted off the average percentage of plan costs that were disallowed on audit. The average percentage loss across plans provides an indication of the experience of a typical plan.

Loss to HCFA as Percentage of Projected FFS Costs			
	Average Across Plans	Program Overall	With Adjustment for Audits
cost HMOs	20.7%	17.6%	16.5%
HCPPs	18.6%	7.0%	5.8%
All Plans	19.2%	9.3%	8.2%

HCFA's higher cost for enrollees in cost **HMOs** and HCPPs is primarily a result of overpayment for Part B services. Treating each plan as a separate observation, the average cost increase to HCFA for Part B services, relative to FFS, was 55 percent for cost **HMOs** and 49 percent for HCPPs. Costs increased much less for Part A services, averaging 2.1 percent for enrollees in cost **HMOs** and 1.1 percent for those in HCPP plans. HCFA's Part A costs were reduced slightly relative to FFS, on average, for enrollees in plans with the most comprehensive inpatient utilization review programs. Part A costs were greater than projected FFS costs for enrollees in plans with less comprehensive programs. Outpatient utilization review programs and physician financial incentives are not consistently linked to lower Part B costs.

We believe that the main reason for these large losses is that the financial incentives for cost **HMOs** and HCPPs to contain costs, or even to hold them to what they would have been under traditional FFS Medicare, are very weak or nonexistent. HCFA pays cost **HMOs** and HCPPs that portion of its total actual costs that are estimated to be attributable to its Medicare members. The plans are only at risk for the Medicare deductible and coinsurance amounts, for which they charge beneficiaries a premium. They therefore have relatively little to gain by delivering care efficiently and little to lose by delivering it inefficiently. The absence of an incentive to be efficient may lead to higher costs in several ways. One problem is that some plans may be paying physicians more than they would have received under Medicare FFS reimbursement. For example, one plan pays its physicians 5 to 16 percent more than fees in the Medicare fee schedule. One-fourth of the plans pay physicians on a **salary** basis. Since HCFA pays the plans on a cost basis, the incentive for plans to negotiate physician compensation packages that are favorable compared to Medicare rates is weak. Compensation for physicians in cost **HMOs** and HCPPs may also be higher than Medicare FFS compensation because the individual plans lack the power of the Medicare program to dictate rates. Most of the plans pay physicians salaries, **capitation** rates, or fees consistent with the rates they pay physicians for serving non-Medicare members, which tend to be higher than Medicare rates.

A second reason for the losses to HCFA is that plans that serve commercial and Medicare beneficiaries have the incentive to classify as allocatable administrative costs as many overhead costs as they can. Some of these costs may be fixed or have little to do with the plan's Medicare beneficiaries. Such classification can result in reported costs that exceed the actual amount of resources expended on **behalf** of the plan's Medicare enrollees. The greater the amount of overhead and indirect costs included in the allocation, the larger the revenue from HCFA. HCFA's audits have historically reduced payments by 4.92 percent. A third (and relatively minor) reason for increased costs to HCFA is that many plans cover services (like preventive care) that are not covered by Medicare. For some such services, the costs cannot be separated from the plan's total cost.

COST-EFFECTIVENESS COMPARED WITH ESTIMATED RISK-BASED PAYMENTS

Overall, HCFA payments in 1993 for enrollees in cost **HMOs** and **HCPPs** were greater than the estimated payments HCFA would have made if these enrollees were covered under Medicare risk plans. To compute estimated risk-based payments, we had to make assumptions, for each age/sex/Medicaid rate cell, about the proportion of enrollees in nursing homes because data on nursing home residence were not available. Even under the most conservative assumption (that the proportions in nursing homes are equal to the corresponding proportions in the local FFS population), we found that HCFA's costs were increased.

In 1993, HCFA lost money on the cost contracting program relative to risk contracting for enrollees in about three-fourths of the cost **HMOs** and **HCPPs**. On average, HCFA's costs for cost HMO enrollees were 10.8 percent higher than the average risk-based payment would have been; for **HCPPs** the average loss was 6.9 percent. This overpayment is a result of the overpayment for Part B services. Relative to estimated risk-based payments, HCFA saved money on Part A costs for about two-thirds (4 1) of the plans but saved on Part B costs for only 7 plans. HCFA's Part A savings averaged 2.8 percent for cost **HMOs** and 5.9 percent for **HCPP** plans. The cost savings for Part A arise **from** the fact that HCFA would overpay most plans if they held risk contracts because they have favorable selection. (Savings due to efficiencies would have been reflected in the comparison to FFS costs.) Overpayment due to favorable selection does not occur under cost-based payment. HCFA's Part B costs, however, were higher under cost contracting than they would have been under risk contracting by an average of 32 percent for cost **HMOs** and 27 percent for **HCPPs**. If we assume that the proportion of cost HMO and **HCPP** enrollees in nursing homes is equal to the proportion of risk plan enrollees (locally or nationally) residing in nursing homes (probably a more realistic assumption), the cost increases to HCFA relative to risk contracting are 2 to 3 percentage points larger on average. It appears that any effects of favorable selection on the relative costs under cost and risk contracting are outweighed by the factors described earlier that lead to such high Part B costs.

The estimated overall loss to HCFA on the **HCPP** program, relative to risk contracting, differs substantially from the average loss across plans. This results from the fact that Kaiser of Northern California which accounted for 44 percent of all **HCPP** member months, generated savings of nearly 10 percent for HCFA. When plan-specific estimates of cost-savings to HCFA per member month are weighted by enrollment, we find that HCFA's loss on cost HMO enrollees was 9.5 percent, but **HCPPs** actually generated slight savings (1.2 percent). The savings (relative to risk contracting) for the large Kaiser plan **offset** the losses to HCFA that occurred on the majority of **HCPPs**. When we account for the average reduction in plan costs to HCFA that occur as a result of auditing, the program-wide savings to HCFA on **HCPPs** relative to risk contracting rise to 2.2 percent. For cost **HMOs** and **HCPPs** combined, total costs to HCFA were essentially equal to the amount that would have been paid to the plans under risk contracting. However, the Kaiser plan converted to a risk contract in 1994. When the overall effect on HCFA's costs **from** the **HCPP** program are recalculated, excluding plans that have dropped their **HCPP** contracts since 1993, the result is a loss of 6.5 percent relative to risk contracting (after auditing).

CONVERSIONS FROM RISK TO COST CONTRACTING

Between 1990 and 1992, 20 former risk plans converted to cost or **HCPP** contracts. These plans accounted for 21 percent of the total enrollment in cost **HMOs** and **HCPPs** in December 1993. The 19 former risk plans that we interviewed for our case study analysis identified five reasons for converting: low AAPCC rates, inability to control costs of some services, market factors, regulations, and adverse

selection. The reasons most frequently stated were the financial concerns. Only two plans cited adverse selection as a reason for converting.

Eighteen of the former risk plans said they lost money under their risk contracts: and nine also lost money on their commercial business. Most plans attributed their financial problems to low AAPCC rates. Only one plan said that it would have continued as a risk plan if risk plans had not had the option to convert to cost or HCPP contracts. One-third of the plans would have instead offered Medigap policies, and one-fourth said they would have withdrawn from the Medicare market.

For the 19 converting plans, we computed estimated risk-based payments for 1993 using data on the distribution of their enrollees across the AAPCC risk cells during the last year the plan held its risk contract. We found that for 17 of the 19 former risk plans, HCFA's costs for enrollees exceeded the amount that would have been paid under risk contracting. On average, the agency's costs increased by 24 percent for the 7 plans that converted to cost **HMOs** and by 6 percent for the 12 that converted to HCPP contracts. This finding is consistent with the plans' contention that their costs exceeded their revenues under risk contracting.

CHARACTERISTICS OF COST-EFFECTIVE PLANS

Relative to FFS Medicare, only eight plans appeared to save money for HCFA. Twenty-four (24) plans had lower costs under cost-based contracting relative to risk-based contracting; this group includes the eight plans that had lower costs relative to FFS. Among the eight plans that saved Medicare money relative to both eight FFS Medicare and risk-based contracting, six are HCPPs and two are cost contract plans. Five of the eight plans are **HMOs** or **CMPs**, six are nonprofit, and four are staff model plans. The plans include the largest single plan (Kaiser of Northern California, with 203,000 enrollees), one plan that serves primarily beneficiaries who are Medicaid eligible, and six plans with no particular distinguishing features. Half of the plans had favorable selection (as measured by the proportion with high-cost hospital admissions). We found no specific utilization management activities in our case study analysis that distinguish these eight plans from the remaining plans. Given that 4 of these 8 plans paid for less than half of the Part B costs incurred by their enrollees, it is likely that even fewer than 8 plans generated real savings for HCFA.

POLICY IMPLICATIONS

HCFA is losing money on the cost HMO and HCPP program relative to traditional FFS. Under fairly conservative assumptions, HCFA's total pre-audited costs for enrollees in cost **HMOs** and HCPPs combined were about 12 percent (\$209 million) more than estimated Medicare FFS payments would have been and they were about 2 percent (\$28 million) more than estimated risk-based payments. Auditing is expected to reduce these costs by about \$24 million (to \$185 million relative to FFS, and \$4 million compared to risk contracting). However, the losses almost surely much larger now, because the large Kaiser plan, which generated savings for HCFA, has converted to a risk contract. Dropping the 7 sample plans that no longer have cost or HCPP contracts, we **find** overall losses of \$2 10 million compared to FFS and \$90 million compared to risk contracting. Beneficiaries do have more options and freedom of choice with the cost contract option. However, this increase in options comes at a significant cost.

The overall cost increases to HCFA from cost contracting seem to be a result of the weak financial incentives that cost **HMOs** and HCPP plans have to contain costs or even to hold them to what they would be under conventional FFS. Because enrollees can get Medicare-covered services from providers not affiliated with the plans, even those that try to control costs may be unsuccessful.

Many industry experts believe that Medicare managed care plans will not be cost-effective unless the plans share **financial** risk with HCFA (Sing and Nelson 1995). Evaluations of Medicare demonstration PPO programs, which are similar in many respects to the cost and HCPP plans, have shown that such programs generally do not save Medicare money, despite claims of aggressive utilization review procedures by some of these **PPOs** (Sing and Nelson 1994; Lubahn et al. 1994; *Managed Care Week*, March 4, 1996).

The **sizeable** cost increases experienced by HCFA under cost contracting for enrollees in most of the cost and HCPP plans clearly demonstrate that this contracting option is not yielding the desired outcome and is, in fact, counter-productive. Concerns that inadequate safeguards for HCPP enrollees could adversely affect beneficiaries seem to be largely unwarranted, at least in program experience to date. But allowing more plans to convert from risk to cost contracts is almost certain to further increase costs to the Medicare program. For all but two of the plans that converted from risk to cost contracts, **HCFA's** costs were increased by the conversion.

Consideration should be given to eliminating the cost or HCPP contracting option for both new plans and those wishing to convert from risk to cost contracts. Given the current rapid growth in the risk program and the decline in the number of plans and enrollees in cost-reimbursement plans, the cost contract program may gradually disappear. However, it is possible that many new entrants to the risk program will **find** that they are unable to prosper under risk contracting and will seek to convert to cost contracts. Such behavior was a common occurrence between 1988 and 1991 after a period of rapid growth in risk contracting. While only 86 plans with about 488,000 enrollees remain in cost contracting as of October 1996, rapid growth in this program could swell the excess costs to unacceptable levels. Even the relatively modest cost increases (compared to the size of the overall Medicare program) now incurred as a result of cost contracting may be unacceptable in the present policy environment. If the option of converting from risk to cost contracts continues to exist, HCFA may in effect maximize its losses under managed care, losing money on plans with favorable selection that stay in the risk program and losing even more on plans that hold cost or HCPP contracts because they are too inefficient to prosper under risk contracting.

I. INTRODUCTION

As part of its efforts to contain costs and offer Medicare beneficiaries more choices among health plans, the Health Care Financing Administration (HCFA) contracts with health maintenance organizations (**HMOs**), competitive medical plans (**CMPs**), and health care prepayment plans (HCPPs) to provide Medicare-covered services to beneficiaries. There are three types of contract arrangements. Under the Medicare risk contract program, participating **HMOs** and **CMPs** provide all Medicare-covered services and receive a fixed **capitation** rate each month for each enrolled beneficiary. Under the Medicare cost contract program, **HMOs** and **CMPs** are paid an amount equal to the share of the plan's actual costs that were allocated to Medicare-covered services for Medicare enrollees. In the HCPP contract program, participating plans are also paid on an apportioned cost basis for Medicare-covered physician services provided, but all Part A services must be billed directly to HCFA providers. The potential benefits of these arrangements include cost savings to Medicare and increased supplemental coverage options for Medicare beneficiaries.

This report presents our findings from a HCFA-funded evaluation of cost **HMOs** and HCPPs (these plans are collectively referred to as cost-reimbursed plans). The evaluation has four primary objectives: (1) to learn more about how HCPPs are organized and how they operate, (2) to examine whether there is biased selection of enrollees in these plans, (3) to determine whether Medicare is saving money under the cost and HCPP contracts, and (4) to assess why many plans converted from risk to cost contracts and the effects of these conversions on **HCFA's** costs. This introductory chapter begins with some historical background on managed care and the Medicare program and describes the characteristics and regulatory requirements of cost **HMOs**, HCPPs, and risk plans. The chapter then presents the key issues for this evaluation and explains why cost **HMOs** and HCPPs may be cost-effective. It concludes with a summary of the literature on the cost-effectiveness of managed care. Chapter II summarizes our findings on the

organization and operation of cost **HMOs** and **HCPPs** (presented in an earlier report by Nagatoshi and Brown 1995). Chapter **III** describes the data and the sample design for the cost-effectiveness and biased selection analyses. Chapter IV presents the methodology for and findings from the analysis of biased selection. Chapter V compares the costs to Medicare under cost contracts and FFS. Chapter VI presents the methodology for and findings from the comparison of costs under cost contracts to projected costs under risk contracts. Chapter VII summarizes the conclusions.

A. MANAGED CARE AND THE MEDICARE PROGRAM

1. Historical Background

Medicare is an **entitlement** program that began in 1966 as a nationwide health insurance program for aged (age 65 and older) and disabled people. Medicare Part A covers inpatient hospital, skilled nursing facility (SNF), hospice, and some home health care. Medicare Part B covers physician, outpatient hospital, laboratory, and some home health services. HCFA oversees Medicare operations and contracts with fiscal intermediaries and carriers to review claims and make payments.

In 1966, nearly 99 percent of Medicare beneficiaries received care in a fee-for-service (FFS) setting. Just over 1 percent of the beneficiaries were enrolled in **HCPPs**, which were at then called group practice prepayment plans (**GPPPs**). The GPPP program was created because physicians in prepayment plans serving the commercial sector wanted to treat Medicare beneficiaries but could not submit “reasonable or customary” charges to Medicare for payment because they were typically compensated on a salary or **capitation** basis. GPPP contracts allowed these physicians to provide ambulatory services to Medicare beneficiaries and receive payment on a retrospective cost basis. In 1966, there were 26 GPPP plans (Nagatoshi and Brown 1995).

From the inception of the Medicare program, costs have increased at a faster rate than anticipated. Real spending per enrollee increased 50 percent between fiscal years 1967 and 1968, and 17 percent between fiscal year 1968 and 1969 (U.S. Congress 1993). **In** 1969, the actuarial cost estimates for the

Medicare program had to be revised upward because “utilization rates and inflationary and other cost increases under Medicare far exceeded the experience before 1965 . . . [T]he increases in cost estimates should be viewed as . . . indicative of inflationary pressures and a serious lack of effective utilization and cost controls in administering the Medicare program.” (U.S. Senate, Committee on Finance, 1970, page 30). These large cost increases prompted HCFA to seek ways to incorporate managed care plans into the Medicare program.

A 1972 amendment to Medicare allowed the program for the first time to contract with **HMOs** on a risk-sharing basis. The amendment **defined** two types of **HMOs** through which contract arrangements would be determined: established and new. Established **HMOs** could demonstrate that they could meet quality of care standards, assuring HCFA that they were able to provide appropriate health care services and establish reliable **capitation** rates. Established **HMOs** received monthly payments according to the expected Medicare costs for their area. These **HMOs** submitted Medicare cost reports to HCFA, and HCFA compared these reported costs with the projected costs of medical services in the area. If the HMO’s costs were less than the average FFS cost per beneficiary in the local area, the HMO was allowed to share the difference with HCFA, provided the HMO’s share did not exceed 10 percent of the adjusted average per capita cost (AAPCC) calculated retrospectively for each contractor.¹ **HMOs** were required to use the savings to benefit the enrollees, such as by covering more services or charging lower premiums. If costs exceeded the projected FFS costs in the area, the HMO was responsible for the higher cost,

The amendment defined “new” **HMOs** to encourage more **HMOs** to enter the Medicare market. These were **HMOs** that did not have experience delivering Medicare services or that preferred not to

¹The AAPCC is an actuarial estimate of the average cost incurred by Medicare for each beneficiary in the fee-for-service system, adjusted by county for geographic cost differences and differences in age, gender, Medicaid eligibility, and institutional (nursing home) status. For a particular county it is equal to the projected average Medicare payment per beneficiary in the United States, multiplied by the historical average ratio of Medicare payment per beneficiary for the county to Medicare payment per beneficiary for the United States. The ratio is the average of the ratios for the most recent five-year period for which data are available.

contract on a risk basis. They did not have to meet the same quality standards as the established **HMOs**.

New **HMOs** contracted with HCFA on a cost basis.

There were several concerns about the 1972 amendment. **HMOs** did not like the payment arrangements. The actual savings for a given year were not calculated until several years later because payments were determined retroactively through cost accounting. But **HMOs** were still expected to estimate their savings in a given year and finance (with their own funds or borrowed funds) the added benefits or lower premiums. Congress was concerned that **HMOs** would compromise quality of care for higher profit levels. The General Accounting Office found that many **HMOs** were having problems achieving financial solvency.

The Tax Equity and Fiscal Responsibility Act (TEFRA) passed in 1982 addressed many of these concerns. Under TEFRA, risk **HMOs** are required to have a grievance procedure and quality assurance programs that stress health outcomes. Risk contractors are also required to protect their enrollees against claims **if the** plan becomes insolvent. Nonrural plans must have at least 5,000 enrollees and demonstrate that they can survive losses. **HMOs** and **CMPs** that are unable to meet the last two requirements or that do not want to contract on a risk basis can contract on a cost basis (Nagatoshi and Brown 1995).

Initially, all Medicare managed care plans were cost based; most are now risk based. In 1966, about 1.4 percent (250,000) of the Medicare beneficiaries were enrolled in one of the 26 GPPP plans. The number of beneficiaries enrolled in Medicare managed care plans grew about 5 percent per year until the early **1980s**, when HCFA demonstration programs permitted **HMOs** to contract on a risk basis. In 1982, when TEFRA was passed, 82 percent of all Medicare beneficiaries enrolled in managed care plans were enrolled in an HCPP plan and the remainder were enrolled in the Medicare risk plan demonstrations. The provisions of TEFRA became effective in April 1985, at which time 1.1 million beneficiaries enrolled in the risk demonstration plans stayed in the risk plan when the demonstration ended. By December 1993, 1.8 million beneficiaries were enrolled in risk plans (an average annual increase of 6.3 percent), and 2.5

million beneficiaries were enrolled in either risk plans (72 percent), cost **HMOs** (6 percent), or HCPPs (22 percent).

The current study was undertaken because in the 1988- 1992 period, many risk plans dropped out of the Medicare risk program, often converting to cost or HCPP contracts (McGee and Brown, 1992). Forty-four percent of plans holding a risk contract at some point between 1987 and 1990 had dropped out of the risk program by 1991. The lack of information about the cost-effectiveness of these contracting arrangements relative to fee-for-service and the lack of regulatory controls on HCPPs prompted HCFA to request this analysis.

Since 1993, however, the pattern has changed dramatically. During the last three years, enrolment in Medicare risk plans has surged. Enrollment increased by 27 percent in 1994 and by 26 percent in 1995. As of October 1, 1995 there were 3.8 million Medicare beneficiaries enrolled in risk plans. Plans now are much more likely to convert **from** cost contracting arrangements to risk contracts. However, a number of plans with cost contracts continue to be interested in retaining their cost-based contracts.

HCFA recently initiated some programs to increase the number and types of managed care plans available to Medicare beneficiaries. In October 1995, the agency issued guidelines on how Medicare risk **HMOs** could offer point-of-service options. Point-of-service plans, which operate like open-ended **HMOs**, are the fastest growing type of managed care plan in the private sector, but they have not been available to Medicare beneficiaries until recently. Fifty-two risk plans (over one-fourth of all risk plans) intend to offer point-of-service plans in 1996. Starting in 1996, HCFA also plans to offer new types of managed care plans through the Medicare Choices Demonstration Project. Managed care plans in the demonstration will provide all Medicare-covered services and will bear at least partial risk for enrollees. Through these demonstrations, HCFA will test alternative payment arrangements, different benefits designs, and risk adjusters. Because the number and types of Medicare managed care plans are expected to grow during

the next several years, HCFA is very interested in learning about what types of managed care plans work well and are cost-effective.

2. Regulatory Requirements for Cost HMOs, HCPPs, and Risk Plans

a Benefits and Premiums

Cost HMOs, risk plans, and HCPPs differ in the services they are required to provide and in the conditions under which enrollees are covered when they use non-network services. Cost HMOs and risk plans provide more comprehensive services than HCPPs. They are required to have networks that provide all Medicare-covered services to Medicare enrollees, while HCPPs are only required to provide physician and diagnostic services (but may provide other Part B services). Unlike risk plan enrollees, cost HMO and HCPP plan enrollees do not give up their Medicare coverage. They are covered for all Medicare services received regardless of whether they receive them from providers **affiliated** with their plan. However, cost HMO and HCPP enrollees are (typically) responsible for deductible and coinsurance amounts when they use non-network providers. Enrollees in risk plans are covered only for services received from the plan's authorized providers except in emergencies.

Premiums for risk, cost, and HCPP plans are reviewed annually for reasonableness by HCFA. Premiums cover the actuarial value of the deductibles and coinsurance for the mandatory Medicare coverage (Parts A and B for risk plans, Parts A and B in-plan services for cost plans, and physician and diagnostic in-plan services for HCPPs). Premiums also cover the value of any optional benefits that the plan decides to offer. **If risk** plan calculations suggest that their Medicare revenues will exceed their costs, including their normal commercial profit rate, they must lower their premiums or increase benefits by an amount equal to this surplus or return the surplus to HCFA.²

These adjusted **community** rate (ACR) calculations are to be based on plans' actual prior experience where possible. HCFA refers to surpluses as "savings." However, we avoid that term here to avoid confusion. Studies by Brown et al. 1993 and Riley et al. 1996 suggest that much of the difference is due
(continued..)

b. Contracting Requirements and Payment Arrangements with HCFA

Cost **HMOs** and risk plans are more stringently regulated than HCPPs. Only competitive medical plans (**CMPs**) or federally qualified **HMOs** that comply with federal and state regulations regarding quality assurance plans, marketing practices, and reporting requirements can sign cost or risk contracts. HCPPs only need to provide physician services to enrollees through physicians who are employed by the plan or who contract with the plan, so a wider range of organizations can hold HCPP contracts. Current HCPPs include **HMOs**, group-practice clinics, unions, and employer-sponsored health plans.

Cost **HMOs** and HCPPs receive interim payments from HCFA according to their operating budgets and enrollment forecasts. These payment are adjusted retroactively at year end to equal “actual” costs incurred by the plans, with no allowance for profit. For all cost **HMOs** and for HCPPs that serve **non-Medicare** members, these actual costs are obtained by allocating overhead and jointly determined costs between the non-Medicare and Medicare members on the basis of member months and encounter data.

These jointly determined costs may include physician salaries as well as administrative costs. Cost **HMOs** may choose to have providers bill HCFA directly for all hospital and **SNF** services delivered to their members and all but three plans do so. All Part A services to HCPP enrollees must be billed directly to HCFA by providers.

Risk plans, on the other hand, receive from Medicare **capitation** payments that are 95 percent of the projected Medicare costs in the FFS sector for beneficiaries of the same age, gender, Medicaid status, institutional (nursing home) status, and county of residence. Plans retain any surplus or bear any loss, *although the* ACR calculations described above require plans *to* limit their *expected* profit rate on Medicare to the rate charged on their commercial products.

²(...continued)
to favorable selection, which results in increased costs to HCFA, rather than savings.

c. Enrollment and Disenrollment

Risk and cost **HMOs** must enroll any Medicare applicant (except those with end-stage renal disease), while HCPPs may screen potential members. Those that do so must use the same criteria they use to screen non-Medicare applicants, and they can require enrollees to be entitled to Medicare Part A services. Since HCPPs can screen enrollees, the same organization cannot contract as both a risk HMO and HCPP. This restriction prevents **HMOs** from profiting by enrolling higher-cost beneficiaries in the HCPP and lower-cost beneficiaries in the risk plan.³

Risk and cost **HMOs** are required to have a minimum commercial enrollment (between 1,500 and 5,000) and a minimum Medicare enrollment. The purpose of enrollment minimums is to ensure that there is enough member volume to support the cost of HMO operations. HCPPs face virtually no financial risk and may have few internal operations to support (if they are not **HMOs**), so they have no minimum enrollment requirements.

HCPPs are less constrained than risk and cost plans in the geographical areas they are allowed to serve. Because HCPPs may be unions with nationwide membership, they are allowed to enroll beneficiaries from anywhere in the U.S. Risk and cost **HMOs** may only enroll beneficiaries who reside in the counties that the plan specifies in its contract.

HCPPs are also exempt from other enrollment requirements imposed on risk and cost **HMOs**, such as open enrollment periods and restrictions on enrollment mix. Risk and cost plans must annually schedule an open enrollment period of at least 30 consecutive days. Since some HCPPs are union or employee benefit associations that do not enroll beneficiaries other than their retired employees or trade workers, they are not required to hold open enrollment periods for the general public. In addition, at least 50 percent of

³**However**, plans that start out with a cost or HCPP contract and convert to a risk contract are allowed to continue serving their former members who want to remain covered but do not want to enroll in the new risk plan. The plan must continue to cover its enrollees (if there are at least 75 or more) on a **cost-reimbursed** basis, but cannot enroll any new members in the cost or HCPP contract.

the members of risk and cost **HMOs** must be commercial. This requirement is designed to ensure that there is some pressure for **HMOs** to provide adequate quality of care.⁴

d. Duplicate Payments

Since enrollees in cost **HMOs** and HCPPs are covered by Medicare for services provided by non-network providers, it is possible for these providers to be paid twice for the same service: once by the plan and again by a HCFA carrier or fiscal intermediary. Duplicate payments can occur in two situations: (1) when a non-network physician who is paid by the plan also intentionally or inadvertently bills the carrier and (2) when a physician collects payment from a patient, and both the patient and the physician bill either the plan or the carrier. To deal with duplicate payments, cost **HMOs** and HCPPs are required to match their payment information with Medicare carrier payment information, to recover duplicate payments to physicians or suppliers, and deduct the amount from their annual cost reports.

e. Quality Assurance

Risk plans face more rigorous quality assurance regulations than cost contract plans and FFS providers. They are subject to quality of care examination by the Peer Review Organization/Quality Review Organization (**PRO/QRO**) for inpatient and ambulatory services and must have an approved quality assurance (QA) program. The **PRO/QRO** review of inpatient services for risk **HMOs** is more intense than that for FFS providers, and the ambulatory review for risk **HMOs** has no counterpart in the FFS sector. Cost **HMOs** must have an internal QA plan and quality of care review by **PRO/QRO** for

⁴The commercial HMO market is generally more competitive than the Medicare HMO market because employers, often representing thousands of individuals, are the purchasers in most cases. Commercial HMO plans must offer adequate quality of care to attract and retain contracts with these large purchasers, who often demand evidence that the care is adequate. The theory behind the enrollment mix restriction is that if Medicare **HMOs** have at least 50 percent commercial enrollment, they will have some market pressure to offer high quality care.

inpatient services only, and it is no more rigorous than the **PRO/QRO** review of FFS providers. HCPPs are not subject to **PRO/QRO** review, and they are encouraged, but not required, to have a QA plan.

f. Marketing Material

The requirements for approval of HCPPs' marketing material differ slightly from those for risk and cost plans. HCPPs are not required to submit marketing material to HCFA before distributing it to beneficiaries, but they can be required to correct misleading or unclear information at any time. Risk and cost **HMOs** must submit marketing material to HCFA for approval before distribution to Medicare beneficiaries.

g. Grievances, Reconsiderations, and Member Termination

Risk and cost **HMOs** must have grievance and appeals procedures as well as a Medicare appeals process for reconsideration of denied coverage. HCPPs were not required to have grievance or appeals procedures until December 21, 1994. But like cost **HMOs** and risk plans, they are required to complete their review of appeals within 60 days from the appeal date request. Risk and cost plans may disenroll members only for specific reasons and only with approval from HCFA. HCPPs can disenroll member for any reason and without approval from HCFA.

3. The HCPP and Cost Plan Industry in 1993

At the close of 1993, the most recent year for which we were able to obtain the cost data required for the study, 59 active HCPP contractors enrolled 559,702 Medicare beneficiaries. The three largest plans accounted for almost two-thirds of the enrollment in the HCPP program: Kaiser of Northern California (**203,188**), United Mine Workers of America in Washington, DC (**90,468**), and **Medica** in Minnesota (37,164). Each of the remaining 59 HCPPs enrolled fewer than 15,000 Medicare beneficiaries. As of October 1996, the program has shrunk to 50 plans with 296,000 Medicare members,

There are three types of HCPPs: **HMOs** and **CMs**, which made up about two-thirds of HCPPs in 1993; union or employee benefit association plans, which accounted for about one-fourth of HCPPs; and clinic- or hospital-sponsored plans, which accounted for about 5 percent of HCPPs. Two-thirds of the plans had a group model provider network, 20 percent were independent practice associations (**IPAs**), and 14 percent were staff model plans.

Most HCPPs were relatively small; only 8 of 58 HCPP plans had more than 10,000 enrollees (Table I. 1).⁵ Over half previously held a risk contract. More than half were at least five years old. Almost one-third of the HCPPs began operating during 1987 or 1988, and one-quarter began operating before 1987. About one-third of the plans were for-profit. Most HCPPs were located in the Midwest. There were five or more HCPPs in California, New York, Illinois, and Minnesota (not shown in Table I. 1). Because Kaiser of Northern **California** was so large relative to other HCPPs, it distorts the summary data in which plans are weighted by enrollment (Column 4), so Table I. 1 includes plan characteristic distributions with and without this plan.

As of December 1993, there were 23 cost **HMOs** with 153,275 enrolled Medicare beneficiaries. The three largest plans accounted for 40 percent of the total Medicare enrollment in the cost program: Hawaii Medical Service Association (**25,540**), Blue Cross of Rochester (**18,829**), and HMO Oregon (17,518). The remaining 20 cost **HMOs** each had fewer than 15,000 Medicare enrollees, and one had no Medicare enrollees.

As indicated in Table I.2, cost **HMOs** differ from HCPPs with regard to geographic distribution and model type. The 22 cost **HMOs** with at least some Medicare enrollment are spread throughout 17 states, while most HCPPs are in the Midwest. Over half the cost **HMOs** are organized as **IPAs**, while most

⁵The United Mine workers of American plan is excluded from Table I. 1, since it is being evaluated separately.

TABLE I. 1

DISTRIBUTION OF HCPPs AND THEIR MEDICARE ENROLLMENT IN 1993,
BY PLAN CHARACTERISTICS

	Number of HCPPs	Percent of HCPPs	Number of Medicare Members	Percent of Medicare Members	
				Total	Excluding Kaiser, CA"
Plan Type^b					
HMO/CMP	39	67.2	395,534	84.3	72.3
Clinic	3	5.2	18,209	3.9	6.9
Employee/Union	16	27.6	55,491	11.8	20.9
Model Type					
Group	38	65.5	334,224	71.2	49.3
IPA	11	19.0	90,661	19.3	34.1
Staff	8	13.8	41,906	8.9	15.8
Other	1	1.7	2,443	0.5	0.9
Medicare Enrollment					
1-999	11	19.0	4,683	1.0	1.8
1,000-4,999	29	50.0	74,232	15.8	27.9
5,000-9,999	10	17.2	73,218	15.6	27.5
10,000 or More	8	13.8	317,101	67.6	42.8
Held Previous Contract^c					
Yes	34	58.6	392,386	83.6	71.1
No	24	41.4	76,848	16.4	28.9
Year Most Recent HCPP Agreement Signed					
1977-1984	11	19.0	53,992	11.5	20.3
1985-1986	4	6.9	27,569	5.9	10.4
1987-1988	18	31.0	268,942	57.3	24.7
1989-1990	7	12.1	59,602	12.7	22.4
1991-1992	12	20.7	51,391	10.9	19.3
1993	6	10.3	7,738	1.6	2.9
Chain-Affiliated					
Yes	19	32.8	310,751	66.2	40.4
No	39	67.2	158,483	33.8	59.6

TABLE I. 1 (continued)

	Number of HCPPs	Percent of HCPPs	Number of Medicare Members	Percent of Medicare Members	
				Total	Excluding Kaiser, CA ^a
Tax Status^d					
For-Profit	16	27.6	85,995	18.3	32.3
Nonprofit	41	70.7	380,796	81.2	66.8
Region^e					
Boston (CT, MA)	5	8.6	21,214	4.5	8.0
New York (NY)	5	8.6	26,504	5.6	10.0
Philadelphia (PA, MD, DC)	4	6.9	17,519	3.7	6.6
Atlanta (FL, GA, NC)	5	8.6	11,591	2.5	4.4
Chicago (IL, IN, MI, MN, OH, WI)	19	32.8	113,796	24.3	42.8
Dallas (LA, TX)	3	5.2	7,692	1.6	2.9
Kansas City (IA, KS, MO)	6	10.3	35,253	7.5	13.3
Denver (CO, UT)	5	8.6	18,971	4.0	7.1
San Francisco (CA)	5	8.6	216,624	46.2	5.1
Seattle (WA)	1	1.7	70	0.0	0.0
Total	58	100.0	469,234	100.0	266,046

SOURCE: Medicare Monthly Prepaid Plan Report, December 1993, Office of Prepaid Health Care Operations and Oversight. This table excludes three HCPPs that had contracts but no enrollment as of December 1993, and the United Mine Workers plan, with 90,468 enrollees, which is excluded from this study because of its unique nature and separate evaluation.

^aBecause Kaiser of Northern California accounted for nearly half of the total HCPP enrollment (203,188) we also provide distributions excluding this plan.

^bWe have reclassified 30 of the plans listed as “other” plan types, using information gathered from the Office of Managed Care, the *GHA Directory (1993)*, and our interviews with the plans and HCFA regional managers. Of the reclassified plans, 3 are identified as clinics, 16 as unions or employee associations, and 11 are **HMOs** that are not federally qualified.

^cHCPPs that held a previous Medicare contract include those that held HCPP, cost, or risk contracts, on the basis of **HCFA's** monthly report for December 1993. The number that held Medicare risk contracts may be slightly understated in that report.

^dThe report listed no tax status for one plan (2,443 members).

^e“Only states with plans are listed in parentheses.

TABLE I.2
DISTRIBUTION OF COST PLANS AND THEIR ENROLLMENT,
BY PLAN CHARACTERISTICS

	Number of Cost Plans	Percent of Cost Plans	Number of Medicare Members	Percent of Medicare Members
Plan Type				
CMP	5	22.7	62,763	40.9
HMO	16	72.7	90,431	59.0
Other	1	4.5	81	0.1
Model Type				
Group	3	13.6	11,874	7.7
IPA	12	54.5	116,655	76.1
Staff	7	31.8	24,746	16.1
Medicare Enrollment				
1-999	4	18.2	1,633	1.1
1,000-4,999	7	31.8	18,945	12.4
5,000-9,999	5	22.7	56,301	23.7
10,000 or more	6	27.3	96,396	62.9
Year Signed Cost Contract				
1975	1	4.5	4,799	3.1
1985-1986	11	50.0	77,298	50.5
1987-1988	1	4.5	1,005	0.7
1989-1990	3	13.6	19,235	12.6
1991-1992	5	22.7	40,748	26.6
1993	1	4.5	10,190	6.6
Chain Affiliated				
Yes	5	22.7	29,936	19.5
No	17	77.3	123,339	80.5
Tax Status				
For-Profit	6	27.3	32,514	21.2
Nonprofit	16	72.7	120,761	78.8
Region				
Boston (CT, RI)	2	9.1	13,616	8.9
New York (NJ, NY)	6	27.3	49,851	32.5
Philadelphia (VA, WV)	2	9.1	8,419	5.5
Atlanta (FL)	1	4.5	1,550	1.0
Chicago (IL, IN, MN, OH)	4	18.2	10,842	7.1
Dallas	0	0.0	0	0.0
Kansas City	0	0.0	0	0.0
Denver (CO, ND)	2	9.1	10,924	7.1
San Francisco (CA, HI)	2	9.1	26,718	17.4
Seattle (OR, WA)	3	13.6	31,355	20.5
Total	22	100.0	153,275	100.0

SOURCE: December 1993 Medicare Monthly Prepaid Plan Report, Office of Prepaid Health Care Operations and Oversight,

NOTE: Excludes one plan that had no Medicare enrollment as of December 1993.

HCPPs are physician group models. Cost **HMOs** and HCPPs are similar in age: approximately half of the cost **HMOs** began operating before 1987, and five plans began operating in 1992 or 1993.

B. ISSUES FOR THE EVALUATION

Although much is known about the beneficiaries and plans participating in the Medicare risk program and the effects of the risk program on costs, there have been no comprehensive studies examining cost **HMOs** and HCPPs. Given the interest in offering Medicare beneficiaries the choice to enroll in managed care plans that are cost-effective and attractive, this evaluation addresses the following research questions for cost **HMOs** and HCPPs:

- How do HCPPs operate? Are any regulatory changes needed to protect enrollees?
- Is there biased selection into cost HMO and HCPP plans?
- How do HCFA payments per enrollee in cost-based contracts compare to what HCFA payments would be for these enrollees in the FFS sector or in a Medicare risk plan?
- Why did so many plans convert **from** risk contracts to cost or HCPP contracts between 1990 and 1992?
- To what extent do cost **HMOs** and HCPPs check for and recover duplicate payments?

1. Operational Features of HCPPs

Compared with cost **HMOs** and risk plans, HCPPs are operated by a wider variety of organizations and are subject to fewer regulations and monitoring activities. In Chapter II we describe how HCPPs conduct utilization management and quality assurance, and the range of benefits they offer.

There are fewer consumer protections for HCPP enrollees because HCPPs are subject to fewer regulations pertaining to their marketing practices, quality assurance programs, and grievance procedures. In general, Medicare beneficiaries can enroll in supplemental insurance policies regardless of their health status during the first six months after signing up for Medicare Part B. After that time, insurers in most

states can deny coverage on the basis of the applicant's medical **history**.⁶ Risk and cost plans are required to ensure that their enrollees have access to supplemental coverage when they terminate their contracts; HCPPs are not required to do so. In Chapter II, we also examine whether HCPPs have voluntarily provided their enrollees with greater protection and the extent to which policy changes are needed to protect HCPP enrollees.

2. Biased Selection

Biased selection into a managed care plan occurs when the beneficiaries who enroll are healthier or sicker on average than those who remain in FFS, or have different propensities to seek health care. Selection is either favorable or adverse if the cost to HCFA for enrollees, had they remained in FFS, would have been lower or higher, respectively, than HCFA's cost for area beneficiaries who did remain in FFS.

Biased selection has **different** implications for risk plans and cost-reimbursed plans. Since risk plans receive capitated payments from HCFA, biased selection is the sole determinant of whether HCFA saves money through risk contracting, and it has a major impact on a risk plan's financial performance. If the AAPCC rates are a good estimate of per capita FFS costs, and if there is no biased selection into any risk plan, then HCFA will save 5 percent of the cost per enrollee in each risk plan. If, however, there is favorable selection into risk plans, capitated payments by HCFA may exceed the FFS costs that would have been incurred had the beneficiary not enrolled. **MPR's** evaluation for HCFA found that as a result of favorable selection, Medicare was paying 5.7 percent more for risk enrollees than it would have paid if **enrollees** had remained in the FFS sector (Brown et al. 1993, Hill et al. 1992). A recent study by Riley et al. (1996) estimated that costs to HCFA increased by about 7 percent.

For cost-reimbursed plans, the effect on HCFA's costs depends only on plan efficiency relative to FFS; biased selection has no direct effect. Plans with favorable selection should have lower-than-average

⁶A few supplemental insurance plans, such as plans sponsored by Prudential and the American Association of Retired Persons, offer policies that provide coverage regardless of health status.

costs, so no overpayment should occur. The more adverse the selection into cost-reimbursed plans, however, the greater the opportunities for cost reductions through more efficient care, because **HMOs** are most **effective** at conserving resources for patients **with** the greatest needs (Hill et. al. 1992). If cost **HMOs** and **HCPPs** enroll a less favorable mix of beneficiaries than do risk plans, the total potential resource savings from more efficient care may be greater for cost **HMOs** and **HCPPs** than for risk plans.

Cost **HMOs** and **HCPPs** may experience more neutral selection than do risk plans (which have quite favorable selection on average) for several reasons. First, beneficiaries enrolled in cost **HMOs** and **HCPPs** are not locked into the plan network. Medicare does not cover any out-of-plan services in the risk program, but enrollees in cost or **HCPP** plans can receive Medicare-covered services outside the plan network under the usual **FFS** coverage. This difference may make beneficiaries with chronic problems and strong ties to non-network physicians more inclined to join a cost **HMO** or **HCPP** than a risk plan. Cost **HMOs** and **HCPPs** also have a weaker incentive to target their marketing efforts to healthy beneficiaries because the plans are at risk for only the deductible and coinsurance portions of Medicare-covered service costs (see, for example, **Lichtenstein** et al. 1992). Furthermore, some plans are targeted at specific populations (such as retired members of a particular union) that may need more health care on average than the general population. **HCPPs** can screen prospective beneficiaries, which could result in more favorable selection, but there is little incentive for plans to exercise this option under cost reimbursement. Less favorable selection increases the likelihood that risk plans will convert to cost contracts or **HCPPs** (Hill and Brown 1990, McGee and Brown 1992), which leads us to expect that cost **HMOs** and **HCPP** plans would have less favorable selection than risk plans on average.

3. Cost Effectiveness of Managed Care

The impact of risk, cost **HMO**, and **HCPP** contracting on Medicare payments is increasingly important, given pressures to lower the rate of growth in health care costs. Of primary interest is whether Medicare payments for beneficiaries enrolled in each plan are less than what Medicare payments would

have been in the **FFS** sector. Also of interest is whether **HMOs**, group health plans, or other organizations holding contracts to serve Medicare beneficiaries operate more efficiently than FFS providers, possibly producing savings to Medicare if these efficiencies were shared with the Medicare program.

Although costs have actually increased under the risk program because of favorable selection, **MPR's** evaluation of the risk program also found that **HMOs** with risk contracts reduce the use of resources by shortening hospital stays and decreasing the intensity of services. Because risk plans are **capitated**, savings accrue solely to the **HMOs** and enrolled beneficiaries, who receive extra benefits and are charged lower premiums. **MPR** estimated that this more efficient use of services, if passed on to the Medicare program, would have reduced costs to Medicare by 10 percent or more (even with services valued at prevailing FFS rates).

If cost **HMOs** or **HCPPs** can achieve the same types of efficiencies in utilization management as risk **HMOs**, the cost savings should accrue directly to **HCFA** because payments to these plans are equal to the plan's actual costs that are apportioned to their Medicare enrollees. If these plans experience favorable selection (as risk plans tend to), costs to **HCFA** should not increase relative to FFS rates. Although the payment methodology for cost **HMOs** and **HCPPs** does not provide a strong incentive to operate more efficiently than the FFS sector, these plans are expected to have lower costs because of their basic approach to managing care and negotiating favorable rates with providers. However, a plan's administrative costs may offset these expected savings.

In addition to determining whether Medicare payments for beneficiaries enrolled in each sample plan are less than what Medicare payments would have been in the FFS sector, we will also determine whether cost **HMOs** and **HCPPs** reduce or increase Medicare payments for enrollees relative to what Medicare payments would have been had these plans held risk contracts. If Medicare cancels or changes the cost and **HCPP** contract options, some **HMOs** that meet the criteria for participation in the risk program may opt for risk contracts, so knowledge of the likely effect of this switch on **HCFA** costs would be useful in

considering such changes. Between 1990 and 1992, 20 risk plans converted to HCPP or cost contracts. This suggests that many plans perceive these contracts to be more financially or administratively favorable and less risky than risk contracts. **Examining** relative costs to HCFA under the alternative contractual forms may suggest that it is not in **HCFA's** financial interest to allow conversions from risk to cost contracts or to sign new cost HMO or HCPP contracts.

4. Conversions from Risk to HCPP or Cost Contracts

Between 1990 and 1992, 15 risk plans converted to HCPP contracts, and 5 converted to cost contracts. We examine why so many plans converted from risk- to cost-based contracts, why they chose the type of contract they did, and the impact of conversion on HCFA costs. HCFA is concerned that the cost to Medicare of cost **HMOs** and HCPPs may be greater than the costs to Medicare under the risk program or FFS. Evidence from the evaluation of the Medicare risk program supports this concern. Brown Bergeron, and Shin (1991) interviewed risk plans and found that poor financial performance was the overwhelming reason for nonrenewal. Plans that convert are presumably expecting their revenues to increase under cost-based payment arrangements, which would mean higher costs for HCFA.

The decision to convert **from** a risk contract and the choice between a cost or HCPP contract may also be **affected** by a desire to avert some of the regulations pertaining to risk plans. HCPPs are subject to only a few of the regulations that apply to cost and risk plans regarding benefits, limitations on providers, enrollment of beneficiaries, quality assurance, and grievances and reconsiderations. During interviews conducted for the evaluation of the Medicare risk program, many plan executives cited the regulations under this program as a factor in their decision to convert or terminate their contract--either because of administrative burden or because of the effect of regulations on the risk plan's finances (Brown, Bergeron, and Shin 1991). We examined various regulations in terms of their importance to the conversion decision **in** an earlier report (Nagatoshi and Brown 1995), and we review these findings in Chapter II.

5. Duplicate Payments

A final issue for this evaluation is the extent to which cost HMOs and HCPPs check for and recover duplicate payments. Little is known about how--and how vigorously--these plans check for double billing. Regional HCFA offices have reported that the HCFA documents that cost HMOs and HCPPs are supposed to use to detect duplicate payments are not always usable. Errors in coding and incompatible or incomplete identification of patients, physicians, or services and nonmachine readable formats can make the detection of duplicate payments an onerous, manual process. In Chapter II, we review our earlier findings on this issue from interviews with plans.

C. WHY COST HMOs AND HCPPs MAY BE COST-EFFECTIVE

Although cost contracting may save money for HCFA, there are a number of reasons why it may not. The **financial** incentives to hold down costs are weak under the program. However, if a plan's delivery system is designed to deliver care efficiently to its non-Medicare members, savings may accrue to the Medicare program as well.

1. Rationale for Expecting Program Effects

Plans with cost or HCPP contracts have less financial incentive than risk HMOs to provide care more efficiently than FFS providers. Cost-reimbursed plans bear very little risk because HCFA pays them an amount based on their actual costs, and they are therefore only at risk for the deductible and coinsurance amounts of the Medicare-covered services they provide. They do not profit if they save Medicare money, and they do not incur losses if their program is more costly than FFS Medicare. These plans also have little incentive to negotiate compensation packages (whether salary, **capitation** rates, or fee-for-service rates) with network providers that would work out to be below what the providers would earn under Medicare's normal FFS method of reimbursement. Total payments to providers are recorded in cost reports and the share **allocated** to the plan's Medicare members is paid for by HCFA. Furthermore, a number of HCPPs

in our **case** study sample pay their physicians on a FFS basis. Physicians who are paid in this way have an incentive to increase service use, and plans have little incentive to prevent such behavior.

Cost-reimbursed plans also have less opportunity than risk plans to reduce costs because their enrollees are not locked into the plan network and because hospital services are paid for under Medicare's **prospective** payment (**DRG**) system. If a cost HMO or HCPP provider declines an enrollee's request for specialty plan services, the service can be obtained outside the network and still be covered by Medicare. Therefore, cost-reimbursed plans are limited in their ability to manage **service** use. They are also limited in terms of achieving cost savings through shortening the length of hospital stays (the principal source of savings for risk plans, according to Brown et al. 1993) because for all but one plan, payments for hospital services are made directly by HCFA under the DRG system. Payment depends only upon the diagnosis, not on the length of stay.

Despite the fact that cost HMOS and HCPPs have relatively weak financial incentives to operate efficiently, Medicare payments for beneficiaries enrolled in these plans are still expected to be lower than they would be in the FFS sector. **HMOs** and other managed care plans are designed to coordinate patient care among multiple providers, eliminating duplicate efforts and the unnecessary use of specialists. Plans are not likely to alter their focus on the efficient use of services and preventive care for what is in most cases the relatively small fraction of their total membership enrolled under their Medicare contract. Furthermore, cost **HMOs** and HCPPs have little incentive to provide **excess** services under the reasonable cost arrangement. These plans are at risk for the costs of any additional benefits they provide (for services not covered by Medicare) and for beneficiaries' coinsurance amounts for services delivered by plan providers. Also, parent organizations of cost **HMOs** and HCPPs may be able to negotiate prices from network providers that are lower than the prices that Medicare would pay through FFS.

A priori, we expect larger effects **from** managed care for cost **HMOs** than for HCPPs because cost **HMOs** are in a better position to manage the health care of their enrollees. Because they are responsible

for all covered Medicare services, it may be easier for them to monitor and control both Part A and B services delivered by network providers. HCPPs are paid by HCFA for only a subset of Part B services, so they may be less able to monitor the use of hospital services or other services for which HCFA pays providers directly. Also, cost **HMOs** can enroll only beneficiaries who reside within the service area the plans designate, so they can select a network of providers who effectively manage members' care. While enrollees can receive Medicare-covered services out of plan, the plans discourage such use by restricting coverage for deductibles and coinsurance for in-plan care. HCPPs, on the other hand, can enroll beneficiaries nationwide, so beneficiaries who live far **from** the **HCPP's** primary service area will have little or no access to network providers and will not be subject to any of the network's managed care procedures. Finally, cost **HMOs** may have more experience with managed care techniques than some HCPPs. A number of HCPPs are unions, employer groups, or physician groups, which may have little or no experience with aggressive utilization management.

2. Literature on the Cost Effectiveness of Managed Care

The literature summarized in this section provides a context for our findings on the cost-effectiveness of cost **HMOs** and HCPPs. We review studies that examine the cost-effectiveness of managed care plans for the non-Medicare market, Medicare risk plans, and Medicare **PPOs**.

a. Managed Care Plan Performance in the Non-Medicare Market

Private-sector managed care organizations, such as the Group Health Cooperative of Puget Sound and Kaiser, began operating decades before the inception of the Medicare program. Since then, the number and types of managed care plans have grown and changed considerably. Most early managed care plans were organized as **HMOs**; managed care is now delivered by **HMOs**, **PPOs**, point-of-service plans, and physician-hospital networks. **Luft** (1981) reviews studies of HMO performance for the non-Medicare

market **from** 1950 to 1978. Miller and **Luft** (1994) review studies of managed care plan performance for Medicare and non-Medicare enrollees using data from 1980 or later.

Studies of HMO performance for the non-Medicare market prior to 1978 found that **HMOs** reduced inpatient hospital days per 1,000 enrollees by 10 to 40 percent. This decrease was primarily the result of lower admission rates among HMO enrollees, since on average there was no difference between HMO and FFS enrollees in terms of length of stay. Expenses per patient day in hospitals controlled by **HMOs** were comparable to nearby hospitals of the same size not controlled by **HMOs**. During this time, HMO enrollees had on average more ambulatory visits per year than nonenrollees, but the difference was less than 10 percent. This difference seems to reflect differences in plan coverage for ambulatory care. When HMO coverage for ambulatory care was more **comprehensive**, HMO enrollees used more ambulatory services; when HMO coverage was comparable to that of indemnity plans, the differences were much smaller. **Luft** noted that many of the studies he reviewed had a limited number of control variables (often only age and sex) for health status and health risks, so measures of **HMO** impacts on service use may reflect favorable selection instead of the actual effect of the HMO (**Luft** 198 1).

Miller and **Luft** (1994) reviewed studies of managed care plan performance that (1) used data on or after 1980, (2) included analysis of private plan or Medicare plan enrollees and a comparison group, (3) attempted to statistically adjust for differences in health status or other characteristics between enrollees and the comparison group, and (4) were peer-reviewed (with two exceptions). Fifty-four studies, primarily of **HMOs**, met these criteria. Only a few studies of **PPOs**, and no studies of point-of-service plans met the criteria

After 1980, **HMOs** continued to reduce the use of inpatient care while increasing on average the use of ambulatory services. Hospital admissions were somewhat lower, while lengths of stay were 1 to 20 percent lower. **HMOs** had the same or more office visits to physicians per enrollee, and there was greater use of preventive services and less use of expensive procedures and tests (Miller and **Luft** 1994).

b. Literature on the Effectiveness of Medicare Risk Plans

Medicare risk plans began operating in 1985. For each enrollee, HCFA pays risk plans 95 percent of the AAPCC for the county where the enrollee resides. If the AAPCC is a good estimate of Medicare FFS payments for risk plan enrollees, total HCFA capitation payments should be 5 percent less per risk plan enrollee than they would be under traditional Medicare FFS coverage.

Brown et al. (1993) and Hill et al. (1992) found that HCFA's costs for the risk program were 5.7 percent higher than they would have been under FFS because of favorable selection. Most of the overpayment was for Part A services. HCFA's Part A payments were 8.5 percent higher than projected costs, compared with a 2.7 percent overpayment for Part B services.

The extent to which HCFA's payments to plans were greater than projected FFS costs varied by plan type, AAPCC rates, and whether the plan charged a zero premium. Staff model plans experienced more favorable selection than group model plans and IPAs, increasing costs to HCFA by 7.8 percent versus 4.4 percent for IPAs. Plans in market areas with AAPCC rates in the top quartile (57 percent or more higher than the sample average) also experienced more favorable selection and received 7.6 percent more than HCFA would have paid under FFS coverage. This amount was twice the 3.8 percent overpayment to plans with AAPCC rates that were at least 33 percent higher than the sample average. HCFA's cost also increased as premiums declined. The agency paid 8.3 percent more for enrollees in plans with a zero premium, 4.5 percent more for enrollees in plans with premiums of \$1 to \$50, and 2 percent more for enrollees in plans with premiums of over \$50 per month.

Although HCFA did not save money on the Medicare risk program, the potential for savings exists because risk plans did reduce the service use of its enrollees, even after favorable selection was controlled for. Although risk plans reduced the average inpatient hospital length of stay by 17 percent, they had no impact on the rate of hospital admissions. The lower hospital length of stay may have been achieved in part by substituting SNF care for acute hospital care. Risk plans increased the probability that enrollees would

use SNF services, but relative to FFS, they had no impact on the average number of SNF days. Risk plans also increased the likelihood that its enrollees had at least one physician visit per year (89 percent versus 84 percent in FFS), but risk plan enrollees were less likely to visit physicians' offices frequently (12 or more visits per year). If cost **HMOs** and **HCPPs** can achieve comparable reductions in resource use without incurring excessive administrative costs, these plans could produce savings for Medicare.

c. Literature on the Effectiveness of Medicare PPOs

PPOs offer some of the cost-containment features of traditional **HMOs** yet permit greater freedom of choice of providers. The PPO benefit structure is designed to channel enrollees to network providers by offering lower cost-sharing for services received within the network. Services received outside the network are covered, but enrollees pay higher out-of-pocket costs for these services. **PPOs** have proliferated in the private sector over the past decade, but Medicare's experience with **PPOs** is more limited and more recent. In 1988, HCFA implemented a demonstration to test the feasibility and desirability of Medicare **PPOs**, and in 1990, the Medicare SELECT program was created under the Omnibus Budget Reconciliation Act of 1990. The Medicare demonstration **PPOs** and the Medicare SELECT plans are similar to the cost **HMOs** and **HCPPs** in three ways: (1) the plans bear little or no risk for their enrollees, (2) enrollees are not locked into the plan's network, and (3) enrollees' out-of-pocket costs are generally a little higher when they use non-network providers.

Only three of the five plans selected for the Medicare PPO demonstrations became operational, and an analysis of service use and cost impact was conducted for only one of the three--CAPP CARE of Orange County, California. CAPP CARE was a nonenrollment model PPO. That is, it did not enroll beneficiaries but applied its utilization management procedures whenever beneficiaries obtained care from a network physician. The only **financial** incentive for beneficiaries to use demonstration providers was that the PPO providers **agreed** to accept assignment on all claims (that is, they would charge patients only the Medicare-approved amount). CAPP CARE's utilization management procedures included retrospective

in Indiana), significantly decreased costs in four states (ranging from savings of 4.3 percent in Florida to 17.3 percent in Ohio), and had no significant effect in two states (*Managed Care Week 1996*).

The Medicare SELECT experience may be the best indication as to whether cost contract plans will generate savings or losses for HCFA because the degree of control over beneficiary behavior is similar in both programs. That is under both programs, beneficiaries are covered for services provided by **non-**network providers.

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II. ORGANIZATION AND OPERATION OF COST HMOs AND HCPPs

Prior to this evaluation, little was known about the operations of HCPPs because they are subject to relatively few regulations, and they have very few reporting requirements. Consequently, HCFA was concerned about the extent to which enrollees are protected from problems with plans that may provide inadequate quality of care or that could become financially insolvent. This chapter summarizes the findings from our case study analysis of cost HMO and HCPP operations, which were presented in our interim report to HCFA (Nagatoshi and Brown 1995). This information, particularly regarding utilization management programs and payment agreements with network physicians, is also useful for interpreting findings about the cost-effectiveness of these plans.

In the chapter, we cover sample selection and case study methodology; present key findings on how cost HMOs and HCPPs manage utilization, monitor quality of care, market to beneficiaries, handle patient grievances, and check for duplicate payments; and we explain how we classified plan characteristic and operational variables for our cost-effectiveness analysis.

A. SAMPLE SELECTION AND CASE STUDY METHODOLOGY

The data for the case study analysis were collected in on-site and telephone interviews with cost HMO and HCPP plans.

1. Sample Selection

The initial sample included 18 cost HMOs and 47 HCPPs. These are all of the cost-reimbursed plans that had more than 1,000 Medicare enrollees as of December 1993 except for the United Mine Workers of America's HCPP, which was involved in a demonstration. We planned to visit 10 HCPPs and attempted to contact the other HCPPs and all cost HMOs by telephone. Since less was known about HCPPs than about cost HMOs, we spent more time interviewing HCPPs. Most of the telephone

interviews with HCPPs lasted about 90 minutes, while interviews with cost **HMOs** were much shorter.

The interviews were conducted between May and July 1994.

a Site Visit Sample

The purpose of conducting some of the interviews in person was to test and refine our proposal. Ten HCPPs varying in size, sponsorship, managed care model, and geographic location, were initially selected for site visits. **The** plans selected to receive site visits were chosen judgmentally, to yield a representative mix of plans. Four plans had more than 10,000 Medicare enrollees. Selected plans were operated by **HMOs**, clinics, and union/employee groups, and the plans included group, staff, and **IPA** models. One HCPP was selected from each of **HCFA's** 10 regions.

Of the original 10 HCPPs, 3 were replaced. Two declined to participate, and one had recently been purchased by another organization. As a result of this attrition, there were no sample plans from the **mid-Atlantic** region. We visited only nine plans because one was unable to host a visit during the analytic time period.

b. Telephone Interview Sample

Twenty-seven of the 38 HCPPs and 17 of the 18 cost **HMOs** participated in telephone interviews. Five of the 11 HCPPs that declined an interview were subsidiaries of two parent organizations: **Medica** and **CIGNA Corporation**. Most of the other nonrespondents indicated that they were too busy to participate.

2. Methodology

The **combined** site visit and telephone interview sample of HCPPs included 36 of the 47 HCPPs with over 1,000 enrollees (see Table II. 1). The same topics were covered in both types of HCPP interviews:

TABLE II. 1

CHARACTERISTICS OF RESPONDING HCPPs

	Percent of All Plans	Percent of HMOs or CMPs	Percent of Hospitals or Clinics	Percent of Unions or Employees
Model Type				
Staff	25	17	33	44
Group	56	66	67	33
IPA	19	17	0	22
Medicare Enrollment				
1,000 to 4,999	58	58	33	67
5,000 to 9,999	22	21	67	11
10,000 or more	19	21	0	22
Profit Status				
For-profit	31	38	33	11
Not-for-profit	69	62	67	89
Year First HCPP Agreement Signed				
1966-1971	19	4	33	56
1972-1984	28	29	33	22
1985-1989	19	25	33	0
1990-1993	33	42	0	22
Prior Risk Contract	31	42	0	11
Number of Plans	(36)	(24)	(3)	(9)

- Utilization management practices
- Quality assurance (QA) practices
- Benefits and premiums
- Grievance procedures
- Marketing practices
- Health screening policies
- Beneficiary protection against the plan's financial insolvency
- Duplicate payment checking procedures
- Plan background
- Experience in Medicare risk contracting
- Reasons for converting from a risk contract (if applicable) and for choosing its current Medicare contract

Telephone interviews **with** the 17 responding cost **HMOs** were limited to discussions of plan background, reasons for choosing its current form of contract, and duplicate payment checking procedures.

Data **from** the interviews were used in three ways: (1) to identify the range and predominant forms of utilization management procedures, (2) to define utilization management and QA variables that can be used to explain differences between plans in cost-effectiveness, and (3) to explore how closely **HCPPs** comply with regulations for **HMOs** and how closely their behavior resembles **the** standard for other managed care organizations.

B. KEY FINDINGS

The findings documented below reflect responses of 36 HCPP plans for most of the key variables (such as types of **utilization** management activities and regular QA activities performed). For some of the other variables (such as financial performance under their HCPP contract), the findings reflect responses

claims review, feedback to physicians on their practice patterns, and **preauthorization** for all surgical procedures and hospital admissions.

The analysis indicated that the CAPP CARE demonstration did not have a statistically significant effect on total Medicare payments during either of its first two years of operation. Regression-adjusted differences in mean payments for PPO users and the comparison group were small and statistically insignificant for Part A payments, hospital admission rates, and number of inpatient days per 1,000 beneficiaries. However, regression-adjusted mean Part B payments for PPO users were between 6 and 7 percent higher than those for the comparison group, and this difference was statistically significant. PPO users had about one more visit per year than beneficiaries in the comparison group (Sing and Nelson 1994).

Medicare SELECT plans are Medigap plans linked to **PPOs** or **HMOs**. Enrollees in SELECT plans receive full Medicare supplemental benefits only when they receive care from network providers (except in emergencies). Enrollees are covered for services received outside the network but receive reduced or zero supplemental coverage for non-network services. Network hospitals are allowed to waive all or part of the Part A deductible for SELECT plan enrollees.

Lubalin et al. (1994) found that many of the Medicare SELECT plans do not manage enrollee care and have no incentive to do so because Medicare, rather than the plan, would receive most of the savings resulting from effective utilization management. Over one-third of all SELECT plans have networks that consist only of hospitals, and many plans reduce their supplemental benefit costs by channeling enrollees to network hospitals that have agreed to fully or partially waive the Part A deductible.

An evaluation of the cost-effectiveness of the Medicare SELECT program between 1991 and 1994 found that the program generated losses in some states and savings in others. The Medicare SELECT plans **significantly** increased costs in five states (ranging from losses of 8.3 percent in Texas to 45.2 percent

of less than 36 HCPP plans because some topics were discussed with only a subset of the plans, and/or some plans declined to respond to some questions.

1. Utilization Management Practices

Like most managed care plans, HCPPs use two major approaches to utilization management: (1) **financial** incentives and (2) monitoring service use and educating providers to provide care efficiently. Providers have the greatest incentive to contain costs when plans share financial risks with them by paying them on a capitated basis. Another **financial** incentive to control utilization is to pay providers bonuses or distribute withheld portions of providers' fees based on providers' performance. Service use can be controlled through gatekeepers, prior authorization for specialty services and for nonemergency hospitalization, concurrent review of service use, hospital discharge planning, and case management for specific high-cost conditions.¹ Monitoring of service use can be done by profiling physician practice patterns and by retrospective review of service use. These techniques can be used to provide valuable feedback and comparative data to physicians.

a. Financial Incentives for Physicians

HCPPs pay physicians directly, or they pay physician provider groups, which then pay the physicians. Nearly **half (46 percent)** of the plans make capitated payments to their provider groups (Table 11.2). Nine percent of the plans pay their provider groups on a FFS basis, and the remaining 46 percent directly pay the individual physicians in their network. Although 57 percent of the plans either **capitate** their provider groups (46 percent) or directly **capitate** their physicians (11 percent), in only 11 percent of all sample plans do **individual physicians** receive capitated payments from either the plan or the provider group. Thus, a minority of plans have physicians who are directly capitated and therefore have a strong financial incentive

¹A gatekeeper is a provider (usually a primary care physician) who manages the care of a plan enrollee. For many managed care organizations, gatekeepers must approve all enrollee visits to specialists.

TABLE II.2

PAYMENT METHODS USED BY HCPPs AND THEIR
PROVIDERS, BY PLAN SPONSORSHIP

Physician Financial Incentives	Number of Plans	Percent of All Plans	Percent of HMOs or CMPs	Percent of Hospital or Clinic Plans	Percent of Union or Employee Plans
Group Capitated	16	46	63	0	11
Physicians salaried	11	31	42	0	11
Physicians FFS	5	14	21	0	0
Group Fee for Service	3	9	8	0	11
Physicians salaried	2	6	4	0	11
Mixture	1	3	4	0	0
Physicians Directly Paid	16	46	29	100	75
Physicians capitated	4	11	8	0	22
Physicians salaried	10	29	17	100	44
Physicians FFS	2	6	4	0	11
(Number of Plans)	(35)	(35)	(24)	(2)	(9)
Plan Uses Withholds or Bonuses		33	42	0	22
(Number of Plans)		(36)	(24)	(3)	(9)

“One of the clinic-sponsored plans capitates its clinic. However, we do not know how the clinic pays its physicians, so the plan is excluded from the tabulations.

to contain costs. The predominant method for payment to HCPP physicians is by salary (66 percent), followed by FFS (20 percent), **capitation** (11 percent), and a combination of methods (3 percent).

There are some financial incentives for physicians on salary to contain costs. Salaries in some of the smaller plans are determined in part by physician performance (utilization and quality), and performance in **the** larger plans **affects** the probability that a physician will be retained. About half of the plans or physician groups (almost **all** are **HMOs**) pay bonuses (11 plans or groups) or distribute withholds based on performance (6 plans or groups). However, four plans returned all or nearly all of the withheld **funds**.

b. Education and Monitoring

In addition to providing physicians with financial incentives to manage care, plans also educate them about cost-effective practice styles, require them to obtain approval before providing some patient services, and review their practice patterns. Most HCPPs (73 percent) rely more on education and monitoring activities than financial incentives in managing physician behavior (Table II.3) because they are more direct and more frequent, and because they use peer pressure. For instance, physicians are more inclined to change their practice style if it differs from that of their peers who have a similar case mix. Plan representatives indicated several reasons for their belief that financial incentives are less effective: they are too weak, their impact is delayed, and they do not instruct physicians on effective practice.

Although HCPPs have weak financial incentives to be cost-effective, they use many of the same **utilization** management techniques as **HMOs** at **full financial** risk. Nearly two-thirds of the HCPPs say that they educated their physicians on efficient practice styles. Plans that hire their own physicians do the most education while plans (primarily **HMOs**) that contract with physician groups do the least because they rely on the group to educate its physicians. Type of education is related to plan size (not shown; see Nagatoshi and Brown 1995). Large plans (more than 50,000 total enrollees including non-Medicare members) **primarily** use seminars and practice guidelines/protocols. Medium-sized plans (25,000 to 5,000 enrollees)

TABLE II.3

UTILIZATION MANAGEMENT ACTIVITIES, BY PLAN SPONSORSHIP
 (All figures are percentages except for number of plans given in parentheses)

	Percentage of All Plans	Percentage of HMOs or CMPs	Percentage of Hospital or Clinic Plans	Percentage of Union or Employee Plans
Utilization Management Activities				
Provide Education or Practice Guidelines (Number of Plans)	64 (36)	54 (24)	100 (3)	78 (9)
Method of Educating Physicians'				
Seminars	22	31	33	0
Protocols/guidelines	26	38	0	14
Continuing medical education	26	100	0	0
Meetings	48	46	33	57
(Number of Plans)	(23)	(13)	(3)	(7)
Use Physician Case Managers or Gatekeepers (Number of Plans)	72 (36)	88 (24)	33 (3)	44 (9)
Monitor Ambulatory Service Use				
Prior authorization for referrals to specialists	81	88	0	89
Profiling	69	79	33	56
(Number of Plans)	(36)	(24)	(3)	(9)
Monitor Inpatient Service Use				
Plan monitors	92	96	67	89
Prior authorization for nonemergency care	69	75	33	67
Concurrent review	81	92	67	56
Retrospective review	72	75	67	67
Discharge planning prior to admission	67^a	88 ^a	33	22
Specialized case management procedures	74^a	96 ^a	33	33
Employs monitoring staff	69	79	67	44
(Number of Plans)	(36)	(24)	(3)	(9)
Emphasis for improving Utilization Management				
Rely More on Financial Incentives	10	5	0	25
Rely More on Education or Management Activities	73	79	67	63
Rely on Both Equally	17	16	33	13
(Number of Plans)	(30)	(19)	(3)	(8)

^a Two plans gave responses that could not be coded in any of the categories. One plan, a clinic, educated its physicians during orientation. The other plan, an employee sponsored plan, indicated the person who was responsible for educating its physicians, but did not indicate the method.

^b Based on 35 plans.

^c Based on 23 plans.

typically use continuing education programs or meetings. Small plans (less than 25,000 enrollees) use meetings to educate their physicians and do not use practice guidelines or continuing medical education.

Most HCPPs indicated that they use the same utilization monitoring methods for Medicare and non-Medicare patients (not shown). Very high percentages of the plans use gatekeepers (72 percent), profile physician ambulatory practice styles (69 percent), conduct concurrent review of inpatient service use (81 percent), and require prior authorization for referrals to specialists (81 percent) or for nonemergency inpatient hospital admissions (69 percent).

c. Comparison with Risk Plans

HCPP's utilization management activities compare favorably with those of Medicare risk plans in 1988.² As a whole, HCPPs are less likely than risk plans to monitor inpatient service utilization. This behavior is consistent with the fact that most HCPPs are not affiliated with particular hospitals, and HCPPs have weak financial incentives to monitor inpatient care. However, the HCPPs that are HMOs are at least as active as HMOs with risk contracts in monitoring inpatient use. HCPPs appear to be more involved than the early risk plans in monitoring ambulatory care. This difference may be due to the current emphasis on managing both ambulatory and inpatient care rather than the earlier emphasis on managing inpatient care. The difference could also be attributable to the fact that HCPPs have a greater financial risk for ambulatory care than for inpatient care because they are at risk for the 20 percent coinsurance.

d. Perceived Financial Performance of HCPPs

To assess whether HCPP utilization management activities contribute to their financial health, HCPP representatives were asked about financial performance during the preceding two years. Of the 27 plans that shared this information, about half indicated that they broke even (not shown). Thirty-seven percent

²The most current data we have on utilization management practices for Medicare risk plans is from information gathered by MPR in 1988 (Nelson et al. 1990).

said they lost money, and 11 percent made money. Three of the plans said they were losing money because of HCFA. **One** plan had some of its costs disallowed by HCFA in a preliminary audit. The second plan felt that **HCFA's** allocation of costs between Medicare and non-Medicare members was too low for Medicare. The third plan said that the HCFA allocation rules did not properly allocate costs between itself and HCFA.

Most of the union/employee-sponsored plans (57 percent) indicated that they were losing money primarily because they charge retirees less than cost. One plan stated that it had to wait a long time to receive payment from HCFA.

2. Quality Assurance Procedures

HCPPs have comprehensive QA plans and practices despite the fact that these are not required. Over three-fourths of the plans audit patient records, monitor patient complaints and cancer screening rates, and/or credential providers (not shown). Most also conduct patient satisfaction surveys.

Compared with the other plans, union plans perform fewer QA activities. Most of the nonunion plans are federally qualified **HMOs** that have the infrastructure to perform a wide variety of QA activities. Most union plans, on the other hand, may not have this type infrastructure, so it is more cost-effective for them to rely on a few key QA activities that do not require as many resources. Union plans concentrate on carefully hiring their physicians and spend fewer resources on profiling their physicians. They also focus on monitoring patient complaints rather than on patient satisfaction surveys. Most union plans subsidize the cost of enrollee care, so dissatisfied enrollees are more inclined to complain to the plan when they are unhappy rather than disenroll.

3. Benefits and Premiums

All but four HCPP plans cover deductibles and coinsurance for all, Medicare Part A services, and nearly all cover Part B services. Two clinic-sponsored plans cover only services (primarily physician

services) delivered at their clinic. One HMO does not cover radiation therapy, and a union/employee plan does not cover durable medical equipment. All HCPPs include some non-Medicare benefits in their basic benefit packages: preventive care (89 percent), vision exams (88 percent), and hearing exams (81 percent). About one-third of the plans cover prescription drugs, and a few cover dental care.

The median premium is about \$70 per month. Two-thirds of plans have a premium of between \$50 and \$100. None of the plans has a zero premium. Over half of the plans do not charge a copayment for office visits.

4. Grievance Procedures

All the HCPPs have established grievance procedures about which enrollees are informed. Most HCPP HMOs have three or four levels of appeal for beneficiaries who are dissatisfied with a response to a complaint, while the other HCPPs have one or two levels.

The average number of complaints received in 1993 was 12 per 1,000 members.³ The HCPP HMO plans received twice as many complaints per 1,000 members (19) as any other plan type (hospitals and clinics had the next highest rate, which was 8). The HCPPs received the most complaints about benefit coverage (52 percent) and access issues (36 percent). Except for HCPPs sponsored by hospitals or clinics, fewer complaints were received about physician care. Although only 18 percent of the complaints received by HCPPs overall were about physician care, 67 percent of the complaints received by the hospital- or clinic-sponsored HCPPs pertained to physician care.

5. Marketing

Only one-fourth of the plans actively market their HCPP product. The organizations offering HCPP products focus **primarily** on their commercial products rather than on their HCPP product. In general, they

³We have data on average number of complaints for only 24 of the 36 sample HCPP plans. Thirty-three plans responded to our questions regarding the most common type of complaint.

offer an HCPP product to enhance their commercial business, so increasing the size of their Medicare enrollment is not a marketing priority.

The organizations gave three reasons for offering an HCPP product. First, an HCPP product allows them to offer their commercial customers “cradle-to-grave” coverage. Second, some of their clients are employers who want a retirement plan for their employees. Third, plans do not want to harm their local reputation or upset their enrollees by dropping out of the Medicare market.

Most of the marketing materials prepared by the plans highlight comprehensive coverage, low costs, reduced paperwork, and the convenience and accessibility of their care. The marketing materials also encourage enrollees to use network services to keep costs low and warn that unauthorized, nonemergency services received outside the network are not covered. However, most of the materials do not explain that HCPP enrollees are not locked into the plan network.

6. Health Screening

Although **HCPPs** may screen prospective Medicare enrollees if the screens are the same ones used for their non-Medicare enrollees, only four plans do. These four plans appear to use the same screening criteria for Medicare and non-Medicare applicants. They screen only individual applicants, not beneficiaries **from** employer groups that have contracts with the HCPP. Two plans screen applicants with adverse or chronic medical conditions. Another plan rejects applicants with a history of hepatitis B.

The plans were also asked whether they experience adverse, favorable, or neutral selection (not shown). Nearly half of the plans (42 percent) do not know whether there is biased selection. Among the remaining plans, 57 percent cited neutral selection; 33 percent cited adverse selection, and 10 percent cited favorable selection. The reasons given for adverse selection include the screening practices of the plan’s competitors, **the** plan’s coverage of retirees from high-risk occupations, and an enrollee mix that includes beneficiaries who are older than the nonenrolled beneficiaries in its service area. (See Chapter IV for our empirical assessment of biased selection.)

7. Protection Against Insolvency for Beneficiaries

HCFA does not require HCPPs to have procedures for protecting enrollees against plan insolvency. However, some state governments do require such procedures, and they are required for federal **qualification** as an HMO. Consequently, three-fourths of the HCPPs have contingency plans for handling insolvency. All but one of **the** plans that do not have these contingency plans are either clinic or union/employee-sponsored plans

There are three types of contingency plans: (1) agreements with other plans to cover their enrollees, (2) re-insurance policies that cover enrollees' deductibles and coinsurance, and (3) maintenance of cash reserves to cover outstanding expenses. In addition, about one-quarter of the plans have hold-harmless clauses in their contracts that prohibit plan providers from attempting to bill beneficiaries for services delivered if the plan is unable to pay for these **services**.

8. Duplicate Payment Checks

Although cost **HMOs** and HCPPs acknowledge that duplicate payments are sometimes made to providers by HCFA and by plans, most plans believe that the incidence of duplicate payments is minimal. Cost **HMOs** and HCPPs are required to check for duplicate payments and return them to HCFA. They have no financial incentives to do so, however, because they are neither rewarded for identifying the payments nor penalized for failing to find them.

Some cost **HMOs** and HCPPs avoid duplicate payments to out-of-network providers by having Medicare pay for all such services. Others expect non-network providers to bill the plan for such services and check to ensure that Medicare has not also been billed directly for these services. Most HCPPs, but only one cost HMO, use Medicare as the primary payer. Except for **staff** model **HMOs** and other plans that serve only Medicare beneficiaries who are in the plan, all plans must also check for duplicate payments to *network* physicians. Plans that check for duplicate billing compare the "explanation of Medicare

benefits” (EOMB) provided by the carrier to the data in its own claim **file**.⁴ Most of the HCPPs and all but one of the cost plans use this method. If key data elements such as provider identification number, enrollee identification number, and service date match, then the match is flagged and the situation is investigated further. Most plans review all of the EOMBs **from** the carrier, but some plans review only samples of the EOMBs.

Another potential mechanism for detecting duplicate bills is **HCFA’s** Payment Records Posted report. Plans do not use these reports, however, because they do not receive it regularly (or at all), and they find it difficult to use because the provider identification numbers often differ from the identification numbers used by the plan. A few plans do not check for duplicate payments because they do not receive these reports from their carriers.

Of the plans that do check for duplicate payments, most indicated that they believe they detect all of them, but **this** may be an overly optimistic assessment. The methods plans use still allow many duplicate claims to go undetected. For example, some plans only check a sample of their records. Some plans also identify duplicate claims from the EOMB documents that its enrollees bring to the plan. One plan estimated that its procedures for identifying duplicate claims are about 70 percent effective because many additional duplicate payments are identified by the EOMBs brought in by its enrollees.

The 28 plans that answered our question about the total amount they spent in checking for duplicate payments spent an average of about \$2,150 per 1,000 enrollees on this activity.’ The average amount of duplicate payments reported, after **normalizing** by enrollment, is about \$1,800 per 1,000 enrollees for cost **HMOs** and \$2,100 per 1,000 enrollees for HCPPs. But the average number of duplicate bills identified

“The EOMBs include **information** on the provider of service, type of service provided, date of service, amount of **the** bill, and the amount the carrier paid.

⁵**This** estimate was obtained by dividing the total amount that each plan said it spent on checking for duplicate payments by its enrollment (in thousands).

by cost **HMOs** (80 per 1,000 enrollees) is over four times higher than the number identified by HCPPs (19 per 1,000 enrollees)

The plans made several suggestions to improve the duplicate checking process or to reduce the occurrence of duplicate payments. First, they would like to receive payment information from the carrier on magnetic tape so that the process can be automated. The tape should include key variables such as the provider number, service code, and service date, and the provider numbers used by the carrier should be easily matched to the provider numbers used by the plan. Second, plans would prefer to receive only payment information for services they cover. Information on services they do not cover (such as Part A services for HCPP plans) adds to their workload. Third, they would like to add to enrollees' Medicare identification cards a designation that the beneficiary is enrolled in a cost HMO or HCPP; this would reduce accidental duplicate billings.

C. CLASSIFYING VARIABLES FOR THE COST-EFFECTIVE ANALYSIS

To help explain and interpret subsequent findings on cost-effectiveness, we have tried to **identify**, a priori, which plans we expect to perform more efficiently than others on the basis of their internal financial and organizational structures (**Luft** 198 1). **Hillman**, Pauly, and Kerstein (1989) found that some financial incentives used by **HMOs** influence physicians' treatment of patients. However, in a review of the literature, Miller and **Luft** (1994) found that there is no significant difference in the performance of different HMO models. Miller and **Luft's** findings may be due in part to a blurring of the distinctions between the traditional group, **staff**, and **IPA** classifications of managed care organizations (Feldman et al. 1989). Therefore, we compare the performance of the traditional HMO models, and we also look at the internal financial and organizational structure of the plans in our sample to examine factors that are expected to reduce utilization. This approach also allows us to assess the effect of plan organization on expenditures for HCPPs that are not **HMOs**.

Health plans constrain utilization in two main ways: utilization review (UR) and financial incentives. The purpose of UR is to **identify** service utilization patterns that are not efficient and to provide feedback on these patterns to physicians. Financial incentives are intended to compel physicians to consider **cost-effectiveness** when making decisions about treatment and **referrals**.⁶ These two methods are not mutually exclusive; in fact, they can complement each other. This section first reviews the key features of UR that are likely to **affect** physician behavior and health care utilization. Information from interviews with the plans is used to determine which plans we expect to most **affect** inpatient and outpatient utilization through UR. Then, the financial incentives that are most likely to constrain **health** care utilization are identified, and the plans that have these incentives are identified.

1. Utilization Review

One objective of our analysis was to identify the plans with the most aggressive UR programs because we expect that these programs will embody the key features that are likely to encourage cost-effectiveness. UR programs may **differ** in the scope of services reviewed, the level of the review (plan, hospital, physician group, individual physician), the detail of the review, and the timing of the review relative to service delivery.

The scope of UR may be limited to inpatient services, or it may extend to outpatient services, including referrals to specialists and pharmaceuticals. Aggressive UR extends to more services.

UR may be most effective when focused at the level of the actual decision makers, i.e., physicians rather than groups. For example, profiling a physician's hospitalizations is UR at the physician level. In a 1994 **survey** of 79 **HMOs**, Gold et al. (1995) found that 73 percent of plans profile individual physicians, and 81 percent of the plans that do so believe they accurately attribute results to individual physicians.

⁶A third method, consumer cost sharing, has little variation among the plans in this study. An exception is prescription drugs, which some plans cover and most do not, but expenditures on prescription drugs are not paid for by the Medicare program.

UR is more effective when it is detailed, rather than cursory. Although detail is difficult to directly observe, we can measure the presence of specialized structures that facilitate detailed review. Plans may use detailed case management for the most expensive cases or chronic conditions. Detailed prior authorization may also be more effective. For example, a plan may require enrollees to visit their primary physicians to approve referrals, but aside **from** time costs, the referral behavior of physicians may be unchanged unless each physician's referrals are tracked.

In terms of timing, a combination of prior, concurrent, and retrospective UR may allow plans to prevent unnecessary **utilization** before it begins, to adjust the course of treatment for episodes in progress, and to train physicians to identify cost-effective treatment alternatives for **future** cases. Prior UR, such as preadmission certification and **preauthorization** for referrals, seeks to prevent unnecessary utilization. Concurrent UR allows plans to monitor types and amount of services as they are provided, which may permit plans to substitute less costly services as the opportunity arises. Retrospective UR may be the least effective in changing **utilization** because the services have already been delivered. However, retrospective review of claims can uncover billing errors and excessive charges, and it provides feedback to physicians on lower cost alternative treatments. Physician profiling is a form of retrospective **UR**, its goal being to **influence** behavior.

The number of dimensions in which UR can vary creates a host of questions about which characteristics are most likely to constrain utilization and hence, expenditures. We identified plans that are doing the most UR in the dimensions we can measure: those with UR for more services; those that profile individual physicians; and those that perform detailed UR before, during, and after hospitalization. Our findings are explained below.

For inpatient **UR**, plans nearly always combine prior, concurrent, and retrospective UR. Some plans have more detailed UR than others: they use case management for more expensive and/or chronic conditions, and they employ UR and discharge planning nurses. We created a six point scale that combines

detail and timing of UR. One point is awarded for each of the following: (1) preadmission authorization required, (2) concurrent review by a special plan employee, (3) retrospective review, (4) preadmission discharge planning by a special plan employee, (5) case management for high-cost or chronic conditions, and (6) profiles of physicians' inpatient utilization. A score of six is designated "most aggressive," and a score of five is designated "aggressive." Of the 46 **HCPPs** and cost contract **HMOs** we interviewed that had **useable** information on inpatient UR, 9 were classified as having the most aggressive inpatient UR. Thirteen plans were classified as having aggressive inpatient UR. Only four plans scored zero.

Few plans have extensive outpatient UR. Plans were classified both in terms of their UR procedures for specialist services and in terms of primary care ambulatory services.' Plans reported whether they require preauthorization for specialist care, whether they require a visit (as opposed to a telephone conference) to assess the need for the referral, and whether they profile specialist referrals and primary **ambulatory** care. Plans **differ** dramatically in the detail and timing of UR for specialist referrals. Only 10 of 47 plans reported both requiring a visit to obtain a referral and profiling specialist services, and another 7 plans require telephone preauthorization for referrals and profiled specialist services. Fifteen plans profile primary care ambulatory services. We combine the detail of the specialist UR with ambulatory services into one measure of the aggressiveness of outpatient UR. The plans with the most aggressive outpatient UR are those that require an actual **visit** to obtain a referral and that profile both physicians' **specialist** referrals and primary ambulatory care. We considered other plans as having aggressive outpatient UR if they (1) require telephone preauthorization for referrals and profile both physicians'

'Our question was open ended: "What services are profiled?" Respondents explicitly listed ambulatory, hospital, specialist, ancillary, and emergency room services. The plans that reported ambulatory services tended to also specifically list specialist and/or ancillary services. Therefore, we treated the response "ambulatory services" as primary care ambulatory services. We did not use information on ancillary and emergency room service profiling. The use of emergency room services profiling may be a result of prevalent inappropriate use of emergency rooms rather than an indication of aggressive UR. Ancillary services are likely to be a small component of a plan's total expenditures. Two plans did not describe which services are profiled.

specialist referrals and primary ambulatory care, or (2) require an actual visit to obtain a referral and profile physicians' specialist referrals. Among the 47 plans with complete information, only four have most aggressive outpatient **UR**, and nine have aggressive outpatient **UR**.

This rating system for **UR**, like others, has a number of flaws. It does not distinguish between plans in terms of **how** aggressively they implement the **UR** procedures used to create the scale. It also does not indicate how strongly plans push physicians to change in response to the **UR** procedures. Finally, it does not reflect the culture of the plan--the extent to which the physicians are committed to cost-effective practices and willing to change their behavior. Gathering such detailed information from a large number of plans is **very difficult** without actually observing the interaction between plans and physicians. Despite these weaknesses, the information gathered should provide a rough indicator of the relative attention paid to monitoring and controlling utilization.

2. **Financial Incentives for Physicians**

Financial incentives for physicians can be complex. This section reviews the likely effects of (1) three primary methods of paying physicians and physician groups, and (2) the likely effects of supplemental pay in the form of withholds, bonuses, and risk **pools**.⁸ We describe the details important to making incentives work and compare our survey data with these details.

There are **three primary** methods for compensating physicians and physician groups: **FFS**, **capitation**, and salary. **FFS** compensation encourages greater provision of services. Discounted fees are used to reduce both expenditures and the incentive to provide more services, but the overall incentive is to provide more services. It is difficult to measure the degree of discounting because few payers may actually pay the full fees.

⁸We ignored hospital, home health, and skilled nursing facility payment arrangements, because only two of **the** cost contracts pay for any hospital care, and because home health and **SNF** billing is a small part of Part A services. For the remainder, hospitals are paid by HCFA through the prospective payment system.

The effectiveness of **capitation** as an incentive is **affected** by three factors: the services covered by the capitation, the method for setting the capitation rate, and the capitation amount. Under capitation, a physician receives a fixed amount per patient **regardless** of the amount of services used. This payment system typically gives physicians **the** incentive to limit the provision of services.

The more services covered by the capitation rate, the greater the incentive for physicians to control total expenditures. For example, when specialist referrals are not included in the capitation rate, primary care doctors can reduce their effort by increasing referrals, which counteracts the cost-control effect of the incentive. None of the plans **capitate** providers for Part A services, so capitation may have little bearing on these costs.

The method for setting the capitation rate may also affect the potential to control utilization and clearly **affects** costs to the plan (and therefore to HCFA). For example, two respondents to our survey reported **that** their **capitation** rates are adjusted annually by a **fraction** of the rate of inflation in medical care. In these cases, the services provided by the doctors in the prior year have no effect on the rate in the next year. However, **if the** capitation rate is set higher for physicians with greater service utilization in the past year, **then** each year the physician has an incentive to increase the provision of services so that future **capitations** are higher. Four of the plans reported that the physician groups project expenses on the basis of the group's experience in the prior year, and the capitation **is** based on that projection. Some risk plans pay higher capitation rates to physicians who use less of the services that are not covered under their capitation (**e.g.**, hospital days or referrals to specialists), but the plans we surveyed did not report sufficient detail to **identify** such arrangements. Furthermore, there is no incentive for plans to hold down hospital days, given that they will be neither **rewarded** nor penalized financially for their use of hospital days.

Finally, physicians may respond to the level of the capitation. If the capitation amount is low, physicians may feel compelled to be more aggressive about controlling utilization in order to free up time to take on more patients. And, of course, whether the capitation rate paid by the plan is above or below

the cost that HCFA would have incurred for the services covered by the capitation is the sole determinant of whether HCFA will save money on these services.

The effect of salary on the provision of services is also difficult to determine without further information. Physicians paid a salary will not directly increase their income by prescribing unnecessary visits. However, unlike capitation arrangements, they also will not increase their income (unless bonus arrangements are in place) by being as efficient as possible in order to add new patients to their practice. Paying physicians a salary is more likely than FFS compensation, but less likely than capitation, to reduce utilization. If a physician's utilization profile is used to determine their salary increment for the subsequent year, however, physicians behavior may be **influenced**. The influence may be to increase utilization, if salaries are greater for physicians whose patients use more care than average (to compensate for adverse selection). Alternatively, paying salaries may decrease utilization, if salaries are higher for those whose patients used less **services** than average (as an incentive to conserve resources). Again, the cost effect of paying physicians on a salary basis depends upon how high the salary is set and what service utilization is examined in setting the rates.

These primary payment methods can be supplemented with withholds, bonuses, and risk pools. Under withholds and bonuses, plans (or groups) base some of the physician's income on performance measures. Withholds and bonuses can be based on the performance of the plan, physician group, or individual physician. They can depend on utilization, productivity, quality, patient satisfaction, other factors, or a combination of factors. Withholds and bonuses that reward physicians for low utilization are most likely to reduce utilization. The amount of the withhold or bonus relative to the primary payment method is very important to the strength of the incentive it creates. For example, if a physician is paid on a **FFS** basis and **has** a withhold that penalizes prescribing ambulatory care, then **the** withhold would have to be large relative to the fees in order to counteract the incentives of FFS reimbursement.

Many plans pay their physicians directly, but many contract with physician groups (about half of our sample). A plan's intended financial incentives for the groups with which it contracts can be altered by the payment arrangement between the groups and their members (Hillman, Welch, and Pauly 1992). Physician groups may wish to ensure that all of their members are contributing to the productivity of the group, so **they** may pay their members according to the amount of services they provide or how much revenue they raise. Lee (1990) found that many physician groups link pay to productivity but notes that this link becomes less likely as managed care gains a larger share of the group's patients. For example, a plan may **capitate** a group but account for only a small proportion of the group's patients. This group may pay its members FFS, thereby defeating the plan's incentives. Contradicting incentives may also be a problem when the physician is salaried and the group is paid FFS. In this case, **physicians**, who generally also own the group, can increase the group's revenue and their own income by increasing utilization.

Financial incentives may also be weakened when physicians receive income from multiple sources. Physicians are likely to have only one practice style, so the payment arrangement that covers most of their patients is likely to have the most influence on their **behavior**.⁹ An advantage of staff model **HMOs** in this respect is that the physicians tend to see only HMO enrollees.

Financial incentives may be most effective when (1) doctors are directly capitated by the plan, and the capitation covers the most expensive goods and services; (2) groups are capitated for the most expensive services, and physicians are salaried; (3) withholds or bonuses reward lower utilization and are large enough to offset any contradictory incentives; and (4) the payment arrangement covers most of the physician's patients. Salaries paid directly by the plan are also better incentives than FFS in that at least there is no incentive to provide more care. **Other** payment arrangements are likely to weaken the incentive to cut costs.

⁹**When** changes in one **payor's** reimbursement are large relative to a physician's income, spillovers between payment mechanisms may occur even without this assumption (**McGuire** and Pauly 1991).

None of the plans using capitation have the strongest possible incentives. If we combine **HCPPs** and cost **HMOs**, four of the plans directly capitate their physicians, 11 capitate groups that pay salaries to physicians, and 8 capitate groups that pay physicians on a FFS basis.” Of 18 plans with complete **information** on capitation rates, only 2 include all inpatient care in the capitation rates, 11 include hospital visits, and all either include referrals or directly capitate specialists. The two plans that include all inpatient care in the capitation rate capitate the group but pay the physicians FFS, so the fees counteract the capitation. Three plans using capitation and withholds have contradictory incentives. The groups’ projections of expenses, based on utilization in the prior year, are used to set capitation rates. But they also have small withholds (5 to 20 percent) for the groups based on utilization, and so the two incentives may cancel each other out.

The withholds and bonuses offered by the plans are quite a small part of any physician’s compensation package, and so we do not expect them to **affect** utilization much.” Among the four plans that directly pay their doctors on a **FFS** basis, the average withhold is 15 percent of compensation. These withholds may have little effect on utilization when fees encourage the provision of more services. The average withhold or bonus is 6.2 percent of compensation for the six plans that both pay their groups capitated rates and report the size of the withholds and bonuses paid to groups. Two plans with salaried physicians pay small bonuses--3 percent on average--based on a wide variety of performance measures in addition to **utilization**. An apparent, but not actual, exception to this pattern is a plan that directly capitates individual physicians. It reported withholding half of total compensation in a risk pool for all of the capitated

‘@These data **are** based on the sample of plans examined in our case study analysis (Nagatoshi and Brown, 1995). That sample included two plans that were not included in the cost-effectiveness analysis, due to a missing cost report for one and limited time in operation in 1993 for the other.

“The plans could not report on the details of the withholds, bonuses, and risk pools operated by groups for their members.

individual physicians. However, the incentive to cut costs created by paying the individual physician a capitation rate may be offset by the spreading of risk across all of the physicians in the group.

In identifying the plans with the strongest financial incentives, we found that for most plans, financial incentives are likely to be weakened by multiple payers and out-of-area utilization. However, it is difficult to ascertain the extent to **which** the plan is the physician's predominant payer because each plan has only a **rough** idea about the physicians' patients who are not insured by the plan. The staff model **HMOs**, however, were more likely to report that their physicians see only (or almost only) HMO enrollees. A few plans using FFS indicated that incentives for physicians who treat Medicare beneficiaries are weaker than those for doctors treating enrollees with commercial coverage. Out-of-plan use is a special problem for cost **HMOs** and **HCPPs**, because enrollees can directly bill Medicare. Utilization control is made more difficult because neither financial incentives for the physicians nor UR are likely to affect out-of-plan utilization.

Financial incentives for physicians to constrain inpatient utilization are very limited. Furthermore, since all but one of the plans' hospitals directly bill Medicare, any physician efforts to shorten hospital stays would not have reduced costs to HCFA. Only two plans include inpatient charges in the capitation rates paid to groups, and both of these groups pay their physicians salaries. Physicians paid under FFS or salary have little or no incentive to control hospital use, and withholds are small as a proportion of total compensation.

One-fourth of the plans had reasonably good incentives for constraining utilization. Among the 48 plans (including cost **HMOs**) with complete information on physicians incentives, three directly capitate **their** doctors. Nine plans capitate their groups in ways that do not reward high prior utilization, and the groups pay salaries to physicians. Another 20 plans have salaried physicians, a neutral incentive. The remaining 16 plans provide incentives that either encouraged utilization or were contradictory.

This **classification** of financial incentives does not completely characterize the strength of each plan's incentives for physicians. Plans did not report what measures were used to rate physician performance. Nor did they report the details of how physician performance affects salaries, **capitation** rates, withholds, and bonuses. Information on incentives for controlling service provided to patients outside the Medicare plan was not obtained.

3. Comparison of Plan Types, HMO Models, Utilization Review, and Financial Incentives

Our information on UR and financial incentives comes from the 32 HCPPs and 14 cost **HMOs** that responded to all relevant questions during our interview. For the other 17 plans, we know the plan type (HCPP, HMO, employer/union, clinic) and HMO model. In assessing the relationship between plan characteristics and cost-effectiveness, we decided to use these other 17 observations. Consequently, we can compare the more easily observed plan characteristics with the detailed responses from the interviews. This comparison will reveal whether plan type and HMO model are useful ways of describing plans.

Several plans have aggressive financial incentives for physicians, aggressive inpatient **UR**, or aggressive outpatient **UR** (Table II.4). Not surprisingly, the cost **HMOs** tend to have stronger financial incentives and more thorough inpatient and outpatient **UR** than the HCPPs. Half of the 16 cost **HMOs** capitate their physician groups, all of which pay their members salaries. Only 27 percent of the HCPPs use this payment method, but another 9 percent directly capitate their physicians. Thirty-six percent of the cost **HMOs** have the most aggressive inpatient **UR**, and 14 percent have the most aggressive outpatient **UR**. In contrast, only 13 and 6 percent of HCPPs have more aggressive inpatient and outpatient **UR**, respectively. Because there were few employers/unions and clinic HCPPs in our sample, it would be **difficult** to draw strong conclusions about these plans except that both clinics pay their physicians on a salary basis and have weak **UR**.

TABLE II.4
 PLANS WITH UTILIZATION REVIEW AND PHYSICIAN FINANCIAL INCENTIVES
 THAT ARE MOST LIKELY TO CONSTRAIN COSTS

	Inpatient UR ^a			Outpatient UR ^b			Physician Financials		
	N	Percent Most Aggressive	Percent Aggressive N	N	Percent Most Aggressive	Percent Aggressive N	Plan Directly Pays Physicians	Plan D Pays Ph: Capitation	Plan D Pays Ph: Salary
Contract Type	14	36	21	14	14	21	16	0	
Cost contracts	32	13	31	33	6	18	33	9	
HCPPs									
Plan Type	36	22	36	37	8	22	39	5	
HMOs/CMPs									
Employers/unions	8	13	0	8	13	13	8	13	
Clinics	2	0	0	2	0	0	2	0	1
HMO Models									
IPA	9	33	22	9	11	22	10	20	
Group	16	6	56	17	6	18	18	0	
Staff		36	18						1

^aBased on six-point scale, with a point each for (1) preadmission authorization required, (2) concurrent review by a special plan employee, preadmission discharge planning by a special plan employee, (5) case management for high-cost or chronic conditions, and (6) profiles of physician score of six is “most aggressive,” and a score of **five** is “aggressive.” The number of plans with each score are zero score: 4 plans, one: 1 plan, four: 4 plans, five: 13 plans, six: 9 plans.

^bBased on specialist referrals and primary ambulatory care. The most aggressive plans require doctor visits to obtain referrals, and they profile physician primary ambulatory care. Aggressive plans either (1) require telephone pre authorization for referrals and profile both physicians’ specialist referral care, or (2) require doctor visits to obtain referrals and profile physicians’ specialist referrals.

At least half of the HMO plans have aggressive or most aggressive inpatient UR. For each type of HMO model, 24 to 36 percent had aggressive or most aggressive outpatient UR. Group model HMOs are somewhat less likely to have most aggressive UR.

The greatest differences among HMO models lie in the physician financial incentives. IPA models are the most likely to directly capitate physicians (20 percent), but most of the IPAs do not create strong financial incentives. The groups in just over half of the group model HMOs are capitated, and the groups pay their physicians salaries; the rest of these plans have weak financial incentives. All of the staff model HMOs have at least neutral financial incentives, because the physicians are salaried.

Table II.4 also suggests why one would not expect the cost-reimbursed plans to be generally successful at controlling costs to Medicare. Over one-third of the plans have financial incentives for physicians that are not likely to constrain Part B expenditures. Only one-third of the plans have aggressive or most aggressive UR procedures to constrain Part B expenditures. Twenty-eight plans do not have good controls on Part B expenditures through either UR or financial incentives (not shown). More than half of the plans might be expected to do quite well in constraining inpatient utilization, but there may be little opportunity for them to reduce inpatient costs to Medicare because shortening lengths of stay will not generate savings (under DRGs), and previous research (Brown et al. 1993) suggests that Medicare HMOs have no effect on hospital admissions.

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III. DATA AND SAMPLES FOR COST-EFFECTIVENESS AND BIASED SELECTION ANALYSES

Cost-effectiveness and biased selection analyses were conducted for each sample plan, for groups of plans classified by characteristics (such as model type and plan size), and for all HCPPs and all cost **HMOs** overall. Data for these analyses came from plan enrollees and a comparison group of nonenrollees who resided in each plan's service area. In this chapter, we describe the samples and data used for our analyses of cost-effectiveness and biased selection.

A. SAMPLE DESIGN

1. Analytic Time Period

The evaluation period for the cost-effectiveness analysis was calendar year 1993. This was the most recent year for which we could assemble complete Medicare claims data and retrospective adjustments to these data. Furthermore, there were no major changes to the Medicare program in 1993 that might make our estimates nonrepresentative or affect the interpretation of our results.

2. Sample Plans

The evaluation includes only cost **HMOs** and HCPPs with more than 1,000 enrollees as of December 1, 1993. We chose this size because smaller plans would be more likely to yield anomalous estimates, given the substantial variance in Medicare costs across beneficiaries. In December 1993 there were 23 cost contract plans, 18 (78 percent) of which had more than 1,000 Medicare members. Of the 62 HCPPs operating at that time, 48 (77 percent) had more than 1,000 members. Plans with fewer than 1,000 members account for a tiny proportion of total enrollment (approximately 1 percent of all enrollees in cost **HMOs** and less than 1 percent of all enrollees in HCPPs), so excluding them **from** the overall analysis has little or no effect on program wide estimates.

Our final sample included 18 cost **HMOs** and 45 **HCPPs**. Three **HCPPs** with more than 1,000 enrollees were excluded **from** this sample. One plan the United Mine Workers, was excluded at **HCFA's** request because it is being evaluated separately. The second plan lacked a cost report for 1993, and the **third** plan was in operation for only three months in 1993.

Table III. 1 shows summary characteristics of the sample plans. One-third of the 63 sample plans once had risk contracts. In 21 plans, 30 percent or more of the enrollment lies outside the plans' service areas, and in 16 plans, 15 to 30 percent of the enrollment is out-of-area. Out-of-area enrollees are likely to have their bii paid directly by Medicare rather than through the plan. Plans with a high proportion of **out-of-area** enrollees are therefore likely to have little or no control over a large portion of **utilization** and costs, operating, in effect, as traditional Medigap policies. Forty plans are nonprofit, which may affect their **administrative** costs and how aggressively they seek to control costs. Only four of the 36 surveyed **HCPPs** reported screening applicants for health risks. These four plans may have more favorable risk selection than other plans. Appendix Tables A.1 and A.2 indicate for each plan its state, model type, member months, percent of out-of-area enrollees, and whether it was formerly a risk plan.

3. Selection of Enrollee Samples

Our primary analysis of cost-effectiveness and biased selection was based on Medicare beneficiaries who were enrolled in a sample plan for at least one month in 1993 and who resided in a county from which the plan drew at least 5 percent of its enrollees in 1993. We also included counties containing less than 5 percent of total enrollment, in order of enrollment size, until the percentage of all enrollees who resided in the included counties reached 95 percent or until **the** proportion of enrollees coming from the largest of the excluded counties fell below 1.5 percent. This restriction on the enrollee sample was used to limit the area **from** which the comparison sample for each plan would be drawn, so that the geographic distribution of the two groups being compared would match.

TABLE III. 1
SAMPLE PLAN CHARACTERISTICS

Plan Characteristics	Number of Plans		
	All	cost HMOs	HCPPs
Contract Type			
cost HMO	18	18	--
HCPP	45	--	45
Type of Organization			
HMO/CMP	49	18	31
Employer/Union	11	--	11
Clinic	3	--	3
Model Type			
IPA	19	8	11
Group	26	2	24
Staff	18	8	10
For-Profit Tax Status			
For-Profit	23	5	18
Not-For-Profit	40	13	27
Enrollment			
1,000 to 4,999	37	8	29
5,000 to 9,999	14	6	8
More than 10,000	12	4	8
Prior Risk Contract			
Yes	21	7	14
No	42	11	31
Enrollment in Service Area*			
< 70 percent	21	2	19
70 - 85 percent	16	4	12
85 + percent	26	12	14

*"Service area" includes all counties **from** which the plan draws at least 10 percent of its total Medicare enrollment.

Because it is important to have complete Medicare claims data for sample members during their enrollment in a sample plan, we included only beneficiaries who were continuously enrolled in both Part A and Part B of Medicare either **from January** 1993 or at the time of plan enrollment (if after January 1993) through December 1993 or death, and for whom Medicare is the primary payer. We also excluded beneficiaries eligible for Medicare on the basis of end-stage renal disease because these atypical beneficiaries tend to have much higher costs, and including them in the sample may have skewed our results.

For sample plans with more than 10,000 enrollees, we drew a random sample of 10,000 enrollees who resided **in** a county containing at least 1.5 percent of the plan's enrollees. For plans with fewer than 10,000 enrollees, we included all eligible beneficiaries. For each sample plan, we list in Table III.2 the plan start date, number of enrollees, the enrollee sample size, and the nonenrollee sample size. As the table shows, the sample **frame** includes over 90 percent of enrollees in all but 15 plans, and over 85 percent of enrollees for all but 6 plans. A substantial numbers of enrollees in these six plans reside in distant states.

The restrictions on the sample should have little effect on our estimates of program costs, which require combining claims data with cost reports. (See Chapter V for a discussion of adjustments to net out the costs of ESRD patients from plan's cost reports.)

4. Selection of Nonenrollee Comparison Samples

We used data from beneficiaries not enrolled in a managed care plan (nonenrolled beneficiaries) to (1) **estimate** econometric models that were used to predict FFS costs of enrollee sample members and (2) compare measures of biased selection. Our objective was to select samples of nonenrolled beneficiaries who face health care market conditions that are as similar as possible to their respective enrollee sample members, except that the comparison beneficiaries are not enrolled in a managed care plan.

A random sample of nonenrollees was drawn as the comparison group for each sample plan. The comparison group was drawn from the set of nonenrolled beneficiaries who were alive as of January 1,

TABLE III.2

MEDICARE ENROLLMENTS AND SAMPLE SIZES BY PLAN

Sample Plans by Market Area	Start Date	Enrollees as of 12/1/93	Enrollee Sample Size	Nonenrollee Sample Size
Cost Contract Plans				
Boston Region				
H0749 Physicians Health Services	12/31/90	8,817	9,104	16,831
H4101 Harvard Community HP	10/30/75	4,799	4,732	8,782
New York Region				
H3 104 Aetna Health Plans of NJ	10/17/85	14,074	9,380	18,006
H3 149 HIP of New Jersey	2/3/93	10,190	9,600	17,833
H3308 Capital Area Community HP	12/31/85	1,776	1,768	4,508
H3349 Capital Area Community HP	12/1/89	4,901	4,764	8,910
H3356 Blue Cross of Rochester	12/1/92	18,829	9,753	18,076
Philadelphia Region				
H5 102 HP of Upper Ohio Valley	8/14/85	8,130	8,191	15,209
Atlanta Region				
H1010 Capital Group Health Svc	12/31/85	1,550	1,502	4,488
Chicago Region				
H1449 Rush Prudential HMO	12/31/89	5,517	5,564	10,211
H1553 The M Plan	12/1/92	3,736	3,697	6,779
H3602 Health Guard	10/1/87	1,005	1,045	4,498
Denver Region				
HO602 Rocky Mountain HMO	9/5/85	10,245	9,646	14,313
San Francisco Region				
HO502 Contra Costa HP	1/1/86	1,178	1,257	4,163
H1203 Hawaii Medical Service	5/30/86	25,540	8,969	16,481
Seattle Region				
H3801 P A C C	1/16/86	8,812	9,574	16,436
H3 85 1 HMO Oregon	12/7/92	17,518	9,788	18,056
H5002 Group Health NW	8/1/85	5,025	4,865	9,130

TABLE III.2 (continued)

Sample Plans by Market Area	Start Date	Enrollees as of 12/1/93	Enrollee Sample Size	Nonenrollee Sample Size
Health Care Prepayment Plans				
Boston Region				
H0704 Kaiser Foundation HP of CT	2/1/81	2,476	2,652	4,953
H255 1 HMO Blue	7/1/92	13,304	9,777	18,092
H2254 Kaiser Fndn HP of Mass	1/1/93	2,462	2,512	4,644
New York Region				
H3301 Kaiser Fndn HP of NY	8/1/77	1,952	2,022	4,382
H633 1 Boro Medical Center	1/1/87	7,425	8,452	15,019
H6333 NYSA-ILA Coord. Comm.	5/1/85	13,703	9,480	17,203
H6334 Union Family Med. Fund	1/1/87	2,949	2,696	4,681
Philadelphia Region				
H6091 Group Health Assoc. Inc.	2/1/83	8,228	6,890	13,483
H2150 Kaiser Fndn HP of the Mid-At1	1/1/91	5,272	4,625	8,552
H6391 Police and Fire Med. Assoc.	1/1/87	3,993	4,095	7,674
Atlanta Region				
H6102 Boro Medical Corp.	12/1/87	2,781	3,979	7,454
H6336 HIP Network of Florida	1/1/89	2,805	2,934	5,736
H1149 Kaiser Fndn HP of GA	1/1/93	2,560	2,312	4,514
H345 1 Kaiser Fndn HP of NC	1/1/90	1,321	1,279	4,576
H3452 Kaiser Fndn HP of NC	1/1/92	2,124	2,013	4,543
Chicago Region				
H1605 Heritage National HP	10/1/87	10,587	9,838	18,533
H6140 Wabash Mem Hosp	1/1/87	2,108	1,214	4,514
H6141 Sidney Hillman HC	2/1/83	1,275	1,180	4,324
H6142 Union Health Services, Inc.	2/1/83	2,152	1,994	4,325
H6144 Dreyer HMO	7/1/85	3,012	2,997	5,483
H6152 Welbom HMO	9/1/86	5,531	5,443	10,254
H6151 Amett HMO	1/1/86	5,323	5,333	9,882
H2449 HMO Minnesota/Blue Plus	1/1/90	12,863	9,898	17,914
H2450 Medica	1/1/90	37,164	9,864	17,614
H2451 Medica	1/1/91	2,369	2,525	4,680
H2453 Medcenter Health Care	1/1/92	12,738	9,859	17,408
H3601 Health Ohio, Inc.	7/1/80	5,018	4,731	8,655
H6521 Dean Hlth Plan Inc	6/1/84	9,770	9,727	18,054

TABLE III. 2 (continued)

Sample Plans by Market Area	Start Date	Enrollees as of 12/1/93	Enrollee Sample Size	Nonenrollee Sample Size
Dallas Region				
H1949	OCHSNER Health Plan	9/1/90	1,710	4,536
H4555	Scott and White HP	4/1/91	3,539	6,035
H4556	Santa Fe Employee Hosp.	1/1/92	2,443	4,499
Kansas City Region				
H1649	United HC of Iowa	1/1/91	1,572	4,543
H6161	Medical Assoc HP	5/1/83	8,003	14,410
H1703	Kaiser Fndn HP of KS City	7/1/84	1,041	4,511
H6171	AT & SF Emp. Bene. Assoc	1/1/87	8,903	9,129
H2601	Group Health Plan	2/1/82	13,554	18,243
H6361	St. Louis Labor Hlth Inst.	1/1/87	2,180	4,518
Denver Region				
H0651	Takecare of Colorado	1/1/91	4,312	7,645
H0652	Takecare of Colorado	1/1/91	2,756	4,998
H4600	FHP, Inc.	1/1/87	9,745	17,595
San Francisco Region				
H6052	Kaiser Foundation HP	1/1/87	203,188	16,788
H6053	Santa Fe Emp. Hosp. Assoc.	1/1/87	1,741	4,109
H6054	Cigna HC of Southern CA	1/1/87	4,382	8,266
H6055	Ross-Loos HP of S CA	1/1/87	4,583	8,024
H6056	Cigna Healthcare of S CA	1/1/87	2,730	4,801

SOURCE: HCFA, "Monthly Report, Medicare Prepaid Health Plans," December 1993.

NOTES: For some plans, **the** enrollee sample size is larger than the number of enrollees as of December 1, 1993 because the enrollee sample included beneficiaries who died or disenrolled before December 1, 1993.

The actual enrollee sample sizes were slightly smaller than the sample sizes discussed in this chapter for several plans because we eliminated some beneficiaries from the sample **after** the initial samples were drawn. For plans with more than 10,000 beneficiaries, we initially drew a sample of 10,000 enrollees. Some of these enrollees were subsequently eliminated **from** the sample for the reasons discussed in this chapter (for example, Medicare was not their primary payer or they were not continuously enrolled in both Medicare Parts A and B since their initial date of Medicare enrollment or January 1, 1990, whichever is later).

1993 and had Medicare Part A and Part B coverage anytime in 1993. The samples were selected to match the distribution of zip codes of enrollees so that predicted FFS costs reflect market area influences, such as number of providers, practice patterns, and demand for services. The comparison beneficiaries were also screened for three additional criteria. First, we included only beneficiaries who were not enrolled in a risk HMO, cost HMO, or HCPP plan at any time during calendar year 1993. This ensured that the comparison beneficiaries received only FFS care in 1993. Second, the comparison samples included only beneficiaries for whom Medicare was the primary provider of coverage for 1993. Thus, we excluded both beneficiaries who discontinued either Part A or Part B coverage any time during 1993 for any reason except death and beneficiaries for whom Medicare was not the primary payer. Third, we excluded beneficiaries who were eligible for Medicare because of end-stage renal disease, just as we excluded enrollees with end-stage renal disease.

For each sample plan with fewer than 2,500 enrollees, we drew a comparison group sample of 5,000 nonenrollees. For sample plans with 2,500 or more enrollees, we drew a comparison group sample that was twice the size of the enrollee sample.

5. Precision of Estimates

These sample sizes yield fairly precise estimates of biased selection and differences between enrollees and nonenrollees on Part A. For example, a simple comparison of the mean mortality rates for enrollees in a plan with 3,000 members and the nonenrollee comparison sample for the plan would be sufficient to detect a difference of 1.4 percentage points at the .05 significance level (two-tailed test) with 80 percent power (assuming a mortality rate of 5 percent for the comparison group). For large plans with samples of 10,000 enrollees (and 20,000 nonenrollees), we can detect differences of 0.8 percentage points. For Part A costs, we have 80 percent power to detect effects of 16 percent of the comparison group mean for plans with 3,000 enrollees and 9 percent of the mean for plans with 10,000 enrollees (assuming a coefficient of variation of 2.5 for Part A Medicare costs). Modest levels of biased selection or small effects on Part A

costs for some plans may not be detected with our samples for some plans. However, we can be confident that moderate and **sizeable** degrees of biased selection and program effects will be captured by our statistical tests, especially for the larger plans.

6. Designation of Plan Service Areas

The average risk-based payment that a plan would receive if it holds a risk contract instead of a cost contract depends on the geographic location (county) of its enrollees and the distribution of its enrollees within each county into each AAPCC rate cell.⁷ To compute estimated risk-based payments for each plan, we designated a “service area” for the plan made up of the smallest number of counties **from** which (1) at **least** 10 percent of plan enrollees resided in 1993 or (2) in which there were at least 200 enrollees. Each **county** in each plan’s designated service area was then given a weight based on its enrollment level, and the weights were used to construct projected risk payments (see Chapter VI). The counties in the service area of each plan are listed in Appendix Table A.3. This table also indicates for each plan the percentage of all plan enrollees residing in the plan’s designated service area, and the percentage of all plan enrollees residing in the set of counties used to draw the beneficiary samples.

For most plans, the service area used to estimate risk-based payments contained fewer counties than the geographic area used to draw the enrollee samples (Table A.3). In general, for plans whose enrollees are highly concentrated in one or two counties, the number of counties in the service area used to compute risk-based payments is equal to or very close to the number of counties **from** which the beneficiary sample was drawn. At the other extreme, some plans enrolled 10 percent or more of its members from five or more counties. For these plans, our samples were drawn **from** many more counties than those in our designated service areas.

⁷The AAPCC rate cells are based on beneficiaries’ age, gender, institutional status, and Medicaid eligibility.

For over **half the** plans, the service area used to compute estimated risk-based payments included at least 80 percent of all plan enrollees. Our estimates of risk-based payments would probably not change much if we included additional counties in the computation because each additional county would be assigned a relatively low weight.

B. DATA

Data for drawing **the** beneficiary samples and conducting the analyses of biased selection and **cost-effectiveness** came **from** Medicare enrollment and demographic data, Medicare cost reports filed by plans, claims data, and Medicare risk-based payment data.

1. Medicare Enrollment and Demographic Data

HCFA's group health plan (GHP) masterfile, denominator file, and enrollment database provided the **frame** for drawing the beneficiary enrollee and nonenrollee samples. The GHP **masterfile** includes a history of the last six enrollment spells for every beneficiary ever enrolled in any Medicare plan, identifying the plan and dates of enrollment and disenrollment. The denominator file and enrollment database contain comprehensive information on Medicare beneficiary eligibility, demographics, and mortality. The enrollment database was used to **identify** beneficiaries for whom Medicare was the primary payer.

2. Medicare Use and Cost Data

The national claims history (**NCH**) file was the source of 1993 Medicare use and cost data for all Part A services for enrollee sample members (except for two cost **HMOs**) and for all Medicare-covered services they received from providers outside their plan's **network**.² The NCH files were also the source

²All but two cost **HMOs** arranged for the HCFA fiscal intermediary to pay providers for Part A services used by plan enrollees. All Part A services used by HCPP enrollees are paid for by the HCFA fiscal intermediaries.

of all use and cost data for nonenrollee sample members. The NCH files for 1992 provided information on hospital admissions for the year proceeding our analysis period.

Data on the amount paid by HCFA to plans for services were obtained from the plans' annual cost reports for 1993. These reports include information on enrollment, plan costs by type of expense, and plan average cost per member per month. The reports are submitted to HCFA's Office of Managed Care by each cost HMO and HCPP. HCFA audits the cost reports of medium and small plans every three to four years, and it audits the reports of large plans every year. Often, a cost report is not audited until several years **after** it has been received by HCFA. We used the most recent cost reports that were available as of April 1995. At that time, not all audits for 1993 were complete. However, on average over the past several years, the result of cost report audits is that allowed costs are about 5 percent lower than the amount recorded on the plans' unaudited cost reports. Since some Part B costs (such as those for services delivered by providers who are not part of the plan's network) are reflected in claims data rather than in the cost reports, our estimates of Part B costs for enrollees in cost and **HCPPs** may be overstated by about 3 or 4 percent. Estimates for Part A costs are not affected because (with the exception of 2 plans) Part A costs are not paid for by the plan.

3. Risk-Based Payment Data

To estimate what enrollee sample member costs would have been under Medicare risk contracts, we collected data on 1993 **AAPCC** payment rates, and we estimated for each plan the proportion of enrollees in each AAPCC rate cell. The AAPCC payment rate files for 1993 provided the risk-based payment rates for each county in each plans' service area. We could not directly determine the distribution of sample plan enrollees in each AAPCC rate cell because there are no HCFA data on which cost HMO or HCPP enrollees reside in nursing homes (institutions). We estimated the distributions of enrollees across the AAPCC rate cells using data on the probability of being in an institution, conditional on Medicaid coverage, **$P(i|m)$** . Data **from** the GHP masterfile for 1991 and 1993, and the Medicare stacked

demographics file for 1993 were used to develop a range of estimates of $P(i|m)$. We used the 1991 GHP masterfile to calculate $P(i|m)$ for enrollees in former risk plans during the last year in which the plans held a risk contract (1988 to 1992).³ We used the 1993 GHP masterfile to calculate $P(i|m)$ for enrollees in 1993 risk plans serving the same counties as the sample plans. The 1993 stacked demographics file was used to estimate $P(i|m)$ for nonenrollees in the counties served by the sample plans. See Chapter IV for a detailed description of these calculations.

³We attempted to use the GHP master-files for 1988-1992 to compute the values of $P(i|m)$ for the last year (between 1988 and 1992) that the plan had its risk contract, but there were serious problems with missing variable values or missing observations for the GHP master-files for 1988-1990. Therefore, we used the GHP master-file for 1991 and 1992. This is not likely to affect our estimates much because $P(i|m)$ is probably quite stable from year to year.

IV. BIASED SELECTION

The potential of the Medicare program to realize savings from cost **HMOs** and **HCPPs** is affected by biased selection. A health plan experiences favorable selection when those who enroll are on average healthier than other consumers in the eligible population. A health plan experiences adverse selection when those who enroll are on average less healthy than the eligible population. **HMOs** are most effective at conserving resources for patients with the greatest needs (Hill et al. 1992). Therefore, if cost **HMOs** and **HCPPs** enroll less healthy individuals, there is greater potential for cost savings to Medicare. To study biased selection, we compared indicators of enrollee and nonenrollee health status.

Knowledge of the extent of biased selection is also important for obtaining accurate estimates of cost savings or cost increases to HCFA. If plans experience favorable selection, then predictions that are not based on health status measures **will** overstate what FFS expenditures would have been and overestimate savings from the program.

The degree of biased selection also **affects** the potential for savings if plans were to change to **TEFRA** risk contracts, but it does not reveal whether costs to HCFA would increase or decrease under such a change. **TEFRA** risk payments are based on demographic characteristics correlated with medical expenditures (**AAPCC** risk factors), but risk payments are not based on detailed health status measures that directly determine medical expenditures. Brown et al. (1993) reported that costs to HCFA increased under risk contracting because the **HMOs** experienced favorable selection, controlling for **AAPCC** risk factors. Payments based on **AAPCC** demographic characteristics were greater than what the FFS costs of treating the enrollees would have been. If cost **HMOs** and **HCPPs** have favorable selection controlling for demographic characteristics as well, no such overpayment should result. Thus, the cost **HMOs** could lead to savings relative to what government costs would be under risk contracting. On the other hand,

plans converting **from** risk to cost contracts do so in the expectation of receiving greater revenues, which suggests that government costs for these plans are likely to increase.

Cost **HMOs** and HCPPs may experience less favorable selection than plans in the risk program for several reasons. First, enrollees in cost **HMOs** and HCPPs retain their Medicare coverage, unlike risk plan enrollees. Thus, beneficiaries with health problems who are concerned about their access to particular physicians may be less reluctant to join a cost contract plan than a risk plan. Second, because the plans are reimbursed for costs rather than being paid prospectively, they may have less incentive to promote the enrollment of healthier people. Third, the employee/union plans enroll retirees from a particular employer or **union**, and these typically blue collar retirees may need more health care on average than the general Medicare population. Fourth, plans converting from risk to cost contracts and HCPPs tend to have less favorable selection than other risk plans (McGee and Brown 1992). On the other hand, HCPPs may have **more** favorable selection than risk plans because HCPPs are allowed to screen prospective enrollees (as they screen commercial members). However, only four plans actually do screen enrollees.

A. METHODOLOGY

We used two health status measures to estimate the degree of biased selection--enrollee-nonenrollee **differences** in (1) adjusted 1993 mortality rates and (2) 1993 hospitalization rates for nondiscretionary high cost conditions.⁷ These two measure are not likely to be influenced by managed care organizations or FFS providers, and both are strongly linked with high medical expenditures. Thus, they are reasonable measures of risk selection. Among nonenrollees, beneficiaries who died in 1993 and beneficiaries who had the health conditions we examined account for 66 percent of Medicare payments but only 12.3 percent

⁷Although differences in mortality rates could reflect differences in the quality of care between plans and FFS providers and in selection, most evidence suggests that **HMOs** and FFS providers deliver care of comparable quality, and there is no evidence that suggests that **HMOs** affect mortality rates, so we expect any differences in mortality to be due to biased selection.

of beneficiaries. On average, these beneficiaries had expenditures 13.5 times those of other beneficiaries. They **account** for 82 percent of the nonenrollees with expenditures above \$2,000 per member month and 59 percent of nonenrollees costing from \$1,000 to \$2,000 per member month. These beneficiaries with high expenditures are critical to the study of biased selection.

We considered and rejected two other measures of the degree of biased selection: pre-enrollment expenditures in traditional FFS Medicare and average Medicare DRG weights. Enrollees' pre-enrollment expenditures in traditional FFS Medicare are not a reliable indicator of costs in subsequent years because of regression toward the mean; that is, a group of people with very high costs in one year tends to have average costs closer to the overall population average in subsequent years. In addition, only 12 percent of 1993 plan enrollees were enrolled in traditional FFS Medicare in 1992 or 1991. Going back further in time would not yield very useful indicators of biased selection because expenditures three years ago have very little predictive power for current expenditures. By using death rates and the probability of admission for a diagnosis associated with high future costs, we have at least some data on **all** enrollees concerning their *current* health status. Brown (1988) and Hill and Brown (1990) found that mortality rate comparisons yield overall conclusions about biased selection that are similar to those from prior use comparisons. DRG weights do not allow us to separate diagnoses for which hospital admission is discretionary from those for which it is not. **Thus**, DRG weights are not an unbiased measure of health status, because **HMOs** may reduce hospital admissions for some diagnoses.

1. Mortality

We compared 1993 mortality rates of plan enrollees to those of the local nonenrollee comparison group. The rates were adjusted for differences between the groups on available demographic **characteristics**. For each plan, we estimated a **logit** model for the probability of death in 1993 using data from the samples of enrollees and nonenrollees. The model controls for observable demographic

characteristics: age, sex, race, welfare reciprocity, and whether the beneficiary was originally entitled to Medicare because of a disability. These control variables include two characteristics not included in determining AAPCC payments to risk plans in order to provide some indication of the importance of including health status measures as well as demographic characteristics in predicting FFS expenditures. We measured differences between enrollees and nonenrollees by including in the model a binary variable indicating whether the beneficiary is an enrollee or nonenrollee. The coefficient on this binary variable indicates whether there is a difference between enrollees and nonenrollees in the probability of death that cannot be accounted for by differences in the control variables.

We estimated **logit** regressions using weights for each beneficiary that equaled the number of months the beneficiary was in the sample. The nonenrollee sample, described in Chapter III, Section A.4, excludes any beneficiaries enrolling in managed care at any time in 1993. Some of the enrollees, however, disenrolled from their cost HMO or HCPP sometime during calendar year 1993 (and others joined after the year began). To control for the shorter periods for which enrollees are at risk of dying, we weighted observations by the number of months each beneficiary was in the sample, but we gave full weight (12 months) to beneficiaries who died.

For each plan, the adjusted difference in average mortality was calculated using the estimated coefficients of the regressions and the average characteristics of the pooled sample of enrollees and nonenrollees. The adjusted difference was based on the coefficient of the enrollee/nonenrollee binary variable. For a beneficiary with average demographic characteristics, the coefficients of the model were used to predict the probability of dying (1) if enrolled in traditional FFS Medicare (setting the enrollee binary variable equal to zero) and (2) if enrolled in the cost-reimbursed plan (setting the enrollee binary variable equal to one). The difference in these predicted probabilities is the adjusted difference in average mortality.

2. DCG Hospital Admissions

We also compared enrollees and nonenrollees on 1993 hospitalization rates for certain high-cost diseases adjusting for demographic differences between the groups. Diagnostic cost groups (DCGs) defined by Ellis and Ash (1995/1996) were used to identify beneficiaries admitted to a hospital for a condition (1) for which there is relatively little discretion regarding the need for hospitalization and (2) which is related to higher-than-average costs in the year following the hospitalization. There are eight DCG categories (DCG0 through DCG7) defined according to the ICD-9 diagnosis codes from inpatient hospital admissions. DCG0 includes beneficiaries who were not hospitalized or were admitted for diagnoses that were not associated with higher than average future costs or for which admission was considered somewhat discretionary. A higher DCG number indicates higher expected future costs for people hospitalized with those diagnoses.*

Following Ellis and Ash, only primary diagnoses were used in **classifying** patients into DCG categories, and only **hospital** stays lasting 3 days or longer were counted. Each beneficiary was classified into the highest-cost DCG cell for which they qualified.

Our analysis examines the probability of having a hospital stay classified in DCG1 through DCG7 because such stays are associated with average future costs that are substantially higher than average for Medicare beneficiaries. We used ICD-9 diagnosis code data from the Medicare national claims history file for 1993 for each sample member to **determine** into which DCG category they fell.

Approximately 7.2 percent of the elderly beneficiaries in our nonenrollee sample fell into DCG1 through DCG7 in 1992, slightly less than the 7.8 percent **found** by Ellis and Ash.³ This modest difference

²See Appendix D for a complete list of the diagnoses for each DCG.

³The nonenrollee percentage with DCG hospital admissions was calculated over the entire sample of nonenrollees, weighted by months as a beneficiary.

may be due to differences between the areas in which cost **HMOs** and **HCPPs** operate and the rest of the **country**, or to differences over the years examined.

For each plan, we estimated a **logit** model for the probability of being hospitalized in 1993 for a diagnosis falling into **DCG1** through **DCG7**. We include both aged and disabled beneficiaries since it is likely that diagnoses associated with high future costs for elderly beneficiaries are also associated with high future costs for disabled beneficiaries **under** age 65. These models were essentially identical to those used to estimate enrollee-non-enrollee differences in mortality rates. The coefficient on the binary variable indicating whether the beneficiary was an enrollee or a non-enrollee provides a test of whether there is a difference between enrollees and non-enrollees in the probability of having one or more of these nondiscretionary, high-cost hospital stays that cannot be explained by differences between the two groups on demographic characteristics,

For each plan, we calculated the adjusted difference in the average probability of nondiscretionary high-cost **hospitalization** using the estimated coefficients of the regressions and the average characteristics of the pooled sample of enrollees and non-enrollees. For each plan, we used the coefficients of the model to predict the probability of being admitted for a DCG diagnosis (1) if enrolled in traditional FFS Medicare and (2) if enrolled in the plan. The difference in these predicted probabilities is the adjusted difference in the average probability of nondiscretionary high-cost hospitalization.

B. EVIDENCE OF FAVORABLE SELECTION

Most of the plans appeared to experience favorable selection as measured by demographic characteristics, differences in mortality rates, and differences in the probability of nondiscretionary high cost hospitalization.

1. Differences in Demographic Characteristics Correlated with Medical Expenditures

Enrollees were younger and less likely to be on Medicaid than nonenrollees and therefore are likely to increase lower Medicare costs (Table IV.1). Medicaid recipients tend to be less healthy than other beneficiaries and many are in long-term care facilities. On average across plans, only 3.7 percent of cost HMO enrollees received Medicaid, versus 8.9 percent of nonenrollees. The difference for HCPPs were even greater: 3.3 percent of HCPP enrollees received Medicaid, versus 9.6 percent of nonenrollees. Only three plans had a greater proportion of enrollees who received Medicaid than nonenrollees. In one of these plans, Cigna of Southern California (**H6056**), an extremely large proportion (82 percent) of its enrollees **received** Medicaid. Cigna also operates two other plans in Los Angeles County (**H6054** and **H6055**) and may have geographically segmented the market. This plan declined to schedule a site visit, so the situation is not well **understood**.⁴

Fewer enrollees than nonenrollees were originally eligible for Medicare because of disability. Disability is associated with greater medical expenditures. All but three plans had lower proportions of enrollees than nonenrollees originally eligible because of disability. One of the three, Cigna of Southern California (**H6056**), is an extreme outlier: 46.2 percent of enrollees versus 22.8 percent of nonenrollees were originally eligible for Medicare because of disability. This is the same plan that has such a large proportion of Medicaid enrollees. Not surprisingly, the focus on Medicaid eligibles yields a high proportion of disabled individuals as well.

Both the cost **HMOs** and the HCPPs tend to have relatively young enrollees. On average, across cost **HMOs**, 55 percent of enrollees were between the ages of 65 and 74, versus 49 percent for nonenrollees; 19 percent of enrollees were age 80 or older, versus 21 percent of nonenrollees. The average differences

⁴**Recall** that the nonenrollee comparison group was drawn on the basis of the distribution of enrollees' zip codes, so the nonenrollee sample and its characteristics may vary considerably for plans operating in the same county. In this case, they clearly do (31 percent of nonenrollees in the comparison group for plan 6056, versus 16 and 19 percent for the other two Cigna plans in Los Angeles county).

TABLE I-V. 1
 DISTRIBUTION OF ENROLLED AND NONENROLLED BENEFICIARIES
 BY DEMOGRAPHIC CHARACTERISTICS

Plan Number	Percent Receiving Medicaid		Percent Originally Eligible Due to Disability		Percent Age 65 to 74		Percent Age 80 or Older	
	Enrollees	Nonenrollees	Enrollees	Nonenrollees	Enrollees	Nonenrollees	Enrollees	Nonenrollees
All Cost HMOs								
<i>Average</i>	3.5	8.8	9.1	14.9	54.7	49.4	18.7	20.7
IPA Model								
<i>Average</i>	3.1	8.1	7.8	14.0	51.4	49.9	21.7	20.6
HO602	11.6	7.6	11.8	16.0	49.1	52.1	23.6	17.3
HO749	0.5	5.7	4.3	10.6	64.1	47.3	12.3	23.3
H1203	2.3	9.7	3.7	11.2	49.1	55.2	24.9	17.2
H3104	1.5	7.3	9.2	13.3	56.5	51.6	16.3	19.7
H3356	1.0	6.7	7.4	14.3	55.6	47.2	18.2	22.9
H3801	3.6	11.0	7.9	16.6	35.6	46.6	36.4	22.6
H3851	1.2	9.5	7.8	14.7	50.3	48.5	20.2	22.7
H5102	3.1	7.4	10.2	15.7	50.9	50.9	22.2	18.7
Group Model								
<i>Average</i>	1.4	6.9	8.9	14.2	53.9	51.1	19.3	19.5
H1553	1.5	7.3	10.9	15.6	48.0	50.2	24.0	19.6
H3149	1.3	6.6	7.0	12.7	59.9	52.1	14.5	19.3

TABLE IV. 1 (continued)

Plan Number	Percent Receiving Medicaid		Percent Originally Eligible Due to Disability		Percent Age 65 to 74		Percent Age 80 or Older	
	Enrollees	Nonenrollees	Enrollees	Nonenrollees	Enrollees	Nonenrollees	Enrollees	Nonenrollees
<i>Staff Model</i>								
<i>Average</i>	4.5	9.9	10.4	15.9	58.2	48.5	15.6	21.2
HO502	24.7	20.9	23.9	23.4	50.3	44.9	18.1	20.7
H1010	1.4	14.1	6.6	15.9	69.1	48.7	9.3	21.4
H1449	0.9	5.4	7.3	12.7	46.6	49.2	23.4	22.0
H3308	0.7	8.2	6.6	15.5	65.7	48.0	12.5	21.6
H3349	0.7	6.2	7.7	13.0	64.2	48.9	12.5	22.6
H3602	4.1	6.9	14.4	15.7	54.7	52.8	18.0	17.0
H4101	0.8	8.3	6.6	14.9	59.6	47.0	14.1	23.6
H5002	2.3	9.2	9.9	16.4	55.6	48.5	17.2	20.9
All HCPP Plans								
<i>Average</i>	3.2	9.5	8.6	14.7	54.0	48.8	19.5	21.5
HMOs								
<i>Average</i>	4.0	9.6	8.4	14.4	55.3	49.1	18.7	21.4
HO651	1.2	14.7	13.4	21.7	57.0	42.9	15.6	21.3
HO652	1.4	8.3	6.0	15.0	54.1	52.7	19.7	17.3
HO704	0.8	6.1	4.4	11.3	64.7	49.7	9.7	22.9
H1149	1.1	8.0	8.2	15.1	60.3	51.8	14.4	18.9
H1649	3.6	9.2	7.9	13.5	55.1	49.5	20.1	22.0
H1703	1.1	6.0	13.0	14.0	70.1	50.4	8.0	20.4
H1949	0.4	7.0	9.1	16.2	69.9	52.5	11.6	17.8
H2150	0.7	6.3	4.4	10.4	75.1	53.1	6.2	20.6
H2251	1.3	9.3	6.2	13.6	56.6	47.1	17.1	22.6
H2254	1.9	9.5	4.7	13.2	61.5	45.1	15.3	25.0
H2449	1.0	8.7	4.4	15.0	33.1	51.0	35.3	20.3

TABLE IV. 1 (continued)

Plan Number	Percent Receiving Medicaid		Percent Originally Eligible Due to Disability		Percent Age 65 to 74		Percent Age 80 or Older	
	Enrollees	Nonenrollees	Enrollees	Nonenrollees	Enrollees	Nonenrollees	Enrollees	Nonenrollees
H2450	0.8	9.0	4.3	14.7	44.9	49.0	31.7	21.8
H2451	1.6	6.2	7.9	13.5	35.2	53.4	32.3	17.5
H2453	0.4	7.9	3.8	13.8	49.3	49.8	25.3	22.0
H2601	0.7	4.7	9.7	14.3	56.9	49.0	16.8	22.3
H3301	0.6	4.7	4.9	11.7	60.0	48.1	15.2	24.2
H3451	2.3	8.2	9.4	13.5	58.2	52.6	15.7	19.8
H3452	1.1	10.3	11.4	16.5	68.0	49.3	8.9	20.2
H3601	2.5	8.8	9.3	17.2	52.8	48.1	20.5	20.3
H4555	0.9	10.8	5.1	13.5	58.1	47.0	16.5	23.5
H4600	3.8	7.1	12.1	13.1	61.7	50.5	13.7	20.0
H6052	2.3	15.7	7.4	15.8	61.2	47.1	14.9	22.9
H6054	1.4	16.3	3.9	14.5	49.8	47.4	26.1	22.5
H6055	0.6	19.3	2.6	16.1	56.8	47.0	20.5	22.9
H6056	82.2	31.1	46.2	22.8	33.9	44.6	16.7	20.7
H609 1	0.8	8.7	3.6	11.0	56.3	50.6	18.8	21.4
H6144	0.8	6.0	5.8	14.1	47.9	50.5	26.0	20.8
H6151	2.0	6.6	8.6	12.9	51.3	50.1	22.0	21.4
H6152	2.0	9.3	10.5	15.3	51.6	48.6	21.1	21.4
H6336	0.3	4.1	9.3	9.3	60.9	45.7	14.1	25.8
H6521	1.8	9.0	3.8	13.5	43.2	47.6	29.9	23.1
Union Plans Average"	0.9	9.8	9.0	15.7	51.3	47.5	20.6	22.1
H1605	0.9	8.3	8.8	14.2	60.6	47.7	14.1	22.5
H4556	0.0	10.4	8.4	15.2	59.6	45.3	13.5	23.5
H6053	0.3	23.0	8.0	20.8	46.9	45.9	19.6	20.5
H6140	0.2	6.7	11.3	14.0	60.7	49.0	12.2	22.0
H6141	2.1	7.9	7.6	14.8	30.4	48.1	42.0	21.0

TABLE IV. 1 (continued)

Plan Number	Percent Receiving Medicaid		Percent Originally Eligible Due to Disability		Percent Age 65 to 74		Percent Age 80 or Older	
	Enrollees	Nonenrollees	Enrollees	Nonenrollees	Enrollees	Nonenrollees	Enrollees	Nonenrollees
H6142	2.1	8.8	7	17	52	49	20.90	20.30
H6171	0.2	9.3	5.4	15.0	59.6	47.7	14.9	23.0
H6261	0.4	5.8	11.0	15.7	61.1	48.3	12.6	22.3
H6333	1.2	8.7	19.0	15.7	47.2	47.9	23.1	22.0
H6334	1.9	12.4	5.8	16.6	34.5	45.2	34.4	24.4
H6391	1.1	6.2	6.6	13.5	51.6	48.7	19.6	21.8
Clinics								
<i>Average</i>	3.8	8.4	8.5	14.2	50.2	50.6	22.9	20.9
H6102	3.9	5.8	10.0	12.6	55.8	56.0	18.1	17.8
H6161	3.9	9.9	7.7	13.9	48.5	48.2	25.0	22.5
H633 1	3.7	9.4	7.7	15.9	46.3	47.4	25.8	22.4

SOURCE: Medicare Denominator File.

“For enrollees, percentages are weighted by months enrolled in the plan in 1993; for nonenrollees, months in Medicare is the weight.

were nearly the same for HCPPs. For one-third of both cost **HMOs** and HCPPs, however, enrollees tend to be *older* than nonenrollees. The enrollees in all of the clinic HCPPs were older than the nonenrollee comparison groups. Enrollees in two of the union plans, Sidney **Hillman** and Union Family, were much older.

Table IV.2 shows the averages across plans for enrollees and nonenrollees for the demographic characteristics used in the **logit** models of mortality rates and DCG admissions. The greater detail in the age categories shows that **staff model** cost **HMOs** tend to have a lower percentage of enrollees age 85 and over, the most expensive age group. Cost **HMOs** and HCPPs also had lower percentages of enrollees under age 65, who are eligible because of disability. For each of the types of plans in the table, the percentage of enrollees eligible because of disability is roughly half the percentage among nonenrollees. **Enrollees** in union and employer plans were more likely than enrollees in other plans to be men. Compared with the nonenrollee sample, all categories of plans, except for clinic HCPPs, had lower percentages of nonwhite Medicare beneficiaries, but nine plans had greater percentages of nonwhite Medicare beneficiaries. Cigna of Southern California (H6056) was also an outlier in terms of its large nonwhite enrollment (52.5 percent).

By some demographic measures, enrollees in cost plans are likely to be less healthy than enrollees in risk plans. Although enrollees in cost plans tend to be younger than beneficiaries in the comparison group, they are older than enrollees in risk **HMOs**. Hill and Brown (1990) **found** larger age differences between enrollees in **TEFRA** risk plans and nonenrollees. The difference in Medicaid reciprocity rates between enrollees in the cost- reimbursed plans and the nonenrollee comparison group is similar to the difference **between** enrollees in risk plans and local nonenrollees. Although enrollees in risk plans were more likely to be male, this was not the case for cost **HMOs** and clinic HCPPs.

TABLE IV.2
 DEMOGRAPHIC CHARACTERISTICS OF ENROLLED AND NONENROLLED BENEFICIARIES

	Percent Receiving Medicaid	Percent Originally Eligible Due to Disability	Percent Aged					Percent Male	Percent Nonwhite	
			<65	65-69	70-74	75-79	80-84			85+
All Cost HMOs										
Enrollees	3.5	9.1	5.7	26.6	28.2	20.9	11.7	7.1	39.2	9.3
Nonenrollees	8.8	14.9	12.1	26.3	23.2	17.8	11.3	9.4	41.9	11.0
IPA Model										
Enrollees	3.1	7.8	5.4	25.0	26.5	21.5	12.9	8.8	38.4	12.3
Nonenrollees	8.1	14.0	11.6	26.5	23.4	17.9	11.3	9.3	43.0	13.0
Group Model										
Enrollees	1.4	8.9	4.9	22.9	31.0	21.9	12.5	6.7	38.9	7.6
Nonenrollees	6.9	14.2	11.7	27.6	23.5	17.7	10.7	8.8	40.9	10.4
Staff Model										
Enrollees	4.5	10.4	6.1	29.1	29.2	20.0	10.2	5.4	39.9	6.7
Nonenrollees	9.9	15.9	12.6	25.7	22.8	17.7	11.4	9.8	41.0	9.1
All HCPP Plans										
Enrollees	3.2	8.6	5.8	26.6	27.4	20.7	11.7	7.8	43.6	9.9
Nonenrollees	9.5	14.7	12.2	26.0	22.8	17.4	11.6	9.9	40.6	11.5
HMOs										
Enrollees	4.0	8.4	6.2	27.7	27.6	19.7	11.5	7.2	41.2	8.1
Nonenrollees	9.6	14.4	12.2	26.3	22.8	17.3	11.5	9.9	40.6	10.2
Union Plans										
Enrollees	0.9	9.0	5.3	24.9	26.4	22.8	11.6	9.0	51.7	14.7
Nonenrollees	9.8	15.7	12.3	24.6	22.9	18.0	12.0	10.1	40.2	15.6
Clinics										
Enrollees	3.8	8.5	3.8	20.6	29.6	23.0	14.2	8.8	39.1	10.5
Nonenrollees	8.4	14.2	11.9	27.8	22.8	16.6	11.3	9.6	41.5	10.0

SOURCE: Medicare Denominator File.

NOTE: Unweighted averages across plans, with number of plans as the denominator.

Age, Medicaid reciprocity, and disability indicate that, to varying degrees, enrollees in cost **HMOs** and HCPPs are likely to be healthier than nonenrollees in the same area. HCFA takes these factors into account in setting risk payments. In the next section, we discuss measures of health status that do not **affect** risk payments.

2. Biased Selection Measures That Control for Demographic Differences

Both the cost **HMOs** and the HCPPs had favorable selection, on average, when measured by the adjusted difference in average mortality rate and the adjusted average probability of nondiscretionary **high-cost** hospitalizations (**Table IV.3**). These adjusted differences are due to the highly statistically significant coefficients on enrollment status estimated from our **logit** models. In these models, Medicaid reciprocity, original eligibility because of disability, and older age categories are also significantly associated with higher mortality rates and higher admission rates for nondiscretionary high-cost hospitalizations.

On average across plans, the mortality rate was 0.041 for cost HMO enrollees and 0.049 for nonenrollees. Demographic characteristics account for some of the difference, but results from our **logit** model indicate that even when demographic differences were controlled for, the average **enrollee-non-enrollee** difference in mortality rates was -0.005, or 10 percent lower for cost HMO enrollees. For HCPPs, the average difference when demographic characteristics were controlled for was -0.009, 17 percent lower than the nonenrollee rate. Enrollees in 12 of the 18 cost **HMOs** and 34 of the 45 HCPPs had **significantly** lower mortality rates than nonenrollees (after adjustment). In only two cost **HMOs** and four HCPPs, enrollees had significantly higher mortality rates. The estimated difference ranged from a low of -3.9 percentage points to a high of 1.7 points. The estimated difference was twice as large on average for unions and clinics as for **HMOs**. The three clinics had especially high mortality rates, about twice the overall average, for both enrollees and the comparison group of nonenrollees.

TABLE IV.3

BIASED SELECTION MEASURES USING EVALUATION YEAR (1993) DATA

Plan	Mortality Rates			DCG Admission Rates		
	Enrollees	Nonenrollees	Difference Controlling for Demographic Characteristics ^a	Enrollees	Nonenrollees	Difference Controlling for Demographic Characteristics ^b
AU Cost HMOs						
<i>Average</i> ^c	0.041	0.049	(0.005)	0.079	0.089	(0.005)
IPA Model						
<i>Average</i> ^c	0.042	0.049	(0.006)	0.080	0.082	0.001
H3851	0.027	0.056	(0.023)***	0.053	0.070	(0.010)***
H3356	0.036	0.051	(0.010)***	0.077	0.087	(0.004)***
H0749	0.035	0.053	(0.007)***	0.078	0.084	0.007***
H5102	0.048	0.052	(0.005)***	0.116	0.115	0.001
H3104	0.037	0.045	(0.005)***	0.098	0.103	0.002
H1203	0.037	0.037	(0.003)***	0.057	0.061	(0.002)*
H0602	0.048	0.039	0.001	0.077	0.063	0.012***
H3801	0.071	0.055	0.005***	0.083	0.075	0.004***
Group Model						
<i>Average</i> ^c	0.042	0.051	(0.006)	0.078	0.093	(0.011)
H3149	0.037	0.049	(0.006)***	0.075	0.096	(0.014)***
H1553	0.047	0.052	(0.006)***	0.081	0.090	(0.008)***
Staff Model						
<i>Average</i> ^c	0.039	0.049	(0.004)	0.079	0.095	(0.009)
H1449	0.041	0.056	(0.017)***	0.090	0.111	(0.020)***
H3308	0.026	0.047	(0.014)***	0.077	0.091	(0.000)
H4101	0.030	0.050	(0.013)***	0.068	0.100	(0.023)***
H3349	0.033	0.047	(0.003)***	0.072	0.087	(0.005)***
H1010	0.031	0.050	(0.001)	0.060	0.085	(0.008)***
H0502	0.048	0.050	(0.001)	0.092	0.089	0.000
H5002	0.040	0.047	(0.001)	0.081	0.081	0.007***
H3602	0.063	0.044	0.017***	0.091	0.113	(0.026)***
All HCPP Plans						
<i>Average</i> ^c	0.041	0.053	(0.009)	0.078	0.090	(0.007)
HMOs						
<i>Average</i> ^c	0.038	0.048	(0.007)	0.071	0.087	(0.010)
H1949	0.019	0.052	(0.026)***	0.093	0.100	0.004
H4555	0.022	0.048	(0.021)***	0.062	0.082	(0.010)***
H3452	0.025	0.055	(0.017)***	0.054	0.092	(0.021)***
H6091	0.031	0.051	(0.015)***	0.070	0.089	(0.009)***
H2453	0.038	0.049	(0.012)***	0.071	0.079	(0.008)***
H2449	0.045	0.048	(0.012)***	0.091	0.080	0.006***
H6056	0.040	0.051	(0.011)***	0.066	0.106	(0.060)***
H3451	0.027	0.043	(0.011)***	0.056	0.084	(0.025)***
H2251	0.034	0.050	(0.011)***	0.077	0.092	(0.008)***
H6336	0.030	0.051	(0.010)***	0.064	0.092	(0.019)***
H6521	0.046	0.050	(0.010)***	0.088	0.079	0.004***
H1703	0.033	0.057	(0.008)***	0.051	0.103	(0.040)***
H2450	0.048	0.049	(0.008)***	0.083	0.082	0.001
H6052	0.037	0.052	(0.007)***	0.064	0.085	(0.011)***
H4600	0.031	0.046	(0.007)***	0.007	0.008	0.000

TABLE IV.3 (continued)

Plan	Mortality Rates			DCG Admission Rates		
	Enrollees	Nonenrollees	Difference Controlling for Demographic Characteristics ^a	Enrollees	Nonenrollees	Difference Controlling for Demographic Characteristics ^b
H1149	0.037	0.049	(0.005)***	0.072	0.098	(0.015)***
H6054	0.047	0.052	(0.004)***	0.080	0.095	(0.003)**
H0652	0.030	0.034	(0.004)***	0.056	0.081	(0.020)***
H2601	0.041	0.050	(0.004)***	0.085	0.109	(0.015)***
H2150	0.026	0.047	(0.004)***	0.063	0.086	(0.004)**
H6055	0.042	0.052	(0.003)***	0.072	0.093	(0.008)***
H3601	0.042	0.046	(0.003)**	0.089	0.091	0.004**
H0651	0.036	0.046	(0.003)**	0.063	0.079	(0.010)***
H6152	0.044	0.052	(0.002)**	0.079	0.099	(0.014)***
H3301	0.032	0.043	(0.002)	0.069	0.092	(0.014)***
H2254	0.039	0.050	(0.001)	0.057	0.083	(0.017)***
H0704	0.032	0.047	(0.001)	0.061	0.082	(0.009)***
H6144	0.052	0.046	0.001	0.092	0.096	0.001
H2451	0.053	0.038	0.002	0.073	0.076	(0.008)***
H6151	0.053	0.049	0.004***	0.085	0.084	0.003*
H1649	0.053	0.046	0.009***	0.096	0.091	0.011***
Union Plans						
<i>Average^c</i>	0.037	0.051	(0.015)	0.095	0.099	0.001
H4556	0.012	0.054	(0.039)***	0.078	0.085	(0.002)
H6053	0.020	0.057	(0.036)***	0.092	0.093	0.005*
H6171	0.012	0.050	(0.035)***	0.082	0.090	0.002
H6140	0.017	0.049	(0.030)***	0.089	0.095	0.007**
H6141	0.053	0.053	(0.017)***	0.099	0.111	(0.026)***
H6142	0.043	0.055	(0.012)***	0.089	0.109	(0.015)***
H6333	0.049	0.049	(0.002)***	0.109	0.095	0.013***
H6261	0.044	0.050	0.001	0.097	0.103	0.008***
H6334	0.061	0.045	0.002	0.105	0.100	0.006***
H1605	0.042	0.048	0.004***	0.087	0.091	0.006***
H6391	0.056	0.054	0.005***	0.118	0.116	0.008***
Clinics						
<i>Average^c</i>	0.084	0.104	(0.012)	0.083	0.092	(0.010)
H6331	0.087	0.109	(0.022)***	0.083	0.097	(0.012)***
H6161	0.096	0.094	(0.009)***	0.089	0.088	0.001
H6102	0.070	0.109	(0.007)***	0.075	0.093	(0.020)***

NOTE: For enrollees, rates are weighted by months enrolled in the plan in 1993. For nonenrollees, months in Medicare is the weight. In calculating mortality rates, persons who died are given the full weight of 12 months.

^aThe mortality rate difference controlling for demographic characteristics calculated using the estimated coefficients of the iogit model and the average characteristics of the pooled sample of enrollees and nonenrollees. It is based on the coefficient on the enrollee/nonenrollee binary variable, and the significance levels shown are for this coefficient. For a beneficiary with average demographic characteristics (across plan enrollees and nonenrollees), the coefficients of the model are used to predict the probability of dying (1) if enrolled in traditional FFS Medicare and (2) if enrolled in the plan. The difference in these predicted probabilities is the adjusted difference in average mortality. It is interpreted as a measure of the health status of enrollees relative to nonenrollees: negative numbers (in parentheses) indicate favorable selection, and positive numbers indicate adverse selection.

^bThe DCG difference controlling for demographic characteristics is calculated in the same way as the mortality rate difference. See footnote a.

^cUnweighted averages across plans, with number of plans as the denominator.

Statistical tests were not performed on the average differences.

*Significantly different from zero at the .10 level, two-tailed test.

**Significantly different from zero at the .05 level, two-tailed test.

***Significantly different from zero at the .01 level, two-tailed test.

On average across the plans, 7.9 percent of cost HMO enrollees had nondiscretionary high-cost hospital admissions, compared to 8.9 percent for nonenrollees. When we controlled for demographic characteristics, the average enrollee-nonenrollee **differences** narrowed, falling to -0.5 percent. For HCPPs, the average model-adjusted difference was -0.7 percent.

The relatively small average difference masks statistically significant differences for the great majority of plans, with some in each direction. For 10 of the 18 cost **HMOs** and 26 of 45 HCPPs, enrollees had significantly lower DCG admission rates. However, several plans appeared to have adverse selection--enrollees in 4 cost **HMOs** and 12 HCPPs had **significantly** higher adjusted DCG admission rates than their comparison sample. Estimated model-adjusted differences ranged from -6.0 percentage points (43 percent lower than nonenrollees) to 1.3 percentage points (14 percent above the nonenrollee rate).

When the coefficients (and hence adjusted differences) are statistically significant, the two measures of biased selection for each plan are in the same direction for the majority of plans (see Table IV.4). For 30 of the 63 plans, the coefficients are negative and significant for both measures. For 5 plans, the coefficients are positive and significant for both measures. For 18 plans, only one of the coefficients is significant, and for 2 plans, neither coefficient is significant. The two estimates are statistically significant and contradictory for only 8 plans.

3. Biased Selection and Plan Characteristics

Selection bias is not strongly linked to plan characteristics. Two types of plans seem to have somewhat less favorable selection: **IPA** model cost **HMOs** and employer/union HCPPs (see summary rows of Table IV.3). The average adjusted differences in mortality rates for these types of plans are similar to those in other plans, but their DCG differences were positive, on average, indicating adverse selection. The differences in average mortality rates and in DCG admissions of former risk plans are similar to those

TABLE IV.4

DISTRIBUTION OF PLANS BY RISK SELECTION MEASURES

	Number of Plans with DCG Admission Rate Difference, Controlling for Demographic Characteristics			Total
	Negative and Significant	Not Significant	Positive and Significant	
Number of Plans with Mortality Rate Differences, Controlling for Demographic Characteristics				
Negative and significant	30	9	7	46
Not significant	5	2	4	11
Positive and significant	1	0	5	6
Total	36	11	16	63

NOTE: Estimates are classified as “significant” if the estimated coefficient on enrollment status from the **logit** model is statistically significant at the 10 level.

of plans that were not once risk plans (Table IV.5). However, the DCG measure suggests that plans with prior risk contracts had *more* favorable selection on average than plans without such a background.

On average, HCPPs that screen potential enrollees for health status did not have more favorable selection than other plans. Among the four HCPPs that screen, three showed significant evidence of favorable selection in both measures, but the other HCPP showed significant evidence of adverse selection in both measures. It is possible that adverse selection in the fourth plan may have been even worse had it not screened.

HCPP perceptions of biased selection reported in our survey do not match the results of our analysis. Regardless of whether they reported adverse or neutral selection, the interviewed HCPPs experience favorable selection, on average. Those that claimed they experience adverse selection had somewhat less favorable selection. The two plans that reported favorable selection had very favorable selection in terms of their DCG admission rates, but in terms of mortality rates, they are similar to other plans. Interviews are not likely to elicit useful responses on selection bias, however, because plans typically have no basis for assessing how their enrollees compare to the local Medicare population. Furthermore, the HCPPs are paid on a cost basis, so they have little incentive to monitor their risks.

On average, the extent of favorable selection in the cost HMO and HCPP programs is less than that found in the TEFRA risk payment program (Hill and Brown 1990). In that program, the average DCG difference was -0.015, which is greater than the average found for either the cost **HMOs**, -0.005, or the HCPPs, -0.007.⁷ Furthermore, Brown and Hill found none of the 98 plans to have significant adverse

⁷The results **from** the two studies are not directly comparable. Hill and Brown (1990) examine **pre**-enrollment hospital admissions for recent enrollees, because data on hospital stays for enrollees in risk plans was not available. The current study examines hospital stays during the time enrolled and includes all enrollees in the analysis. If regression toward the mean occurs, we would expect the estimated **difference** for the risk program to decline. Furthermore, the results estimated here control for differences in race and original reason for entitlement, whereas Brown and Hill control only for observed AAPCC risk factors.

TABLE IV.5
MEAN BIASED SELECTION MEASURES BY PLAN CHARACTERISTICS

Plan Characteristic	N	Mortality Rate Difference, Controlling for Demographic Characteristics ^a	DCG Differences, Controlling for Demographic Characteristics ^b
cost HMOs	18	(0.005)	(0.005)
HCPPs	45	(0.009)	(0.007)
Prior Risk Contract			
Yes	22	(0.007)	(0.009)
No	41	(0.008)	(0.005)
Contract in 1996			
Risk	7	(0.009)	(0.009)
Cost or HCPP	53	(0.008)	(0.005)
None	3	(0.006)	(0.030)
HCPP Screened Potential Enrollees for Health Status			
Yes	4	(0.002)	(0.005)
No	29	(0.011)	(0.007)
HCPP Reported Biased Selection			
No	11	(0.010)	(0.011)
Yes, adverse	7	(0.007)	(0.010)
Yes, favorable	2	(0.008)	(0.020)

NOTES: Unweighted means across plans of estimates in Table IV.3, with the number of plans as the denominator. Negative numbers indicate favorable selection. No statistical tests were performed on these averages across plans.

^aThe mortality rate difference is the average of the adjusted enrollee-nonenrollee differences in mortality rates. See Table IV.3 and text for a **full** description of these calculations.

^bThe DCG difference measure is the average of the adjusted enrollee-nonenrollee differences from table IV.3 in the probability of nondiscretionary high cost hospitalization. See Table IV.3.

selection, whereas we find a small number that do. The differences in mortality rates are similar to what Riley, Lubitz, and Rabey (1991) found for risk plans. They found that no plans had adverse selection, and that 58 percent had adjusted mortality rates below 80 percent of expected FFS mortality rates. This is somewhat consistent with our finding that 46 of 63 cost and HCPP plans had significantly lower mortality rates than the comparison samples in our **logit** models. However, only about one-third of our plans had adjusted mortality rates that were more than 20 percent below the mortality rate for nonenrollees.

C. IMPLICATIONS OF FAVORABLE SELECTION

Favorable selection may reduce the amount of cost savings HCFA is likely to receive from the HCPP and cost HMO programs relative to costs under traditional FFS. **HMOs** are most effective at controlling costs for the least healthy patients (Hill and Brown 1992). However, most of the cost **HMOs** and HMO HCPPs in our analysis enrolled relatively healthy populations. Thus, the effect of these organizations on HCFA's costs are likely to be smaller than if they had enrolled a more representative mix of beneficiaries (assuming they do lower costs by reducing the use of resources).

On the other hand, enrolling beneficiaries in cost-reimbursed plans could reduce costs to HCFA *relative to riskcontracting* if favorable selection occurs. The favorable selection experienced by many of the plans indicates that had these plans held risk contracts, HCFA would have paid more than under FFS reimbursement. With cost-based reimbursement, favorable selection alone does not affect HCFA's costs relative to **FFS** reimbursement. Thus, HCFA's costs for cost **HMOs** and HCPPs with favorable selection should be lower than risk payments would have been. Whether these plans yield savings for HCFA, however, depends on whether they actually reduce the use of resources or provider prices paid below what they would have been under FFS, and whether administrative costs incurred by the plans outweigh any savings for HCFA.

V. COMPARING PAYMENTS UNDER COST AND HCPP CONTRACTS TO FFS MEDICARE PAYMENTS

Do cost **HMOs** and HCPPs save money for the Medicare program? If there are savings, then these programs may be useful ways of enrolling beneficiaries in managed care. If there are losses, HCFA may want to consider terminating the cost-reimbursement programs. This chapter first reviews the reasons for expecting cost **HMOs** and HCPPs to reduce costs to Medicare and the reasons why they may not. We then describe our methodology for comparing the actual costs to Medicare for the enrollees in cost **HMOs** and HCPPs to estimates of what payments would have been had these beneficiaries been in the traditional FFS Medicare program. Our **results** indicate that there are large losses to the Medicare program for beneficiaries in plans with cost and HCPP contracts.

A. EXPECTEDEFFECTS

Cost **HMOs** and HCPPs have very little incentive to constrain Medicare payments for several reasons. First, plans neither benefit **from** reducing these costs nor suffer if they are increased. Second, the plans' opportunities for constraining costs are limited by low enrollment and by Medicare's coverage of **out-of-plan** services. Given the weak external forces and the small number of enrollees in most plans, the plans may have little incentive to negotiate favorable (and separate) pricing and payment arrangements with providers for Medicare enrollees.

Cost **HMOs** and HCPPs have less financial incentive than risk **HMOs** to provide care more efficiently than **FFS** providers because they are contractually prohibited **from** profiting from reducing expenditures (except on the supplemental coverage they offer). Reimbursement is on a cost basis, and cost **HMOs** and HCPPs are at risk for only deductibles and coinsurance, for which they may charge a premium. Cost **HMOs** were potentially at risk for expenditures exceeding the AAPCC. This provision was never enforced, however, and it would not have been effective. As explained in Chapter IV, plans tend to attract

better-than-average risks, and the “constraint” on them to charge Medicare no more than what Medicare pays for the average beneficiary is very weak.

Plans’ opportunities to constrain expenditures may be limited. Enrollees may receive services through **nonplan** providers, and these services are billed directly to Medicare. HCPPs do not pay for any Part A services, and so they may have little ability to control these costs. Plans may also need a large enrollment in order to spread administrative costs and bargain effectively with providers to obtain low prices and establish strong incentives for efficient behavior.

The reason for expecting cost savings is based on the incentives and controls internal to the plans, rather than on Medicare’s method of paying the plans. Plans are expected to practice the same **cost-effective** style of care for Medicare patients as they do for non-Medicare members. We classified plans according to the degree to which we expected them to control costs based on the results from our survey of 53 cost **HMOs** and HCPPs, in which plans described their internal incentives. We included measures of the aggressiveness of their inpatient and outpatient **UR**, and the type of financial incentive faced by physicians.

1. Hypotheses for Part A and Part B Payments

Throughout the analyses, we first discuss impacts on total Medicare costs and then estimate effects separately for Part A and Part B services. The likelihood of achieving savings differs for these two types of services. In general, **HMOs** are believed to reduce hospital use and have little or no effect on the use of physician **services**. However, the incentives and degree of control in cost **HMOs** and HCPPs are quite different from those in risk contract plans.

Given that plans seldom pay for Part A services and that reductions in hospital admissions are unlikely, we expect little or no effect on Part A costs to HCFA. HCPPs are not allowed to pay for any Part A services, and all but two of the cost **HMOs** elected to have hospitals bill HCFA directly for services to their members. Thus, plans do not pay hospitals on a per diem basis and have no incentive to shorten stays,

nor would such shortening save money for HCFA. Because HCFA uses the prospective payment system for the direct-bill inpatient services, **HCFA's** payments for these services can be reduced only if admissions, not length of stay, are reduced. Brown et al. (1993), however, found that despite a strong incentive, Medicare risk plans have no effect on admissions, which suggests that reductions in hospital costs under cost reimbursement are likely. In Chapter II, Section C. 1, we identified some plans with aggressive inpatient UR. These plans may have the lowest actual expenditures relative to predicted FFS costs--that is, the greatest savings or least losses.

Plans may have somewhat greater Part B expenditures than traditional FFS Medicare. **HMOs** in general try to reduce inpatient care, which may require increases in less expensive outpatient care. Cost plans may also provide preventive care, screening for health problems, and low out-of-pocket costs, which may encourage increased use of ambulatory care by beneficiaries. Finally, plans are not bound by resource-based relative value scale (RBRVS) or reasonable charges, so they may actually pay more for Part B services (through higher FFS rates or indirectly through salaries or **capitation** rates) than HCFA would pay under Medicare FFS. There is no incentive for plans to consider how their physician compensation compares to the amount HCFA would have paid under FFS.

On the other hand, one way in which **HMOs** save money is through substituting primary care for specialist care and reducing the number of unnecessary tests and procedures performed. To the extent that cost **HMOs** and HCPPs do this, Part B costs could decline.

Given that the plans have little incentive to constrain Part B costs, Medicare must rely on the incentives and controls that plans may routinely have for their physicians. However, evidence of the **HMOs'** ability to constrain outpatient utilization is lacking (Miller and Luft 1994). In Chapter II, Section C, we examined the internal mechanisms of cost **HMOs** and HCPPs. We found, indeed, that outpatient UR appears to be less developed than inpatient UR, and few **HMOs** directly **capitate** physicians. We identified the plans with aggressive outpatient UR and plans with the physician financial incentives most

likely to constrain outpatient utilization. We expect these plans to also have the lowest actual Part B costs relative to predicted FFS costs--that is, the greatest savings to Medicare or the least losses.

2. Hypotheses for Different Types of Plans

We expect plans with more aggressive UR and stronger **financial** incentives to reduce costs to Medicare. In Chapter II, Section C.4, we reported that plan types and HMO models correspond only loosely with the aggressiveness of UR and the strength of physician financial incentives. None of the seven employee/union HCPPs or the two clinics that we surveyed had aggressive inpatient UR. We found heterogeneity within HMO models for the aggressiveness of inpatient and outpatient UR. All of the staff model **HMOs** capitate their physician groups, and the groups pay their physicians salaries. Among the **group** model **HMOs**, **half** pay their physicians salaries, and the rest are FFS. Thus, physicians do not have strong incentives to control costs in any of these plans. The **IPA** models are even less likely to have strong incentives for physicians, but two **IPAs** directly capitate physicians, and physicians in these two **IPAs** have the strongest incentives. **Both** of the clinic HCPPs for which we have data pay salaries to their physicians.

Thus, only some predictions based on plan type and HMO model are clear. On average, for Part B expenditures, we expect clinic HCPPs and **staff model HMOs** to have the most potential for savings to HCFA, group model **HMOs** to have the next most potential, and **IPAs** to have the least potential, on average. We also do not expect clinics and employee/union plans to lower inpatient costs.

Other factors may also be related to the likelihood that plans will affect **HCFA's** savings or losses. Plans with more enrollees outside their service area may be least able to influence enrollee costs, Parent corporations of plans with a low Medicare enrollment may not be particularly concerned about the financial performance of their Medicare plan, so these plans are likely to devote little attention to controlling costs of the Medicare services for which they are at risk.

B. METHODOLOGY

In this section, we describe the calculation of the actual costs to Medicare for the beneficiaries in the **plans**. Actual costs per member month are presented for each of the plans in the sample. We also describe our model for estimating what these beneficiaries' costs would have been if they were in the FFS sector.

1. Calculating Actual Payments for Enrollees

Under cost contracting, HCFA (1) reimburses a plan for the costs the plan incurs in providing Medicare-covered services to enrollees and (2) through the fiscal intermediary, directly reimburses providers for Medicare-covered out-of-plan services delivered to enrollees. Total Medicare payments for enrollees in cost **HMOs** and **HCPPs** are equal to the sum of payments to the HMO (including retroactive adjustments) and payments for services made directly by HCFA to providers. We report total Medicare payments for 1993 on a per member month basis.

a. Methods

Average actual costs per member month to Medicare were obtained primarily **from** two sources: cost reports for services paid for by the plans and the National Claims History (NCH) file for services paid for by Medicare directly. Each plan files an annual cost report with HCFA,¹ and these reports contain the plan's total expenditures per member per month. For cost **HMOs** that paid for any Part A services, Part A expenditures may be for inpatient, home health, skilled nursing facility (SNF), and/or administrative services. Expenditures for Part B medical and administrative services are also in the cost **reports**.² Some cost reports cover periods beginning prior to the 1993 calendar year. Expenditures for these plans are

*Audited cost reports were not yet available for 1993. Medium and small plans are audited every three to **four** years; large plans are audited every year. The Office of Managed Care has determined that the average reduction in payments to cost plans after audit was 4.92 percent. This includes audits conducted over several years prior to 1993. We used this average in qualifying our results.

²**Some** administrative costs may not be itemized separately from services. However, the total costs in the cost reports include all expenditures billed to HCFA.

inflated by a fraction of the growth in the national average AAPCC from 1992 to 1993 to account for medical care inflation between 1992 and 1993. Two cost reports covered multiple plans. Kaiser of North Carolina (**H3451** and **H3452**), and CIGNA of Southern California (H6054, H6055, and H6056) filed cost reports with averages across their HCPPs. For these five HCPPs, the averages from the cost reports are our estimates of actual costs paid by HCFA to each plan.

We adjusted the cost reports to remove estimated expenditures for beneficiaries with end stage renal disease (**ESRD**) because these individuals were excluded **from** our claims samples. We assumed that each plan paid the same proportions of Part A and Part B expenditures on enrollees with ESRD as for other Medicare enrollees. For each plan, we also assumed that the ratio of plan expenditures on enrollees with ESRD to plan expenditures on other enrollees was the same as the ratio of the state AAPCC for ESRD to our estimate of the risk payments plans would receive, based on the characteristics of their **nonESRD** enrollees. (See Chapter **VI** for a detailed discussion of the estimation of risk payments.) All but six plans had less than the Medicare average portion of enrollees with ESRD (0.6 percent). ESRD enrollment ranged **from** 0.02 to 1.7 percent of plan enrollees. Our adjustment reduced total actual costs to HCFA for **nonESRD** enrollees by about 2 percent on average across plans, with a range of 0 to 7 percent depending upon the proportion of enrollees who were ESRD.

Our second data source is the NCH file, 1993, which contains payments for services paid for by Medicare directly. HCPPs did not pay for Part A services, and although seven cost **HMOs** paid for some Part A medical services, most Part A services for cost HMO members were billed directly to HCFA. For each plan, we calculated average Part A and Part B direct-bill payments per member month. For those enrolling or disenrolling during 1993, only payments for the services received during the enrollment period were included in the computation of payments for direct-bill services. For those enrolled throughout the year, payments for the entire calendar year were included.

We adjusted these average direct-bill expenditures with estimates of HCFA's administrative costs of processing the claims. This is the ratio of administrative costs to benefits paid nationally for 1993. We multiplied the actual costs from the NCH file by administrative cost ratios for Part A (0.0027) and Part B (0.0230) to obtain estimates of administrative costs incurred by HCFA.

Finally, we summed the payments to the plans (adjusted for ESRD beneficiary costs) and the direct-bill costs (adjusted for administrative costs) to obtain the total cost to HCFA.

b. Expenditures by Cost HMOs and HCPPs

Table V. 1 shows the actual average costs to HCFA for enrollees in each plan in 1993. The first two columns show the average expenditures by plan per member month. Among the 18 cost HMOs, six paid for no Part A costs, five paid for only administrative costs for Part A services, and seven paid for various combinations of services. Only two of the cost HMOs paid for any inpatient services, and five paid for some of the SNF and/or home health care services.³ Eleven plans incurred administrative costs for Part A services, and these averaged \$3.70 per member month.

c. Expenditures Billed Directly to HCFA

Expenditures billed directly to the Medicare intermediary are in the third and fourth columns of Table V. 1. Part A direct-bill costs were substantial in 1993--on average \$ 177 per member month for cost HMOs and \$197 for HCPPs. All of the cost HMOs and HCPPs, except for the Hawaii Medical Service Association (HMSA), had Part B direct-bill costs. The average Part B direct-bill costs were higher for the HCPPs than for the cost HMOs, and this difference is due to the higher levels of direct-bill costs for the employee/union plans and clinic HCPPs. Part B direct-bill costs as a percentage of total Part B costs, shown in the ninth column of the table, were also much were higher for the HCPPs that are not HMOs.

³Several plans reported paying for a service in the survey, but no costs for that service were on the cost report.

TABLE V.1

ACTUAL COSTS TO HCFA PER MEMBER MONTH FOR ENROLLEES IN COST CONTRACTS AND HCPPPS, 1993

	Costs Paid by Plan'			Billed Directly to HCFA			Total Costs			Percentage of Costs Billed Directly to HCFA			Weighted Average of County AAPCC Rates ^b			Ratio of Actual Costs to Average AAPCC			
	Part A	Part B	Total	Part A	Part B	Total	Part A	Part B	Total	Part A	Part B	Total	Part A	Part B	Total	Part A	Part B	Total	
All Cost HMOs																			
Average'	15.26	132.63	176.93	33.65	192.18	166.29	358.47	91	21	230.50	139.79	370.29	0.83	1.18	0.96				
IPA Model																			
Average'	24.05	122.27	152.33	29.64	176.38	151.91	328.29	84	20	217.86	133.46	351.32	0.82	1.13	0.94				
H0602	13.82^d	124.76	165.47	37.40	179.30	162.16	341.46	92	23	160.19	136.45	296.64	1.12	1.19	1.15				
H0749	0.00	156.64	186.15	29.51	186.15	186.15	372.30	100	16	243.80	145.51	389.31	0.76	1.28	0.96				
H1203	145.52 ^e	144.22	1.77	0.00	147.29	144.22	291.50	1	0	197.92	136.27	334.19	0.74	1.06	0.87				
H3104	0.00	157.74	207.84	46.49	207.84	204.23	412.08	100	23	261.15	151.04	412.19	0.80	1.35	1.00				
H3356	1.49 ^e	99.69	168.41	25.12	169.90	124.81	294.71	99	20	251.76	117.79	369.55	0.67	1.06	0.80				
H3801	20.48^e	107.72	190.41	35.79	210.89	143.50	354.39	90	25	215.64	127.94	343.58	0.98	1.12	1.03				
H3851	8.51^d	105.52	116.53	31.78	125.04	137.50	262.34	93	23	168.23	120.24	288.47	0.74	1.14	0.91				
H5102	2.54 ^e	81.85	182.08	31.05	184.62	112.90	297.52	99	27	244.23	132.41	376.64	0.76	0.85	0.79				
Group Model																			
Average'	5.26	178.42	198.73	27.76	203.99	206.18	410.16	98	14	252.05	144.77	396.82	0.81	1.42	1.03				
H1553	10.52^d	151.20	205.23	25.72	215.75	176.92	392.67	95	15	252.06	140.32	392.38	0.86	1.26	1.00				
H3149	0.00	205.64	192.23	29.79	192.23	235.43	427.65	100	13	252.03	149.23	401.26	0.76	1.58	1.07				
Staff Model																			
Average'	8.97	131.55	196.07	39.14	205.04	170.69	375.73	96	25	237.75	144.87	382.62	0.85	1.16	0.97				
H0502	17.36^h	209.39	334.91	55.29	352.27	264.68	616.95	95	21	277.97	184.21	462.18	1.27	1.44	1.33				
H1010	0.00	81.20	134.81	27.71	134.81	108.91	243.72	100	25	193.21	137.40	330.61	0.70	0.79	0.74				
H1449	0.00	187.30	254.49	47.30	254.49	234.60	489.09	100	20	293.37	156.68	450.05	0.87	1.50	1.09				
H3308	0.31 ^e	113.52	143.40	39.84	143.71	153.35	297.07	100	26	219.11	140.45	359.56	0.66	1.09	0.83				
H3349	0.77 ^e	108.34	143.79	32.80	144.56	141.14	285.70	99	23	193.19	131.02	324.21	0.75	1.08	0.88				
H3602	13.85 ^e	43.98	205.45	59.30	219.30	103.28	322.58	94	57	272.31	136.71	409.01	0.81	0.76	0.79				
H4101	0.00	155.96	178.73	29.64	178.73	185.60	364.33	100	16	241.76	135.27	377.03	0.74	1.37	0.91				
H5002	39.48 ^e	152.74	172.95	21.25	212.43	173.98	386.42	81	12	211.08	137.23	348.32	1.01	1.27	1.17				
All HCPP Plans																			
Average'	0.00	103.02	197.15	61.54	197.15	164.56	361.71	100	39	243.61	150.63	394.31	0.83	1.17	0.95				

TABLE V. 1 (continued)

	Costs Paid by Plan ¹			Billed Directly to HCFA			Total Costs			Percentage of Costs Billed Directly to HCFA			Weighted Average of County AAPCC Rates ²			Ratio of Actual Costs to Average AAPCC			
	Part A	Part B	Part B	Part A	Part B	Part B	Part A	Part B	Total	Part A	Part B	Total	Part A	Part B	Total	Part A	Part B	Total	
	0.00	129.60	175.83	39.24	175.83	168.84	344.66	100	24	234.25	147.23	381.48	0.77	1.24	0.94	0.77	1.25	0.96	
HMOs/CMPs																			
<i>Average¹</i>	0.00	129.60	175.83	39.24	175.83	168.84	344.66	100	24	234.25	147.23	381.48	0.77	1.24	0.94	0.77	1.25	0.96	
HO651	0.00	139.03	156.03	16.41	156.03	155.44	311.47	100	11	201.36	124.77	326.13	0.77	1.25	0.96	0.77	1.25	0.96	
HO652	0.00	117.46	139.17	18.02	139.17	135.47	274.65	100	58	190.88	127.88	318.77	0.73	1.06	0.86	0.73	1.06	0.86	
HO704	0.00	153.92	165.58	52.47	165.58	206.39	371.97	100	24	194.98	92.64	287.62	0.85	2.23	1.29	0.85	2.23	1.29	
HI149	0.00	102.17	180.90	54.96	180.90	157.13	338.02	100	26	241.31	120.58	361.88	0.75	1.30	0.93	0.75	1.30	0.93	
HI649	0.00	39.61	188.04	53.69	188.04	93.30	281.34	100	18	201.48	130.97	332.45	0.93	0.71	0.85	0.93	0.71	0.85	
HI703	0.00	98.47	153.97	59.10	153.97	157.57	311.54	100	19	192.64	89.08	281.73	0.80	1.77	1.11	0.80	1.77	1.11	
HI949	0.00	164.92	270.95	35.17	270.95	200.08	471.03	100	34	242.75	121.13	363.87	1.12	1.65	1.29	1.12	1.65	1.29	
H2150	0.00	140.35	142.95	41.31	142.95	181.65	324.60	100	18	262.72	137.85	400.57	0.54	1.32	0.81	0.54	1.32	0.81	
H2251	0.00	125.72	215.98	46.75	215.98	172.47	388.45	100	26	204.59	132.49	337.08	1.06	1.30	1.15	1.06	1.30	1.15	
H2254	0.00	118.49	135.27	48.99	135.27	167.48	302.75	100	13	290.27	171.08	461.36	0.47	0.98	0.66	0.47	0.98	0.66	
H2449	0.00	95.88	185.08	29.63	185.08	125.51	310.59	100	25	237.73	142.49	380.22	0.78	0.88	0.82	0.78	0.88	0.82	
H2450	0.00	98.29	187.16	34.22	187.16	132.51	319.67	100	35	241.76	148.63	390.39	0.77	0.89	0.82	0.77	0.89	0.82	
H2451	0.00	83.53	147.58	18.31	147.58	101.83	249.41	100	38	204.65	120.52	325.17	0.72	0.84	0.77	0.72	0.84	0.77	
H2453	0.00	121.39	158.92	28.17	158.92	149.57	308.49	100	18	262.60	165.65	428.25	0.61	0.90	0.72	0.61	0.90	0.72	
H2601	0.00	131.35	232.81	34.64	232.81	165.98	398.79	100	23	183.61	107.65	291.26	1.27	1.54	1.37	1.27	1.54	1.37	
H3301	0.00	141.65	170.57	61.96	170.57	203.61	374.18	100	29	197.36	116.94	314.29	0.86	1.74	1.19	0.86	1.74	1.19	
H3451	0.00	114.01	105.66	60.36	105.66	174.37	280.02	100	30	214.73	113.48	328.21	0.49	1.54	0.85	0.49	1.54	0.85	
H3452	0.00	103.61	135.32	44.39	135.32	148.00	283.32	100	35	212.11	131.26	343.37	0.64	1.13	0.83	0.64	1.13	0.83	
H3601	0.00	84.12	167.69	43.62	167.69	127.74	295.43	100	30	299.15	177.05	476.20	0.56	0.72	0.62	0.56	0.72	0.62	
H4555	0.00	157.44	204.84	33.65	204.84	191.09	395.93	100	18	198.28	111.96	310.24	1.03	1.71	1.28	1.03	1.71	1.28	
H4600	0.00	83.46	157.00	39.82	157.00	123.28	280.28	100	17	194.42	109.41	303.83	0.81	1.13	0.92	0.81	1.13	0.92	
H6052	0.00	134.34	170.23	27.37	170.23	161.71	331.94	100	12	211.93	112.61	324.54	0.80	1.44	1.02	0.80	1.44	1.02	
H6054	0.00	182.56	230.35	40.08	230.35	222.64	452.99	100	17	250.66	253.54	504.20	0.92	0.88	0.90	0.92	0.88	0.90	
H6055	0.00	188.18	188.61	27.19	188.61	215.38	403.98	100	27	260.39	176.17	436.56	0.82	1.26	1.00	0.82	1.26	1.00	
H6056	0.00	268.39	184.83	38.21	184.83	306.61	491.43	100	21	188.06	100.60	288.66	1.00	2.14	1.40	1.00	2.14	1.40	
H6091	0.00	158.30	190.01	32.35	190.01	190.65	380.66	100	27	301.07	240.14	541.21	0.63	0.79	0.70	0.63	0.79	0.70	
H6144	0.00	101.80	185.65	38.42	185.65	140.22	325.86	100	21	298.48	240.68	539.17	0.62	0.58	0.60	0.62	0.58	0.60	
H6151	0.00	124.94	167.82	32.39	167.82	157.33	325.15	100	32	300.93	241.47	542.40	0.56	0.65	0.60	0.56	0.65	0.60	
H6152	0.00	159.33	150.85	56.13	150.85	215.46	366.31	100	18	237.97	149.09	387.06	0.63	1.45	0.95	0.63	1.45	0.95	
H6336	0.00	101.88	167.92	28.79	167.92	130.67	298.59	100	13	279.55	189.47	469.02	0.60	0.69	0.64	0.60	0.69	0.64	
H6521	0.00	49.07	254.47	107.77	254.47	156.84	411.32	100	68	269.62	157.62	427.24	0.99	1.05	1.01	0.99	1.05	1.01	
<i>Employers/Unions</i>																			
<i>Average¹</i>	0.00	49.07	254.47	107.77	254.47	156.84	411.32	100	68	269.62	157.62	427.24	0.99	1.05	1.01	0.99	1.05	1.01	
HI605	0.00	103.16	153.96	48.48	153.96	151.64	305.60	100	32	191.78	111.59	303.37	0.80	1.36	1.01	0.80	1.36	1.01	
H4556	0.00	61.29	225.73	78.76	225.73	140.05	365.78	100	78	253.45	195.48	448.94	0.89	0.72	0.81	0.89	0.72	0.81	
H6053	0.00	40.75	282.42	147.24	282.42	187.99	470.41	100	56	204.92	128.73	333.64	1.38	1.46	1.41	1.38	1.46	1.41	
H6140	0.00	39.94	214.81	112.89	214.81	152.83	367.64	100	61	266.61	137.72	404.33	0.81	1.11	0.91	0.81	1.11	0.91	

TABLE V. 1 (continued)

	Costs Paid by Plan ^a			Billed Directly to HCFA			Total Costs			Percentage of Costs Billed Directly to HCFA			Weighted Average of County AAPCC Rates ^b			Ratio of Actual Costs to Average AAPCC			
	Part A	Part B	Part A	Part B	Part A	Part B	Part A	Part B	Total	Part A	Part B	Total	Part A	Part B	Total	Part A	Part B	Total	
	H6141	0.00	49.35	264.53	112.41	264.53	161.76	426.29	100	86	325.60	181.91	507.51	0.81	0.89	0.84	0.81	0.89	0.84
H6142	0.00	55.50	245.23	88.57	245.23	144.07	389.30	100	62	198.40	113.92	312.32	1.24	1.26	1.25	1.24	1.26	1.25	
H6171	0.00	18.49	199.59	113.16	199.59	131.65	331.24	100	76	301.78	159.42	461.20	0.66	0.83	0.72	0.66	0.83	0.72	
H6261	0.00	57.17	240.18	95.20	240.18	152.37	392.55	100	74	304.57	167.41	471.98	0.79	0.91	0.83	0.79	0.91	0.83	
H6333	0.00	43.16	306.17	121.75	306.17	164.91	471.08	100	69	356.85	192.80	549.65	0.86	0.86	0.86	0.86	0.86	0.86	
H6334	0.00	46.22	356.92	143.51	356.92	189.73	546.65	100	74	191.13	130.48	321.61	1.87	1.45	1.70	1.87	1.45	1.70	
H6391	0.00	24.77	309.66	123.52	309.66	148.28	457.94	100	83	370.79	214.33	585.12	0.84	0.69	0.78	0.84	0.69	0.78	
Clinics																			
Average ^c	0.00	58.88	190.43	95.67	190.43	154.56	344.98	100	60	238.84	156.02	394.86	0.83	1.03	0.91	0.83	1.03	0.91	
H6102	0.00	42.89	177.46	113.87	177.46	156.76	334.22	100	73	226.34	179.36	405.69	0.78	0.87	0.82	0.78	0.87	0.82	
H6161	0.00	92.36	154.24	42.83	154.24	135.19	289.43	100	32	155.98	107.47	263.45	0.99	1.26	1.10 ^d	0.99	1.26	1.10 ^d	
H6331	0.00	41.40	239.58	130.31	239.58	171.72	411.30	100	76	334.21	181.23	515.44	0.72	0.95	0.80	0.72	0.95	0.80	

source: National Claims History file, 1993, **for out-of-plan** costs, adjusted to include administrative costs. Each plan's annual cost report for **1993** for costs paid **for** by the plan, adjusted to remove estimated costs of enrollees with end stage renal disease.

^aFor annual cost reports not coinciding with the calendar year, covered costs were inflated by an appropriate fraction of the growth in the national average AAPCC. Estimated costs for beneficiaries with ESRB were removed by.

^bThe weighted average of AAPCC rates is **equal** to a weighted average of the published county AAPCC rates (**rescaled** to eliminate the application of the **.95** factor) for the aged in counties containing at least **three** percent of the plan's Medicare enrollment, **with** each county rate weighted by the county's share of plan enrollment. This definition of market area differs slightly from that used in calculating actual costs billed directly to HCFA which includes all counties containing at least 1.5 percent of enrollees.

^c**Unweighted** averages across plans, with the number of plans as the denominator.

^dHome health care end administration.

Yearly all hospital, skilled nursing facility, and home health care, and administration

^eAdministration only.

Wome health care, some skilled nursing facility care, and administration

^f**Skilled** nursing facility care, some hospital care, and administration

^gHome health care.

The average percentage of Part B costs that were direct-billed are 68 percent for employee/union plans, 60 percent for clinics, 24 percent for **HMO/CMP** HCPPs, and 21 percent for cost **HMOs**. HCPPs are not required to cover all services, and employee/union plans have more out-of-area enrollment, which leads to more directly billed expenditures.

d. Total Expenditures

Total costs to HCFA in 1993 were similar for cost **HMOs** and HCPPs. For cost **HMOs**, Part A costs to HCFA averaged \$192 per member month, and Part B costs averaged \$166, for a total of \$358. For HCPPs, **HCFA's** average total cost per member month was \$362.

Both Part A and Part B payments varied considerably across plans, and this variation is due in part to local variation in medical care prices and practice patterns. To account for such differences, we compared the total payments to the weighted average AAPCC for each **plan**.⁴

Total Part A payments were less than the average AAPCC, and total Part B costs were greater than the average **AAPCC**. On average, Part A payments were 17 percent less than the weighted average AAPCCs for the cost **HMOs** (\$192 versus \$231) and 19 percent less for the HCPPs (\$197 versus \$244). Part B payments were 18 percent greater than the weighted average AAPCCs for the cost **HMOs** (\$166 versus \$140) and 17 percent greater for the HCPPs (\$165 versus \$151). Averaged over all plans, the average payments for Part A and Part B services combined for enrollees in the cost **HMOs** (\$358) were 4 percent less **than the** average combined AAPCC, and average costs for HCPP members (\$362) are 3 percent less than the average combined AAPCC. These differences do not control for the biased selection described in Chapter IV, but they do indicate large Part B payments, especially for the **HMOs**.

⁴The weighted average **AAPCCs** are simply mean AAPCCs for the elderly, weighted by enrollment, over the counties with 3 percent or more of the plan's enrollment. The 3-percent cutoff was chosen because enrollment in most of the plans diminishes rapidly below that level, and in most cases, we had accounted for at least 90 percent of the plan's enrollment.

2. Predicting FFS Payments

To predict Medicare payments for cost HMO and HCPP enrollees had they received all their care in the FFS sector, we estimated four linear regression models for each plan using data from each plan's sample of geographically matched nonenrollee beneficiaries. The dependent variables are inpatient payments, SNF payments, home health payments, and Part B payments, all per member month. The beneficiaries' observed risk factors and personal characteristics are the independent variables. We calculated predicted 1993 FFS payments for each plan's enrollees from the estimated coefficients of each linear regression model and the enrollees' actual values for the independent variables. The regressions are summarized in Table V.2 and described in Section 2 b below. For each type of service, the regressions are similar across plans in terms of their linear specification, the dependent variables, most of the independent variables, and the use of the nonenrollee sample. The differences arise because (1) for some costs and some plans, each enrollee's costs are available in addition to each nonenrollee's cost, and (2) for nearly all plans, there is additional information about the health status of enrollees from 1992. These two types of additional data allowed us to estimate more comprehensive models for many plans and the payments for many services. These models are described in Section 2. b below.

a. Independent Variables in the Payment Models

The independent variables in the regressions are ones that we expect to affect expenditures, but that are not **affected** by whether the Medicare beneficiary is in managed care or FFS. The variables are indicators of risk that have been found to be significant predictors of Medicare costs in previous studies and are available from HCFA data sources. These variables include the AAPCC factors (age, gender, and welfare **status**),⁵ race, original reason for Medicare entitlement, mortality (whether died in 1993 and whether died in 1994), and nondiscretionary hospitalizations for high-cost diagnoses (as designated by

⁵We cannot include institutional status, which is one of the AAPCC risk factors, because institutional status data are available only for beneficiaries who are enrolled in a *risk* plan.

TABLE V.2
REGRESSION EQUATIONS USED TO PREDICT FFS COSTS

Samples	Part A			Part B		
	Services Not Paid for by Plan			Services Paid for by Plan		
	Basic	Augmented	Enrollees and nonenrollees in Medicare, all of 1992 ^a	Basic	Augmented	Nonenrollees in Medicare, all of 1992
Dependent Variables						
Inpatient Expenditures per Month	X	X	X	X	X	X
SNF Expenditures per Month	X	X	X	X	X	X
Home Health Expenditures per Month	X	X	X	X	X	X
Part B Expenditures per Month				X		X
Independent Variables						
Enrollee	X					
AAPCC Risk Factors ^c	X			X		X
Race	X			X		X
Mortality^b	X			X		X
1993 DCGs ^e	X			X		X
1992 DCGs ^d						X

^aAAPCC risk factors include the age categories <65, 65-69, 70-74, 75-79, 80-84; Medicaid buy-in; originally entitled to Medicare due to disability; male; and place of residence (county).

^bMortality variables include whether an individual died in 1993 or in 1994.

^c1993 DCGs include DCG1, DCG2, DCG3, DCG4, DCG5, DCG6, and DCG7.

^d1992 DCGs include DCG1, DCG2, DCG3, DCG4, DCG5, DCG6, and DCG7.

DCGs). We represented DCG stays with a binary variable for each DCG between 1 and 7.⁶ These data are available for the full sample of nonenrollees and all enrollees.

We used DCG stays from the NCH files for both 1992 and 1993, and we used separate variables for hospitalization in each year. People with health conditions that led to a DCG stay in 1992 were likely to have high costs in 1993, but their 1993 costs were likely to be less than those of people with a DCG stay in 1993. However, an enrollee's 1992 DCG stays are available only if the enrollee's plan was not a risk plan in 1992. For the three plans that were risk plans in 1992, we used only the 1993 DCG stay variables in our regressions; for these plans, we estimated the basic regressions in the first, third, or fifth columns of Table V.2. For the 60 plans that were not risk plans in 1992, we used both the 1993 and the 1992 DCG stays; for these plans, we estimated the augmented regressions in the second, fourth, and sixth columns of Table V.2. To use the 1992 DCG stay information, we limited our sample to those beneficiaries who were in Medicare (though not necessarily in the plan) during all of 1992.

b. Dependent Variables and Model Specifications

For each plan, we estimated four regressions: one for Part B expenditures and three for the major components of Part A expenditures--inpatient, SNF, and home health care. For each plan and service, the model we estimated depends upon whether the service is paid for by the plan. Each model is a linear regression of the form:

$$(1) R_i = b X_i + e_i,$$

where R_i is the average Medicare FFS payments per month for services to beneficiary i in 1993; X_i is a vector containing AAPCC characteristics, race, eligibility, the mortality variables, and the DCG indicators; b is the coefficient vector; and e_i is the disturbance term.

⁶One plan had no one in the treatment or control groups in DCG7, so this variable was dropped from all models for this plan.

All of the plans pay for Part B services, so each of these Part B regressions has a similar specification.

For each plan, we estimated the regression over the sample of nonenrollees, and the dependent variable is the beneficiary's average Part B expenditures per month in the Medicare program. The independent variables, shown in Table V.2, depend on whether the plans had a risk contract in 1992, as described above.

For each plan and each Part A service, the regression specification depends on whether the plan paid for that service. For the Part A services paid for by the plan, the specification is the same as for Part B services, equation (1). Thus, among the cost **HMOs**, some of which paid for some Part A services, 11 of the 54 cost HMO Part A regressions had this specification. None of the **HCPPs** paid for any Part A services, and so no HCPP Part A regressions had this specification.

When the Part A service was not paid for by the plan, as is generally the case, then all Medicare payments for that Part A service are available **from** the NCH files for all of the plan's enrollees. These data allowed us to estimate a model through which we can directly estimate the effect of each plan on expenditures for that service. This model includes enrollee and nonenrollee observations:

$$(2) R_i = b X_i + c H_i + e_i,$$

where H_i is a binary variable indicating whether the beneficiary was an enrollee or nonenrollee, and c is the coefficient on that binary variable. The coefficient c measures the effect of the plan on costs. When the observed characteristics of plan enrollees are controlled for, if the plan decreases costs, then c is negative. If the plan increases costs, then c is positive. In this model, R_i for nonenrollee observations is average Medicare FFS payments per month on Medicare in 1993; for enrollee observations, R_i is average Medicare payments per enrolled month in 1993.

The estimated coefficients on control variables in the model show that the health status indicators are strong predictors of costs, but other factors have little effect. We have not included these coefficients in the report because of their sheer number (we estimated 252 regressions, 4 for each of the 63 plans). Table V.3 presents the set of results for a typical plan. The coefficients on the 1993 mortality and DCG variables are highly significant, large, and positive in both the Part A and Part B regressions, and this pattern holds for **virtually** all of the plan regressions. The coefficients on mortality in 1994 and three of the four indicator variables for DCG admissions in 1992 are smaller and positive, and there is more variation across plans in the sign and significance for these coefficients, but seldom are they negative and significant. **Coefficients** on other variables are neither as consistently significant nor as important in explaining expenditures. For inpatient and Part B expenditures, the R^2 's are 0.33 and 0.31. For SNF and home health expenditures, the R^2 's are much lower, 0.11 and 0.07. The R^2 's for inpatient and Part B expenditures are much higher than those of linear Medicare expenditure regressions in the literature, which are generally under 0.10 (Ellis and Ash 1995/1996, Brown and Hill 1994, Thomas and Lichtenstein 1986a,b). Our model has greater predictive power due to inclusion of the mortality variables and the current year DCG variables.

The results from the Part A regressions for services not paid for by the plans [(equation (2))] indicate that very few plans reduce Part A costs. The estimated coefficient \hat{c} is significant and negative for very few services and plans. The results of Table V. 1 showing that unadjusted Part A costs were substantially below the Part A AAPCC appear to be due to favorable selection. The plans and services for which \hat{c} is significant are discussed in Section C below.

c. Predicted FFS Costs

We use regression results to predict what the average costs per member month of the enrollees would have been if they had been enrolled in the traditional FFS Medicare program. For each service paid for by the plan, including Part B expenditures, we inserted the mean characteristics of enrollees into equation

TABLE v.3
REGRESSION RESULTS FOR A REPRESENTATIVE PLAN

Independent Variables	Inpatient Expenditures per Month		SNF Expenditures per Month		Home Health Expenditures per Month		Part B Expenditures per Month	
	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error	Coefficient	Standard Error
Enrollee	11	10	-1	1	-6***	2		
AAPCC Risk Factors								
Age <65	-26	35	-48***	5	-53***	7	-17	10
Age 65-69	79***	19	-38***	3	-31***	4	13**	6
Age 70-74	90***	18	-34***	3	-27***	4	20***	6
Age 75-79	76***	19	-33***	3	-16***	4	26***	6
Age 80-84	55***	20	-28***	3	-3	4	18***	6
Medicaid buy-in	51**	22	26***	3	2	4	38***	6
Originally entitled to Medicare due to disability	54**	23	-5	3	21***	5	25***	7
Male	24*	10	-6***	1	-7***	2	2	3
Place of residence (county)								
Outside primary service area	8	11	2	2	7***	2	14***	4
Second largest county in primary service area	34**	16	-0	2	6**	3	29***	5
Third largest county in primary service area	20	16	3	2	13***	3	26***	5
Race								
	-20	31	-3	4	6	6	-21**	9
Mortality								
Died in 1993	1,262***	25	71***	4	45***	5	243***	8
Died in 1994	41	25	23***	4	48***	5	74***	8
1993 DCGs								
DCG1	863***	45	72***	6	108***	9	216***	14
DCG2	965***	31	56***	4	74***	6	227***	9
DCG3	1,040***	33	100***	5	56***	7	260***	10
DCG4	1,563***	39	60***	6	86***	8	313***	12
DCG5	1,386***	50	85***	7	109***	10	349***	15
DCG6	1,956***	63	61***	9	70***	13	420***	19
DCG7	1,964***	78	18	11	74***	16	465***	24
1992 DCGs								
DCG1	101**	47	17***	7	45***	9	56***	14
DCG2	195***	33	42***	5	57***	7	142***	10
DCG3	124***	37	37***	5	45***	7	77***	11
DCG4	199***	38	21***	5	39***	8	83***	12
DCG5	307***	63	37***	9	16	13	123***	19
DCG6	227***	74	34***	10	105***	15	77***	22
DCG7	200	127	15	18	232***	26	186***	39
Intercept	-60***	18	34***	3	32***	4	42***	5

TABLE V.3 (continued)

R-squared	0.33	0.11	0.07	0.31
N	24,401	24,401	24,401	15,679

NOTE: Regressions are for HMO Blue.

* Statistically significant from zero at the .10 level, two-tailed test.

** Statistically significant from zero at the .05 level, two-tailed test.

*** Statistically significant from zero at the .01 level, two-tailed test.

(1), which was estimated on the nonenrollee comparison group for that plan. For these services, HCFA's predicted FFS costs for enrollees are:

$$(3) \hat{R} = \hat{b}'\bar{X},$$

where \hat{b} is the vector of estimated coefficients, and \bar{X} is a vector of the means characteristics of the plan enrollees. For services never paid for by the plan we used the estimated effect of the plan on costs, which is the estimated coefficient \hat{c} from equation (2). To predict what FFS costs for these services would have been for enrollees, we subtracted the estimated effect of the plan on costs from actual HCFA costs for enrollees. Thus, the predicted FFS costs for enrollees are:

$$(4) \hat{R} = \bar{R}_E - \hat{c},$$

where \bar{R}_E is HCFA's actual mean cost per member month for the enrollees. Predicted Part A costs are the sum of predicted inpatient costs, predicted SNF costs, predicted home health costs, and actual costs for components that are minor relative to total Part A payments, such as hospice and sanatorium expenditures.

The last step adjusts both Part A and Part B payments for the administrative costs that HCFA would incur were it to process all of the predicted claims. We used the same administrative cost ratios used to adjust actual FFS claims for administrative costs: the ratios of administrative costs to benefits paid nationally, for 1993, for Part A and Part B claims.

C. RESULTS

In general, cost **HMOs** and **HCPPs** did not reduce Medicare payments relative to traditional FFS Medicare. In **fact**, nearly **all** of the plans were more expensive than predicted FFS payments. Savings to Medicare from each cost HMO and HCPP on a per member month basis are shown in Table V.4. These savings were calculated as the percentage difference from the predicted FFS payments (the difference

TABLE V.4

COMPARISON OF PREDICTED FFS COSTS TO ACTUAL AVERAGE
COSTS FOR COST HMO AND HCPP PLANS, 1993

	Statistical Significance of the Plan's Effect on Part A Costs			Part A		Part B		Total	
	I'	S'	H*	Mean	Predicted	Mean	Predicted	Mean	Predicted
				Actual costs	Percentage Cost Savings (Loss)	Actual costs	Percentage Cost Savings (Loss)	Actual costs	Percentage Cost Savings (Loss)
All Cost HMOs									
<i>Average^b</i>				\$192	(2.1)	\$166	(54.5)	\$358	(20.7)
IPA Model									
<i>Average^b</i>				\$176	3.1	\$152	(48.4)	\$328	(15.6)
HO602	+	+	e	\$179	(13.8)	\$162	(89.0)	\$341	(40.3)
HO749	+		-	\$186	7.0	\$186	(5 1.7)	\$372	(15.3)
H1203	c	d	e	\$147	8.8	\$144	(52.8)	\$292	(13.9)
H3104				\$208	14.5	\$204	(48.1)	\$412	(8.1)
H3356^f				\$170	7.6	\$125	(32.8)	\$295	(6.0)
H3801		d	e	\$211	(7.5)	\$144	(43.9)	\$354	(19.8)
H3851			e	\$125	(3.7)	\$137	(50.4)	\$262	(23.8)
H5102	-			\$185	12.2	\$113	(18.3)	\$298	2.6
Group Model									
<i>Average^b</i>				\$204	7.7	\$206	(78.3)	\$410	(22.1)
H1553^f			e	\$216	7.2	\$177	(69.0)	\$393	(16.4)
H3149		+		\$192	8.2	\$235	(87.6)	\$428	(27.7)
Staff Model									
<i>Average^b</i>				\$205	(9.8)	\$171	(54.6)	\$376	(25.4)
HO502	c	d		\$352	(9.4)	\$265	(85.2)	\$617	(32.7)
H1010		-		\$135	13.2	\$109	(9.9)	\$244	4.2
H1449			+	\$254	(1.7)	\$235	(94.8)	\$489	(3 1.9)
H3308			-	\$144	10.1	\$153	(52.0)	\$297	(14.0)
H3349			-	\$145	(2.2)	\$141	(35.1)	\$286	(16.2)
H3602	+			\$219	(62.0)	\$103	(9.9)	\$323	(40.6)
H4101				\$179	(2.1)	\$186	(84.0)	\$364	(32.0)
H5002			e	\$212	(23.9)	\$174	(66.2)	\$386	(40.0)
All HCPP Plans									
<i>Average[']</i>				\$196	(1.1)	\$165	(49.0)	\$361	(1 8 . 6)

TABLE V.4 (continued)

<i>statistical</i> Significance of the Plan's Effect on Part A Costs			Part A		Part B		Total	
I'	S'	H*	Mean Actual costs	Predicted Percentage Cost Savings (Loss) ⁷	Mean Actual costs	Predicted Percentage Cost Savings (Loss)	Mean Actual costs	Predicted Percentage Cost Savings (Loss)
HMOS								
<i>Average^b</i>			\$176	0.2	\$169	(58.1)	\$345	(21.2)
			\$156	0.6	\$155	(67.9)	\$311	(24.9)
			\$139	14.3	\$135	(41.6)	\$275	(6.4)
			\$166	22.8	\$206	(69.9)	\$372	(10.7)
			\$181	12.7	\$157	(43.3)	\$338	(6.7)
			\$188	(4.7)	\$93	11.9	\$281	1.5
			\$154	(1.1)	\$158	(48.3)	\$312	(20.5)
			\$271	(4.6)	\$200	(61.4)	\$471	(23.0)
		+	\$143	7.5	\$182	(52.8)	\$325	(18.7)
			\$216	(2.4)	\$172	(55.0)	\$388	(20.6)
			\$135	19.4	\$167	(75.7)	\$303	(15.0)
	+		\$185	(12.1)	\$126	(61.0)	\$311	(27.8)
	+		\$187	(17.6)	\$133	(51.7)	\$320	(29.7)
			\$148	(32.4)	\$102	(41.9)	\$249	(36.1)
			\$159	8.7	\$150	(71.3)	\$308	(18.0)
	+		\$233	(35.4)	\$166	(62.2)	\$399	(45.4)
			\$171	5.7	\$204	(52.8)	\$374	(19.2)
			\$106	41.7	\$174	(97.9)	\$280	(3.9)
		+	\$135	(2.9)	\$148	(76.6)	\$283	(3 1.6)
		+	\$168	(2.2)	\$128	(30.0)	\$295	(12.6)
	+		\$205	(52.5)	\$191	(126.2)	\$396	(80.9)
		+	\$157	8.9	\$123	(77.0)	\$280	(15.8)
	-		\$170	26.4	\$162	(31.0)	\$332	6.4
			\$230	6.0	\$223	(29.6)	\$453	(8.7)
			\$213	(8.1)	\$223	(48.4)	\$436	(25.5)
			\$189	30.2	\$215	(10.7)	\$404	13.1
			\$185	6.8	\$307	(140.1)	\$491	(50.8)
			\$190	(7.3)	\$191	(78.3)	\$381	(34.1)
	+	+	\$186	(37.3)	\$140	(59.2)	\$326	(46.0)
			\$168	(2.3)	\$157	(75.7)	\$325	(28.2)
			\$151	6.0	\$215	(19.7)	\$366	(7.6)
	-		\$168	10.7	\$131	(57.1)	\$299	(10.1)
union Plans								
<i>Average^b</i>			\$254	(4.7)	\$157	(28.0)	\$411	(12.6)
			\$154	2.4	\$152	(63.0)	\$306	(21.9)
			\$226	(15.5)	\$140	(33.3)	\$366	(21.8)
			\$282	(2.9)	\$188	(38.2)	\$470	(14.6)
			\$215	(16.1)	\$153	(42.8)	\$368	(25.9)
			\$265	2.6	\$162	(29.5)	\$426	(7.5)
			\$245	(0.3)	\$144	(27.5)	\$389	(8.9)

TABLE V.4 (continued)

	Statistical Significance of the Plan's Effect on Part A Costs			Part A		Part B		Total	
	I'	S ^a	H	Mean	Predicted	Mean	Predicted	Mean	Predicted
				Actual costs	Percentage Cost Savings (Loss)	Actual costs	Percentage Cost Savings (Loss)	Actual costs	Percentage Cost Savings (Loss)
H6171			+	\$200	(37.3)	\$132	(38.3)	\$33 1	(37.7)
H626 1			+	\$240	(0.6)	\$152	(32.6)	\$393	(11.0)
H6333				\$306	13.1	\$165	1.3	\$47 1	9.3
H6334				\$357	2.3	\$190	(15.2)	\$547	(3.1)
H6391				\$310	0.2	\$148	11.6	\$458	4.2
Clinics									
Average^b				\$190	(1.2)	\$155	(3 1.5)	\$345	(13.0)
H6102	-			\$177	13.9	\$157	(15.2)	\$334	2.3
H6161	+		+	\$154	(13.3)	\$135	(57.9)	\$289	(30.5)
H633 1				\$240	(4.3)	\$172	(21.5)	\$411	(10.9)

Notes: Actual average costs are the sum of costs per member month from the plan's cost report adjusted to remove the estimated costs of enrollees with end stage renal disease, and average claims per member month, calculated from the National Claims History file, 1993, adjusted to include administrative costs. Predicted percentage savings (losses) are defined as $(1 - \text{actual cost/predicted FFS cost}) \times 100$. Thus, costs to HCFA for enrollees in cost HMOs were 20.7 percent greater on average than what HCFA would have incurred had enrollees been in FFS. For the 60 plans that were not risk plans in 1992, predicted FFS costs and cost savings are based on Augmented regression models (Table V.2), because additional data were available. Otherwise, the Basic regression model was used.

^cPredicted Part A costs are based on expenditure regressions for inpatient, SNF, and home health care for each of the plans. When a service is paid for by a plan, coefficients from an expenditure regression run on a nonenrollee group were used to predict costs for that service. Notes c, d, and e indicate plans that pay for hospitalization, SNF, and/or home health care respectively. For all other services and plans, enrollee and nonenrollee samples are pooled for the regression, and the coefficient on the enrollment status variable is used to adjust actual costs. A positive (negative) coefficient indicates enrollees have higher (lower) expenditures than nonenrollees, and so predicted FFS expenditures for that service are lower (higher) than actual expenditures. Signs (+ and -) are used in columns labeled I, S, and H to indicate statistical significance at the 10 percent level (or better) of the coefficients on the enrollment variable in the inpatient, SNF, and home health care equations, respectively. The absence of a sign or footnote indicates that the estimated coefficient on enrollment was statistically insignificant for that plan and service.

^bUnweighted averages across plans, with the number of plans as the denominator,

^cAt least some hospitalization paid for by the plan.

^dAt least some SNF care paid for by the plan.

^eAt least some home health care paid for by the plan.

^fPredicted FFS costs and savings are based on Basic regression models (Table V.2), because plans were risk plans in 1992.

between actual payments and predicted FFS payments as a percentage of predicted FFS payments). Positive percentages indicate savings, and negative percentages indicate losses. Most of the percentages are negative, indicating that costs to HCFA were increased by the cost program. Table V.5 summarizes the distribution of plans by their predicted savings or losses to HCFA.

1. Overall Impact on Costs

Nearly all cost **HMOs** and the HCPPs lost money for Medicare in 1993. On average, for the 18 cost **HMOs**, actual costs were 20.7 percent (about \$61 per member month) greater than predicted FFS costs, and ranged up to 60 percent of costs. Only two of the cost **HMOs** appeared to save money for HCFA. Most of the cost **HMOs** generated losses in the 10 to 29 percent range. Among the HCPPs, the average loss was very similar, 18.6 percent (\$57 per member month), with over half the plans generating losses in the 10 to 29 percent range. Only 8 of the 45 plans had actual average payments below predicted FFS payments, and only one had apparent savings in excess of 10 percent of predicted FFS costs,

The cost increase to HCFA for the HCPP program as a whole is somewhat smaller than the estimated average across plans, but is still considerable. The means reported above are not weighted by plan enrollment; thus, they indicate the average success of the plans in the program rather than total program impacts on costs to HCFA. When the effects on cost to HCFA per enrollee month for each plan are weighted by member months in the plans, the estimated loss to Medicare from HCPPs declines because one of the more cost-effective plans, Kaiser of Northern California, accounts for 44.0 percent of total HCPP enrollment. The weighted average effect was a loss of 7.0 percent for the HCPPs. The weighted estimate for cost **HMOs** (17.6 percent) was only slightly lower than the unweighted average (20.7 percent).

As a result of audits, actual costs to HCFA are typically slightly smaller on average than what is reported in plans' cost reports, but the difference is too small to materially influence our estimates. The cost reports we used to calculate actual payments were not audited in time for this report. Auditing has

TABLE V. 5

DISTRIBUTION OF PLANS BY PREDICTED SAVINGS OR LOSSES TO HCFA

HCFA Savings (Losses) Relative to Predicted FFS Costs	Part A	Part B	Total
All Plans			
Number with Losses to HCFA			
Over 60 percent	1	22	1
30 to 60 percent	5	27	14
10 to 29.9 percent	7	9	30
0 to 9.9 percent	19	2	10
Number with Savings to HCFA			
Over 10 percent	14	2	1
0 to 10 percent	17	1	7
Total Number of Plans	63	63	63
Cost HMOs			
Number with Losses to HCFA			
Over 60 percent	1	7	0
30 to 60 percent	0	8	6
10 to 29.9 percent	2	1	8
0 to 9.9 percent	6	2	2
Number with Savings to HCFA			
Over 10 percent	4	0	0
0 to 10 percent	5	0	2
Total Number of Cost HMOs	18	18	18
HCPPs			
Number with Losses to HCFA			
Over 60 percent	0	15	1
30 to 60 percent	5	19	8
10 to 29.9 percent	5	8	22
0 to 9.9 percent	13	0	8

TABLE V. 5 (*continued*)

HCFA Savings (Losses) Relative to Predicted FFS Costs	Part A	Part B	Total
Number with Savings to HCFA			
Over 10 percent	10	2	1
0 to 10 percent	12	1	5
Total Number of HCPPs	45	45	45

NOTE: Predicted percentage savings (losses) are defined as $(1 - \text{actual costs} / \text{predicted FFS costs}) \times 100$

historically reduced HCFA's payments to plans by 4.92 percent on average.' However, auditing does not affect payments for out-of-plan services. In addition, only the largest plans are audited annually, and so the savings are generated only every three to four years for the small plans. For our estimates, we divided plans into four groups: (1) Kaiser plans with more than 10,000 enrollees, (2) other Kaiser plans, (3) other plans with more than 10,000 enrollees, and (4) other plans with less than 10,000 enrollees. For the first group, we reduced payments made to Kaiser plans by the historical savings rate from auditing Kaiser plans (4.27 percent). To account for the periodicity of the audits of the second group, we reduced payments made to Kaiser plans by one-third of the historical savings rate from auditing Kaiser plans. For the non-Kaiser plans, we reduced HCFA's payment to each plan by the savings rate from auditing non-Kaiser plans (5.65 percent), and we used one-third of that savings rate for the small non-Kaiser plans.

This yielded the following changes to our estimated effects on HCFA's costs:

	Unweighted	Weighted
cost HMOs		
No audit adjustment	-20.7	-17.6
With audit adjustment	-19.7	-16.5
HCPPs		
No audit adjustment	-18.6	-7.0
With audit adjustment	-17.9	-5.8

On average, the cost **HMOs** are still 16.5 percent more expensive than FFS, and the HCPPs are 17.9 percent more expensive than FFS. Combining the effects of auditing and weighting for enrollment, the total effect on HCFA's costs is an increase of 16.5 percent for the program, and an increase of 5.8 percent for the HCPP program.

⁷The estimate was obtained from HCFA's Office of Managed Care.

2. Impact on Part A and Part B Costs

HCFA's Part B costs, rather than Part A costs, are the source of the losses. The cost HMOs and the HCPPs had small effects on Part A costs, on average. These small predicted effects are based on the regression results for the three components of Part A FFS cost predictions: inpatient, SNF, and home health costs. The three columns at the far left of Table V.4 indicate the significance of effects in each of these regressions. In the first column, a positive sign indicates that the coefficient on the binary variable for whether the beneficiary was an enrollee is positive and significant in the inpatient cost regression. Thus, a positive sign indicates that, when demographics and health status are controlled for, enrollees had higher inpatient costs than nonenrollees. If these enrollees were in the regular FFS Medicare program, we would expect that their inpatient costs would have been lower than the costs incurred under cost contracting. A negative sign indicates that, when demographics and health status are controlled for, enrollees had significantly lower inpatient costs than nonenrollees. For these enrollees, we would expect that costs for their inpatient care would have been higher had they been in FFS Medicare than what HCFA paid under cost contracting. If the plan paid for some inpatient services, then the enrollment status variable is not in the regression. In this infrequent case, the prediction is based on the mean characteristics of enrollees, and the coefficients on all of the independent variables are estimated on the nonenrollee sample (equation 3). This specification is indicated with note "c." Where the column is empty, a coefficient was estimated, but it is not significantly different from zero.

The second and third columns convey the same information about the coefficients on the enrollment status indicator variable from the SNF and home health care payment regressions, respectively. In the SNF column the footnote "d" indicates that the plan paid for some or all SNF services, so the enrollment status variable is not in the regression, and the prediction is from equation (4). In the home health column, the footnote "e" indicates that the plan paid for some or all home health services, so the enrollment status variable is not in the regression, and the prediction is from equation (4).

Plans did not tend to significantly reduce Part A payments relative to FFS, and many plans had significantly higher costs for at least one Part A service. For 9 of the 61 plans for which tests could be conducted, inpatient payments were significantly higher for enrollees than for nonenrollees, and for 4 of the plans, inpatient payments were significantly lower for enrollees. Among the **10** plans that had a significant effect on **SNF** payments, 7 increased payments and 3 decreased payments. Among the 17 plans that had a significant effect on home health payments, 12 decreased payments and 5 increased them.

Average Part A losses to HCFA were small. For Part A payments, the average cost to Medicare per member month from cost **HMOs** was 2.1 percent greater than our estimate of what FFS costs would have been. For half of the 18 cost **HMOs**, HCFA's Part A costs exceeded projected FFS costs. For the **HCPPs**, the average extra cost per member month for Part A HCFA payments was 1.1 percent. About half (23) of the 45 **HCPPs** had costs in excess of FFS projections.

The predicted increase in Part B costs to HCFA per member month are quite large (Table V.4). These extra costs averaged \$59 (55 percent of projected Part B FFS costs) for cost **HMOs** and \$54 (49 percent) for **HCPPs**. For none of the cost **HMOs** and for only three of the **HCPPs** were actual payments less than predicted Part B FFS costs. However, these plans (two of which were union-sponsored plans) actually paid for only **44**, **31**, and 17 percent of their members' Part B costs to HCFA. It is likely that these estimated savings are spurious. The low percentages of expenditures paid by the plans are not likely to be the result of cost-containment measures.

3. Impacts by Plan Characteristics

For all types of plans, costs to HCFA were greater in 1993 than if the enrollees were in traditional FFS Medicare, but the cost increases were greater for some types of plans than others, on average (Table V.6). Surprisingly, **HCFA's** costs increased by 13 percent on average for employee/union and clinic plans versus 21 percent for **HMOs** and **CMPs**. Employer/union and clinic **HCPPs** tended to be smaller, nonprofit, staff model plans that pay their **staff** salaries, and a large proportion of their Part B bills are paid by HCFA

TABLE V.6

MEAN SAVINGS (LOSS) TO HCFA RELATIVE TO PREDICTED
FFS COSTS, BY PLAN CHARACTERISTICS

Plan Characteristics	N	Mean Percentage Savings (Loss)		
		Part A	Part B	Total
Contract Type				
cost HMO	18	(2.1)	(54.5)	(20.7)
HCPP	45	(1.1)	(49.0)	(18.6)
Type of Organization				
HMO/CMP	49	(0.7)	(56.8)	(21.0)
Employer/union	11	(4.7)	(28.0)	(12.6)
Clinic	3	(1.2)	(31.5)	(13.0)
Model Type				
IPA	19	(2.0)	(45.7)	(18.0)
Group	26	1.0	(60.2)	(21.3)
Staff	18	(4.2)	(41.8)	(17.3)
For-Profit Tax Status				
For-profit	23	(2.2)	(57.3)	(22.0)
Not-for-profit	40	(0.9)	(46.7)	(17.5)
Enrollment				
1,000 to 4,999	37	(0.9)	(45.8)	(17.5)
5,000 to 9,999	14	(5.4)	(62.5)	(25.6)
More than 10,000	12	1.9	(51.3)	(17.0)
Prior Risk Contract				
Yes	22	2.8	(55.9)	(18.4)
No	41	(3.6)	(47.0)	(19.6)
Enrollment in Service Area ^a				
< 70 percent	21	(9.9)	(45.7)	(22.7)
70 - 85 percent	16	4.2	(59.6)	(18.2)
85 + percent	26	2.0	(49.0)	(16.9)
Physician Financial Incentives				
Plan directly paid physicians capitation	3	3.0	(50.2)	(18.1)
Plan directly paid physicians salaries	17	(5.7)	(42.8)	(18.4)

TABLE V.6 (continued)

Plan Characteristics	N	Mean Percentage Savings (Loss)		
		Part A	Part B	Total
Plan paid group capitation and group paid salaries	11	3.9	(64.8)	(21.7)
Other	18	(0.3)	(54.6)	(19.7)
Inpatient Utilization Review^b				
Most aggressive	10	1.8	(52.5)	(18.0)
Aggressive	13	1.3	(74.8)	(26.3)
Other	25	(3.9)	(38.8)	(16.2)
Outpatient Utilization Review^c				
Most aggressive	4	(3.5)	(59.6)	(22.0)
Aggressive	9	(1.8)	(46.3)	(17.3)
Other	36	(1.1)	(52.5)	(20.0)
HCPP Covers Preventive Care				
Yes	30	(0.4)	(54.5)	(20.3)
No	4	(2.4)	(29.4)	(12.3)
Mortality Rate Difference, Enrollee - Nonenrollee^d				
≤ (0.010)	22	(2.0)	(57.5)	(22.1)
(0.010) - 0	30	3.9	(50.4)	(15.8)
> 0	11	(14.6)	(37.2)	(22.5)
DCG Difference, Enrollee - Nonenrollee^e				
≤ (0.010)	22	3.0	(51.2)	(16.9)
(0.010) - 0	17	(1.4)	(59.1)	(22.8)
> 0	24	(5.4)	(44.0)	(18.7)

NOTE: Estimates are unweighted means across plans, with the number of plans as the denominator. Predicted percentage savings (losses) are **defined** as $(1 - \text{actual costs} / \text{predicted FFS costs}) \times 100$.

“Service area” includes all counties from which the plan draws at least 10 percent of its total Medicare enrollment.

^bBased on six point scale, with a point each for (1) preadmission authorization required, (2) concurrent review by a special plan employee, (3) retrospective review, (4) preadmission discharge planning by a special plan employee, (5) case management for high cost or chronic conditions, and (6) profiles of physicians’ inpatient utilization. A score of six is labeled “most aggressive,” and a score of five is labeled

TABLE V.6 (continued)

“aggressive.” **The** number of plans with each score are: zero score - 4 plans; one - 1 plan; two-5 plans, three-10 plans; four-4 plans; five-13 plans; six-9 plans.

“Based on specialist referrals and primary ambulatory care. The most aggressive plans require doctors visits to obtain referrals and profile both physicians’ specialist referrals and primary ambulatory care. Aggressive plans either: (1) require telephone pre authorization for referrals and profile both physicians’ specialist referrals and primary ambulatory care, or (2) require doctors visits to obtain referrals and profile physicians’ specialist referrals.

^d**Difference** in mortality rate between enrollees and nonenrollee comparison sample, adjusted for demographic differences. Negative numbers indicate favorable selection, and positive numbers indicate adverse selection.

“Difference between enrollees and nonenrollee comparison sample in the incidence of nondiscretionary high cost hospital stays. Based on Ellis and Ash’s (1995/196) diagnostic cost groups. See Table IV.3, note 6 for a description of the calculations. Negative numbers indicate favorable selection, and positive numbers indicate adverse selection.

directly. It is unclear which of these characteristics, if any, is responsible for the lower losses. Because these plans cover fewer services, there is less opportunity for these **HCPPs** to generate large losses for HCFA, relative to plans that provide more services.

Staff and **IPA** model plans are associated with slightly smaller cost increases to HCFA (17 and 18 percent) than group models (21 percent). Although staff model plans were expected to have lower losses because they do not pay doctors on a FFS basis, group model plans were expected to perform better than **IPAs** because of the tendency of **IPAs** in our sample to have poor financial incentives for providers. Cost increases from not-for-profit plans were 4 percentage points less than those of for-profit plans.

One of the larger differences among groups of plans was that plans with a higher proportion of their enrollees in their service area generated lower losses. These plans may be better able to control inpatient utilization, although aggressive inpatient utilization by itself does not appear to have generated saving in the aggregate. The relationship between plans' financial incentive and losses to HCFA is unclear. Losses on plans that directly pay physicians capitations or salaries are only slightly lower than those on plans with other financial incentives. A more important factor seems to be coverage of preventive services, which is associated with cost increases 8 percentage points higher than those of plans not covering preventive services. The cost of these additional services would be difficult to separate from traditional Medicare services and are likely to be included in the cost reports. While preventive services might lead to lower total costs, the cost effectiveness of some forms of preventive services has been questioned (Russell 1986). In any case, this difference should be interpreted with caution since only 4 plans do not provide preventive services.

The relative magnitude of Part A losses incurred by HCFA for different types of plans is somewhat consistent with predictions (Table V.6). **HMOs** averaged lower Part A losses to HCFA than employee/union and clinic plans. The plans with aggressive inpatient UR, plans with prior risk contracts, and plans with over 10,000 members on average actually generated savings in Part A costs for HCFA.

Plans with higher proportions of enrollees in their local service area also reduced Part A costs, whereas those with less than 70 percent of enrollees in the local area had **sizeable** losses on average. However, other findings are anomalous. Plans with adverse selection incurred the greatest losses to HCFA, under either selection measure.

The correlation between Part B losses and plan characteristics is generally not consistent with predictions (Table V.6). **HMOs** are associated with larger Part B losses for HCFA than employee/union and clinic plans. This **finding** is consistent with **HMOs** saving on inpatient care by substituting outpatient care, but the lack of savings on Part A costs (and the magnitude of increases for part B costs) suggests that **HMOs** are not doing this. Furthermore, outpatient UR and physician financial incentives are not consistently linked to lower Part B losses. Outpatient UR has no consistent effect. Plans that directly pay physicians salaries generated the smallest Part B losses for HCFA. Plans that directly capitate physicians generated losses for HCFA that were about 4 percent lower than those for plans with poor financial incentives. Plans that capitate groups which in turn pay their physicians salaries generated larger Part B losses for HCFA.

4. Eight Plans Associated with Savings to HCFA

Eight plans were associated with savings to HCFA, but these plans have no distinctive features that might explain their lower observed costs (Table V.7). For four of the plans, over half of total Part B costs were paid directly by HCFA, so their “savings” are more likely to be random noise. That is, since over half Part B care to enrollees was billed directly to HCFA, these plans had relatively little control over the total use of services by their members. Another plan, CIGNA of Southern California (**H6056**), did not respond to repeated survey efforts, so little is known about their practices. The plan is unusual in terms of its large Medicaid enrollment (82 percent). We are likely to have underestimated its actual costs, because CIGNA included all three of the **HCPPs** it marketed in Southern California in one cost report, and the other two CIGNA plans had healthier enrollees. The three remaining plans are those most likely to

TABLE V.7
CHARACTERISTICS OF PLANS WITH POSITIVE PREDICTED SAVINGS

Plans with Positive Predicted Savings to HCFA										
Characteristics	Cigna of Southern California (H6056)	NYSA-ILA Coordinating Committee (H6333)	Kaiser of Northern California (H6052)	Police & Fire Medical Association (H6391)	Capital Group Health (H1010)	Health Plan of Upper Ohio Valley (H5102)	Boro Medical Corp (H6102)	United Health Care (H1649)	Average Over Plans with Predicted Losses (N=55)	
Predicted Percentage Savings (Losses)										
Part A	30.2	13.1	26.4	0.2	13.2	12.2	13.9	(4.7)	(3.5)	
Part B	(10.7)	(1.3)	(31.0)	11.6	(9.9)	(18.3)	(15.2)	11.9	(56.8)	
Total	13.1	9.3	6.4	4.2	4.2	2.6	2.3	1.5	(22.7)	
Contract Type										
Cost HMO	✓	✓	✓	✓	✓	✓	✓	✓	29%	
HCPP									71%	
Plan Type										
HMO	✓	✓	✓	✓	✓	✓	✓	✓	80%	
Employer/Union Clinic									16%	
									4%	
Model Type										
IPA									31%	
Group Staff	✓	✓	✓	✓	✓	✓	✓	✓	44%	
									25%	
Enrollment (Member Months)	25,908	164,098	2,382,310	52,047	17,940	97,324	39,364	20,908	78,428	
Prior Risk Contract								✓	38%	
Contract in March, 1996										
Cost/HCPP		✓	✓	✓	✓	✓	✓	✓	85%	
Risk									11%	
None	✓								4%	
For-Profit Tax Status										
For-profit	✓		✓	✓	✓	✓	✓	✓	38%	
Not-for-profit									62%	
Percent of Enrollment in Service Area'	88.2	29.6	53.0	67.9	77.7	93.1	85.2	95.3	75.2	
Percent of Part B Costs Billed Directly to HCFA	12.2	72.8	16.0	82.8	25.0	27.5	72.6	56.5	30.9	

TABLE V.7 (continued)

Characteristics	Plans with Positive Predicted Savings to HCFA										Average Over Plans with Predicted Losses (N=55)
	Cigna of Southern California (H6056)	NYSA-ILA Coordinating Committee (H6333)	Kaiser of Northern California (H6052)	Police & Fire Medical Association (H6391)	Capital Group Health (H1010)	Health Plan of Upper Ohio Valley (H5102)	Boro Medical Corp (H6102)	United Health Care (H1649)			
Mortality Rate Difference Enrollee-non-enrollee^a	(0.011)	(0.002)	(0.007)	0.005	(0.001)	(0.005)	(0.007)	0.009			(0.009)
DCG Difference Enrollee-non-enrollee ^a	(0.060)	0.013	(0.004)	0.008	(0.008)	0.001	(0.020)	0.011			(0.007)
Percent Receiving Medicaid	82.2	1.2	2.3	1.1	1.4	3.1	3.9	3.6			2.0
Percent Eligible Due to Disability	37.2	7.2	5.2	4.7	5.8	5.6	3.8	3.0			5.3

NOTE: Unweighted means across plans, with the number of plans as the denominator. Predicted percentage savings (losses) are defined as $(1 - \text{actual costs}/\text{predicted FFS costs}) \times 100$

^a“Service area” includes all counties from which the plan draws at least 10 percent of its total Medicare enrollment

^b**Difference** in mortality rate between enrollees and non-enrollee comparison sample, adjusted for demographic differences. Negative numbers indicate favorable selection, and positive numbers indicate adverse selection.

^cDifference between enrollees and non-enrollee comparison sample in the incidence of nondiscretionary high cost hospital stays (based on Ellis and Ash's (1995) 1996) diagnostic cost groups). Negative numbers indicate favorable selection, and positive numbers indicate adverse selection.

have generated real savings to HCFA. These plans are similar primarily in terms of their non-profit HMO status, evidence of favorable selection, and larger predicted savings on Part A services offsetting relatively modest losses on Part B. However, they differ on most other characteristics. Kaiser of Northern California is a large, group model HCPP with decades of experience in managed care. Capital Group Health is a small staff model cost HMO, and Health Plan of the Upper Ohio Valley is a modest size, **IPA-model** cost HMO, with about 8,000 members and over 90 percent of its enrollment within its service area. Neither the financial incentives for physicians nor the UR procedures of these plans appear to be strikingly different from those of other, less cost-effective plans.

5. Discussion

The pervasiveness and magnitude of the losses to HCFA, which arise from higher Part B costs under cost contracting, is **difficult** to explain. Administrative expenses, at an average of \$10 per member month, are higher than in the FFS program, but they account for only a small portion of the large average losses to Medicare (\$61 per member month for **HCPPs**).⁸ More plausible explanations arise **from** the market for physicians services.

There are several reasons to expect the cost **HMOs** and **HCPPs** to pay physicians more than they would earn through the Medicare FFS program. First, there is no incentive to keep physician reimbursement below the amount they would earn under Medicare. Because the plans do not share any profits that result **from** keeping costs down there is no incentive to do so. Furthermore, Medicare member often comprise only a small fraction of the total enrollment of these plans. Thus, plan executives are unlikely to antagonize physicians by insisting on salaries, **capitation** rates, or fee schedules that are low relative to Medicare FFS payments, given the small savings that would accrue to the plan. Second, even if plans had the incentive to do so, it would be difficult under many physician payment arrangements to

⁸Executives at one HMO said that the plan switched from a risk contract because the cost contract allowed it to allocate more fixed costs to Medicare.

determine *how* to set rates below Medicare rates. For example, if physicians are paid a salary, what rate would be equivalent to the amount they would earn treating the same patients under Medicare FFS reimbursement? Similarly, determining a capitation rate for physician services that would be equivalent to the reimbursement that physicians would receive under Medicare FFS would be difficult. Since plans have no incentive to hold these costs below those that Medicare would have incurred, they often choose the more expedient approach of basing physicians' pay on the amount that they earn for serving the plan's commercial clients. These rates will typically result in higher costs to Medicare. Finally, plans may not be able to negotiate rates for physician services as low as those paid by Medicare. As a large governmental purchaser, Medicare has the power to set fees below those of the commercial insurers. A cost HMO or HCPP with a few thousand enrollees has much less bargaining power.

Our interviews with the plans provide some limited evidence to support this theory. Only 8 of the 29 plans that answered our questions about physician pay said that they paid physicians the Medicare allowable rate for services to Medicare patients or paid physicians lower FFS rates for Medicare patients than for commercial clients. Eighteen (60 percent) of the plans said that their physicians' pay does not differ for services to Medicare and non-Medicare members. This group includes about equal numbers of plans paying salaries, capitation rates, and fee-for-service rates. Another 3 plans pay capitation rates that differ for Medicare and non-Medicare clients, but the rates are not tied to expected earnings under Medicare FFS

✓

✓

✓

VI. COST OR SAVINGS RELATIVE TO RISK CONTRACTING

Many of the cost **HMOs** and HCPPs in our study had converted from risk contracts. Their reasons for converting and the relative costs to HCFA of cost and risk contracting are the subjects of this chapter.

A. REASONS FOR CONVERTING FROM RISK TO COST CONTRACTS

One-third of the 65 cost **HMOs** or HCPPs with more than 1,000 enrollees in December 1993 once held a Medicare risk contract. Twenty former risk plans converted to cost or HCPP contracts between 1990 and 1992. In 1994, we interviewed 8 cost **HMOs** and 11 HCPPs that formerly held Medicare risk contracts to learn why risk plans convert to cost or HCPP contracts and the factors they consider when choosing ~~between~~ a cost or HCPP contract. The discussion below is drawn from our interim report on the plan case studies (Nagatoshi and Brown 1995).

The 19 former risk plans we interviewed identified four reasons for converting to cost or HCPP contracts: financial concerns, market factors, regulations, and adverse selection. Financial concerns was the leading reason. Only two plans identified adverse selection as a reason for conversion. (Plans were allowed to specify multiple reasons.)

Eighteen plans stated that they lost money under their risk contract. During the same time, about half of these plans were also losing money on their commercial business. Most plans (79 percent) indicated that their financial problems were due to low AAPCC rates. On average, the 1993 AAPCC rate was about \$40 (11 percent) lower for former risk plans than for cost **HMOs** and HCPPs without a prior risk contract. Over 40 percent of the plans also said that their financial problems were due to difficulties controlling their costs. For example, one plan stated that it was unable to control hospital admissions and hospital days. Another plan stated that due to its rapid growth, some enrollees had to seek care from non-network providers at higher cost.

Some former risk plans are in markets where other risk plans have continued to operate successfully. These plans also attribute their withdrawal to market factors or problems with program regulations. A few plans stated that because they had low enrollment levels, they had problems obtaining discounts from providers and were unable to spread their risk adequately. Three plans mentioned problems with regulations. For example, one plan converted after the state mandated that all insurers and HMOs pay hospitals on a DRG basis. This plan had been paying hospitals on a per-diem basis, which was more advantageous than the state DRG rates to the plan. This change to DRG rates eliminated a major strategy used by risk plans to save money, which is to shorten hospital stays (Hill et al. 1992).

The converting plans gave several reasons for remaining in the Medicare market as a cost or HCPP plan rather than exiting it completely. Many wanted to continue serving all age groups and/or felt obligated to their communities to continue serving Medicare patients. Many of the HCPPs remained at the request of their clients who are employers. A few remained in the market to avoid bad publicity or to maintain relationships with their providers, since they were interested in eventually offering a risk plan again.

The main reason the HCPP contracting option was selected instead of cost contracting was to avoid the regulations that pertain to cost plans. Most cost plans chose the cost contracting option because of information or advice they received from HCFA or from their own advisors. One cost plan stated that it was interested in returning to risk contracting, and a cost contract was more similar to a risk contract. Another cost plan stated that the cost program is consistent with its belief in the benefits of comprehensive services.

These former risk plans converted to cost contracts with the expectation that their revenues would increase under cost-based reimbursement. The nature of the problems many of them identified, such as trouble controlling costs and inadequate AAPCC rates, suggests that under cost-based reimbursement, they may not be saving HCFA money relative to Medicare FFS.

If the cost and HCPP contract options were not available, most of the former risk plans would not have continued their risk contract because their financial losses would have been too great. One-third of the plans said they would have instead offered Medigap policies. Almost one-fourth would have dropped out of the Medicare market. Only one plan would have continued as a risk plan.

About three-fourths of the cost HMOs and HCPPs that are eligible to sign a risk contract have considered doing so.¹ Plans are more likely to consider risk contracting if there is a sizeable increase in the local AAPCC rates, if they have competition from other risk plans, or if their providers become more willing to share some of the risks. If the cost and HCPP programs were discontinued, about one-third of the cost HMOs and HCPPs eligible to sign risk contracts said they would do so.

B. METHODOLOGY

To evaluate the cost-effectiveness of cost-based payment relative to risk-based payment, we compared Medicare payments in 1993 for each cost HMO and HCPP sample plan to our estimate of what each plan's Medicare payments would have been under a Medicare risk contract. Our method for computing actual Medicare payments for each sample plan is described in Chapter V.² Our method for computing estimated risk payments for each cost and HCPP plan is explained below.

The Medicare payments to a risk plan can be written as:

$$(1) \text{ Medicare riskpayment} = \sum_k \text{AAPCC}_k * \text{ARF}_k * N_k$$

¹Forty-two plans were eligible to sign risk contracts. Union/employer-sponsored plans are not allowed to enter into Medicare risk contracts.

²Our estimates of actual costs used in this chapter differ slightly from those in Chapter V, because here we restrict the sample over which actual costs are calculated to enrollees residing in the plan's defined service area. This change is necessary to ensure that costs are measured over the same geographic area that we use in generating risk contracting revenues.

where $AAPCC_k$ is the AAPCC rate for county k , ARF_k is the average risk factor for plan enrollees from this county, and N_k is the number of enrollee months from county k . For the purpose of calculating average risk factors for each plan, we defined each plan's service area as all counties with at least 10 percent of the plan's Medicare enrollment.³ Medicare risk payments were calculated separately for Medicare Part A and Part B and summed to yield total payment.

Data on 1993 AAPCC rates for each county in the country are published by HCFA, and the number of enrollee months by county in 1993 for each sample plan can be computed from the GHP master-file. Average risk factors for each county, however, had to be estimated. Average risk factors are the weighted average of HCFA's demographic cost factors, the weight being the estimated distributions of plan enrollees over the AAPCC rate cells. Thus, the Part A and Part B average risk factors (ARFA and ARFB) for county k were calculated as:

$$(2A) \quad AREA_k = \sum \sum C_{ij}^A e_{ij}^k$$

$$(2B) \quad ARFB_k = \sum \sum C_{ij}^B e_{ij}^k$$

where

C_{ij}^A = Part A demographic cost factor for rate cell i,j

C_{ij}^B = Part B demographic cost factor for rate cell i,j , and

e_{ij}^k = Percent of county k sample enrollees that fell into rate cell i,j

Demographic cost factors indicate HCFA's estimate of the relative cost of caring for risk plan enrollees in the various AAPCC rate cells. The AAPCC risk cells separate each age/gender group into three categories:

³In Chapter III, we describe how we **defined** each plan's service area for purposes of calculating average risk factors and estimating Medicare risk-based payments. Chapter III also contains a table that lists the counties in each plan's service area.

1. Not institutionalized, non-Medicaid
2. Not institutionalized, Medicaid
3. Institutionalized

Table VI. 1 displays the 1993 demographic cost factors for individuals according to their age, gender, Medicaid status, and institutional (nursing home) status. For example, a relatively low-cost individual is a female, age 65 to 69, who is not on Medicaid and who is not in an institution. In 1993, her risk factor was .55. A relatively high-cost individual is a female, age 85 or older, who is in an institution; her risk factor was 2.0.

If data on all of the characteristics needed to **identify** the rate cell into which an enrollee falls were available for each enrollee from the **GHP** masterfile or Enrollment **Database** file, we could calculate the risk payment amount exactly. However, these files lack data on whether cost and HCPP enrollees reside in an **institution**.⁴ Thus, for each plan we estimated the distribution of each age/gender group of enrollees across these three AAPCC cells.

We used several approaches to estimate the distribution of enrollees across the rate cells needed to compute the ARF, depending upon the type of data available for each plan:

1. For plans that previously held a risk contract, we used the actual distribution of enrollees across rate cells to compute the average risk factor for the plan during the last year of operation as a risk plan. We used this as the estimate for the current contract, assuming that the mix was not likely to have changed greatly. The percentage of enrollees on Medicaid in these plans during the time the plan held a risk contract was calculated from the GHP file and compared to the current percentage to confirm the similarity of the enrollment base.
2. For **all** plans, we used the observed distribution between Medicaid and non-Medicaid for each age/gender category, together with external information, to estimate the proportion in institutions. Several external sources were used. For each approach, the objective was to determine for each age/gender cell the probability of being in a particular institution&Medicaid group (P_{im}), based on the observed proportion of enrollee months on Medicaid (P_m), and an estimate of the conditional probability of being in an institution, given Medicaid status [$P(i|m)$]:

⁴The GHP master-file does contain data on whether risk plan enrollees reside in institutions.

TABLE VI. 1

AAPCC DEMOGRAPHIC COST FACTORS FOR 1993

	Male			Female		
	Non-Institutionalized			Non-hstitutionalized		
	Institutionalized	Medicaid	Non-Medicaid	Institutionalized	Medicaid	Non-Medicaid
Part A: Hospital Insurance						
Aged						
85 and over	2.40	2.50	1.30	2.00	1.95	1.10
80 - 84	2.40	2.35	1.20	2.00	1.65	1.00
75 - 79	2.40	2.10	1.10	2.00	1.40	.80
70 - 74	2.40	1.70	.85	1.80	1.10	.70
65 - 69	1.90	1.30	.70	1.55	.85	.55
Disabled						
60 - 64	.60	1.85	1.00	.65	1.55	1.30
55 - 59	.85	1.50	.80	.95	1.35	.95
45 - 54	1.10	1.30	.70	1.20	1.20	.75
35 -44	1.30	1.10	.60	1.40	1.20	.60
Under 35	1.75	1.10	.60	1.85	1.20	.55
Part B: Supplemental Medical Insurance						
Aged						
85 and over	1.90	1.65	1.15	1.70	1.25	1.00
80 - 84	1.90	1.65	1.15	1.70	1.25	1.00
75 - 79	1.90	1.60	1.10	1.70	1.25	.95
70 - 74	1.85	1.40	1.00	1.65	1.15	.85
65 - 69	1.60	1.10	.75	1.50	1.05	.70
Disabled						
60 - 64	.95	1.50	1.00	1.25	1.65	1.30
55 - 59	1.10	1.30	.80	1.45	1.45	1.15
45 - 54	1.25	1.15	.60	1.60	1.25	.95
35 -44	1.35	1.00	.50	1.75	1.10	.80
Under 35	1.55	1.00	.40	1.80	.95	.70

$$(3) P_{im} = P_m * P(i|m),$$

where i is a binary indicator for whether the beneficiary is institutionalized or not, and m indicates whether the beneficiary is on Medicaid. We used three methods to obtain three different estimates of $P(i|m)$ for each plan:

- An average of the $P(i|m)$ estimates from the plans that had previous risk contracts (calculated from the GHP file)
- The average $P(i|m)$ for risk plans (if any) operating in the counties served by the cost plan or HCPP in 1993 (calculated from the GHP file)
- An estimate of $P(i|m)$ calculated from nonenrollees in the counties served by the plan:

$$P(i=0|m=1) = P^N(i=0, m=1)/P^N(m=1) = P^N(i=0, m=1)/[P^N(i=0, m=1) + P^N(i=1)P^N(m=1|i=1)]$$

$$P(i=0|m=0) = P^N(i=0, m=0)/P^N(m=0) = P^N(i=0, m=0)/[P^N(i=0, m=0) + P^N(i=1)(1-P^N(m=1|i=1))]$$

$$P(i=1|m=1) = 1 - P^N(i=0|m=1)$$

$$P(i=1|m=0) = 1 - P^N(i=0|m=0)$$

where $P^N(i=0, m=0)$, and $P^N(i=0, m=1)$, and $P^N(i=1)$ are the proportions of nonenrollees in the county who are in the three institutional/Medicaid cells defined by HCFA (from HCFA's stacked demographics file) and $P^N(m=1|i=1) = .6$ (Short et al. 1992).⁵

After these estimates of $P(i|m)$ were derived, for each plan we constructed P_{im} for different values of institutional status and Medicaid status for each age/gender cell using the plan's actual proportion of enrollees on Medicaid $P(m=1)$:

$$(4A) \quad \text{Not in institution, not on Medicaid: } P(i=0, m=0) = \hat{P}(i=0|m=0) * P(m=0)$$

⁵Another approach would be to use $P(m=1)$ and $P(m=0)$ from the GHP masterfile, but this could lead to anomalous results (conditional probabilities that are negative or greater than 1) because the numerator and denominators would come from two different data sources.

(4B) Not in institution, on Medicaid: $P(i=0, m=1) = \hat{P}(i=0|m=1) * P(m=1)$

(4C) In institution: $P(i=1) = \hat{P}(i=1|m=0) * P(m=0) + \hat{P}(i=1|m=1) * P(m=1)$

The average risk factors were then calculated as the weighted average of the cost factors for the AAPCC risk cells, the weight for each factor being the estimated proportion of plan enrollees in that risk cell.

A comparison of the average risk factors obtained under the alternative estimation methods described above reveals differences of about 30 percent between method one and method three. The first two methods yielded fairly similar estimates because previous analysis of risk plans suggests that none of the plans is likely to have enrolled a **sizeable** portion of nursing home residents. The third method yielded a somewhat higher ARF estimate because the proportion of nonenrollees in nursing homes is used to estimate the proportion of cost HMO or HCPP enrollees who would be in a nursing home. Thus, this should be viewed as an upper bound on the estimate, whereas the other two measures should be considered reasonable lower bound estimates for the ARF.

The ratio of actual costs to projected costs under risk contracting was computed for each plan in the analysis, for all cost **HMOs** combined, for all HCPPs combined, and for subgroups of HCPPs and cost plans defined by plan characteristics. We also computed the ratios for Part A and Part B costs separately. The ratio of actual plan costs to the AAPCC for Part A services will reflect biased selection, any effects that plans have on Part A service use, and errors in the local AAPCC. The ratio for Part B costs will reflect these factors plus the rates that plans pay for particular **services**.⁶

One issue that could lead to inappropriate inferences about the cost-effectiveness of cost contracting relative to risk contracting is that differences between the two could be partly the result of overestimates or underestimates of the USPPC, **HCFA's** projection of the average cost per Medicare beneficiary in the

⁶To obtain the full AAPCC rates we divided the published county AAPCC rates by .95 since the published rates are the risk program payment rates for each county (i.e., 95 percent of the estimated AAPCC for a county).

United States, for calendar year 1993. County AAPCC rates for risk plans are equal to the USPCC, multiplied by a geographic adjustment factor that reflects historic differences across counties in payment per capita. However, the USPCC is projected nearly two years before a contract year. Errors in projecting the USPCC for 1993 will clearly affect imputed capitation payments for enrollees and the cost-effectiveness of cost **HMOs** and **HCPPs** relative to risk contracts. Compared with a year when the USPCC is projected accurately, overestimates of the USPCC in 1993 will raise imputed capitation payments, making cost **HMOs** and **HCPPs** more cost-effective relative to risk plans than they would be if the USPCC were accurately estimated. Underestimates of the USPCC will have the opposite effect. Over the past 10 years, over-predictions and underpredictions of the USPCC have been roughly balanced, indicating that over time, it is an unbiased predictor of average cost to Medicare per beneficiary, although it may be off a few percent in either direction in any given year.

HCFA's retrospective calculations for 1993 show that the error in the projected USPCC for aged beneficiaries that was used in calculating the 1993 AAPCC rates was quite small for Part A but fairly large for Part B. For 1993, the Part A USPCC was underestimated by 0.5 percent, but the Part B USPCC was overestimated by 18 percent. Thus, our estimated ratio of Part B costs under cost contracting to what they would have been under risk contracting for 1993 would be larger if the USPCC had not been overestimated so greatly. The actual USPPC rates for beneficiaries eligible because of a disability were 2.7 percent lower than the AAPCC rates for both Parts A and B.

C. COMPARISON OF ACTUAL PAYMENTS TO PAYMENTS UNDER RISK CONTRACTING

HCFA's actual cost-based payments exceed estimated risk-based payment levels by a substantial margin on average, but costs were lower than risk payment levels for over one-third (38 percent) of the plans. Although we present our results for all sample plans, only plans that are federally qualified **HMOs** or **CMPs** that comply with federal and state regulations regarding quality assurance plans, marketing

practices, and reporting requirements can sign risk or cost contracts. HCPPs that are sponsored by unions or clinics are not eligible to convert to the risk program. We did not drop union or clinic-sponsored plans from our analysis, however, because it is **useful** to know whether cost-based plans as a group are more or less cost-effective to HCFA relative to risk-based plans, and whether union and clinic plans are more or less cost-effective than HMO and CMP plans.

1. Impacts on Total Payments

On average across plans, HCFA payments for enrollees in cost plans in 1993 were 10.8 percent higher than the average risk-based payments would have been, and payments for enrollees in HCPPs exceeded risk-based payment levels by 6.9 percent.⁷ Table VT.2 (columns 2 and 3) presents our comparison of actual average Medicare cost-based and risk-based payments separately by plan and for cost HMOs and HCPPs overall.

Although HCFA payments on average were higher for enrollees in cost and HCPP plans, HCFA payments for enrollees in over one-third of the cost and HCPP plans were lower than they would have been under risk contracting. For six cost plans (33 percent) and 18 HCPPs (40 percent) HCFA's costs were lower under cost contracting. If these 24 plans had converted to risk contracts in 1993, HCFA's average payment for beneficiaries enrolled in these plans would have increased (assuming no changes in plan enrollment or operations). The plan with the greatest overall savings relative to risk contracting was Cigna of Southern California (**H6056**), an HCPP HMO/CMP, which had 39 percent savings.⁸ Four additional plans had overall savings of 10 percent or more relative to risk contracting costs: Health Plan of Upper Ohio Valley (**H5 102**), Capital Group Health (**H1 010**), HIP Network of Florida (**H633 6**), and Boro Medical

⁷As indicated in Table VI.2, these are unweighted averages across all sample plans, with the number of plans as the denominator. Weighted averages are presented and discussed in Table VT.3 below.

⁸This is likely to be somewhat of an overestimate of savings, however. Cigna filed a single cost report for this and two other Cigna HCPPs, which both had more favorable selection. Thus, Cigna probably incurred higher costs per member month on the Southern California plan than the other two Cigna plans.

TABLE VI.2

OVERALL COMPARISON OF ACTUAL AVERAGE MEDICARE
COSTS AND AAPCC RATES TOTAL COSTS

	Actual Average Costs ^b	Percentage Cost Savings (Loss) to HCFA Relative to ^a :	
		Predicted Average Payments as Risk Plan ^c (95% AAPCC)	AAPCC Adjusted for Risk Factors ^d (100% AAPCC)
All Cost HMOs			
<i>Average^e</i>	\$360	(10.8)	(5.3)
IPA Model			
<i>Average^e</i>	\$330	(6.0)	(0.7)
HO602	\$344	(15.8)	(10.0)
HO749	\$377	(17.3)	(11.5)
H1203	\$292	3.7	8.5
H3 104	\$420	(20.6)	(14.6)
H3356	\$299	5.8	10.5
H3801	\$353	(7.9)	(2.5)
H3851	\$262	(7.9)	(2.5)
H5102	\$293	11.8	16.2
Group Model			
<i>Average^e</i>	\$415	(21.7)	(15.6)
H1553	\$393	(12.7)	(7.0)
H3149	\$438	(30.6)	(24.1)
Staff Model			
<i>Average^e</i>	\$375	(12.9)	(7.2)
HO502	\$626	(36.5)	(29.6)
H1010	\$233	12.7	17.0
H1449	\$501	(26.8)	(20.4)
H 3 3 0 8	\$291	0.5	5.5
H3349	\$286	(9.1)	(3.7)
H3602	\$309	6.4	11.1
H4101	\$367	(19.1)	(13.1)
H5002	\$390	(31.2)	(24.6)
All HCPP Plans			
<i>Average^e</i>	\$362	(6.9)	(1.6)

TABLE VI.2 (continued)

	Actual Average Costs ^b	Percentage Cost Savings (Loss) to HCFA Relative to ^c :	
		Predicted Average Payments as Risk Plan ^c (95% AAPCC)	AAPCC Adjusted for Risk Factors ^c (100% AAPCC)
HMOs			
<i>Average</i> ^c	\$346	(6.4)	(1.1)
H065 1	\$312	(14.4)	(8.7)
H0652	\$273	4.1	8.9
H0704	\$387	(23.2)	(17.1)
H1149	\$338	(6.7)	(1.4)
H1649	\$282	3.6	8.5
H1703	\$314	4.9	9.7
H1949	\$480	(28.8)	(22.4)
H2150	\$325	(3.4)	1.7
H225 1	\$386	(18.3)	(12.4)
H2254	\$306	(14.2)	(8.5)
H2449	\$302	(15.9)	(10.1)
H2450	\$340	(1.1)	4.0
H245 1	\$252	6.1	10.8
H2453	\$306	7.7	12.3
H260 1	\$389	(13.6)	(7.9)
H3301	\$362	5.3	10.0
H345 1	\$280	(4.2)	1.0
H3452	\$280	(9.0)	(3.6)
H3601	\$309	1.9	6.8
H4555	\$396	(45.0)	(37.7)
H4600	\$280	(4.8)	0.5
H6052	\$328	9.5	14.0
H6054	\$453	5.4	10.1
H6055	\$434	9.4	13.9
H6056	\$404	39.2	42.2
H609 1	\$510	(21.8)	(15.7)
H6144	\$388	(30.0)	(23.5)
H6151	\$315	(21.1)	(15.0)
H6152	\$326	(19.5)	(13.5)
H6336	\$361	12.4	16.8
H6521	\$300	(13.2)	(7.6)
Union Plans			
<i>Average</i> ^c	\$413	(9.3)	(3.8)
H1605	\$305	(22.7)	(16.5)
H4556	\$370	(25.3)	(19.1)
H6053	\$466	(1.5)	3.6
H6140	\$369	(31.9)	(25.3)
H6141	\$434	0.1	5.1

TABLE VI.2 (continued)

	Actual Average Costs ^b	Percentage Cost Savings (Loss) to HCFA Relative to ^a :	
		Predicted Average Payments as Risk Plan ^c (95% AAPCC)	AAPCC Adjusted for Risk Factors ^d (100% AAPCC)
H6142	\$380	4.4	9.2
H6171	\$295	(2.8)	2.3
H626 1	\$400	(18.2)	(12.3)
H6333	\$474	0.6	5.6
H6334	\$562	(9.8)	(4.3)
H6391	\$484	5.0	9.7
Clinics Average ^e	\$348	(3.4)	1.8
H6102	\$344	2.8	7.7
H6161	\$295	(23.2)	(17.0)
H633 1	\$405	10.3	14.8

^a Percentage savings = (1 - actual cost/projected costs under risk contracting) * 100.

^b **Actual** average costs for enrollees in the plan's local service area. Sum of costs per member month from the plan's cost report adjusted to remove estimated expenditures for enrollees with ESRD, and average claims per member month calculated from the National Claims History file, 1993, adjusted to include administrative costs.

^c "Adjusted" AAPCC rates given in columns 3 and 4, are obtained by averaging the imputed demographic cost factors for sample members over enrollment months for each county; multiplying by the sample proportion of enrollee months for that county, and the county AAPCC rate; and summing over counties in the market area. Average payments in column 3 are equal to 95 percent of this adjusted AAPCC. (Published AAPCC rates, which already incorporate the .95 factor, were scaled up to equal the full AAPCC.)

^d **Unadjusted** AAPCC rates are computed from the published county payment rates, divided by .95 to yield the full county AAPCC for the elderly. The estimate is a weighted average of the county AAPCCs for the market area, using as weights the population of plan enrollment from each county. They do not incorporate average risk factors.

^e Unweighted averages across plans, with number of plans as the denominator.

TABLE VI.3

CHARACTERISTICS OF PLANS WITH HIGH SAVINGS RELATIVE TO PREDICTED RISK PAYMENTS

Characteristics	Plans with Predicted Savings Greater Than 10 Percent					Average Over Plans with 0-9.9 Percent Predicted Savings (N=19)	Average Over Plans with Predicted Losses (N=39)
	Cigna of Southern California (H6056)	Capital Group Health (H1010)	HIP Network of Florida (H6336)	Health Plan of Upper Ohio Valley (H5 102)	Boro Medical Center (H633 1)		
Predicted Percentage Savings (Losses) Relative to Predicted Risk Payments							
Part A	52.5	17.9	27.8	16.0	23.1	13.5	(1.9)
Part B	19.9	5.8	(2.1)	4.4	(12.1)	(9.2)	(41.7)
Total	39.2	12.7	12.4	11.8	10.3	4.6	(17.4)
Predicted Percentage Savings (Losses) Relative to FFS							
Part A	30.2	13.2	6.0	12.2	(4.3)	(0.3)	(3.9)
Part B	(10.7)	(9.9)	(19.7)	(18.3)	(21.5)	(31.0)	(64.5)
Total	13.1	4.2	(7.6)	(2.6)	(10.9)	(11.3)	(25.5)
Contract Type							
Cost HMO		✓		✓		21%	31%
HCPP	✓		✓		✓	79%	69%
Plan Type							
HMO	✓	✓	✓	✓		74%	79%
Employer/Union						21%	18%
Clinic					✓	5%	3%
Model Type							
IPA			✓	✓		37%	26%
Group						32%	51%
Staff	✓	✓			✓	32%	23%
Enrollment (Member Months)	25,908	17,940	3 1,739	97,324	83,107	192,794	81,892
Prior Risk Contract			✓			32%	38%
Contract on March, 1996							
Cost/HCPP		✓		✓	✓	79%	90%
Risk			✓			16%	8%
None	✓					5%	3%
For-Profit Tax Status							
For-profit	✓					32%	41%
Not-for-profit		✓	✓	✓	✓	68%	59%
Percent of Enrollment in Service Area'	88.2	77.7	85.4	93.1	82.4	77.4	72.6
Percent of Part B Costs Billed Directory to HCFA	12.2	25.0	25.3	26.5	75.6	38.3	30.2

TABLE VI.3 (continued)

Characteristics	Plans with Predicted Savings Greater Than 10 Percent						Average Over Plans with 0-9.9 Percent Predicted Savings (N=19)	Average Over Plans with Predicted Losses (N=39)
	Cigna of Southern California (H6056)	Capital Group Health (H1010)	HIP Network of Florida (H6336)	Health Plan of Upper Ohio Valley (H5 102)	Boro Medical Center (H6331)			
Mortality Rate Difference Enrollee-Nonenrollee ^b	(0.0 11)	(0.001)	(0.010)	(0.005)	(0.022)	(0.004)	(0.010)	
DCG Difference Enrollee-Nonenrollee ^c	(0.060)	(0.008)	(0.019)	0.001	(0.012)	(0.009)	(0.004)	
Percent Receiving Medicaid	82.2	1.4	0.3	3.1	3.7	1.7	2.1	
Percent Eligible Due to Disability	37.2	5.8	8.0	5.6	2.4	4.7	5.5	

NOTE: **Unweighted** means **across** plans, with the number of plans as the denominator. Predicted percentage savings (losses) are defined as $(1 - \text{actual costs} / \text{predicted FFS costs}) \times 100$.

“Service area” includes all counties from which the plan draws at least 10 percent of its total Medicare enrollment.

^b **Difference** in mortality rate **between** enrollees and **nonenrollee** comparison sample, adjusted for demographic differences. Negative numbers indicate favorable selection, and positive numbers indicate adverse selection.

^c **Difference between enrollees** and **nonenrollee** comparison sample in the incidence of **nondiscretionary** high cost hospital stays (based on Ellis and Ash’s (1995/1996) diagnostic cost groups). Negative numbers indicate favorable selection, and positive numbers indicate adverse selection.

Center (H633 1). Among the five plans for which HCFA's costs were 10 percent or more below risk payment levels, four are **HMOs** or **CMPs**, four are nonprofit, and four were not formerly risk plans (Table VI.3). All five plans had evidence of favorable selection (according to both mortality and DCG measures), and for all five, at least three-fourths of their enrollees reside in their service area.⁹ Thirty percent of the 24 plans that saved HCFA money relative to risk contracting are former risk plans, roughly the same proportion that former risk plans comprise among the plans for which HCFA lost money. Of special interest is the fact that four of the cost-effective plans had converted to a risk contract by January 1996. Most of these 24 plans are nonprofit, most had favorable selection (according to both measures), and most did *not* have aggressive inpatient or outpatient utilization review programs. Thus, no characteristics especially distinguished the successful and unsuccessful plans.

For thirteen plans, costs to HCFA exceeded risk payment levels by 25 percent or more. If these 13 plans had converted to risk contracts in 1993, HCFA payments per beneficiary enrolled in these plans would have decreased substantially (assuming no changes in plan enrollment or operations). The two plans for which costs exceeded risk payment levels by the largest margin are Scott and White Health Plan (**H4555**), an HCPP whose enrollees cost HCFA 45 percent more than risk payment levels, and Contra Costa HMO (**H0502**), a staff model cost HMO whose enrollees cost HCFA 37 percent more than risk contracting would have.

HCFA's cost for enrollees in cost **HMOs** and **HCPPs** exceeds even the full AAPCC. The fourth column in Table VI.2 (AAPCC adjusted for demographic risk factors) indicates our estimated HCFA payments if each plan were paid 100 percent of the relevant AAPCC rate for their enrollees instead of 95 percent of the AAPCC rate. That is, this column indicates HCFA's actuarial estimate of payments for risk plan enrollees (assuming no biased selection) if they had instead been receiving all their care in the FFS

⁹In this case, we define each plan's service area as all counties where 10 percent or more of plan enrollees reside.

sector. Cost-based payments to over **half the** plans (33 plans out of 63) exceed this presumed upper bound on what costs should be. HCFA's cost for enrollees in cost **HMOs** exceeded the AAPCC by 5.3 percent, while cost for enrollees in HCPPs were 1.6 percent above the AAPCC on average. Given that most plans had significant favorable selection, we should expect **HCFA's** costs to be lower than the AAPCC

The estimates reported above should be interpreted as the average loss to HCFA per member month *for the ~~myca~~ cost HMO or HCPP plan.* We also estimated program-wide cost savings or losses to HCFA for the cost and HCPP programs relative to risk contracting by weighting the net savings per member month (in dollars) for each plan by the plan's total member months (see Table VI.4). These weighted averages of plan savings or losses are a more appropriate measure of the savings or losses to HCFA for the cost contracting programs as a whole, but can mask important differences across plans.

The estimated program-wide losses to HCFA are slightly lower than the average losses across plans for cost **HMOs**, and HCFA may have actually saved a small amount overall on the HCPP program. The total loss to HCFA for all enrollees in cost **HMOs** is 9.5 percent (versus 10.8 percent under equal weighting across plans). HCFA *saved* 1.2 percent relative to risk contracting on enrollees in HCPP plans, a substantially different **finding** from the unweighted average across plans showing a 6.9 percent loss to HCFA. The difference is due solely to the fact that the largest plan (Kaiser of Northern California), which accounted for 44 percent of all HCPP enrollees, generated *savings* of 9.5 percent relative to what risk contracting costs would have been.

These estimates do not reflect the slight impact of auditing on actual costs paid by the plans, because audited cost reports were not yet available. We again use the same methodology as described in Chapter V, adjusting for the historical savings generated by the auditing of Kaiser and other plans, and accounting for the frequency of audits, which vary with plan size. Average losses to HCFA across plans would be reduced from 10.8 percent to 9.9 percent for cost **HMOs**, and from 6.9 percent to 6.3 percent for HCPPs. Combining both the effects of auditing and weighting by member months, HCFA lost 8.5

TABLE VI.4

OVERALL COMPARISON OF ACTUAL AVERAGE MEDICARE COSTS
AND AAPCC RATES IN 1993 WEIGHTED BY PLAN ENROLLMENT

	Actual Average Costs ^a	Percentage Cost Savings (Loss) Relative to Predicted Average Payments as Risk Plan (95% AAPCC)
Cost HMOs		
<i>All cost HMOs</i>		
<i>Unweighted Average^b</i>	\$360	(10.8)
<i>Weighted Average^c</i>	\$346	(9.5)
IPA Model		
<i>Unweighted Average</i>	\$330	(6.0)
<i>Weighted Average</i>	\$323	(4.6)
Group Model		
<i>Unweighted Average</i>	\$415	(21.7)
<i>Weighted Average</i>	\$426	(25.7)
Staff Model		
<i>Unweighted Average</i>	\$375	(12.9)
<i>Weighted Average</i>	\$382	(19.1)
HCPP Plans		
<i>All HCPP Plans</i>		
<i>Unweighted Average</i>	\$362	(6.9)
<i>Weighted Average</i>	\$345	1.2
HMOs		
<i>Unweighted Average</i>	\$346	(6.4)
<i>Weighted Average</i>	\$337	2.4
Union Plans		
<i>Unweighted Average</i>	\$413	(9.3)
<i>Weighted Average</i>	\$398	(5.8)

TABLE VI.4 (continued)

	Actual Average Costs ^a	Percentage Cost Savings (Loss) Relative to Predicted Average Payments as Risk Plan (95% AAPCC)
Clinics		
<i>&weighted Average</i>	\$348	(3.4)
Weighted Average	\$346	(1.4)

^aActual average costs for enrollees in the plan's service area. Sum of costs per member month from the plan's cost report, adjusted to remove the estimated costs of beneficiaries with ESRD, and average claims per member month calculated from the National Claims History file, 1993, adjusted to include administrative costs.

^b**Unweighted** averages across plans, with number of plans as the denominator.

^b**Weighted** average is average across all plans, with each plan estimate of cost savings per member month weighted by plan enrollment.

percent overall on enrollees in cost **HMOs** relative to risk contracting, but saved 2.2 percent on enrollees in **HCPPs**.

This estimate of small savings to HCFA from the HCPP program relative to risk contracting should be taken as an optimistic estimate. Table VI.5 presents our alternative predicted saving or loss to HCFA for each plan from cost-based contracting relative to risk-based contracting for four different methods of estimating risk-based payments. These estimates give us a range of predicted risk-based payments for each plan. The methodology used to compute these four estimates is described in Section B of this chapter.

For each plan, the alternative methods yield larger estimated losses to HCFA than the results discussed above and reported in Table VI.2 (method 3). With method 3, the estimated conditional probability of being in an institution, $P(i|m)$ (which is needed to estimate risk-based payments) is calculated using the conditional probability of being in an institution for local nonenrollees. The estimates from method 1 (which uses the average $P(i|m)$ for plans that formerly held a risk contract) are similar to the estimates from method 2 (which uses $P(i|m)$ estimated from local risk plans in 1993). Compared to method 3, risk-based payments estimated from methods 1 and 2 suggest that losses to HCFA would be 12.8 or 13.8 percent on average across cost **HMOs** (compared to 10.8 under method 3), and 10.1 or 9.1 percent (compared to 6.9 percent) for **HCPPs** on average. Under these alternative estimates, HCFA would essentially break even on the HCPP program overall, rather than save money. As explained in the next section, the less conservative estimates are probably more accurate.

2. Impacts for Former Risk Plans

The estimated risk payments calculated using method 4, probably the most reliable method, shows generally greater losses to HCFA for the 19 plans for which it could be computed (those that previously held risk contracts).¹⁰ For each of these 19 plans, we used the actual value of $P(i|m)$ during the last year

¹⁰Using HCFA's December 1993 report for Medicare Prepaid Health Plans (HCFA 1993), we identified 20 sample plans that previously held risk contracts. Data were available in the GHP masterfile to compute $P(i|m)$ for 19 of these 20 plans.

TABLE VI.5

THE EFFECT OF ALTERNATIVE ESTIMATES OF PREDICTED RISK
PAYMENTS ON ESTIMATES OF SAVINGS

	Actual Average Costs ^b	Predicted Savings (Loss)			
		Method 1 ^c	Method 2 ^d	Method 3 ^e	Method 4 ^f
All Cost HMOs					
<i>Average^g</i>	\$360	(13.8)	(12.8)	(10.8)	
IPA Model					
<i>Average^g</i>	\$330	(9.2)	(8.1)	(6.0)	
HO602	\$344	(22.2)	(20.9)	(15.8)	
HO749	\$377	(19.4)	(18.6)	(17.3)	(23.1)
H1203	\$292	1.0	2.1	3.7	
H3104	\$420	(22.8)	(21.8)	(20.6)	
H3356	\$299	3.0	3.9	5.8	(1.5)
H3801	\$353	(11.6)	(10.0)	(7.9)	
H3851	\$262	(9.6)	(8.7)	(7.9)	
H5102	\$293	8.1	9.1	11.8	
Group Model					
<i>Average^g</i>	\$415	(24.3)	(23.2)	(21.7)	
H1553	\$393	(15.8)	(14.6)	(12.7)	(17.7)
H3149	\$438	(32.8)	(31.8)	(30.6)	(47.3)
Staff Model					
<i>Average^g</i>	\$375	(15.8)	(14.8)	(12.9)	
HO502	\$626	(40.3)	(39.0)	(36.5)	
H1010	\$233	11.4	11.9	12.7	
H1449	\$501	(29.7)	(28.3)	(26.8)	(37.2)
H3308	\$291	(2.5)	(1.8)	0.5	
H3349	\$286	(11.1)	(10.4)	(9.1)	(13.9)
H3602	\$309	2.2	3.0	6.4	
H4101	\$367	(22.1)	(21.2)	(19.1)	(25.1)
H5002	\$390	(34.0)	(32.9)	(31.2)	
All HCPP Plans					
<i>Average^g</i>	\$362	(10.1)	(9.1)	(6.9)	

TABLE VI. 5 (continued)

	Actual Average Costs ^b	Predicted Savings (Loss) ^c			
		Method 1 ^e	Method 2 ^d	Method 3 ^e	Method 4 ^e
HMOs					
<i>Average^g</i>	\$346	(9.7)	(8.8)	(6.4)	
H065 1	\$312	(16.8)	(15.9)	(14.4)	(20.0)
H0652	\$273	1.8	2.7	4.1	(2.4)
H0704	\$387	(25.8)	(25.1)	(23.2)	
H1149	\$338	(8.1)	(7.3)	(6.7)	(5.4)
H1649	\$282	0.1	1.0	3.6	(4.8)
H1703	\$314	3.5	4.0	4.9	
H1949	\$480	(30.7)	(29.9)	(28.8)	
H2150	\$325	(4.9)	(4.4)	(3.4)	5.2
H2251	\$386	(21.9)	(20.9)	(18.3)	(2.8)
H2254	\$306	(17.3)	(16.3)	(14.2)	(21.2)
H2449	\$302	(24.3)	(22.5)	(15.9)	
H2450	\$340	(7.3)	(5.9)	(1.1)	(10.0)
H245 1	\$252	0.6	1.8	6.1	(6.0)
H2453	\$306	2.5	3.6	7.7	
H2601	\$389	(16.0)	(15.0)	(13.6)	
H3301	\$362	3.6	4.3	5.3	
H3451	\$280	(6.6)	(5.7)	(4.2)	(11.5)
H3452	\$280	(10.9)	(10.3)	(9.0)	(9.5)
H3601	\$309	(1.7)	(0.8)	1.9	
H4555	\$396	(51.3)	(49.9)	(45.0)	
H4600	\$280	(6.6)	(5.8)	(4.8)	
H6052	\$328	7.6	8.2	9.5	
H6054	\$453	2.0	3.1	5.4	
H6055	\$434	6.3	7.2	9.4	
H6056	\$404	37.7	38.2	39.2	
H609 1	\$510	(25.5)	(24.5)	(21.8)	
H6144	\$388	(33.9)	(32.3)	(30.0)	
H6151	\$315	(27.7)	(26.5)	(21.1)	
H6152	\$326	(24.4)	(23.1)	(19.5)	
H6336	\$361	11.9	12.4	12.4	13.5
H6521	\$300	(17.2)	(15.7)	(13.2)	
Union Plans					
<i>Average^g</i>	\$413	(12.1)	(11.0)	(9.3)	
H1605	\$305	(25.2)	(24.3)	(22.7)	
H4556	\$370	(29.9)	(28.7)	(25.3)	
H6053	\$466	(4.9)	(3.9)	(1.5)	
H6140	\$369	(36.0)	(34.4)	(31.9)	

TABLE VI.5 (continued)

	Actual Average Costs ^b	Predicted Savings (Loss) ^c			
		Method 1 ^c	Method 2 ^d	Method 3 ^e	Method 4 ^f
H6141	\$434	(2.9)	(1.2)	0.1	
H6142	\$380	2.6	3.4	4.4	
H6171	\$295	(6.0)	(4.8)	(2.8)	
H626 1	\$400	(20.2)	(19.4)	(18.2)	
H6333	\$474	(1.5)	(0.5)	0.6	
H6334	\$562	(12.8)	(11.4)	(9.8)	
H6391	\$484	3.7	4.5	5.0	
Clinics					
<i>Average^g</i>	\$348	(6.8)	(5.8)	(3.4)	
H6102	\$344	1.7	2.5	2.8	
H6161	\$295	(30.1)	(28.8)	(23.2)	
H6331	\$405	8.0	9.0	10.3	

^aHCFA enrollment data do not contain institutional status for beneficiaries enrolling in cost HMOs and HCPP plans. Alternative methods differ in the ways of estimating the conditional probability of being in an institution given Medicaid status. See text.

^bActual average costs for enrollees in the plan's local service area. Sum of costs per member month from the plan's cost report, adjusted to remove estimated expenditures for enrollees with ESRD, and average claims per member month calculated from the National Claims History file, 1993, adjusted to include administrative costs.

^cEstimated conditional probability of an enrollee being in an institution given Medicaid status is based on averages across plans that had previous risk contracts from 1988-1993.

^dFor each plan, the estimated conditional probability of an enrollee being in an institution is based on the probability for enrollees in local plans with risk contracts in 1993.

^eFor each plan, the estimated conditional probability of enrollees being in an institution given Medicaid status is based on the conditional probability for local nonenrollees.

^fFor each plan with a prior risk contract after 1987, the estimated conditional probability of being in an institution in 1993 is equal to the conditional probability of being in an institution the last year the plan had a risk contract.

^gUnweighted averages across plans, with number of plans as the denominator.

the plan had a risk contract to compute estimated risk payments. For 14 of these 19 plans, the projected risk payments from method 4 were lower than the projected risk payments from all three of the other methods, suggesting that even methods 1 and 2 probably overestimate projected risk payments. Thus, the costs that HCFA incurs under cost contracting generally exceed the amount it would have paid under risk contracting by more than what is indicated under any of the alternative estimates reported in Table VI. 5. Under method 4 for estimating risk payments, HCFA's costs are lower under cost contracting than they would be under risk contracting for only 2 of the 19 plans, HIP Network of Florida (H6336) and Kaiser of the **MidAtlantic** states (**H2150**), compared to 5 of the 19 plans when method 3 is used to project risk payments.

Our **finding** that 17 of the 19 former risk plans had higher cost-based payments from HCFA than they would have received as a risk plan (using our best estimate of the ARF) is consistent with what these plans told us during our case study interviews. The leading reason that these plans gave for converting from risk contracts to cost or HCPP contracts was financial concerns (see Section B). Eighteen plans stated that they lost money under their risk contract, and by converting to cost and HCPP contracts, they hoped to avoid future **financial** losses. Representatives of HIP Network of Florida, one of the two plans that did hold costs below projected risk payments, did not mention **financial** losses as a reason for dropping their risk contract. In 1995, HIP Network of Florida converted to a risk contract.

HCFA also lost money on 18 out of these 19 former risk plans relative to estimated Medicare FFS costs. The only former risk plan for which **HCFA's** costs under cost contracting were lower than estimated Medicare FFS payments was United Healthcare of Iowa (**H1649**). This plan experienced adverse selection according to both biased selection measures (see Chapter IV), a characteristic that we expect to be associated with greater HMO efficiency.

3. Impacts on Part A and Part B Payments

HCFA's 1993 costs for Part A services to enrollees in cost **HMOs** and HCPPs are somewhat lower than Part A risk-based payments would have been, but Part B costs are much higher than they would have been under risk contracting (Table VI.6). On average across plans, HCFA saved 2.8 percent on Part A costs, relative to risk contracting, on cost **HMOs**, and saved 5.9 percent on HCPPs. However, HCFA lost 3 1.8 percent on Part B costs for cost **HMOs** and 27 percent on HCPPs, on average.

For most plans (41), HCFA had Part A savings relative to projected Part A AAPCC risk payments, while only 7 plans generated Part B savings relative to Part B AAPCC rates (Table VI. 7). For about one-third of the plans, HCFA's Part A savings were 10 percent or more, while Part B losses exceeded 25 percent for over half of the plans. The patterns are similar for cost **HMOs** and HCPPs.

The estimates are due to the fact that most plans experience favorable selection and have control only over Part B payment rates. Due to favorable selection, patients spend less time in the hospital and use less nursing home and home health care services than beneficiaries in FFS, so the AAPCC overestimates the Part A care needed by cost and HCPP enrollees. Thus, cost contracting saves HCFA money relative to risk contracting for Part A services. While one might argue that these Part A savings are due in part to plans' utilization review activities or price negotiations, our estimates in Chapter V show that cost **HMOs** and HCPPs are no more efficient than FFS providers in providing Part A services. HCFA would not overpay these plans as it would risk plans when there is favorable selection. The costs per unit of Part A service are equal to what is paid in FFS because these services are billed directly to HCFA for all HCPP enrollees and nearly all cost **HMOs**. Part B costs, however, are determined in part by the payment arrangements plans have with physicians, which may be more generous than Medicare FFS.

These findings are also consistent with the findings **from** our case study findings on plan utilization management practices. In Chapter II, we noted that the plans have weak utilization review and physician financial incentives to constrain costs for Part B services (Table JJ.4). Over one-third of the plans have

TABLE VI.6

COMPARISON OF PREDICTED RISK PAYMENTS TO ACTUAL AVERAGE
COSTS FOR COST HMO AND HCPP PLANS 1993

	Part A		Part B		Total	
	Mean Actual costs	Predicted Percentage Cost Savings (Loss)	Mean Actual costs	Predicted Percentage Cost Savings (Loss)	Mean Actual costs	Predicted Percentage Cost Savings (Loss)
All Cost HMOs						
<i>Average</i>	\$191	2.8	\$168	(3 1.8)	\$360	(10.8)
IPA Model						
<i>Average</i>	\$177	6.2	\$153	(24.9)	\$330	(6.0)
HO602	\$179	(8.0)	\$165	(25.7)	\$344	(15.8)
HO749	\$192	1.3	\$186	(45.7)	\$377	(17.3)
H1203	\$148	16.4	\$144	(14.1)	\$292	3.7
H3104	\$215	(0.6)	\$204	(52.5)	\$420	(20.6)
H3356	\$173	18.3	\$126	(19.1)	\$299	5.8
H3801	\$207	(1.9)	\$145	(17.8)	\$353	(7.9)
H3851	\$125	8.3	\$137	(28.6)	\$262	(7.9)
H5102	\$178	16.0	\$115	4.4	\$293	11.8
Group Model						
<i>Average</i>	\$209	1.2	\$207	(57.9)	\$415	(21.7)
H1553	\$216	1.5	\$177	(36.6)	\$393	(12.7)
H3149	\$202	0.9	\$236	(79.2)	\$438	(30.6)
Staff Model						
<i>Average</i>	\$201	(0.3)	\$174	(32.2)	\$375	(12.9)
HO502	\$353	(27.5)	\$273	(50.1)	\$626	(36.5)
H1010	\$123	17.9	\$109	5.8	\$233	12.7
H1449	\$263	(4.3)	\$238	(66.3)	\$501	(26.8)
H3308	\$136	20.2	\$155	(27.1)	\$291	0.5
H3349	\$142	5.0	\$144	(27.9)	\$286	(9.1)
H3602	\$200	3.3	\$109	11.6	\$309	6.4
H4101	\$180	6.0	\$187	(60.3)	\$367	(19.1)
H5002	\$214	(22.7)	\$176	(43.1)	\$390	(3 1.2)
All HCPP Plans						
<i>Average</i>	\$195	5.9	\$167	(27.0)	\$362	(6.9)
HMOs						
<i>Average</i>	\$175	10.6	\$171	(32.9)	\$346	(6.4)
HO65 1	\$156	4.5	\$156	(42.7)	\$312	(14.4)
HO652	\$137	18.3	\$136	(16.3)	\$273	4.1

TABLE VI.6 (continued)

	Part A		Part B		Total	
	Mean Actual costs	Predicted Percentage Cost Savings (Loss)	Mean Actual costs	Predicted Percentage Cost Savings (Loss)	Mean Actual costs	Predicted Percentage Cost Savings (Loss)
H0704	\$177	6.2	\$210	(67.5)	\$387	(23.2)
H1149	\$181	5.3	\$157	(25.0)	\$338	(6.7)
H1649	\$184	(2.3)	\$98	13.2	\$282	3.6
H1703	\$152	21.3	\$162	(18.1)	\$314	4.9
H1949	\$280	(24.7)	\$200	(35.1)	\$480	(28.8)
H2150	\$143	18.4	\$182	(30.8)	\$325	(3.4)
H2251	\$214	(10.4)	\$172	(29.9)	\$386	(18.3)
H2254	\$135	13.1	\$171	(51.9)	\$306	(14.2)
H2449	\$179	(1.5)	\$123	(46.1)	\$302	(15.9)
H2450	\$205	7.5	\$135	(17.6)	\$340	(1.1)
H2451	\$149	18.2	\$104	(19.4)	\$252	6.1
H2453	\$155	28.5	\$151	(32.0)	\$306	7.7
H2601	\$222	(1.4)	\$167	(35.2)	\$389	(13.6)
H3301	\$156	33.1	\$206	(38.2)	\$362	5.3
H3451	\$106	35.8	\$174	(67.2)	\$280	(4.2)
H3452	\$129	19.8	\$151	(57.6)	\$280	(9.0)
H3601	\$179	4.9	\$130	(2.5)	\$309	1.9
H4555	\$205	(18.1)	\$191	(91.6)	\$396	(45.0)
H4600	\$152	10.2	\$127	(31.0)	\$280	(4.8)
H6052	\$166	22.4	\$161	(9.2)	\$328	9.5
H6054	\$227	12.2	\$226	(2.7)	\$453	5.4
H6055	\$208	20.0	\$226	(3.2)	\$434	9.4
H6056	\$186	52.5	\$218	19.9	\$404	39.2
H6091	\$200	18.4	\$311	(78.5)	\$510	(21.8)
H6144	\$194	(9.5)	\$194	(60.1)	\$388	(30.0)
H6151	\$173	(6.7)	\$143	(44.6)	\$315	(21.1)
H6152	\$166	3.3	\$160	(58.3)	\$326	(19.5)
H6336	\$145	27.8	\$217	(2.1)	\$361	12.4
H6521	\$170	0.1	\$130	(37.1)	\$300	(13.2)
Union Plans <i>Average</i> "	\$255	(7.3)	\$158	(12.8)	\$413	(9.3)
H1605	\$150	2.5	\$155	(63.4)	\$305	(22.7)
H4556	\$237	(30.7)	\$133	(16.8)	\$370	(25.3)
H6053	\$280	(7.6)	\$186	6.5	\$466	(1.5)
H6140	\$216	(26.4)	\$153	(40.6)	\$369	(31.9)
H6141	\$272	3.8	\$162	(6.7)	\$434	0.1
H6142	\$236	7.5	\$144	(1.0)	\$380	4.4
H6171	\$172	(2.3)	\$123	(3.5)	\$295	(2.8)
H626 1	\$246	(13.2)	\$154	(27.1)	\$400	(18.2)
H6333	\$296	2.1	\$178	(2.0)	\$474	0.6
H6334	\$372	(13.5)	\$190	(3.3)	\$562	(9.8)
H6391	\$324	(2.4)	\$160	17.0	\$484	5.0

TABLE VI.6 (continued)

	Part A		Part B		Total	
	Mean Actual costs	Predicted Percentage Cost Savings (Loss)	Mean Actual costs	Predicted Percentage Cost Savings (Loss)	Mean Actual costs	Predicted Percentage Cost Savings (Loss)
Clinics <i>Average</i>	\$183	6.6	\$164	(18.2)	\$348	(3.4)
H6102	\$173	9.8	\$171	(5.4)	\$344	2.8
H6161	\$156	(13.0)	\$138	(37.2)	\$295	(23.2)
H633 1	\$221	23.1	\$184	(12.1)	\$405	10.3

NOTES: Estimated risk payments are based on the assumption that the proportion of a plan's enrollees who reside in a nursing home, conditional on being on Medicaid, is equal to the conditional possibility for nursing home residence given Medicaid status for beneficiaries in fee-for-service in the plan's market area. This estimate leads to slightly higher ~~predicted~~ risk payments for cost and HCPP enrollees than alternative assumptions (and therefore smaller predicted losses or larger predicted savings). See Table VI.3.

Actual average costs are for enrollees *in the plan's focal service area*, defined as those counties contributing at least 10 percent of total plan enrollment. Actual average costs are the sum of costs per member month from the plan's cost report, adjusted to remove estimated expenditures on enrollees with ESRD, and average claims per member month calculated from the National Claims History file, 1993, adjusted to include administrative costs.

"Unweighted averages across plans, with the number of plans as the denominator.

TABLE VI.7

DISTRIBUTION OF PLANS BY PREDICTED
SAVINGS OR LOSSES TO HCFA

HCFA Savings (Losses) Relative to Expected Costs Under Risk Contracting	Part A	Part B	Total
All Plans			
Losses to HCFA			
Over 25 percent	3	35	9
10 to 25 percent	7	10	18
0 to 9.9 percent	12	11	12
Savings to HCFA			
0 to 9.9 percent	19	3	19
10 percent or more	22	4	5
Total Number of Plans	63	63	63
Cost HMOs			
Losses to HCFA			
Over 25 percent	1	12	4
10 to 25 percent	1	3	5
0 to 9.9 percent	4	0	3
Savings to HCFA			
0 to 9.9 percent	7	2	4
10 percent or more	5	1	2
Total Number of Cost HMOs	18	18	18
HCPPs			
Losses to HCFA			
Over 25 percent	2	23	5
10 to 25 percent	6	7	13
0 to 9.9 percent	8	11	9
Savings to HCFA			
0 to 9.9 percent	12	1	15
10 percent or more	17	3	3
Total Number of HCPPs	45	45	45

Note: Predicted percentage savings (losses) are defined as $(1 - \text{actual costs} / \text{predicted costs under risk contracting}) \times 100$.

financial incentives for physicians that are not likely to promote good utilization management practices, and 28 plans have weak utilization review procedures and weak physician financial incentives

4. Comparison of Estimated Cost Savings Relative to FFS and Relative to Risk Contracting

The percentage savings or loss from cost contracting relative to (1) FFS Medicare and (2) risk contracting for each plan are displayed side by side in Table VI.8. HCFA lost money on enrollees in most plans (39) relative to both FFS Medicare and risk contracting. In sixteen plans HCFA lost money relative to FFS Medicare but saved money relative to risk contracting. The eight plans that appeared to save HCFA money relative to FFS Medicare also saved money relative to risk contracting. Six of these eight plans are **HCPPs**. Most of the plans tend to be **HMOs**, nonprofit, and staff model plans. Predicted savings do not appear to be related to financial incentives for physicians or to inpatient or ambulatory utilization review programs. Half of these 8 plans have favorable selection according to both measures we used, and **half have** a weighted AAPCC rate that is below the average AAPCC rate for its plan type (cost HMO or HCPP plan). One plan had converted to a risk contract by January 1996.

This finding of greater savings (smaller losses) relative to risk contracting than relative to FFS reimbursement is not surprising, given the studies showing that HCFA loses money on risk contracting. By eliminating overpayments due to favorable selection, cost contracting reduces some costs. However, because of the large cost increases for Part B services, **HCFA's** costs under cost contracting still exceed the cost they would incur under risk contracting by a substantial margin for most of the plans,

The 24 plans for which HCFA saved money relative to risk contracting would probably earn profits under risk contracting. The difference between the risk-based payment from HCFA and the actual costs HCFA is paying for their members would be profit (assuming that the costs now billed directly to HCFA would not increase when under the plan's control). Four of the plans that saved HCFA money (in 1993) relative to risk contracting had converted to a risk contract by January 1996.

TABLE VI.8

COMPARISON OF PREDICTED FFS COSTS AND PREDICTED RISK PAYMENTS
TO ACTUAL AVERAGE COSTS FOR COST HMO AND HCPP PLANS 1993

	Part A		Part B		Total	
	Percentage Cost Savings (Loss) Relative To:		Percentage Cost Savings (Loss) Relative To:		Percentage Cost Savings (Loss) Relative To:	
	FFS	Risk HMO'	FFS	Risk HMO'	FFS	Risk HMO'
All Cost HMOs						
<i>Average^b</i>	(2.1)	2.8	(54.5)	(3 1.8)	(20.7)	(10.8)
IPA Model						
<i>Average^b</i>	3.1	6.2	(48.4)	(24.9)	(15.6)	(6.0)
HO602	(13.8)	(8.0)	(89.0)	(25.7)	(40.3)	(15.8)
HO749	7.0	1.3	(51.7)	(45.7)	(15.3)	(17.3)
H1203	8.8	16.4	(52.8)	(14.1)	(13.9)	3.7
H3104	14.5	(0.6)	(48.1)	(52.5)	(8.1)	(20.6)
H3356	7.6	18.3	(32.8)	(19.1)	(6.0)	5.8
H3801	(7.5)	(1.9)	(43.9)	(17.8)	(19.8)	(7.9)
H385 1	(3.7)	8.3	(50.4)	(28.6)	(23.8)	(7.9)
H5102	12.2	16.0	(18.3)	4.4	2.6	11.8
Group Model						
<i>Average^b</i>	7.7	1.2	(78.3)	(57.9)	(22.1)	(2 1.7)
H1553	7.2	1.5	(69.0)	(36.6)	(16.4)	(12.7)
H3149	8.2	0.9	(87.6)	(79.2)	(27.7)	(30.6)
Staff Model						
<i>Average^b</i>	(9.8)	(0.3)	(54.6)	(32.2)	(25.4)	(12.9)
HO502	(9.4)	(27.5)	(85.2)	(50.1)	(32.7)	(36.5)
H1010	13.2	17.9	(9.9)	5.8	4.2	12.7
H1449	(1.7)	(4.3)	(94.8)	(66.3)	(3 1.9)	(26.8)
H3308	10.1	20.2	(52.0)	(27.1)	(14.0)	0.5
H3349	(2.2)	5.0	(35.1)	(27.9)	(16.2)	(9.1)
H3602	(62.0)	3.3	(9.9)	11.6	(40.6)	6.4
H4101	(2.1)	6.0	(84.0)	(60.3)	(32.0)	(19.1)
H5002	(23.9)	(22.7)	(66.2)	(43.1)	(40.0)	(3 1.2)
All HCPP Plans						
<i>Average^b</i>	(1.1)	5.9	(49.0)	(27.0)	(18.6)	(6.9)

TABLE VI.8 (continued)

	Part A		Part B		Total	
	Percentage Cost Savings (Loss) Relative To:		Percentage Cost Savings (Loss) Relative To:		Percentage Cost Savings (Loss) Relative To:	
	FFS	Risk HMO'	FFS	Risk HMO'	FFS	Risk HMO'
HMOs						
<i>Average^b</i>	0.2	10.6	(58.1)	(32.9)	(21.2)	(6.4)
H065 I	0.6	4.5	(67.9)	(42.7)	(24.9)	(14.4)
H0652	14.3	18.3	(41.6)	(16.3)	(6.4)	4.1
H0704	22.8	6.2	(69.9)	(67.5)	(10.7)	(23.2)
H1149	12.7	5.3	(43.3)	(25.0)	(6.7)	(6.7)
H1649	(4.7)	(2.3)	11.9	13.2	1.5	3.6
HI703	(1.1)	21.3	(48.3)	(18.1)	(20.5)	4.9
H1949	(4.6)	(24.7)	(61.4)	(35.1)	(23.0)	(28.8)
H2150	7.5	18.4	(52.8)	(30.8)	(18.7)	(3.4)
H2251	(2.4)	(10.4)	(55.0)	(29.9)	(20.6)	(18.3)
H2254	19.4	13.1	(75.7)	(51.9)	(15.0)	(14.2)
H2449	(12.1)	(1.5)	(61.0)	(46.1)	(27.8)	(15.9)
H2450	(17.6)	7.5	(51.7)	(17.6)	(29.7)	(1.1)
H2451	(32.4)	18.2	(41.9)	(19.4)	(36.1)	6.1
H2453	8.7	28.5	(71.3)	(32.0)	(18.0)	7.7
H2601	(35.4)	(1.4)	(62.2)	(35.2)	(45.4)	(13.6)
H3301	5.7	33.1	(52.8)	(38.2)	(19.2)	5.3
H345 1	41.7	35.8	(97.9)	(67.2)	(3.9)	(4.2)
H3452	(2.9)	19.8	(76.6)	(57.6)	(3 1.6)	(9.0)
H3601	(2.2)	4.9	(30.0)	(2.5)	(12.6)	1.9
H4555	(52.5)	(18.1)	(126.2)	(91.6)	(80.9)	(45.0)
H4600	8.9	10.2	(77.0)	(31.0)	(15.8)	(4.8)
H6052	26.4	22.4	(31.0)	(9.2)	6.4	9.5
H6054	6.0	12.2	(29.6)	(2.7)	(8.7)	5.4
H6055	(8.1)	20.0	(48.4)	(3.2)	(25.5)	9.4
H6056	30.2	52.5	(10.7)	19.9	13.1	39.2
H6091	6.8	18.4	(140.1)	(78.5)	(50.8)	(21.8)
H6144	(7.3)	(9.5)	(78.3)	(60.1)	(34.1)	(30.0)
H6151	(37.3)	(6.7)	(59.2)	(44.6)	(46.0)	(21.1)
H6152	(2.3)	3.3	(75.7)	(58.3)	(28.2)	(19.5)
H6336	6.0	27.8	(19.7)	(2.1)	(7.6)	12.4
H6521	10.7	0.1	(57.1)	(37.1)	(10.1)	(13.2)
Union Plans						
<i>Average^b</i>	(4.7)	(7.3)	(28.0)	(12.8)	(12.6)	(9.3)
H1605	2.4	2.5	(63.0)	(63.4)	(21.9)	(22.7)
H4556	(15.5)	(30.7)	(33.3)	(16.8)	(21.8)	(25.3)
H6053	(2.9)	(7.6)	(38.2)	6.5	(14.6)	(1.5)
H6140	(16.1)	(26.4)	(42.8)	(40.6)	(25.9)	(3 1.9)
H6141	2.6	3.8	(29.5)	(6.7)	(7.5)	0.1
H6142	(0.3)	7.5	(27.5)	(1.0)	(8.9)	4.4
H6171	(37.3)	(2.3)	(38.3)	(3.5)	(37.7)	(2.8)

TABLE VI.8 (continued)

	Part A		Part B		Total	
	Percentage Cost Savings (Loss) Relative To:		Percentage Cost Savings (Loss) Relative To:		Percentage Cost Savings (Loss) Relative To:	
	FFS	Risk HMO	FFS	Risk HMO'	FFS	Risk HMO
H626 1	(0.6)	(13.2)	(32.6)	(27.1)	(11.0)	(18.2)
H6333	13.1	2.1	1.3	(2.0)	9.3	0.6
H6334	2.3	(13.5)	(15.2)	(3.3)	(3.1)	(9.8)
H6391	0.2	(2.4)	11.6	17.0	4.2	5.0
<i>Clinics</i>						
<i>Average^b</i>	(1.2)	6.6	(31.5)	(18.2)	(13.0)	(3.4)
H6102	13.9	9.8	(15.2)	(5.4)	2.3	2.8
H6161	(13.3)	(13.0)	(57.9)	(37.2)	(30.5)	(23.2)
H6331	(4.3)	23.1	(21.5)	(12.1)	(10.9)	10.3

*Savings are based on actual average costs for enrollees in the plan's service area.

^bUnweighted averages across plans, with number of plans as the denominator.

Total program-wide losses to HCFA relative to risk contracting are also much lower than the total losses relative to FFS. Comparing the program-wide (weighted) estimates for losses relative to risk contracting to comparable estimates for losses relative to FFS reimbursements, we see that, for the cost HMO program, HCFA's losses relative to FFS (17.6 percent) are nearly twice as large as losses relative to risk contracting (9.5 percent). (See Table VI.9.) For the HCPP program, HCFA loses 7 percent relative to the costs it would have incurred under FFS, but saves 1.2 percent relative to costs that it would have incurred under risk contracting for the HCPP enrollees. Among the cost HMOs, HCFA's overall program losses are much smaller for the IPAs than for group or staff model plans, relative to either risk contracting or FFS. Savings on the HCPP program occurred only for the HMOs. This pattern differs somewhat from the program-wide estimates of losses relative to FFS. Losses to HCFA relative to FFS on HCPPs that were HMOs were very similar to the losses relative to union plans. This difference suggests that HMOs had more favorable selection, especially among the larger plans, than did union-sponsored plans

5. Impacts by Plan Characteristics

We also examined whether HCFA losses on cost contract enrollees relative to risk contracting tend to vary by plan characteristic (Table VI. 10). All of the plan characteristics we examined are associated with losses relative to predicted risk payments on average, except for the 3 plans that have dropped out of Medicare contracting altogether.” However, some plan characteristics are associated with lower mean losses to HCFA. These characteristics include type of organization (lowest for clinics), model type (lowest for IPAs), enrollment in service areas (lowest for plans with at least 8.5 percent of its enrollees residing in the plan service area), inpatient utilization review (lowest for plans with less aggressive programs), whether plan covers preventive care (lowest for plans that do not), and biased selection (lower for plans

“This exception, however, is probably spurious. One plan, Cigna (H6056), is driving this result, and the savings that are attributed to it are likely overstated because its cost report also includes costs for two other Cigna plans with substantially healthier enrollees.

TABLE VI.9

SUMMARY OF COST SAVINGS (LOSSES) TO HCFA,
WEIGHTED AND UNWEIGHTED
BY PLAN ENROLLMENT

	Percentage Cost Savings (Loss) Relative to:	
	FFS	Risk HMO
Cost HMOs		
All Cost HMOs		
<i>Unweighted Average</i> ^a	(20.7)	(10.8)
Weighted Average ^b	(17.6)	(9.5)
IPA Model		
<i>Unweighted Average</i>	(15.6)	(6.0)
Weighted Average	(13.7)	(4.6)
Group Model		
<i>Unweighted Average</i>	(22.1)	(21.7)
Weighted Average	(24.7)	(25.7)
Staff Model		
<i>Unweighted Average</i>	(25.4)	(12.9)
Weighted Average	(28.4)	(19.1)
HCPP Plans		
All HCPP Plans		
<i>Unweighted Average</i>	(18.6)	(6.9)
Weighted Average	(7.0)	1.2
HMOs		
<i>Unweighted Average</i>	(21.2)	(6.4)
Weighted Average	(6.7)	2.4
Union Plans		
<i>Unweighted Average</i>	(12.6)	(9.3)
Weighted Average	(6.7)	(5.8)
Clinics		
<i>Unweighted Average</i>	(13.0)	(3.4)
Weighted Average	(14.5)	(1.4)

^aUnweighted average across plans, with number of plans as the denominator.

^bWeighted average is total savings (losses) across all plans, divided by total predicted FFS or Risk costs.

with the more favorable selection). Many of these patterns make little sense, perhaps because of the small number of plans and the combination of factors that could influence plans' cost efficiency relative to the local AAPCC. Attempts to statistically control for other factors that could affect program savings or loss using a regression model were unsuccessful, given the large number of potentially important factors and small number of plans.

One particularly interesting **finding** is that plans that had a prior risk contract appear to generate losses to HCFA relative to risk contracting of approximately the same magnitude as those incurred by plans that never held a risk contract. This suggests that while HCFA loses money when risk plans convert to cost contracts, the losses are similar to what HCFA incurs by allowing plans to select cost contracts initially instead of risk contracts. The estimates also suggest that the reason these plans converted tends to be their inability to control Part B costs, not Part A costs. Plans with prior risk contracts generate greater Part A savings for HCFA relative to risk payments (9.9 percent), perhaps because of more favorable selection, than plans without such experience. However, excess Part B costs (a 34 percent increase over projected risk-based payments) are higher for the converting plans than for plans that never held a risk contract, or for most other subgroups of plans.

VII. CONCLUSIONS

Our investigation of the 18 Medicare cost **HMOs** and 45 **HCPPs** that had 1,000 or more enrollees in 1993 clearly indicates that HCFA is spending more for these enrollees than if they were covered under traditional FFS Medicare or under a Medicare risk plan. Our analysis, which included an assessment of operational issues for **HCPPs**, suggests that beneficiaries are not likely to encounter quality of care problems because of the lack of regulations governing **HCPPs**. The cost-contracting program does not appear to be serving a noticeably higher-risk population than the Medicare risk program, despite expectations to the **contrary**. The increased costs suggest that the cost HMO and **HCPP** programs should probably be eliminated or significantly modified.

A. SUMMARY OF FINDINGS

1. Operational Features of **HCPPs** and Cost **HMOs**

Our interviews in mid-1994 with 36 **HCPPs** and 17 cost **HMOs** yielded information on utilization management, quality assurance programs, grievance procedures, marketing practices, and beneficiary protection in case of plan insolvency. It also showed that plans detected relatively low levels of duplicate payments, averaging about \$2 per member per year.

a. Utilization Management

Most of the cost **HMOs** and **HCPPs** rely primarily on physician education and monitoring rather than on physician financial incentives to contain costs. In general, plans seem to be more aggressive about managing inpatient rather than outpatient service use. Over half the sample plans use five or six of the six inpatient utilization review procedures we examined (including preadmission authorization, concurrent review, and retrospective review). Only one-third of the plans profile specialist referrals and require a physician visit or telephone pre-authorization for specialist referrals. Twenty-eight plans (over half) lack

both utilization management procedures and strong **financial** incentives for physicians to control Part B costs.

In general, the cost **HMOs** provide their physicians with stronger financial incentives and have more comprehensive inpatient and outpatient utilization review procedures than the HCPP plans. Although half the cost **HMOs capitate** their physician groups, these groups pay their physician members salaries or fee-for-service.

b. Quality Assurance

Most of the HCPPs have comprehensive quality assurance programs, although these programs are not required. Over three-fourths of the plans audit patient records, monitor patient complaints and cancer screening rates, and/or credential providers. Most plans also conduct patient satisfaction surveys. However, the findings suggest that a nontrivial number of plans (particularly union plans) do not have aggressive quality assurance programs.

c. Grievance Procedures

All the HCPP plans have grievance procedures that are well-disseminated to enrollees. The 24 responding HCPPs received an average of 12 complaints per 1,000 members. Most of the complaints are about benefit coverage (52 percent) and access issues (36 percent). Except for hospital- or clinic-sponsored plans, there were few complaints about physician care. About two-thirds of the complaints received by hospital- or clinic-sponsored HCPPs involve physician care, but the total incidence of complaints was lower for these plans.

d. Marketing

Only one-fourth of the plans actively market their HCPP product because they focus primarily on their commercial products for the under-65 population. Many offer an HCPP product essentially because their commercial clients requested a retirement plan for their employees.

Most of the marketing materials prepared by the plans promote comprehensive coverage, low costs, reduced paperwork, and the convenience and accessibility of their care. Most of the materials do not explain that HCPP enrollees are still covered by Medicare if they use physicians who are not in the plan network.

e. Protection for Beneficiaries in Case of Insolvency

HCFA does not require HCPPs to protect enrollees in case of plan insolvency. But protections are required by some state governments, and they are required for federal qualification as an HMO. Consequently, three-fourths of the HCPP plans have contingency plans. With one exception, all of the plans that do not have these **contingency** plans are clinic or union/employee-sponsored plans.

f. Analysis of Duplicate Payments

Cost **HMOs** and HCPPs are required to check for duplicate payments and return them to HCFA. Most plans are doing this and believe they detect all duplicate payments. However, the methods many plans use allow many duplicate claims to go undetected. For example, some plans only check a sample of their records. Some plans also identify additional duplicate claims **from** the “explanation of Medicare benefits” documents that enrollees bring into the plan, indicating that some duplicates are missed by the plan’s usual methods. A few plans do not check for duplicate payments because they did not receive the appropriate documents (**HCFA’s** Payment Records Posted report) from their carriers.

Plans spend an average of \$2,150 per 1,000 enrollees to check for duplicate payments. The average dollar amount of duplicate payment identified per 1,000 enrollees is about \$1,800 for cost **HMOs** and \$2,100 for HCPPs. Thus, since plans can include in their administrative costs their expenditures for detecting duplicate payments, there is no net gain to HCFA from these checks unless they can be done more efficiently and effectively.

To improve their ability to check for duplicate payments, plans said that they would like to receive payment data from the carrier on magnetic tape so that the process can be automated. HCPPs also told us that they could check for duplicate payments more efficiently if the carriers sent them payment data only for the services covered by the plan instead of including data for Part A services, which they do not cover.

2. Biased Selection

Forty-four of the 63 sample plans experienced statistically significant favorable selection in 1993. Nine plans experienced adverse selection. We measured biased selection by comparing enrollees and local area beneficiaries in FFS in terms of mortality rates and the proportion who had nondiscretionary high-cost hospitalizations, both adjusted for AAPCC risk factors and original reason for entitlement. Nondiscretionary high-cost hospitalizations were designated through the use of **DCGs** developed by Ellis and Ash (1995/1996). For 30 plans, the values for both measures were statistically significant and indicated favorable selection, and for 14 more plans, the value for one measure was statistically significant and indicated favorable selection. Selection bias was statistically significant and adverse on both measures for only 5 of the plans. The results for another 4 plans showed statistically significant adverse selection on the DCG measure but no difference on the mortality measure. For 8 plans, estimated enrollee-non-enrollee differences for the two measures were statistically significant, but they contradicted each other, indicating both favorable and adverse selection. The biased selection estimates for two plans were not statistically significant for either measure.

Favorable selection was strong in both cost **HMOs** and HCPPs. However, both cost **HMOs** and HCPPs had less favorable selection, on average, than risk plans studied by Hill and Brown (1990). In addition, none of the risk plans had adverse selection, but one in seven of the cost **HMOs** and HCPPs did. Less favorable selection for cost **HMOs** and HCPPs is consistent with expectations because (1) beneficiaries who enroll can go outside the plan and still be covered by Medicare, thus reducing a key

barrier to entry for beneficiaries with serious health problems, and (2) these plans have little incentive to avoid high-risk beneficiaries.

No plan characteristics are strongly associated with favorable or adverse selection. This is true for such characteristics as having a prior risk contract and HCPP screening of potential enrollees based on health status. However, **if the** incentive for risk selection were stronger, we would expect plans to screen more effectively. Differences in nondiscretionary high-cost hospitalizations indicate adverse selection, on average, into **IPA** cost **HMOs** and union- and employer-sponsored HCPPs, but these results do not appear in the mortality rate comparisons.

Favorable selection per se does not affect savings to HCFA for cost contract plans as it does for risk contract plans, but it is still important for two reasons. First, since **HMOs** generate greater cost savings for patients requiring more care, plans with more favorable selection are less likely to produce savings in costs to HCFA. Second, if plans with cost contracts convert to risk contracts, HCFA may lose money if these plans have favorable selection. Conversely, for plans that have adverse selection, a cost contract may enable HCFA to save money relative to FFS while protecting the plan from underpayment.

3. Cost-Effectiveness Relative to FFS Medicare

In 1993, **HCFA's** costs were increased rather than decreased by the cost HMO and HCPP programs. The agency's total payments for enrollees in cost **HMOs** were 16.5 percent (\$49 per member month) more than estimated FFS payments. Payments for enrollees in HCPPs were 5.8 percent (\$10 per member month) more than estimated FFS costs would have been. **HCFA's** costs increased for 55 out of 63 plans. On average across plans, HCFA lost 20.7 percent relative to FFS cost on cost **HMOs**, and lost 18.6 percent on HCPPs on average. We estimated the effects of cost contracting for each plan by comparing Medicare's actual costs **for** enrollees (payments to the plan plus direct payments to providers) to estimates **from** regression models of what FFS costs would have been for enrollees, controlling for mortality, DCG admissions, and demographic characteristics. Plan-specific estimates of savings to HCFA were then

summed to yield the program-wide effect on costs. We also subtracted off the average percentage of plan costs that were disallowed on audit. The average percentage loss across plans provides an indication of the experience of a typical plan.

Actual payments for Part B expenditures in 1993 greatly exceeded predicted Part B FFS payments, and these Part B losses account for **virtually** all of **HCFA's** overall losses. **HCFA's** Part B losses averaged \$59 per member month (55 percent of predicted **FFS** costs) for cost **HMOs** and \$54 per member month (49 percent) for **HCPPs**. Part B losses to **HCFA** are not correlated with our measures of the aggressiveness of utilization review or physician financial incentives. For Part A, **HCFA** averaged only small losses from both cost **HMOs** and the **HCPPs**, but there was considerable variation across plans with losses to **HCFA** on half the plans and savings on the other half. The losses exceeded 10 percent of Part A FFS costs for 13 of the 63 plans, while 14 plans appear to have saved **HCFA** 10 percent or more. Part A losses were smaller for **HMOs** than for other types of plans, and for plans with more aggressive inpatient utilization review. For Part A and B combined, however, **HCFA** lost money on all types of plans.

Employer, union, and clinic **HCPPs** are associated with lower losses than **HCPPs** that are **HMOs**. These plans tend to have more enrollees living out of their service areas, and large proportions of Part B services that were billed directly to the Medicare intermediaries. The most likely explanation for the lower losses to **HCFA** for these plans is that most cost-reimbursement plans drive up the costs to **HCFA** for the services they pay for, but plans that pay for fewer services drive up costs on only a small proportion of bills. However, there is no association overall between percent of enrollment in the service area and losses to **HCFA** on Part B.

Even among the eight plans that appeared to generate savings in 1993, the estimates for most are probably due more to chance than to real savings for five of these plans, and the savings for the other three plans are probably idiosyncratic. Four plans for which the lower costs were probably due to chance were **HCPPs** with very high levels of direct billing to Medicare for Part B services (56 to 83 percent). It is

difficult to argue that these plans exerted strong controls over costs when such a large proportion of services was billed directly to HCFA, just like normal, unmanaged fee-for-service care. Two of the plans show large *savings* on Part B services, whereas **HCFA's** Part B costs were 57 percent *greater* than predicted FFS costs for the 55 plans with predicted overall losses. For another plan, a union-based HCPP, estimates suggest savings on Part A services of 13.1 percent. However, only 30 percent of the plan's enrollees lived in the plan's service area. These facts suggest that enrollees in these three plans by chance needed fewer services during 1993 than would normally be expected, or that the plans have favorable selection that is not fully reflected in the DRG and mortality variables. Among the other low-cost plans, Cigna of Southern California (**H6056**), did not respond to repeated survey efforts, and so little is known about it, except that it is unusual in terms of its large Medicaid (82 percent of enrollees), disabled, and nonwhite enrollment. The cost report for this HCPP included costs for two other Cigna plans with healthier enrollees, so actual cost paid by the plan are likely to be understated.

The other three plans are those most likely to have generated real savings to HCFA. These plans are similar primarily in terms of their being **HMOs**, being non-profit, having evidence of favorable selection, and with predicted savings on Part A services of 10 percent or more offsetting modest losses on Part B. However, they differ greatly on other characteristics. Kaiser of North California is a large, group model HCPP (over 200,000 enrollees) with decades of experience in managed care. It is the only plan among the nine Kaiser plans studied that generated savings, however, which suggests that its enormous size provides an opportunity **for** savings. This may be due in part to spreading fixed costs over more member months. Capital Group Health is a small staff model HCPP with about 1,500 enrollees. Health Plan of the Upper Ohio Valley is an **IPA** model cost HMO with over 8,000 members. Neither the financial incentives for physicians nor the UR procedures appear to consistently account for their savings to HCFA.

The main reason for the large increase in costs to HCFA appears to, be a lack of incentive for plans to drive hard bargains with physicians on prices, salaries, or **capitation** rates. The problem is exacerbated

for plans owned by physicians, such as the clinic HCPPs and some of the **HMOs**, because physicians can pay themselves higher compensation than they could earn at Medicare's normal FFS rates. Other factors may contribute to the losses but fail to account for their magnitude. For example, administrative expenses, at an average of \$10 per member month, are higher in the cost-contracting program than in the FFS program, but they represent less than one-fifth of the large average losses to Medicare. Plans paying salaries or **capitation** rates would find it difficult to determine what level of compensation would be consistent with Medicare FFS reimbursement, and have no incentive to do so. Furthermore, their small share of the Medicare market limits their ability to set highly competitive rates for physician compensation. Plans find it easier to pay their physicians a single rate, whether they are delivering services to Medicare or non-Medicare members. These rates typically exceed the FFS rates set by Medicare.

There also is no constraint on plan costs. Although statutes indicate that payments to cost **HMOs** may not exceed the AAPCC, that rule is extremely difficult to implement and does not account for out-of-plan use. Furthermore, HCPPs do not cover all Part B services.

It is possible that the higher Part B costs to HCFA are due in part to beneficiary characteristics and behavior, but this explanation is unlikely to account for much of the large observed difference. Beneficiaries enrolled in plans with cost contracts may need or desire a higher level of ambulatory care, despite the fact that in most plans, enrollees are less likely to die and less likely to be hospitalized for high-cost conditions than FFS counterparts in their areas. Enrollees in plans that are employer or union-based may have been accustomed to generous first dollar coverage for health care during their working years, and developed a habit of more intensive use of ambulatory services. However, our estimates suggest that losses to HCFA are lower for union- and employer-sponsored plans than for other plans. Thus, these explanations are not likely to account for much, if any, of the large cost increase under cost contracting.

4. Cost-Effectiveness Relative to Estimated Risk-Based Payments

Overall, HCFA payments for enrollees in cost **HMOs** and **HCPPs** in 1993 were higher than the estimated cost had these individuals been enrolled in Medicare risk plans, though not by as large a fraction as compared to FFS costs. Using our estimates of average risk factors that produce the smallest estimates of losses to HCFA, we find that the average costs to HCFA for cost **HMOs** were 10.8 percent (about \$35 per member month) higher than the average risk-based payment would be, and for **HCPPs** the average difference was 6.9 percent (about \$23 per member month). For 39 of the 63 plans (12 cost plans and 27 **HCPPs**) HCFA's costs increased. For 9 of these plans, HCFA's losses exceeded 25 percent. Our estimates of risk-based payments from a less conservative (and probably more accurate) method yield larger average losses to HCFA per plan--13.8 percent for cost **HMOs** and 10.1 percent for **HCPPs**.

On average, cost-based Part A payments were lower in 1993 than Part A AAPCC payments would have been, but cost-based Part B payments were much higher than risk-based Part B payments. For most plans (41) HCFA saved money on Part A, but did so on only 7 plans for Part B services. HCFA's average Part A savings were 2.8 percent on cost **HMOs** and 5.9 percent on **HCPPs**. The average Part B losses were 3 1.8 percent on cost **HMOs** and 27.0 percent on **HCPPs**.

The Part A savings on cost-based plans relative to risk-based payment is likely to be due to favorable selection. Whereas the plans with favorable selection would be overpaid under risk contracting, this does not occur under cost-based reimbursement. (If the Part A savings were due to true efficiencies, we would have observed reductions in Part A costs relative to the FFS comparison group.) Part B payments would also be too high under risk contracting, but results from a study of the Medicare risk program suggest that overpayment as a result of favorable selection is much less for Part B than Part A (see Brown et al. 1993).

We find a strong positive relationship between plans' extent of favorable selection and cost savings to HCFA relative to risk contracting. The Part B savings from not overpaying as a result of favorable

selection are overwhelmed by plans paying higher prices than Medicare does for physician **services** (and perhaps using more Part B services).

HCFA's savings and losses for particular plans are not strongly linked to observed characteristics, such as type of sponsoring organization, enrollment level, physician financial incentives, or aggressiveness of utilization review programs. The results **from** our descriptive and regression analyses were anomalous, suggesting that some factors affecting plan savings or losses were not accounted for (or measured well enough) and that our sample was too small to allow us to separate out the most influential factors.

Twenty-four cost-based plans saved HCFA money relative to what HCFA would have paid them as risk-based plans. Most of these 24 plans are nonprofit, most have evidence of favorable selection and most do not have aggressive inpatient or outpatient utilization review programs. Five plans had savings of 10 percent or more relative to what HCFA would have paid them as risk-based plans. All five **plans** have evidence of favorable selection. Four of these plans are **HMOs** or **CMPs**, four are nonprofit, and only one was once a risk plan. All but one of these plans also saved money relative to FFS Medicare.

When the plan-level estimates of cost savings to HCFA per member month are weighted by member months and summed (and adjusted for the expected effects of audits), we find that the overall costs to HCFA are 8.5 percent above projected risk payments for the cost HMO program, but 2.2 percent below projected risk payments for the HCPP program. These overall savings **from** the HCPP program relative to risk contracting are due solely to the finding that one large plan (with 44 percent of all HCPP enrollees) had savings of 9.5 percent. The savings on this one plan offset the combined losses on the other 62 plans. However, this plan has since converted to a risk contract. When the 7 cost **HMOs** and **HCPPs** that converted to risk contracts or dropped out of Medicare managed care altogether are removed from the calculations, total losses to HCFA relative to risk contracting are 6.8 percent for cost HMO program and 6.5 percent for the HCPP program.

5. Risk Plans that Converted to Cost or HCPP Contracts

Of the 65 cost or **HCPPs** with more than 1,000 enrollees in December 1993, one-third once held a Medicare risk contract. Twenty former risk plans converted to cost or HCPP contracts between 1990 and 1992. The 19 former risk plans we interviewed identified four reasons for converting: financial concerns, market factors, regulations, and adverse selection. The reason most frequently stated was financial concerns. Only two plans cited adverse selection as a reason for converting.

All but one of these former risk plans said they lost money under their risk contract, and half also lost money on their commercial business. Most plans attributed their financial problems to low AAPCC rates. About 40 percent of the plans also said that they have problems controlling costs.

These former risk plans decided to remain in the Medicare market because they felt obligated to their communities or because employers to whom they were providing coverage asked them to retain a Medicare plan of some type for their retirees. If, however, the cost and HCPP contracting options were not available, only one plan reported that it would have continued as a risk plan. One-third of the plans would have instead offered Medigap policies, and one-fourth would have withdrawn from the Medicare market.

For the 19 plans in our sample that converted from risk to cost contracts between 1990 and 1992, we used the actual distribution of plan enrollees across the AAPCC rate cells during the last year that the plan had a risk contract to estimate the risk payments. This method is likely to be more accurate than others used to generate estimates. We found that for 17 of the 19 former risk plans, costs to HCFA under cost-based reimbursement exceeded costs that would have been incurred under risk contracting. Average losses to HCFA for converted cost **HMOs** were 23.7 percent, and average losses for converted HCPP plans were 6.2 percent, but the impact of conversion varied widely across plans, ranging from a loss of 47.3 percent to a savings of 13.5 percent. This pattern of increased costs to HFCA from conversions is

consistent with what the plans told us during our case study interviews--they lost money under their risk contract, and by converting to cost and HCPP contracts, they hoped to avoid future financial losses.

If HCFA had discontinued the cost and HCPP programs in 1993, about one-third of the cost or HCPP plans eligible to sign risk contracts indicated that they would have done so in 1993. Cost HMOs and HCPPs are more likely to consider risk contracting if there is an increase in their AAPCC rates, if they have competition **from** other risk plans, or if their providers are more willing to share some of the risks. Plans may have underreported their willingness to sign risk contracts, however, if they believed that such a response is likely to encourage the continuation of the cost and HCPP programs.

B. POLICY IMPLICATIONS

HCFA is losing money by cost contracting with HMOs and HCPPs. The losses relative to FFS occur for both types of plans and are widespread. Only for 8 of the 63 plans were HCFA's costs lower than they would have been under FFS. The losses are due entirely to substantially higher Part B costs for enrollees. Although aggregate, program wide costs for the HCPP program in 1993 may have been slightly below the costs **that** would have been occurred for the same enrollees under *risk contracting*, this result is due almost entirely to savings on one large plan (with 44 percent of all HCPP enrollees) that has since converted to a risk contract. Furthermore, the estimate that HCFA saved money on the HCPP program overall (relative to risk contracting) is probably overly optimistic even for 1993. More plausible estimates of the proportion of enrollees in nursing homes would increase estimated losses by about 3 percentage points. HCFA's finding that the 1993 Part B USPCC overestimated FFS costs by 18 percent also suggests that had another year been chosen the estimated cost increase to HCFA relative to risk contracting would be considerably larger (on average, the USPCC predicts average FFS costs reasonably accurately). Of the one-third of plans that converted from risk to cost or HCPP contracts in recent years, for all but two HCFA's costs were increased by the conversion.

It is likely that these losses occur because the financial incentives for cost **HMOs** and **HCPPs** to contain costs is very weak. They are only at risk for the deductible and coinsurance amounts for the services they provide. Previous research suggests that the primary savings for Medicare risk **HMOs** comes from reductions in the length of hospital stays. However, for all **HCPPs** and nearly all cost **HMOs**, inpatient bills were sent directly to **HCFA** and paid for under Medicare's **DRG** system. Shorter lengths of stay, even if achieved, would not lead to savings under this system.

Other characteristics about plan operations and behavior may also explain why **HCFA's** costs (primarily **Part B** costs) for enrollees in cost plans are greater than they would be under **FFS Medicare**. First, cost **HMOs** and **HCPPs** tend to pay their physicians for treating Medicare members as they pay them for treating their commercial members. Commercial fees and prorated salaries for plan physicians are likely to be greater than the amounts these physicians would be receiving under the Medicare fee schedule. Plans would have difficulty determining salary or **capitation** rates that compared favorably to expected cost under Medicare **FFS** rates, even if they chose to do so. Second, plans that serve both commercial and Medicare clients have the incentive to include as many operating or administrative costs as possible in the amount to be allocated between Medicare and **nonMedicare**. Third, many plans cover services (like preventive care) that are not covered by Medicare. The costs of providing some of these services cannot be readily distinguished and netted out of plans' costs calculations. This is especially true for plans that pay their physicians salaries or pay physician groups a **capitation** rate.

Differences between plan enrollees and nonenrollees in liability for out-of-pocket costs for **Medicare**-covered services may also partially explain why Medicare pays more for cost **HMO** enrollees. All cost **HMO** and **HCPP** enrollees in our sample plans had **Medigap** coverage through their plan, but about 11 percent of the nonenrollee sample members are likely to have lacked **Medigap** coverage (see Chulis et al. 1993). Estimates by Hill et al. (1992) and Christiansen, Long, and Rogers (1987) suggest that this liability for a share of the cost reduces beneficiaries' use of Medicare-covered services (and costs). Thus, the

difference between HCFA's costs for enrollees and nonenrollees would be slightly smaller than reported if comparably insured nonenrollees were used in the analysis. The difference would not, however, be eliminated.

One way to induce cost-based plans to provide more efficient care would be to change the payment arrangements between the plans and HCFA. If plans shared some risk with HCFA and had an opportunity to earn profits by holding costs below a FFS-based target, they would have to become more efficient to stay in business or withdraw from the market. Of course, once these plans are asked to assume financial risk for Medicare-covered services, they would no longer be cost-based plans. Furthermore, identifying an appropriate limit on costs would be administratively difficult and might involve considerable time lags. However, there may be some intermediate arrangements between full risk and no risk that could provide both some incentive to be efficient and some protection against losses for plans.

Our findings indicate HCFA would save money by phasing out cost and HCPP contracts for HMOs, allowing plans to either convert to a risk contract or to end contracting with HCFA entirely. Given that losses are incurred for almost all cost contract plans, it appears to be disadvantageous for HCFA to sign new cost or HCPP contracts. The problem may be disappearing, however, because the recent trend has been for plans to move away from cost contracts into risk contracts. Nonetheless, it may be prudent for HCFA to eliminate the possibility of converting from risk to cost contracts because the agency could suffer as a result of plan self-selection. That is, plans that profit because of favorable selection of enrollees may remain in the risk program, while those that lose money because they are inefficient may convert to cost contracts. Thus, HCFA's losses on managed care contracting for Medicare could be maximized by offering both options.

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APPENDIX A
COST CONTRACT PLAN CODES, NAMES,
AND CHARACTERISTICS



TABLE A
COST CONTRACT PLAN CODES, NAMES, AND CHARACTERISTICS

Plan Identification Number	Plan Name	State	Model	1993 Member Months ^b	Percent of Enrollees Out-of-Area ^c	Former Risk Plan? ^d	Contract in March, 1996
Average Over All Plans				94,578	16.2	39.9%	
HO502	Contra Costa HMO	CA	Staff	14,599	5.9	N	Cost
HO602	Rocky Mountain HMO	CO	IPA	119,168	6.1	N	Cost
HO749	Physicians Health Services	CT	IPA	106,723	14.4	Y	Cost
H1010	Capital Group Health	FL	Staff	17,940	22.3	N	Cost
H1203	Hawaii MSA	HI	IPA	290,569	12.6	N	Cost
H1449	Rush Prudential HMO	IL	Staff	67,363	9.1	Y	Cost
H1553	The M Plan	IN	Group	44,800	15.7	Y	Cost
H3104	Aetna Health Plans of NJ	NJ	IPA	168,356	45.2	N	Cost
H3149	Hip-Rutgers	NJ	Group	122,342	29.3	Y	Risk
H3308	Capital Area Community	NY	Staff	20,703	8.9	N	cost
H3349	Capital Area Community	NY	Staff	58,605	8.6	Y	cost
H3356	Blue Cross of Rochester	NY	IPA	218,853	12.8	Y	cost
H3602	Health Guard	OH	Staff	12,665	45.0	N	cost
H3801	PACC Health Plan	OR	IPA	112,319	11.7	N	cost
H3851	HMO Oregon	OR	IPA	115,423	19.2	N	cost
H4101	Harvard Community HP	RI	Staff	56,329	11.6	Y	cost
H5002	Group Health Northwest	WA	Staff	58,863	6.6	N	cost
H5102	HP of Upper Ohio Valley	WV	IPA	97,324	6.9	N	cost

SOURCES: Each plan's annual cost report for 1993 for member months, Group Health Plan **masterfile** for percent of out-of-area enrollees, and Medicare Managed Care Plans: Monthly Report, March, 1996.

^aModels may differ from those in HCFA reports due to the results of our site visits.

^bFor cost reports not covering a 12-month period, member months are annualized. For cost reports covering multiple plans, member months are allocated on the basis of our enrollee sample from the Group Health Plan **masterfile**.

^cPercent of enrollees residing in counties with less than 10 percent of the plan's Medicare enrollment.

^dOne of the plans, **H2453**, participated in the diagnostic cost group (DCG) payment system demonstration from 1989 to 1991. Because the data available for this plan is the same as that available for plans that did not have former risk contracts, the plan is coded as not having participated in the risk program.

APPENDIX B

**HCPP PLAN CODES, NAMES, AND
CHARACTERISTICS**

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TABLE B
 HCPP PLAN CODES, NAMES, AND CHARACTERISTICS

Code	Plan Name	State	Type	1993 Member Months ^a	Percent of Enrollees Out-of-Area^b	Former Risk Plan ^c ?	Contract in March. 1996
Average. Over AU Plans				120,233	28.5	31%	
H0651	Take Care of Co-Pueblo	CO	HMO	50257	2.9	Y	None
H0652	Take Care of Co-Colorado Springs	CO	HMO	31,162	5.9	Y	None
H0704	Kaiser Foundation HP	CT	HMO	29,300	13.2	N	HCPP
H1149	Kaiser Foundation HP	GA	HMO	28,587	33.3	Y	HCPP
H1605	Heritage National	IL	Employer/ Union	127,170	47.3	N	HCPP
H1649	United HC of Iowa	IA	HMO	20,352	4.7	Y	HCPP
H1703	Kaiser Foundation HP	KS	HMO	11,493	37.9	N	HCPP
H1949	OCHSNER	LA	HMO	18,771	27.8	N	Risk
H2150	Kaiser Foundation HP	MD	HMO	58,013	46.9	Y	HCPP
H2251	HMO Blue	MA	HMO	158,641	22.2	Y	HCPP
H2254	Kaiser Foundation HP	MA	HMO	28,664	10.1	Y	HCPP
H2449	HMO MN/Blue PLUS	MN	HMO	158,772	50.3	Y	HCPP
H2450	PHP PLUS	MN	HMO	461,377	41.7	Y	HCPP
H2451	Medica	MN	HMO	29,455	4.5	Y	HCPP
H2453	MEDCENTERS	MN	HMO	154,113	20.5	Y	HCPP
H2601	Group Health Plan IN	MO	HMO	159,192	33.0	N	Risk
H3301	Kaiser Foundation HP	NY	HMO	22,568	15.0	N	HCPP
H3451	Kaiser Foundation HP	NC	HMO	15,324	19.9	Y	HCPP
H3452	Kaiser Foundation HP	NC	HMO	23,772	27.3	Y	HCPP
H3601	HEALTHOHIO	OH	HMO	58,790	38.1	Y	HCPP
H4555	Scott and White HP	TX	HMO	36,608	34.4	N	HCPP
H4556	Santa Fe Employees	TX	Employer/ Union	28,629	60.2	N	HCPP
H4600	FHP of Utah, Inc	UT	HMO	76,346	22.4	N	HCPP
H6052	Kaiser Foundation HP	CA	HMO	2,382,310	47.0	N	Risk
H6053	Santa Fe Employees	CA	Employer/ Union	21,870	55.6	N	HCPP
H6054	CIGNA OF S CA	CA	HMO	58,895	13.2	N	Risk
H6055	ROSS-LOOS	CA	HMO	56,771	14.7	N	Risk

TABLE B (continued)

Code	Plan Name	State	Type	1993 Member Months ^a	Percent of Enrollees Out-of-Area ^b	Former Risk Plan? ^c	Contract in March, 1996
H6056	CIGNA OF S CA	CA	HMO	25,908	11.8	N	None
H6091	Group Health Assn	DC	HMO	97,870	27.0	N	HCPP
H6102	Boro Medical Corp	FL	Clinic	39,364	14.8	N	HCPP
H6140	Wabash Memorial	IL	Employer/ Union	25,081	56.3	N	HCPP
H6141	Sidney Hillman Health	IL	Employer/ Union	13,657	20.1	N	HCPP
H6142	Union Health Service	IL	Employer/ Union	25,227	11.3	N	HCPP
H6144	Dreyer HMO	IL	HMO	35,189	11.0	N	HCPP
H6151	Amett HMO	IN	HMO	62,234	31.9	N	HCPP
H6152	Welbom HMO Evansvil	IL	HMO	66,405	35.5	N	HCPP
H6161	Medical Assoc Health	IA	Clinic	95,252	16.4	N	HCPP
H6171	AT&SF Employees Benefit	KS	Employer/ Union	108,416	82.8	N	HCPP
H6261	St Louis Labor Inst	MO	Employer/ Union	26,212	23.5	N	HCPP
H6331	Boro Medical Center	NY	Clinic	83,107	17.5	N	HCPP
H6333	NYSA-ILA Coordinating	NY	Employer/ Union	164,098	70.4	N	HCPP
H6334	Union Family	NY	Employer/ Union	36,431	22.3	N	HCPP
H6336	HIP Network of Florida	FL	HMO	3 1,739	14.6	Y	Risk
H6391	Police & Fire Med As	PA	Employer/ Union	52,047	32.1	N	HCPP
H6521	Dean Care HMO	WI	HMO	114,966	32.0	N	HCPP

SOURCES: Each plan's annual cost report for 1993 for member months, Group Health Plan Masterfile for percent of enrollees out-of-area, and Medicare Managed Care Plans: Monthly Report, March, 1996.

^aFor cost reports not covering a 12 month period, member months are annualized. For cost reports covering multiple plans, member months are allocated based on our enrollee sample from the Group Health Plan Masterfile.

^bPercent of enrollees residing in counties with less than 10 percent of the plan's Medicare enrollment.

^cOne of the plans H2453, participated in the DCG payment system demonstration from 1989 to 1991. Because the data available for this plan is the same as that available for plans that did not have former risk contracts, predicted FFS and risk payments were calculated as if it were not a risk plan. But because the DCG payment system demonstration was held plans at risk for costs, we grouped this plan with former risk plans when reporting results by plan characteristics.

APPENDIX C
SERVICE AREA DESIGNATIONS

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TABLE C
SERVICE AREA DESIGNATIONS

Plan Contract Number	State and county Code	Percent of All Plan Enrollees Residing in Counties Used to Define Plan Service Area	Cumulative Percent of All Plan Enrollees Residing in Counties Used to Define Plan Service Area	Cumulative Percent of All Plan Enrollees Residing in Counties Used to Draw Beneficiary Sample
cost HMOs				
H0502	05060	94.1	94.1	94.1
H0602	06380	67.8	67.8	
	06140	14.8	82.6	
	06420	11.3	93.9	95.4
H0749	07000	85.6	85.6	97.1
H1010	10360	77.7	77.7	96.8
H1203	12020	71.3	71.3	
	12010	16.1	87.4	98.8
H1449	14141	79.5	79.5	
	14250	11.4	90.9	94.5
H1553	15480	84.3	84.3	94.6
H3104	31270	21.2	21.2	
	31260	13.2	34.4	
	31150	10.4	44.8	
	31160	10.0	54.8	93.2
H3149	31270	29.5	29.5	
	31150	15.4	44.9	
	31160	14.8	59.7	
	31100	11.0	70.7	96.2
H3308	33230	74.4	74.4	
	33740	16.6	91.1	96.0
H3349	33000	28.2	28.2	
	33650	20.5	48.7	
	33600	18.1	66.8	
	33640	14.1	80.8	
	33200	10.5	91.4	96.3
H3356	33370	87.2	87.2	97.2
H3602	36060	55.0	55.0	94.4
H3801	38020	41.0	41.0	
	38250	24.3	65.3	
	38330	12.2	77.5	
	38230	11.8	89.3	94.1
H385 1	38190	43.7	43.7	
	38230	23.4	67.1	
	38210	13.7	80.8	95.6

TABLE C (continued)

Plan Contract Number	State and county Code	Percent of All Plan Enrollees Residing in Counties Used to Define Plan Service Area	Cumulative Percent of All Plan Enrollees Residing in Counties Used to Define Plan Service Area	Cumulative Percent of All Plan Enrollees Residing in Counties Used to Draw Beneficiary Sample
H4101	41030	54.8	54.8	
	22020	19.3	74.1	
	41010	14.3	88.4	96.4
H5002	50310	80.8	80.8	
	13270	12.6	93.4	95.0
H5102	36060	41.3	41.3	
	51340	38.6	79.9	
	51250	13.2	93.1	95.1
HCPP s				
H0651	06500	97.1	97.1	97.1
H0652	06200	94.1	94.1	96.1
H0704	07010	76.5	76.5	
	07000	10.3	86.8	91.1
H1149	11370	28.5	28.5	
	11470	24.4	52.9	
	11290	13.8	66.7	86.2
H1605	16060	27.3	27.3	
	14890	25.4	52.7	88.2
H1649	16760	74.8	74.8	
	16900	20.4	95.3	95.3
H1703	26470	39.3	39.3	
	17450	22.8	62.1	92.4
H1949	19250	35.3	35.3	
	19160	18.7	54.1	
	19350	18.1	72.2	89.9
H2150	21150	23.1	23.1	
	49290	15.4	38.5	
	21020	14.7	53.1	88.3
H2251	22070	51.3	51.3	
	22130	14.5	65.7	
	22040	12.1	77.8	95.8
H2254	22080	62.6	62.6	
	22060	27.3	89.9	96.8
H2449	24680	39.1	39.1	
	24080	10.6	49.7	91.5
H2450	24260	45.3	45.3	
	24610	13.0	58.3	90.8
H245 1	24680	95.5	95.5	95.5

TABLE C (continued)

Plan Contract Number	State and county Code	Percent of All Plan Enrollees Residing in Counties Used to Define Plan Service Area	Cumulative Percent of All Plan Enrollees Residing in Counties Used to Define Plan Service Area	Cumulative Percent of All Plan Enrollees Residing in Counties Used to Draw Beneficiary Sample
H2453	24260	65.5	65.5	
	24610	13.9	79.5	96.0
H2601	26940	44.2	44.2	
	26950	22.8	67.0	93.1
H3301	33800	85.0	85.0	88.4
H345 1	34590	80.1	80.1	92.6
H3452	34910	54.3	54.3	
	34310	18.4	72.7	92.2
H3601	36520	61.9	61.9	95.3
H4555	45120	65.6	65.6	96.5
H4556	45720	26.3	26.3	
	45120	13.5	39.8	73.0
H4600	46170	63.3	63.3	
	46240	14.3	77.6	93.7
H6052	05000	16.0	16.0	
	05060	13.3	29.3	
	05440	12.0	41.3	
	05530	11.7	53.0	88.2
H6053	05460	29.4	29.4	
	05200	15.0	44.4	83.4
H6054	05200	66.0	66.0	
	05400	20.9	86.8	94.9
H6055	05200	73.2	73.2	
	05400	12.1	85.3	95.3
H6056	05200	88.2	88.2	95.8
H6091	09000	34.8	34.8	
	21150	22.9	57.7	
	21160	15.3	73.0	90.1
H6102	10040	85.2	85.2	85.2
H6140	14660	30.3	30.3	
	26870	13.4	43.7	64.0
H6141	14141	79.9	79.9	85.7
H6142	14141	88.7	88.7	91.0
H6144	14530	76.4	76.4	
	14550	12.6	89.0	96.7

TABLE C (continued)

Plan Contract Number	State and county Code	Percent of All Plan Enrollees Residing in Counties Used to Define Plan Service Area	Cumulative Percent of All Plan Enrollees Residing in Counties Used to Define Plan Service Area	Cumulative Percent of All Plan Enrollees Residing in Counties Used to Draw Beneficiary Sample
H6151	15780	46.7	46.7	
	15360	10.7	57.5	
	15110	10.6	68.1	95.4
H6152	15810	64.5	64.5	93.6
H6161	16300	52.5	52.5	
	52210	20.9	73.4	
	14510	10.2	83.6	95.6
H6171	17880	17.2	17.2	63.3
H626 1	26940	42.9	42.9	
	26950	33.6	76.5	92.4
H633 1	33020	19.5	19.5	
	33590	19.2	38.7	
	33400	12.0	50.8	
	31370	10.8	61.6	
	3333 1	10.7	72.3	
	33800	10.2	82.5	93.6
H6333	33331	29.6	29.6	81.3
H6334	33590	27.2	27.2	
	33420	22.6	49.9	
	33331	16.7	66.6	
	33020	11.1	77.7	81.8
H6336	10490	49.2	49.2	
	10050	36.2	85.4	93.3
H6391	39620	67.9	67.9	88.4
H6521	52120	41.3	41.3	
	52270	15.1	56.3	
	52550	11.6	68.0	94.3

NOTES: The service area of each plan that was used to calculate plan-level estimated risk payments was defined as follows: Include all counties in each plans' service area are that contain the most enrollees, with the number of counties limited to the smallest of either (1) those containing at least 10 percent of all plan enrollees, or (2) those containing at least 200 enrollees. Each county in each plans' service area was given a weight based on its enrollment level.

The service area of each plan that was used to draw the **beneficiary** samples was larger than the service area used to calculate risk payments, and it was defined as the geographic area containing counties in which at least 1.5 percent of plan enrollees resided in 1993, until a cumulative percentage of 95 percent of all enrollees was reached.

APPENDIX D

**LIST OF DIAGNOSES (ICD-9'S) FALLING IN
EACH DIAGNOSTIC COST GROUP (DCG)**

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TABLE D

LIST OF DIAGNOSES (ICD-9's) FALLING IN EACH
DIAGNOSTIC COST GROUP (DCG)

DCG1

001-004, 006, 007, 010-012, 014-018, 020-027, 030-037, 039-041, 050-057, 060-066, 071-076, 080-091, 096-098, 100-104, 110, 111, 117, 118, 120-134, 136, 172, 179, 182, 230-234, 303-304, 451-453, 457, 459, 460-465, 520-523, 5263-5268, 5273, 5274, 5283, 560, 562, 566, 567, 568, 5770, 5771, 590, 598, 614-615, 711-712, 720, 725, 730-738, 740-742, 744-746, 748-755, 757-759, 852-854

DCG2

140, 225, 235-238, 290-298, 410, 430-434, 436, 437, 680-683, 685, 690-691, 693, 694, 697, 700-706

DCG3

153, 154, 181, 185-187, 189, 330, 332-337, 441-442, 444, 446, 480-487, 555, 556, 599, 710

DCG4

013, 038, 045-049, 070, 093-095, 1124, 1125, 1128, 114-116, 135, 160, 161, 164, 165, 2501-2503, 2510, 2511, 2513-2515, 252-254, 320-326, 340-345, 347-348, 3491-3492, 3498-3499, 3523, 3526, 3530-3536, 356-359, 390-398, 402-405, 411, 415-417, 420-425, 4274, 4275, 4295, 4296, 570, 5720-5724, 573, 960-990, 992-994, 9950-9951, 9954, 9958, 996

DCGS

180, 184, 188, 255, 260-273, 275, 277-279, 282-284, 286-289, 493-495, 500-507, 510-514, 516-519, 7854, 7855

DCG6

141-149, 151, 152, 155, 156, 158, 159, 162, 163, 170, 171, 183, 190, 193-196, 199, 200-203, 443, 447, 448, 557, 580-585, 7990, 7991

DCG7

150, 157, 191, 192, 197, 198, 204-208, v580-v581

SOURCE: Ellis and Ash (1988, Table 3-5).

NOTE: Diagnoses are listed as the first three or four digits of their ICD-9 codes. All intervals are inclusive.