

A Blended Sector Rate Adjustment for the Medicare AAPCC When Risk-Based Market Penetration is High

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ABSTRACT

The Federal government's Medicare program currently pays on a risk basis to health maintenance organizations (HMOs) and competitive medical plans (CMPs) using an adjusted average per capita cost (AAPCC) method.

This article proposes using a blended sector rate adjustment to blunt the impact of biased selection. The blended sector rate adjustment calculates payments to risk-based plans for next year based on the weighted sum of the average payment of the risk-based sector in the current year plus an estimate of the average Medicare payment in the fee-for-service sector. The weights for the sum are proportional to the risk-based market penetration in the area.

A simulation found savings for Medicare of \$10 - \$14 million if the adjustment had been used in 1987, though some plans in some areas would have had their payments increased. The simplicity and ease of administration of the blended sector rate adjustment argue for its adoption.

Introduction

Health maintenance organizations (HMOs) and competitive medical plans (CMPs) are currently paid on a risk basis under Medicare, using an adjusted average per capita cost (AAPCC) method which measures the average Medicare expenditures in the fee-for-service sector for a geographic area. If

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risk-based enrollment continues to grow as rapidly as it has since the program began in 1985, the fee-for-service sector and the claims data upon which the AAPCC is based will wither away in counties with high risk-based penetration.

Perhaps of more concern, however, is the effect of biased selection on year-to-year changes in the AAPCC, given the growth of risk-based payments. If risk-based plans experience favorable selection, the AAPCC should increase yearly because poorer risks remain in the fee-for-service sector and their fee-for-service Medicare costs become factored into the AAPCC calculation. If risk-based plans experience adverse selection, the AAPCC should decrease yearly because better risks remain in the fee-for-service sector and their fee-for-service Medicare costs become factored into the AAPCC calculation. Neither situation is desirable. If risk-based plans experience favorable selection, the Health Care Financing Administration (HCFA) pays more than actuarial equivalent Medicare costs; and if the risk-based plans experience adverse selection, HCFA pays less than actuarial equivalent costs, threatening the financial success of the plans.

This article proposes using a blended sector rate adjustment to blunt the impact of biased selection and to improve the accuracy of the AAPCC calculation. The blended sector rate adjustment calculates payments to risk-based plans for next year based on the weighted sum of the average payment to the risk-based sector in the current year plus an estimate of the average Medicare payment in the fee-for-service sector. For this adjustment, the weights are a function of risk-based market penetration. When risk-based market penetration is high, the blended sector rate adjustment gives more weight to this year's risk-based payment plus an inflation factor; when it is low, the blended sector rate adjustment gives more weight to next year's AAPCC, which is based entirely upon fee-for-service claims experience.

The blended sector rate adjustment offers several benefits. It reduces the expected impact of biased selection on year-to-year changes in the AAPCC, the year-to-year fluctuation in the AAPCC, and HCFA Medicare program costs. In addition, it phases in a new payment system in geographic areas with high risk-based market penetration. Perhaps the most important benefit is the development and gradual adoption of a mechanism for pricing risk-based payments over the long term, something the current AAPCC payment system cannot address.

The blended sector rate adjustment is not a complete solution, however, and its importance should not be exaggerated. The adjustment is directly proportional to risk-based market share. Thus, in areas with extreme favorable selection but low market share, the adjustment is only partial. But the adjustment is fairer to HCFA and the risk-based plans because year-to-year reductions or increases in the AAPCC could be modified by a blended sector rate. The ease and cost of administration make it a superior adjustment to health status indicators identified to date. Though health status adjustment would more directly attack the perceived problem with the current system, evidence from numerous studies to find the best health status adjuster

suggests that there is no ideal health status adjuster and that those available are only partial solutions. The blended sector rate adjustment, with its comparative advantage of simplicity, is proposed as a second-best alternative.

The recent level of risk-based market penetration is documented and the fiscal impact of a blended sector rate adjustment to the AAPCC is analyzed using reports provided by HCFA's Office of Prepaid Health Care. Data sets on risk-based enrollment—by demographic characteristics, by plan, and by county—are reported monthly for administrative purposes only. Data available on risk-based enrollment were converted to machine readable form for the years between 1983 and 1986 and matched to data on the total number of Medicare beneficiaries in a geographic area. Using these data enables tracking yearly changes in risk-based enrollment by geographic area and demographics to describe the risk-based market share of counties with any enrollment, and to compare yearly changes in the AAPCC across counties with different levels of risk-based market penetration. The data also enable simulation of the financial impact of a blended sector rate adjusted AAPCC and determination of savings for HCFA. The simulation indicates that HCFA would have saved from \$10- to \$14-million if a blended sector rate adjustment had been used in 1987, though some plans in some areas would have had their payments increased.

The next section presents information on both the growth in risk-based enrollment and market penetration and explores the relationship between market penetration and yearly changes in the AAPCC. Then the method for calculating the blended sector rate adjustment for the AAPCC is explained. Applying this adjustment to data figures from 1986 and 1987 simulates AAPCC payment rates for high penetration counties. Based on this simulation, the net savings to HCFA are estimated for 1986 and 1987, using enrollment levels from the beginning of each year. The final section discusses the policy implications and the practical issues to be addressed when adopting a blended sector rate adjustment.

Medicare's Risk-based Program and the Geographic Distribution of Enrollment

Brief History and Background

Between August 1982 and December 1986, 149 HMOs and CMPs began providing comprehensive health services to Medicare beneficiaries under Medicare's new risk-based payment programs. As implemented by provisions of the Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982, the program features the willingness of HMOs and CMPs to accept full responsibility and financial risk for providing Medicare benefits to any Medicare beneficiary who enrolls in a risk-based plan. In return, participating HMOs and CMPs receive a prospective monthly payment from HCFA equal to 95 percent of the AAPCC of providing Medicare benefits to beneficiaries in the local fee-for-service sector.

Adamache and Rossiter (1986), Brown and Langwell (1986), Rossiter, Nelson and Adamache (1988), and Brown and Langwell (1989) present several key findings about the early experience with risk-based contracting. First, the AAPCC is an important determinant of HMO entry into the Medicare market. Adamache and Rossiter (1986) found HMOs that existed in 1982 were most likely to enter the Medicare market where the AAPCC was high. The HMOs least likely to enter were in areas with relatively low AAPCC levels of payment. While several other characteristics predicted whether an HMO entered the Medicare market, the AAPCC was the most consistent predictor. Adamache and Rossiter conclude that HMO participation in and the ultimate success of the risk-based payment program depend on adequate risk-based payment rates.

Second, Medicare enrollees in risk-based plans are a self-selected group and, according to Brown and Langwell (1986), differ from a general fee-for-service comparison group in a number of ways. An important difference is that HMO enrollees were less likely to have a regular source of care prior to enrollment than fee-for-service beneficiaries, and they were more likely to worry about their health. The same percentage of fee-for-service beneficiaries and HMO enrollees reported excellent health, but 9.2 percent of fee-for-service beneficiaries reported the lowest health status compared with 4.7 percent among HMO enrollees. Generally, HMO enrollees had lower Part A service use prior to enrollment than did fee-for-service beneficiaries for a comparable period. However, no statistically significant difference existed between Part B prior service use for enrollees and fee-for-service beneficiaries (Rossiter, Nelson, Adamache, 1987; Brown and Langwell, 1989).

Third, risk-based plans concentrate their operating and marketing efforts on selecting favorable risks in some areas of the country. Several studies of marketing strategy revealed that the plans were promoted to younger, more active beneficiaries by using presentations to community groups and establishing enrollment procedures that encouraged in-person applications (Langwell, Rossiter, Nelson, and Adamache, 1987; Langwell, et al., 1986 and 1987; Langwell and Hadley, 1986). However, Rossiter, Nelson, and Adamache (1988) revealed that only half the HMOs with risk-based payment plans broke even between 1983 and 1985, indicating the risk associated with entering the Medicare market. Basing payments on fee-for-service costs in the area does not guarantee immediate success in the Medicare market for risk-based plans.

Nationally, early experience indicates the potential for risk-based enrollment to be selective. Both the willingness of HMOs to enter the Medicare market and the willingness of beneficiaries to choose the option are selective and vary by geographic location and characteristics of the beneficiaries, factors unaccounted for in the AAPCC payment system. The potential for biased selection creates a program whose success depends, in part, on the marketing practices and benefit packages of the HMO and the attitudes, experiences and perceptions of the beneficiaries.

Annual Growth in Enrollment from 1983 through 1988

Enrollment in HMOs and CMPs with risk-based payments has grown remarkably fast. Tables 1 and 2, using HCFA administrative reports converted to machine readable form, trace the rapid growth and geographic dispersion of risk-based Medicare contracting. Some of the early demonstration HMOs, paid on a modified risk basis, are counted only after they converted to risk contracts under the provisions of TEFRA.

Table 1 shows that risk-based enrollment exceeded one million beneficiaries by the end of 1987 and fell just below one million by the end of 1988. Florida accounted for a growing share of total enrollment until TEFRA's provisions were implemented in 1985. Yet, even at the end of 1988, nearly 60 percent of risk-based enrollment was concentrated in Florida, California and Minnesota. Thus, uneven risk-based market penetration distorts the application of the AAPCC payment.

Table 2 compares the distribution of enrollment across the AAPCC demographic cost factor categories with the U.S. distribution of beneficiaries. Showing the percentage distribution of enrollment by category raises questions about whether the distribution of enrollees shifted during the four years of risk-based contracting experience. From this information, one might hypothesize that HMO marketing directors adeptly attract a disproportionate share of low-risk enrollees. The plans, however, receive less reimbursement for enrolling from low-risk categories. And as the plans grow, it might become increasingly difficult to draw only from low-risk categories: the marginal cost of attracting lower risks rises as the pool of potential enrollees in the fee-for-service sector declines.

In fact, Table 2 shows mixed results. The percentage distributions by age are remarkably similar across the years. The two oldest age groups, on the other hand, exhibit a slight percentage increase in the ages 80 to 84 and the 85 or older segments, and these are among the highest risk groups. Though modest, the percentage changes show that enrollment in the older groups increased more rapidly than in the younger groups, supporting the hypothesis that selection into low-risk groups decreases as HMO market share increases. Enrollment distributions are well below the national figures shown in Table 2 for the high-risk groups: age 85 or older, Medicaid buy-in, and the institutionalized.

The percentage distribution by sex and the Medicaid buy-in population showed no trend, but the institutionalized category grew each year until 1987. A high risk group that receives above average AAPCC payments, the institutionalized, were initially administratively difficult for HMOs to identify.

Annual Changes in Market Penetration

Table 3 shows the growth in the market share of the risk-based program by county. The number of counties with enrollment grew from 21 in 1983 to 609 by the end of 1987 and dropped to 457 at the end of 1988. The growth was

Table 1
Annual Enrollment under Risk-Based Medicare AAPCC Contracts by Geographic Area 1983-88.

Geographic Area	1983		1984		1985		1986		1987		1988	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
All	71,206	100	225,799	100	410,008	100	767,836	100	1,166,602	100	990,612	100
<i>Census Regions</i>												
Northeast	51	0.1	21,657	9.6	47,911	11.7	107,204	14.0	217,920	18.7	137,660	13.9
South	31,968	44.9	108,864	48.2	143,950	35.1	172,865	22.5	196,192	16.8	188,872	19.1
North Central	29,610	41.6	68,992	30.6	134,005	32.7	252,843	32.9	336,016	28.8	257,917	26.0
West	9,577	13.4	26,286	11.6	84,142	20.5	234,924	30.6	416,474	35.7	406,163	41.0
		100.0		100.0		100.0		100.0		100.0		100.0
<i>States¹</i>												
Florida	31,968	44.9	108,740	48.2	143,658	35.0	160,023	20.8	170,024	14.6	173,970	17.6
California	2,279	3.2	19,131	8.5	60,465	14.7	156,958	20.4	217,730	18.6	286,021	28.9
Minnesota	27,992	39.3	47,723	21.1	66,560	16.2	136,216	17.7	157,646	13.5	128,331	12.9
Massachusetts			17,531	7.8	30,921	7.5	52,082	6.8	55,764	4.8	53,920	5.4
Illinois			5,196	2.3	24,507	6.0	47,884	6.2	56,001	4.8	58,426	5.9
Michigan	1,618	2.3	5,903	2.6	15,849	3.9	34,321	4.5	43,060	3.7	18,775	1.9
Oregon	6,213	8.7	5,913	2.6	11,496	2.8	27,962	3.6	60,163	5.1	46,243	4.7
Pennsylvania					6,070	1.5	19,508	2.5	21,143	1.8	18,602	1.9
New York	51	0.1	3,957	1.8	6,926	1.7	18,516	2.4	98,672	8.5	51,831	5.2
Nevada					6,844	1.7	13,897	1.8	12,868	1.1	11,149	1.1
Washington	1,085	1.5	1,242	0.6	1,466	0.4	3,512	0.5	43,909	3.8	9,830	1.0
Other			10,463	4.5	35,246	8.6	96,957	12.6	229,622	19.7	133,534	13.5
		100.0		100.0		100.0		100.0		100.0		100.0

¹ With risk-based enrollment one percent or greater.

Source: Prepared from tables provided by the Office of Prepaid Health Care, HCFA.

Table 2

Annual Enrollment Under Risk-Based Medicare AAPCC Contracts by Demographic Cost Factor Categories 1983-88

Demographic Cost Factor Categories	1984 National Medicare Population	Risk-Based Enrollment											
		1983		1984		1985		1986		1987		1988	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<i>Age</i>	100	71,206	100	225,799	100	410,008	100	767,836	100	1,166,602	100	990,612	100
65-69	32.4	23,319	33.5	76,404	33.8	139,605	34.0	259,558	33.8	394,062	32.1	320,052	32.3
70-74	26.2	21,319	29.9	66,961	29.7	120,187	29.3	220,744	28.7	337,223	28.9	287,240	29.0
75-79	19.0	14,184	19.9	44,914	19.9	80,460	19.6	151,118	19.7	235,899	20.2	198,904	20.1
80-84	12.2	7,753	10.9	24,177	10.7	44,150	10.8	85,425	11.1	134,859	11.6	113,845	11.5
85 or older	10.1	4,083	5.7	13,343	5.9	25,606	6.2	50,991	6.6	84,559	7.2	70,571	7.1
<i>Sex</i>													
Male	42.4	31,302	44.0	100,643	44.6	179,428	43.8	325,373	42.4	489,666	42.0	421,469	42.5
Female	57.6	39,904	56.0	125,156	55.4	230,580	56.2	442,463	57.6	676,936	58.0	569,143	57.5
<i>Medicaid Buy-In</i>													
Yes	17.9	902	1.3	5,408	2.4	9,574	3.2	14,388	1.9	21,866	1.9	20,142	2.0
No	82.1	70,304	98.7	220,391	97.6	400,434	97.7	753,448	98.1	1,144,736	98.1	970,470	98.0
<i>Institutionalized</i>													
Yes	4.8	2	0.0	438	0.2	1,668	0.4	4,220	0.5	1,707	.1	n.a.	n.a.
No	95.2	71,204	100.0	225,361	99.8	408,340	99.6	763,616	99.5	1,164,895	99.9	990,612	100.0

Source: Prepared from tables provided by the Office of Prepaid Health Care, HCFA.

Table 3
Risk-Based Enrollment: Number of Counties and Market Share
in Counties with Enrollment 1983-88

	1983	1984	1985	1986	1987	1988
<i>All</i>						
Counties	21	77	184	396	609	457
Market share	3.97%	4.71%	5.22%	6.53%	7.90%	7.43%
<i>Census Region</i>						
Northeast Counties	1	12	44	70	87	72
Market share	0.00%	3.47%	2.07%	3.26%	4.60%	3.36%
South Counties	2	10	12	71	127	104
Market share	7.79%	11.69%	12.40%	7.81%	6.89%	6.88%
North Central Counties	11	38	89	191	298	209
Market share	10.91%	4.00%	6.39%	7.55%	8.41%	7.08%
West Counties	7	17	39	64	97	72
Market share	0.93%	1.73%	3.69%	8.10%	13.03%	14.28%

sharpest in the north central region, rising from 11 to 209 counties. Risk-based market share in the counties with any enrollment also increased, from 3.97 percent for 21 counties in 1983 to 7.43 percent for 457 counties in 1988. The counties in the West had the highest market share by 1988. Thus, variation in HMO market share across geographic areas deserves further study.

The Pattern of Annual AAPCC Changes in High Market Penetration Counties

If risk-based enrollment is biased, yearly changes in the AAPCC should reflect this bias. The AAPCC will rise faster in counties with favorable HMO selection than in counties with unbiased selection. The AAPCC will rise slower in counties with adverse HMO selection than in counties with unbiased selection. These variations assume that the AAPCC always increases yearly because of inflation in the fee-for-service sector and that risk-based competition has no impact on fee-for-service costs.

Actually, competition could have two effects on yearly changes in the AAPCC. If competition favorably affects HCFA costs, the AAPCC could decrease because fee-for-service providers respond to risk-based competition by becoming cost conscious. Yet, if competition unfavorably affects HCFA costs, the AAPCC could increase because fee-for-service providers respond to risk-based competition by inducing demand for their services. The effects of biased selection cannot be separated from competition. Yet, if HMO favorable selection and/or competition-induced demand exists, the proposed blended sector rate would blunt the impact. However, if HMO adverse selection and/or cost-conscious competition exists, the proposed blended

sector rate reduces the impact.¹ Because available studies show favorable selection for HMOs in nearly each study, the year-to-year trends in the same counties imply favorable selection. If the AAPCC decreases in some counties, HCFA may choose not to use the blended sector rate for reimbursement in those counties. The next section formally explains the blended sector rate adjustment, which uses risk-based market penetration as a factor in its formulation. An analysis of the financial impact of the adjustment follows the explanation.

A Simulation of the Blended Sector Rate Adjustment to the AAPCC

Methods

The Blended Sector Rate Adjustment. The use of the AAPCC as the measure of average expenditures is mandated by Section 1876 of the Social Security Act as amended by TEFRA. Defined as the average Medicare program expenditures in a geographic area, the AAPCC allows for "appropriate classes of members, based on age, disability status, and such other factors as the Secretary determines to be appropriate." By law, the AAPCC represents the best estimate the Secretary of Health and Human Services (HHS) has of fee-for-service equivalent costs for defined geographic areas. These costs are adjusted for actuarial equivalent categories of individuals. According to the *Federal Register* (1986) and an actuarial review of the AAPCC methodology (Milliman and Robertson, 1983), the current AAPCC formula meets acceptable levels of actuarial estimation. The published AAPCC for any county is the product of the United States Per Capita Cost (USPCC), the geographic adjustment (GA) and the demographic adjustment (DA):

$$\text{AAPCC} = \text{USPCC} \times \text{GA} \times \text{DA}. \quad (1)$$

The geographic adjustment represents the historical relationship of any county's per capita Medicare expenditures to the national average.² The demographic adjustment for a given county is the ratio of a county's raw count of the Medicare beneficiary population (RP) divided by its weighted count of the Medicare beneficiary population (WP):

$$\text{DA} = \text{RP}/\text{WP}. \quad (2)$$

¹ This is a potentially important drawback to the blended sector rate proposal. Some seem to think that competition has already decreased fee-for-service costs in the Minneapolis area. HCFA believes that competition will eventually lower costs, even if it has not done so yet (*Federal Register*, 1986).

² For any given year i , GA_i is the ratio of any given county's per capita Medicare expenditures (CPCC _{i}) to national per capita Medicare expenditures (NPCC _{i}):

$$\text{GA}_i = \text{CPCC}_i / \text{NPCC}_i$$

GA is the unweighted average of the GA_i for the five most recent years:

$$\text{GA} = (\text{GA}_1 + \text{GA}_2 + \text{GA}_3 + \text{GA}_4 + \text{GA}_5) / 5.$$

The Ps are the county's population counts for each of the 30 actuarial cells used in the AAPCC methodology. The weights, DFs, are the national demographic factors published in the *Federal Register*. These factors are identical across all counties. To incorporate the impact of high risk-based market penetration and the effects of any accompanying biased selection, payment rate for the first year is based on a combination of the previous and current year's AAPCC. After the first year, the payment rate would again be based on a combination of the preceding year's payment rate and current year's AAPCC. The term risk-based payment (RBP) or blended-sector rate adjusted AAPCC describes this process. The RBP for year t would be calculated as follows:

$$RBP^t = ([1 - s^{t-1}] \times USPCC^t \times GA^t \times DA^t) + (s^{t-1} \times I \times RBP^{t-1}) \quad (3)$$

The "s" represents risk-based market share expressed as a proportion, and I is a nationally determined inflation factor, much like the update factor used under the prospective payment system to pay hospitals under Medicare Part A. The first term in parenthesis above is merely the current AAPCC formula multiplied by a fraction, one minus the year $t-1$ risk-based market share in the county which is equal to the FFS market share. The second term in parenthesis is last year's risk-based payment, increased by a factor greater than one for inflation and multiplied by the fraction of risk-based market share. Last year's market share is used because data on market share lags one year.

Two extremes highlight the simplicity of the blended sector rate adjustment. If risk-based penetration is zero, market share, "s", is zero; the second term of equation three disappears, and the bracketed factor in the first term equals one, resulting in the current AAPCC formula. Thus, in areas with no risk-based enrollment, the payment methodology remains the same as that used now. If risk-based penetration is complete and market share equals one, the first term of equation three disappears, and risk-based payments in year t become risk-based payments in year $t-1$ times an inflation factor.

Why is the blended sector rate superior to other approaches, such as health status adjustments? Modification of the demographic cost factors by adding a health status adjustment factor or replacing the current institutionalized factor with a health status factor could hold more promise, but such a factor has been illusive. Scores of health status variables have been examined (Newhouse, 1989) with only modest improvement in the percent of variation in medical costs explained. Thus, health status adjusters are only partial adjustment, just as the blended sector rate is partial. The data for health status adjustments are difficult to obtain and add administrative burdens for the plans. Either through a beneficiary survey, an annual reenrollment process, or a direct assessment, beneficiaries could be classified by some measure of health status. But the health status measures must clearly be related to expected costs, they cannot be influenced by the risk-based plans,

and they must be relatively low cost to collect. It is unlikely an obvious health status adjuster can be found to do all these things. The blended sector rate adjustment is easy to administer, and has the added benefit of dealing with areas with high risk based enrollment, something a health status adjustment cannot do.

Data Sources: To simulate 1986 and 1987 blended sector rate adjusted risk-based payments several types of data were obtained through the Office of Research, HCFA. The primary source of data was administrative reports from the files used to make risk-based payments to the plans. These reports account for the number of beneficiaries in each risk-based plan by county within each of the 30 AAPCC demographic rate cells. This information enables aggregating and reporting the number of enrollees in each plan, county, state or region. The aggregation can be done for any or all of the AAPCC demographic rate cells as well. Most of the analysis in this study focused on the county. Using the data at the aggregate level, we matched the enrollment data to a dataset with the published aged AAPCC payment rates for the three years that these rates were available: 1985, 1986, and 1987. A county-level dataset also permits matching the enrollment data to the Health Resources and Services Administration Area Resource File. Finally, the county-level dataset has been matched with HCFA-provided data on the number of beneficiaries in both the fee-for-service and risk-based sectors in each county by AAPCC category. These county-level files were used to conduct the simulations described in the following sections.

Calculation of the Blended Sector Rate: To simulate blended sector rates for 1986 and 1987, the published AAPCC rates for each of the years and the risk-based market shares calculated from the HCFA administrative reports were used. Using a county-level file restricted to counties with risk-based enrollment, equation 3 was applied to estimate what the blended sector rates would have been in 1986 and 1987. The simulated rate for each year is computed independently; therefore the estimates for 1987 are not based upon the blended sector rate for 1986. In the next section, the results of the simulation are analyzed and total payments are computed with and without a blended sector rate adjustment. (An appendix available from the authors shows the actual and simulated AAPCC rates for 1987 for all counties with risk-based enrollment.)

Differences in Payments With and Without the Blended Sector Rate

Mean Blended Section Rate Adjustments: While the simulation enables computation of a new blended sector rate for each county with risk-based enrollment, the mean AAPCC payments is calculated with and without blended sector adjustment (as shown in Table 4 for 1986 and in Table 5 for 1987). Though these initial calculations are unadjusted for inflation, those adjustments are performed later in this section. Adjustments for the blended sector rate and inflation are made separately to isolate the impact of each. On the average, the AAPCC increased for these counties to \$198.15 in 1986. Table

4 shows about a 2.7 percent increase in the AAPCC in 1985 for Parts A and B payments, from \$192.87 to \$198.15. Using a blended sector rate adjustment in 1986 would have resulted in a 2.6 percent increase in the AAPCC.

Table 4

1986 Blended Sector Rates for AAPCC Payment to HMOs and CMPs: Actual and Simulated Mean Aged-AAPCC Payment Rates for Counties with any 1985 Risk-Based Enrollment and Blended Sector Rate Savings

(n = 184 counties)

AAPCC Components	Actual AAPCC Rates		Simulated AAPCC Blended Sector Rate 1986	Blended Sector Rate Savings ^a		
	1985	1986		Net	Maximum	Minimum
	Means				(000s)	
Part A	\$134.11	\$134.89	\$134.85	\$ 896	\$340	\$ -197
Part B	58.76	63.26	63.07	2,581	458	- 33
Part A and B	192.87	198.15	197.92	3,478	784	- 68

^a Negative values indicate additional payment in the county from higher blended sector rates compared to actual payments.

Table 5

1987 Blended Sector Rates for AAPCC Payment to HMOs and CMPs: Actual and Simulated Mean Aged-AAPCC Payment Rates for Counties with any 1986 Risk-Based Enrollment and Blended Sector Rate Savings

(n = 396 counties)

AAPCC Components	Actual AAPCC Rates		Simulated AAPCC Blended Sector Rate 1987	Blended Sector Rate Savings ^a		
	1986	1987		Net	Maximum	Minimum
	Means				(000s)	
Part A	\$131.07	\$132.83	\$132.54	\$ 6,463	\$5,554	\$-1,555
Part B	60.08	66.56	66.18	11,325	1,752	- 29
Part A and B	191.15	199.39	198.72	17,788	7,307	-483

^a Negative values indicate additional payment in the county from higher blended sector rates compared to actual payments.

A similar calculation done for 1987 reveals a greater impact: the AAPCC increased 4.3 percent from \$191.15 to \$199.39. With a blended sector rate adjustment the payment would have been \$198.72, a 3.9 percent increase. The difference between the AAPCC with and without a blended sector rate adjustment is larger in 1987 than in 1986 for two reasons: the substantially greater number of counties and the impact of increased risk-based market penetration.

Tables 4 and 5 show the simulated aggregate annual savings to HCFA from the blended sector rate adjustment. Using the enrollment in each county, adjusted for the demographic mix of county enrollment, the difference in aggregate payments is shown for each year. Some counties experience increased payments given the yearly changes in their AAPCC; others

experienced a decrease. Thus, the tables show net savings, summed across all counties, and the amount for the county with the largest decrease in payment (column labeled maximum) and increase in payment (column labeled minimum). While the savings total only \$3.4 million in 1986, they are more substantial in 1987 at \$17.8 million. Yet, for a program as large as Medicare, the savings represent a modest reduction in costs.

The bulk of savings in each year comes from Part B: \$2.5 million in 1986, or 74 percent of all savings, and \$11.3 million in 1987, or about 64 percent of all savings. The impact of the federal Prospective Payment System (PPS) may account for the difference. This system made the fee-for-service sector more cost conscious and probably lessened the impact of risk-based plans on selecting enrollees in terms of Part A hospital use.

As a long-term response to establishing the AAPCC, savings generated by the blended sector rate adjustment would grow as the risk-based program grew. Lower payments in some counties exceed higher payments in others, and the net difference favors HCFA. Given the expected impact which biased selection has on yearly changes in the AAPCC, one concludes that the plans, in aggregate, experienced favorable selection. Negative savings would imply adverse selection for the plans and indicate a need to increase HCFA payments.

High and Low Savings Counties: All counties would not have received lower payments under a blended sector adjustment; some would have received higher payments. Tables 6 and 7 show the highest savings and the lowest savings counties for each year and their AAPCCs. In 1986, all the high savings counties were in Florida, with Dade county (where risk-based penetration was 17.9 percent of the market) near the top of the list of market penetration. Counties with savings are implied areas with favorable HMO selection. High savings occur either because the blended AAPCC changes dramatically or because enrollment is very high. Even a small change in the AAPCC saves millions of dollars. Dade exemplifies the impact of size on savings. Its combined Parts A and B blended AAPCC for 1986 is \$336.55 compared with \$338.32 for the actual rate, showing a difference of only \$1.77. But as Table 8 shows, the aggregate savings are \$761,732 (\$1.77 times number of people in risk-based plans times 12 months plus the adjustment for the demographic mix of the population). The difference between actual and blended rates is similar for the other high-savings Florida counties, the difference being that enrollment is not as high.

All the low (negative) savings counties in 1986 were in Minnesota. The difference between the actual and blended rate is rather modest, which the aggregate savings reflects. Table 8 shows relatively small supplemental payments to the plans in the Minnesota counties, each less than \$100,000.

In 1987, the results would have differed geographically. Hennepin County in Minnesota goes from the county with the largest supplemental payment from HCFA in 1986 to the largest savings county in 1987. Estimated savings exceed \$7 million, accounted for by the large jump in enrollment from 1986 to 1987. In 1987, Broward and Palm Beach would remain high savings counties

Table 6
1986 Blended Sector Rates for AAPCC Payments to HMOs and CMPs:
High and Low Savings Counties^a
1986

County	1985 Risk-Based	AAPCC-Part A and B		AAPCC-Part A		AAPCC-Part B	
	Market Share	Actual	Blended	Actual	Blended	Actual	Blended
1986 High Savings Counties							
Broward, FL	17.9	\$275.32	\$273.32	166.05	165.14	109.27	108.18
Dade, FL	19.2	338.32	336.55	207.13	206.40	131.19	130.15
Palm Beach, FL	16.4	204.96	203.46	117.39	116.97	87.57	86.49
Pasco, FL	18.9	175.60	173.63	110.20	109.10	65.40	64.54
Penellas, FL	10.8	203.02	202.12	133.00	132.66	70.02	69.46
1986 Low Savings Counties							
Hennepin, MN	26.6	\$210.16	\$210.44	149.36	150.06	60.80	60.38
Anoka, MN	37.2	196.73	198.50	138.12	138.57	58.61	59.93
Dakota, MN	23.8	192.53	192.95	138.35	139.19	54.18	53.76

^a Based on 184 counties

Table 7
1987 Blended Sector Rates for AAPCC Payments to HMOs and CMPs:
High and Low Savings Counties^a
1987

County	1986 Risk-Based	AAPCC-Part A and B		AAPCC-Part A		AAPCC-Part B	
	Market Share	Actual	Blended	Actual	Blended	Actual	Blended
1987 High Savings Counties							
Hennepin, MN	49.2	\$237.67	\$224.13	170.61	160.15	67.06	63.98
Broward, FL	20.9	287.70	285.12	166.31	166.26	121.39	118.86
Ramesy, MN	39.3	230.48	225.41	165.15	162.30	65.33	63.11
Multnomah, OR	21.4	265.18	260.48	192.11	188.68	73.07	71.80
Palm Beach, FL	16.9	221.06	218.34	122.89	121.96	98.17	96.38
1987 Low Savings Counties							
Dade, FL	21.4	\$332.83	334.00	191.44	194.79	141.39	139.21
Cook, IL	6.5	279.83	280.26	200.67	201.67	79.16	78.59
Clark, NV	22.9	285.89	287.47	178.43	182.26	107.46	105.21

^a Based on 184 counties

as they were in 1986, and Ramsey, Minnesota, and Multnomah, Oregon are added to that list (Table 9). With only two years of data as a basis, the results in Table 9 provide a basis for us to suggest that the impact of the blended sector rate would differ by county each year. These results imply either that the effects of biased selection differ in each county over time or that the statistics of the AAPCC fluctuate randomly and, in turn, have a random effect on different counties each year.

Table 8

1986 Blended Sector Rates for AAPCC Payments to HMOs and CMPs:
High and Low Savings Counties^a Aggregate Savings and Percent Savings
1986

County	1986 Aggregate Blended Sector Rate Savings	AAPCC Percent Savings		
		Part A and B	Part A	Part B
1986 High Savings Counties				
Broward, FL	\$783,927	0.7	0.6	1.0
Dade, FL	761,732	0.5	0.4	0.8
Palm Beach, FL	378,736	0.7	0.4	1.2
Pasco, FL	229,600	1.1	1.0	1.3
Penellas, FL	203,844	0.5	0.3	0.8
1986 Low Savings Counties				
Hennepin, MN	-63,278	-0.1	-0.5	0.7
Anoka, MN	-42,631	-0.9	-0.3	-2.2
Dakota, MN	- 9,056	-0.2	-0.6	0.8

^a Based on 184 counties

Table 9

1987 Blended Sector Rates for AAPCC Payments to HMOs and CMPs:
High and Low Savings Counties^a Aggregate Savings and Percent Savings
1987

County	1987 Aggregate Blended Sector Rate Savings	AAPCC Percent Savings		
		Part A and B	Part A	Part B
1987 High Savings Counties				
Hennepin, MN	\$7,306,552	5.7	6.1	4.6
Broward, FL	1,229,429	0.9	0.0 ^b	2.1
Ramsey, MN	1,167,727	2.2	1.7	3.4
Multnomah, OR	855,188	1.8	1.8	1.7
Palm Beach, FL	706,157	1.2	0.8	1.8
1987 Low Savings Counties				
Dade, FL	- 483,014	-0.4	-1.8	1.5
Cook, IL	- 133,640	0.2	-0.5	0.7
Clark, NV	- 119,670	0.6	-2.1	2.1

^a Based on 396 counties

^b Less than 0.10 percent

The percentages of savings offered by the blended sector rate are shown in Tables 8 and 9 for the selected counties and are larger in 1987, particularly for Part B (Table 9).

Other data show that the distribution of counties with negative savings and positive savings from the combined Part A and B savings is not very different for either year; however, the size of the savings makes the difference in whether aggregate costs are higher or lower. Counties with positive savings percentages have a greater likelihood of saving larger amounts than the negative savings counties. Thus only four counties in 1987, for example, would have received supplemental payments for combined Part A and B (exceeding \$100,000), versus 25 counties in the same period that would have had a reduction in payments of more than \$100,000.

Inflation Adjusted Blended-Sector Savings: The simulated program savings due to blended-sector payments presented in Tables 4 through 10 are not adjusted for inflation in the medical care industry. That adjustment has been eliminated from the discussion thus far to isolate and highlight the impact of the blended sector rate. In practice, this proposal would include an adjustment for inflation (I in equation 3), and its impact in the formula would depend on the value assigned to the inflation adjustment.

Medical care price inflation was adjusted for because the previous year's payment rate is used to calculate the blender-sector payment rate. If the prior year's payment rate is not adjusted for inflation, HMOs will have no inducement to accept Medicare beneficiaries on a risk basis. To keep the system competitive, the risk-based rate should be pegged to fee-for-service costs, and general inflation in that sector can be used to measure yearly increases in risk-based payments.

To explore the sensitivity of blended-sector rates to an inflation adjustment, two sets of inflation adjustment factors were used that are currently used by the Medicare program. One, based on the PPS's "market basket updates," updates the DRG payment rates. The other, based on estimates by the Office of the Actuary, HCFA, accounts for increases in adjusted per capita Medicare covered expenditures for all Medicare beneficiaries in the nation. The two differ in that the PPS factor is based on increases in factor prices while the other (USPCC) is based on increases in expenditures (due, perhaps, to increased services as well as increased prices). Regardless of the adjustment factor used, the mechanics for adjusting the prior year's payment rate is the same: multiply the prior year's payment rate by one plus the percentage increase from the prior year to the current year.

The increase in the PPS market basket was 0.5 percent from 1985 to 1986 and 1.15 percent from 1986 to 1987. This simulation applies the corresponding percentage increase to Parts A and B payment rates each year. Given the small absolute values of the PPS inflation adjustment factors, it is not surprising that the pattern of savings shown in Table 10 resembles those in Tables 4 and 5. In all cases, the bulk of the simulated savings comes from Part B payments. The PPS adjustment factor reduces national savings from \$3.4 million to \$2.8 million in 1986 and from \$17.8 million to \$14 million in 1987.

Table 10

**Simulated Medicare Program Savings (000s) Due to Blended-Sector Payment Rates
(Payment Rates Adjusted for Inflation)**

Adjustment Factor	1986			1987		
	National Savings	County Savings		National Savings	County Savings	
		Minimum	Maximum		Minimum	Maximum
PPS ^a						
Part A	\$ 478	\$ -254	\$ 286	\$ 4,058	\$ -1,791	5,105
Part B	2,351	-35	407	10,034	-32	1,557
Total	2,829	-149	692	14,091	-878	6,662
USPCC ^b (Actual)						
Part A	-175	-343	202	3,911	-1,805	5,078
Part B	-1,051	-383	13	-905	-429	51
Total	-1,226	-593	90	3,006	-2,235	4,977

Notes: Negative values denote blended-sector payments greater than actual or projected payments.

^a Based on PPS market basket updates. 1985/6: 0.5% and 1986/7: 1.15%

Same percentage increases applied to both Parts A and B.

Source: Prospective Payment Commission, Washington, DC.

^b Based on projected increases in the USPCC:

	Part A	Part B
1985/6	1.28%	7.88%
1986/7	1.22	10.89

Source: Office of the Actuary, HCFA, DHHS.

The USPCC adjustment factors include separate factors for Parts A and B for both years (see Note b in Table 10). The Part A USPCC adjustment factors are similar in magnitude to the PPS adjustment factors; however, the Part B USPCC adjustment factors are several orders of magnitude greater than the Part A adjustment factors. As Table 10 illustrates, both the pattern and aggregate national savings differ considerably from the results presented in Tables 4 and 5. Instead of generating savings (in 1986), \$1.2 million higher than-actual payments are made. In 1987, the projected savings falls to \$3 million. Further, savings no longer come from Part B; instead, any savings are due to Part A. Given the difference in Part A and B adjustment factors, these results are not surprising.

It is difficult to decide between the two inflation rate adjustment factors examined here as potential candidates for I. The PPS market basket update established by Congress and negotiated by the government and the hospital industry is appealing. This process allows for political input and guards against an administratively determined increase in payments that stray too far from the industry's minimal supply price. Yet, the PPS market basket process

is for Part A only. To the extent the effects of inflation differ between the physician and hospital sectors, the PPS market basket update is inappropriate.

The projected USPCC avoids this problem. Generated separately for Parts A and B, the USPCC includes HMO costs (that is, expected AAPCC payments), though they are a small percentage of USPCC. The USPCC best represents the cost of providing care in the Medicare program. Determined by the Office of the Actuary, however, the USPCC runs the risk of ignoring political concerns or the willingness on the part of HMOs to supply their services.

Instead of attempting to decide between the two, another commission could be established, like the Congressional hospital and physician payment commissions, which would establish the inflation factor for the coming year. This could be done separately for Parts A and B with representation from the HMO industry.

Summary and Policy Implications

A simple, easily administered blended sector rate adjustment for the current AAPCC payment system would simultaneously blunt the impact of biased selection and its potential to raise Medicare costs, and replace the AAPCC for counties with high risk-based market penetration. For each county, the blended sector rate adjustment would be an average of last year's payment rate to risk-based plans in the county with projected per capita fee-for-service costs (the AAPCC). Risk-based market penetration in the county would be used as a basis for weighting each sector's contribution to the average.

One of the most important issues facing the risk-based Medicare program is the appropriateness of the payment rate. Based on the evidence for favorable selection found in most studies, HCFA must be concerned about HMO favorable selection. Participating HMOs need to be concerned about HMO adverse selection to remain financially viable. For a number of years, studies to establish AAPCC categories that would take into account factors besides age, sex, Medicaid status and institutional status when adjusting payments for inherent risks have been unsuccessful. The objective would be to move risk-based payments from a community-rated system to an experience-rated system. The research to date, however, has not been successful at explaining sufficient variation in individual Medicare costs to warrant implementation. Demonstrations are underway or planned, using adjustments for selected types of prior hospitalizations.

This study proposes an adjustment that would maintain the community rating of the current AAPCC system. The adjustment, made at the county level, uses the year-to-year movements of the AAPCC to pinpoint the extent of biased selection and adjust for it. The data necessary to make the adjustment are readily available and, in fact, were used to simulate the impact of the adjustment for 1986 and 1987. The blended sector rate adjustment applies

equally to all HMOs in a community (county) and reflects the risk selection experience of all the HMOs in the county.

Although simple, the blended sector rate adjustment does not entirely account for biased selection. The adjustment is weighted according to the level of risk-based market penetration in the county, so the impact of the adjustment is proportionate to the level of risk-based market penetration. Thus, low market penetration results in a small blended sector rate adjustment. The adjustment grows only as risk-based enrollment grows. As a result, the portion of yearly changes in the AAPCC classified as favorable selection is not included in the adjustment for the blended sector rate. In addition, the adjustment cannot distinguish between HMO adverse selection and the competitive impact of risk-based HMOs in the county. Both tend to reduce the AAPCC. A possible solution for this aspect of the blended sector rate is to make adjustments only when the AAPCC exceeds the inflation adjusted amount from year to year. If this were done, the simulated cost estimates presented here would be an understatement of HCFA savings.

According to the provisions of TEFRA, the Secretary is empowered to make adjustments to the AAPCC based upon "such other factors as the Secretary determines to be appropriate." As such, adopting a blended sector rate adjustment could be implemented administratively without legislative action. The simplicity of the adjustment and the ease of collecting data are appealing. Whether HCFA and the industry can agree on this adjustment poses the greatest obstacle. They first need to decide whether favorable or adverse selection is the principal problem.

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