

# Setting health maintenance organization capitation rates for Medicaid in Wisconsin

by William L. England

*In late fall 1984, more than 110,000 Wisconsin Aid to Families with Dependent Children (AFDC) Medicaid recipients were enrolled in health maintenance organizations (HMO's). Capitation rates were set by competitive bidding, subject to a rate ceiling. Planners considered whether to adjust the rates to account for demographic changes in the AFDC population between the time that data for the*

*rate ceilings were collected and when the rates went into effect. They also considered whether to pay a single rate or to adjust rates for the age and sex of each HMO's actual enrollees. This article is a report of the analysis that led to a decision to pay a single, countywide rate that was not demographically adjusted.*

## Introduction

Since late fall 1984, the Wisconsin State government has enrolled more than 110,000 Aid to Families with Dependent Children (AFDC) Medicaid recipients in health maintenance organizations (HMO's) in the State's two most populous counties. As a result, Wisconsin's prepaid AFDC population has become one of the largest in the Nation. Other large prepaid programs include those of California—about 225,000 total medical assistance, with about 90 percent being AFDC; Arizona—161,000 total and about 49 percent AFDC; and Michigan—93,000 AFDC (Medicaid program administrators, 1985). Only AFDC recipients were initially enrolled in the Wisconsin program because they represent the least costly, least risky component of the Medicaid population and are the group initially targeted for Medicaid HMO programs in most States. It is planned to later include in the program recipients of Aid to the Totally Disabled and Aid to the Blind.

In October 1984, the State government of Wisconsin began paying each HMO in the program a single per-person rate that was contract negotiated. HMO's bid competitively on rates, with the lowest bidders getting the largest share of the enrollees according to a formula that will later be discussed. In negotiating new rates for 1986, State planners considered whether to provide adjustments in the rates to allow for demographic shifts in the age-sex distribution of the AFDC population between the time the cost data were collected and the time that the rates went into effect. Similar adjustments could be made to account for differences in the age and sex of the AFDC populations actually enrolled in each HMO instead of paying a single per-person rate to each HMO. A decision was made to continue paying each HMO a single contract-negotiated per-person rate that was not demographically adjusted. The analysis that led to that decision, in which data from approximately the first 6 months of the program were used, is reported in this article.

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## Calculation of capitation rates

Three issues were considered in determining how to set the 1986 capitation rates. The first issue was the competitive bidding process used to set the 1985 rates and its effect on the actual rates paid to HMO's. The second issue was the effect of a demographic shift in the AFDC population from 1983, when the data on which the rates were based were collected, to 1985, when the rates were applied. The third issue was the effect on individual HMO's of paying a rate adjusted for the actual age-sex distribution of their enrollees rather than paying a single per-person rate.

## Competitive bidding process

In midsummer 1984, data were available on the 1983 AFDC fee-for-service charges paid by the Wisconsin State government. These data were classified by age, sex, and county. Data were also available on the number of AFDC eligibles each month, classified by age, sex, and county. Dividing the total of the former by the total of the latter gave the per-person-month fee-for-service cost to the State government for AFDC recipients in 1983. Statewide, this average was \$56.72.

Dane and Milwaukee Counties, the most populous in the State, are the subject of this analysis. Dane County's 1980 population was 323,545. Its largest city is Madison (population 170,616), the State capital. Milwaukee County's 1980 population was 964,988. Its largest city is Milwaukee (population 636,212). The average fee-for-service cost per person-month was \$51.07 in Dane County and \$68.36 in Milwaukee County.

These fee-for-service figures were increased by 3 percent per year to account for health care cost increases from 1983 to 1985. (In consideration of inflation and other factors, the State legislature had previously set the 3-percent factor to use for medical assistance fee-for-service provider payment increases.) An amount of \$1.50 was next added to adjust for the cost of State government claims processing under the fee-for-service system. (It has been found, however, that the \$1.50 amount is going into other expenses of the State government for administering the HMO program and is not being saved.) Finally, \$0.14 was

subtracted from the total to compensate for the decrease in Medicaid copayment revenue for the State government. The totals were multiplied by .95 for Dane County (reflecting a 5-percent discount from the expected fee-for-service average cost for 1985) and by .93 for Milwaukee County (a 7-percent discount). The resulting rates were \$52.76 for Dane County and \$68.70 for Milwaukee. These were the "bid ceilings" for HMO contracts with the State government. (If a statewide bid ceiling had been calculated, it would have been \$57.23.)

These discounts of 5 percent and 7 percent are similar to discounts used in several other States. Because this was the first year of a major new program for which the State government and the HMO's had no experience, the discounts were somewhat conservative. In comparison, the Michigan government currently uses a discount of 10 percent, but started their program in 1976 with a discount of 2 percent. The Minnesota government used a 15-percent discount until July 1983 but now uses 10 percent. The discount of 5 percent currently used in Illinois may be increased. The California rate has varied from 0 percent to 17 percent since the program began in 1972. The current California rate is based on the minimum of the actual experience of HMO's with their enrolled population during the previous year or on the fee-for-service cost of an equivalent population. In a bidding process similar to Wisconsin's, the Arizona government set 1985 rates equal to or below the April 1, 1984, fee-for-service rates. In New York, roughly the equivalent of a 5-percent discount is used. (Information on specific State discounts comes from Medicaid program administrators, 1985, and from Leighton, 1978.)

In Wisconsin, a larger discount was used for Milwaukee County than for Dane County because the 1983 average fee-for-service costs in Milwaukee County were considerably (21 percent) higher than the statewide fee-for-service average. Thus, greater savings through the use of HMO's were expected than in Dane County, where the fee-for-service average was 10 percent below the statewide average.

To contract with the State government for provision of health care services, HMO's were required to submit bids by October 1, 1984. The bids specified a per-person-month rate to be paid the HMO for AFDC enrollees in the last few months of 1984 and all of 1985. HMO's were given the bid ceilings of \$52.76 in Dane County and \$68.70 in Milwaukee County. Subtractions from the bid ceiling were made if an HMO did not offer dental or chiropractic services or if it wished to have coinsurance by the State government for patients exceeding either a \$10,000 or a \$25,000 limit in annual hospital charges. These subtractions were equal to the expected cost of covering these services on a fee-for-service basis, discounted by 5 percent in Dane County and 7 percent in Milwaukee County. In Dane County, 5 of 5 HMO's bid on the contract. In Milwaukee County, 8 of 10 HMO's bid. Of these 13 HMO's, 8 bid under

the ceiling. All the bids were accepted, and no further negotiations took place.

AFDC eligibles were given their choice of HMO. Persons who did not specify their choice within a 4-month voluntary enrollment period were assigned to an HMO. However, patients may switch to a new HMO if they are dissatisfied. (The issue of quality of care in the HMO system versus the fee-for-service system is assessed in Dunham, Noren, and Liss, 1984.)

Patients were assigned to HMO's proportionally to the amount by which each HMO underbid the rate ceiling. This proportion was calculated by taking the total dollar amount of underbidding in each county, calculating the percent of the total attributable to each HMO, and assigning that percent of the unassigned patients to the HMO. Most HMO's specified the maximum AFDC enrollment they wished to accept. Three HMO's in Milwaukee exceeded this limit when patients initially signed up. Although these HMO's had underbid the rate ceiling, no unassigned patients were assigned to them because of overenrollment. Unassigned patients were assigned proportionally to the remaining underbidders.

By mid-April 1985, 13 percent of AFDC-eligible participants had been assigned to an HMO, and fully three-quarters (75.5 percent) had voluntarily selected one. The high level of voluntary enrollment, which exceeded expectations, is thought to have occurred because of extensive advertising by the HMO's. Advertising created a strong public awareness, and people apparently perceived differences among HMO's and preferred not to be assigned to one by the State government.

Such extensive advertising is most likely attributable to the very competitive HMO market in Wisconsin. The number and size of HMO's in Wisconsin have grown rapidly in recent years because of an excellent HMO option offered to about 51,000 State government employees. Around 38,000 State employees currently belong to an HMO (*Milwaukee State Journal*, 1985), and a majority of them live in Dane County. In addition, many local employers now offer an HMO option.

In 1983, the State government announced that the AFDC populations in Dane and Milwaukee Counties would soon be enrolled in HMO's. Coupled with the rapid increase in popularity of the HMO option among State employees, this announcement probably encouraged several groups that were thinking about starting HMO's to move rapidly to capitalize on both the State employee and AFDC markets. These factors have resulted in a proliferation of new HMO's that are very competitive for patients.

HMO advertising was partly directed toward State government employees, who are allowed to join or switch HMO's once each year in the fall. However, in Milwaukee County, where 91.7 percent of the AFDC eligibles in this program are located, the advertising was mostly directed toward the AFDC population.

Data on participating HMO's by county are shown

in Table 1. Data on HMO's are shown in the first four columns by type of plan, AFDC enrollment in April 1985 (approximately 6 months into the program), specified maximum AFDC enrollment, and "actual" contract rate. "Actual" rates are the result of adjustment to reflect the fact that some HMO's do not cover all services and/or elected a risk-sharing option. For example, if an HMO's bid did not include dental coverage, the actual rate shown in Table 1 is larger than the bid by an amount that reflects the government's average cost of providing fee-for-service dental coverage to patients in that HMO (\$2.25 in Dane County and \$2.34 in Milwaukee County). The same is true for chiropractic coverage (\$.55 in Dane, \$.06 in Milwaukee) and risk sharing (\$1.79 in Dane and \$3.29 in Milwaukee for \$10,000; \$1.04 in Dane and \$1.85 in Milwaukee for \$25,000). Therefore, the rates in Table 1 are equivalent to rates the HMO's would have had if they offered full dental and chiropractic coverage and no risk sharing. The actual rates can be directly compared with each other and with the maximum rate for each county, and they represent the actual cost to the State government of an AFDC recipient enrolled in that HMO.

Multiplying the enrollment of each HMO by its actual contract rate and adding all HMO payments together gives a figure of \$7,053,767. This is the monthly amount paid by the State government for HMO-enrolled AFDC recipients in these two counties in April 1985. If each HMO had bid at the maximum rate (\$52.76 in Dane County and \$68.70 in Milwaukee County), an additional \$109,754 per month (\$1.31

million annually) would have been paid. Thus, the bidding process can be estimated to have saved the State government at least \$1.31 million in 1985. Compared with the expected fee-for-service costs for 1985 (1983 costs increased by 3 percent per year), an estimated \$5.94 million was saved annually on health care for AFDC recipients in these two counties. However, because the expected claims processing savings of \$1.50 per recipient are not being achieved, this estimate must be reduced to \$4.16 million.

### State government perspective

Since 1983, AFDC enrollment in Dane and Milwaukee Counties has shifted toward a younger population and one that contains fewer females of childbearing age. Therefore, the 1985 population is less expensive to care for than the 1983 population on which costs were based. The magnitude of this effect was measured by recalculating the bid ceilings to adjust for these demographic changes. The AFDC population was divided into 10 age categories for each sex, or 20 age-sex groups. These breakdowns were used for this analysis because they were previously used for collecting 1983 fee-for-service data. Subsequently, it is shown that a smaller number of groups would be sufficient.

The total 1983 fee-for-service charge for each age-sex group was divided by the person-months of eligibility recorded for that group. The resulting quotient was updated twice by 3 percent, \$1.50 was added, and \$.14 was subtracted. The result was then

**Table 1**  
**Statistics of health maintenance organizations (HMO's), by county and HMO:**  
**Wisconsin, April 1985**

County and HMO	Type of HMO <sup>1</sup> (1)	Enrollment (2)	Enrollment limit (3)	Actual rate <sup>2</sup> (4)	Age-sex adjusted rate (5)	Percent of age-sex-adjusted rate/ county (6)
<b>Dane County</b>						
Total		8,803	—	<sup>3</sup> \$52.29	<sup>3</sup> \$51.33	—
1	Group	1,543	3,000	52.34	51.13	-.39
2	Group	3,108	none	52.76	52.46	2.20
3	IPA	1,923	none	51.34	51.54	.41
4	IPA	497	1,200	52.76	50.78	-1.07
5	Staff	1,732	4,000	52.34	49.42	-3.72
<b>Milwaukee County</b>						
Total		97,512	—	<sup>3</sup> 67.62	<sup>3</sup> 67.73	—
6	IPA	6,674	27,000	68.70	68.85	1.65
7	Staff	739	2,000	68.70	68.46	1.08
8	IPA	7,314	15,800	68.39	67.42	-.46
9	IPA	5,893	20,000	68.70	69.19	2.16
10	Group	9,184	13,300	67.15	67.97	.35
11	IPA	<sup>4</sup> 19,410	10,000	67.96	67.35	-.56
12	IPA	<sup>4</sup> 17,535	10,000	68.33	67.93	.30
13	IPA	<sup>4</sup> 30,763	29,250	66.48	67.32	-.61

<sup>1</sup>A staff HMO employs physicians on salary. An independent practice association (IPA) has independent physicians banded together under a middleman organization. A group HMO has physician group practices contracted with the HMO to provide health care to HMO members.

<sup>2</sup>If the HMO elected risk sharing or does not cover dental or chiropractic services, these rates include the cost to the State government of covering those services plus the actual contract rate paid to the HMO.

<sup>3</sup>Weighted average by enrollment of each HMO in the county.

<sup>4</sup>Overenrolled from voluntary patient enrollment preferences.

**Table 2**  
**Rate ceilings for health maintenance organizations, by county, sex, and age:**  
**Wisconsin, April 1985**

Age	Entire State		Dane County		Milwaukee County	
	Male	Female	Male	Female	Male	Female
Average for all ages	\$40.21	\$68.67	\$34.96	\$63.92	\$45.90	\$82.57
Under 1 year	129.77	1232.13	93.67	1222.91	145.71	1275.19
1-4 years	32.23	25.82	28.03	24.09	39.89	29.94
5-9 years	24.14	19.92	21.51	20.20	28.02	21.63
10-14 years	26.30	26.00	21.68	26.66	30.36	28.62
15-19 years	34.27	84.33	31.63	79.49	36.90	100.32
20-24 years	36.67	96.68	41.37	85.72	46.69	116.47
25-34 years	44.98	86.01	47.16	76.27	61.13	109.01
35-44 years	62.82	88.79	66.05	90.10	80.65	117.99
45-54 years	87.80	107.47	66.52	65.79	110.00	130.45
55 years or over	100.73	121.84	64.54	44.37	148.45	127.89

<sup>1</sup> See discussion of female infant rates in "Data anomalies and sensitivity analysis" section of article.

multiplied by .95 (Dane) or .93 (Milwaukee) to arrive at the "rate ceiling" for each age-sex group. The results are shown in Table 2. These figures were multiplied by the percent of AFDC eligibles in each age-sex group in April 1985 to obtain an age-sex-adjusted rate ceiling for each county that accounts for shifts in the demographics of the AFDC population from 1983 to 1985.

The result would have been a rate ceiling of \$51.43 for Dane County (compared with the figure of \$52.76 actually used) and \$67.70 for Milwaukee County (compared with the figure of \$68.70 actually used). Multiplying the ratios \$51.43/\$52.76 by .0828 (the percent of enrollees in Dane County) and \$67.70/\$68.70 by .9172 (the percent of enrollees in Milwaukee County) gives .9846. Thus, the current population is only 98.46 percent as expensive, demographically, as the 1983 population. Comparing these adjusted rate ceilings with the actual average contract rates from Table 1 shows that the average contract rate in Dane County is \$.86 more per month than this adjusted rate ceiling (\$51.43 compared with \$52.29), and the average contract rate in Milwaukee County is 8 cents less (\$67.70 compared with \$67.62). Because Milwaukee County comprises most of the total population, the net result is that the State government pays slightly less per month under the current rates than it would have paid if these age-sex-adjusted nonbid rates were used. However, if age-sex-adjusted rates had been used as the ceilings in the bidding process, the bids might have been lower. The government would have saved from the age-sex shift in the AFDC population from 1983 to 1985 while still potentially benefiting from HMO underbidding of the rate ceilings.

A problem with making demographic adjustments in the rate ceilings is that the demographics of the AFDC population change monthly. A shift in the population could occur between the time the bidding took place and the time the rates went into effect. To accurately make age-sex adjustments in the rates, it would be necessary to calculate a separate rate ceiling for each age-sex group. HMO's could then bid a percentage factor to be applied equally to each group.

For example, if an HMO bid 98 percent, it would be paid 98 percent of the rate ceiling for each age-sex group, multiplied by the number of its enrollees in that age-sex group. Both government and HMO recordkeeping would become more complicated than it is under the system of having a single per-person rate. The question of how to deal with noncovered services (such as dental or chiropractic services) would also present an unresolved complication.

To estimate the effect such a scheme might have had on the 1985 capitation rates, a "percentage bid factor" for each HMO was hypothesized. The percentage bid factor equals the rate ceiling in each county divided by the actual adjusted contract rate for the HMO. For example, HMO 1 would have a percentage bid factor of  $51.13/52.76 = .969$  applied to the rate ceiling of each age-sex group. Applying this calculation to all HMO's would result in savings to the State government of \$105,273 per month (\$1.26 million per year) of the \$7,053,767 per month currently being paid. Of course, this is only hypothetical. HMO's might have bid more conservatively if the rate ceilings had been lower. However, given that HMO's could not have known in which direction (in terms of cost) demographic shifts would move from 1983 to 1985, their bidding might not have been much different under such an age-sex-adjusted rate scheme.

Although a demographic shift toward a lower cost population took place from 1983 to 1985, regression toward a more expensive population would be expected in the future (Welch, 1984). Thus, in the long run, there would be little advantage to the State government in using the previously discussed capitation scheme, which adjusted rates to match the actual enrolled population.

However, a case for age-sex adjustment could be made if the adjustments were made to compensate for selection bias between the 1983 AFDC population and the 1985 enrolled population. Such a bias could occur if capitation rates were based on the entire 1983 AFDC-eligible populations in Dane and Milwaukee Counties, but less than 100 percent of the population actually enrolled in HMO's.

The preceding adjustments have addressed only age and sex biases in the enrolled population. This is primarily because these are easy variables to measure and adjust for, and they were readily available for the 1983 fee-for-service population on which rates were based. Beebe, Lubitz, and Eggers (1985) have shown that among Medicare HMO enrollees, a rate adjustment for health status, particularly prior hospital use, is also an important variable for rate adjustment.

Prior to implementation of this program, planners were concerned that the most expensive patients (women of childbearing age and older patients) might be least likely to voluntarily enroll. This would mean that, during the first 8- to 10-month implementation stage, until most of the eligible population was enrolled, payments to HMO's would be higher than they should be. Instead, based on their age and sex, the average capitation rate for the 1,229 Dane County eligibles not yet enrolled in April 1985 would be only \$.79 more per patient-month than the rate for those already enrolled (\$52.12 versus \$51.33). In Milwaukee County, the 12,528 patients not yet enrolled would average \$.26 per patient-month less than those already enrolled (\$67.47 versus \$67.73). It is assumed that this result is attributable to the intense advertising of HMO's, which gave them high visibility and made AFDC eligibles eager to select an HMO before they were assigned to one.

Because the goal in Wisconsin was to enroll the entire AFDC populations of Dane and Milwaukee Counties in HMO's, self-selection was an issue only until the government enrolled the entire population. By mid-August 1985, enrollment had reached 96 percent, and it is expected to remain near that level. (New AFDC eligibles take a month or two to get enrolled in an HMO, during which time they are covered by the fee-for-service system.)

### **HMO perspective**

The benefit of age-sex adjustment of capitation rates is different from the HMO's perspective than from the State government's perspective. As it turns out, HMO's enrolled a population only 98.5 percent as expensive, in terms of their age and sex distribution, as the 1983 population on which the rate ceilings were based. If, however, the demographic shift from 1983 to 1985 had been toward a more expensive population and HMO's had underbid the rate ceilings, then the government would have profited from both the underbidding and the demographic shift and would have realized more than its 5 percent and 7 percent savings goals. Without age-sex adjustment of rates, such a negative shift could have resulted in a significant financial strain on some HMO's, depending on how large a share of their total enrollment AFDC patients represented. (By law, the percentage cannot exceed 75 percent unless waived by the Federal Government.) Under any circumstances, age-sex adjusted rates would probably most benefit smaller HMO's, for which a numerically small AFDC enrollment could represent a larger percentage of their

total enrollment and make them more subject to financial difficulties in the event of a negative demographic shift.

Thus, the question remains: Would age-sex adjustment of capitation rates to match the population on which rates are based to the current population benefit HMO's? Such an adjustment could spare HMO's the effect of a negative demographic shift in future years, but it would also prevent them from benefiting from a shift toward a lower cost population, such as is currently happening in Wisconsin. (The HMO's are not actually profiting from the shift in 1985, but in effect it compensated for their underbidding of the rate ceilings.) The general feeling of State planners and the HMO's at the time of negotiations for the 1986-87 contract seemed to be that, because a demographic shift is a transient phenomenon, there is little reason to adjust for it.

A second type of age-sex adjustment of capitation rates that might benefit HMO's is adjustment of each HMO's actual rates according to the age-sex distribution of the population actually enrolled in the HMO. Such a system could offset factors, such as location, reputation, advertising, and benefits package, which might cause variations from the norm in individual HMO populations. For example, if one HMO enrolled a population that was younger and/or contained fewer females of childbearing age, a rate structure that was not age-sex adjusted would benefit that HMO at the expense of others. Although the total government payments would be the same, some HMO's would receive more than their appropriate share of payments, and some would receive less. By providing age-sex adjusted rates that matched their actual enrolled AFDC populations, the risk of adverse selection for each HMO would be lowered slightly. HMO's might be expected to accept slightly lower capitation rates to achieve this benefit.

To calculate the potential amount of financial variation attributable to nonhomogeneous age-sex distribution of enrollees among HMO's, an age-sex-adjusted rate was obtained for each HMO. The rate was calculated by multiplying the percent of actual AFDC enrollees in each age-sex group of each HMO by the rate ceilings for each age-sex group shown in Table 2. The resulting adjusted rates are shown in column 5 of Table 1. Age-sex-adjusted rates were compared with the average for each HMO for each county. (County averages were \$51.33 for Dane and \$67.73 for Milwaukee.) This shows how each HMO's AFDC population differed in expected cost (based on age-sex distribution) with respect to the county average. The percent differences between each HMO's adjusted rate and the county average are given in column 6 of Table 1.

Column 6 shows that two HMO's have populations that are potentially 2.2 percent more expensive than the county average, and one HMO has a population that is potentially 3.7 percent less expensive than the county average. For an HMO operating in a very competitive environment on a relatively tight budget, enrolling a population which is only a small amount

more expensive than the average could be a problem. However, the possibility of profiting from a biased selection, such as may be happening with the HMO having an expected cost 3.7 percent below the average, might cause HMO's to prefer to gamble on benefiting from biased selection. Again, age-sex-adjusted rates would probably most benefit smaller HMO's, for which larger percentage variations from the norm would statistically be expected.

## Data anomalies and sensitivity analysis

A potential problem noted in the fee-for-service data used in this study is that charges recorded for females under 1 year of age were over twice the amount of charges per infant recorded for males. It is suspected that this is partly attributable to some maternal care being incorrectly charged to female infants rather than to their mothers on the AFDC billings. Such an error might occur if the sex were recorded as female and the birth date of the infant were recorded rather than the birth date of the mother.

To investigate the effect of this potential error, the data were adjusted in such a way that female infants cost the same as male infants. The additional charges for female infants were allocated to women 15-44 years of age in proportion to the distribution of births to women in those age groups as calculated from birth rate data for U.S. women 15-44 years of age (National Center for Health Statistics, 1985). Rates for the various age groups were: 15-19 years, 14.6 percent; 20-24 years, 30.9 percent; 25-34 years, 47.9 percent; 35-44 years, 6.6 percent. This adjustment results in a total age-sex-adjusted payment for both counties of \$33,431 more per month. Therefore, the effect of such an error in recording infant and maternal age is to make an age-sex-adjusted system somewhat less beneficial.

Another concern in calculating age-sex-adjusted payments is the effect of small sample size in some age-sex groups. For example, only 185 person-months of fee-for-service coverage were reported for AFDC males 55 years of age or over in Dane County in 1983. Is this amount of data sufficient to be the basis of a capitation rate? An alternative for small age-sex groups would be to use the statewide AFDC fee-for-service average in that category and adjust it by the ratio of average county costs to average State costs. (These ratios would be  $\$51.07/\$56.72 = .9004$  for Dane County and  $\$68.36/\$56.72 = 1.2052$  for Milwaukee County using 1983 data.) If 1,000 were used as the minimum group size on which to base calculations, 3 of the 20 age-sex groups in Dane County would be based on statewide averages. This would have decreased the State government's total monthly payments (under an age-sex-adjusted scheme) by less than .1 percent. If 10,000 were the minimum group size, 14 groups in Dane County and 4 in Milwaukee would be based on statewide averages, but the total payment would change by less than .02 percent. These findings suggest that concern for small

group size is probably unnecessary in that it has a negligible effect on the total government payment.

Another way to minimize the effect of small group size would be to use fewer groups. In these calculations, 10 age groups were used because fee-for-service data in Wisconsin are collected according to these groups. In Michigan, only 6 groups are used (under 1 year, 1-4 years, 5-14 years, 15-20 years, 21-44 years, and 45 years or over for each sex). In Minnesota, 4 groups are used (both sexes under 15 years, males 15-49 years, females 15-49 years, both sexes 50 years or over). In New York, a total of 10 groups are used. The Illinois program does not adjust by age or sex but is considering doing so in the future (Medicaid program administrators, 1985; Levine, 1984). The calculation of this analysis were refigured using only 6 age groups (under 1 year, 1-4 years, 5-14 years, 15-24 years, 25-44 years, 45 years or over) for each sex, and that it made a difference of only a small fraction of 1 percent in any of the results. Thus, calculation of capitation rates for more than 6 age groups is probably unnecessary.

## Conclusions

The purpose of this research was to consider the effect of the bidding process and age-sex adjustment of capitation rates for prepaid health care for AFDC eligibles in Wisconsin. Based on this analysis, it is estimated that the present prepaid health care program for AFDC eligibles in Dane and Milwaukee Counties saves the State government at least \$4 million per year compared with the expected fee-for-service costs. These savings should continue in the future.

It was decided, based on findings from this analysis, that the difficulties of implementing a system for age-sex adjustment of capitation rates exceeded the potential savings to the government that could be realized by the system. The primary beneficiaries of such a rate-calculation method would be HMO's. However, it was doubted that HMO's would accept a rate concession for implementation of such a system. Therefore, the idea was not pursued in the 1986 rate negotiations.

Providing an incentive for HMO's to underbid the rate ceilings to increase their patient base was found to have a significant effect on the cost of the program. Thus, the rate-setting procedure for 1986 followed the same plan as for 1985. A countywide AFDC per-person average for 1984 was calculated and adjusted to form a bid ceiling for the 1986 rates. HMO's then bid at or below this ceiling. New AFDC eligibles who do not specify which HMO they wish to join are again proportionally assigned to the HMO's that bid under the rate ceiling.

During most of 1984, the AFDC populations of Dane and Milwaukee Counties were still covered under the fee-for-service system. In future years, these rate-setting mechanisms will not be possible because almost all AFDC eligibles will already be enrolled in HMO's and fee-for-service averages will not be

not be available. Future capitation rates may thus have to be calculated on statewide AFDC averages (excluding Dane and Milwaukee Counties) and adjusted by some factor to account for differences between the State and the two counties. As noted previously, these would have been .9004 for Dane County and 1.2052 for Milwaukee County in 1983. Individual factors for each age-sex group in each county could also be used. Alternatively, the most recent (1984) fee-for-service averages could be adjusted for inflation and used for 1987 and future rates. At this time, it is not certain how future rates will be set.

Ideally, a combination of competitive bidding and age-sex adjustment could be used in rate setting, but this has not been investigated in the competitive bidding process in Wisconsin. Since 1983, Wisconsin has moved toward a less expensive AFDC population, based on age and sex, in Dane and Milwaukee Counties. However, this trend could swing in the other direction in future years. It was found that the rates calculated in this analysis were relatively insensitive to possible data errors and small sample sizes.

Unless HMO's indicate an interest in age-sex adjustment of capitation rates, the current system of countywide rates will be continued.

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