

Out-of-plan use by Medicare enrollees in a risk-sharing health maintenance organization

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In this study, we analyzed the cost and volume effects of a waiver that eliminated lock-in restrictions on out-of-plan use in a health maintenance organization (HMO) with a Medicare risk-sharing contract. We compared out-of-plan cost and number of claims during a 15-month base line period when the lock-in was in effect, with a 24-month waiver period when the lock-in was removed.

The results demonstrate that average per capita cost and claims increased significantly for both Medicare

Part A (hospital insurance) and Part B (supplementary medical insurance) out-of-plan services during the waiver. Self-referred out-of-plan use normally prohibited by lock-in, accounted for 20 percent of all out-of-plan costs during the waiver and 57 percent of the increase in out-of-plan costs from the lock-in to the waiver. The combination of risk-sharing and lock-in provisions holds promise as a method for reducing expenditures for the Medicare program.

Introduction

Increasing expenditures for Medicare during the past decade have led many to advocate enrollment of Medicare beneficiaries in health maintenance organizations (HMO's) in order to provide more cost-effective care for the aged and disabled. This advocacy is based on evidence that HMO's provide more comprehensive, lower-cost health care than the fee-for-service system without sacrificing quality of care (Luft, 1980; Manning et al., 1984; Richardson et al., 1981). Our knowledge of HMO performance, however, is based primarily on the experience of non-Medicare enrollees. At present, less than 2 percent of Medicare beneficiaries are enrolled in HMO's (Bonnano and Wetle, 1984).

To date, few studies have focused on the experience of Medicare enrollees in HMO's (Gaus et al., 1976; McCall, 1983; Galblum and Treiger, 1982; Corbin and Krute, 1975; Greenfield et al., 1978; Weil, 1976). Weil (1976) has shown that the cost of providing Medicare services varies among prepaid health plans, depending upon their structural organization and geographic location. Further, the cost of providing Medicare services through an HMO may be higher than the cost in the fee-for-service system when the cost of care received outside the HMO is taken into account. Nevertheless, the costs and reasons for out-of-plan use by Medicare HMO enrollees have received little attention.

The term "lock-in" means that Medicare beneficiaries belonging to a risk-sharing HMO are not entitled to reimbursement by either the Medicare program or the HMO for out-of-plan services unless such services result from: Emergency care within the service area of the HMO; emergency or urgently needed care during a period of temporary absence

from the geographic region served by the HMO; or services arranged with outside providers by the medical staff of the HMO.

In this study, findings are reported from an evaluation of lock-in requirements on the cost and use of out-of-plan services for Medicare beneficiaries enrolled in an HMO with a risk-sharing contract. On October 1, 1976, Group Health Cooperative of Puget Sound (GHC) became the first HMO to serve Medicare beneficiaries under the risk-sharing agreement described in section 1876(c) of the Social Security Act. This demonstration project was sponsored by the Health Care Financing Administration (HCFA).

The reimbursement provisions of the risk-sharing Medicare-HMO contract, as outlined in section 1876(c) of the Social Security Act, are distinct from risk-sharing Medicare demonstration projects currently sponsored by HCFA which reimburse participating HMO's prospectively at 95 percent of the adjusted average per capita cost (AAPCC). In 1984, the risk-sharing provisions of section 1876 were amended pursuant to the Tax Equity and Fiscal Responsibility Act of 1982. The new legislation permits Medicare payments to be made on a capitation basis without retrospective adjustment to both HMO's and competitive medical plans (CMP's). The amended statute stipulates that within 5 years all risk-based providers will be reimbursed at 95 percent of the AAPCC. These new provisions regulating Medicare payments to HMO's and CMP's are described in detail in the *Federal Register*, January 10, 1985.

For the demonstration, the costs experienced by GHC were compared with the AAPCC for providing Medicare services in the community. The AAPCC is defined in enabling legislation as the adjusted average per capita cost of providing services to Medicare beneficiaries enrolled in an HMO if the beneficiaries were receiving services in the fee-for-service health

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care sector. Under a risk contract, if the cost of providing Medicare services falls between 80 and 100 percent of the AAPCC, one-half of the difference between an HMO's cost and the AAPCC is given to the HMO as an incentive payment. If the cost is below 80 percent of the AAPCC, the incentive payment is not increased. This serves as a check against lowering the quality of care to Medicare beneficiaries. If the cost is greater than the AAPCC, the HMO must absorb the loss, except for any carryover into the subsequent fiscal year. An HMO with a Medicare risk-sharing contract assumes total responsibility for the cost of covered services for its Medicare enrollees, including services rendered by providers outside of the HMO. To reduce the likelihood that the HMO will suffer financially because of excessive use of out-of-plan services, Medicare enrollees are restricted in the use of outside services.

Evaluation of lock-in

The demonstration project allowed comparisons between a 15-month base line period during which the lock-in requirements were in effect (October 1, 1976, to December 31, 1977), and a 24-month waiver period during which the lock-in requirements were removed (January 1, 1978, to December 31, 1979). GHC's Medicare enrollees were not covered for self-referred out-of-plan services during the lock-in period of the demonstration; however, enrollees were covered for such claims, excluding deductible and coinsurance amounts, during the waiver portion of the study.

In the first component of the study, we analyzed out-of-plan costs for Medicare Part A (hospital insurance) and Part B (supplementary medical insurance) during the lock-in and waiver periods. Part A and Part B claims were examined in aggregate and by category of out-of-plan use (in-area emergency care; out-of-area urgent or emergency care; services arranged by GHC medical staff; services allowed by GHC administrative decision; and self-referred out-of-plan use allowed by the waiver). Although the lock-in waiver would presumably affect only self-referred out-of-plan use, all categories of out-of-plan use were analyzed in the evaluation to detect any changes in use that may have indirectly resulted from the waiver. Demographic and enrollment characteristics of GHC Medicare enrollees were examined to assess their possible effect on the cost of out-of-plan services.

In the second component of the study, we examined the volume of Part A and Part B out-of-plan claims per GHC Medicare enrollee during the lock-in and waiver periods. The number of Part A and Part B out-of-plan claims per GHC Medicare enrollee was compared across the two time periods. Out-of-plan claims were also categorized according to the reasons for out-of-plan use, the type of facility where the use occurred, the demographic and enrollment characteristics of users, type of medical service rendered, and provider specialty.

GHC Medicare population

GHC is a nonprofit consumer-owned, prepaid group practice founded in 1947. It currently serves more than 320,000 enrollees in Seattle, Wash. and surrounding areas. Medicare beneficiaries represent 9.3 percent of GHC's subscribers. Individuals may join GHC's Medicare program through their employers (during federally mandated open-enrollment periods held for at least 1 month each year) or as GHC members who age into Medicare or become disabled. GHC has two separate Medicare options. Low-option coverage, which is required by law, provides only the basic Medicare-covered services. High-option includes coverage for additional benefits such as routine physicals, immunization, outpatient pharmaceuticals, sight and hearing examinations, and unlimited hospitalization. At the time of this study, slightly more than 90 percent of GHC Medicare enrollees had high-option coverage.

Both low- and high-option GHC Medicare enrollees pay GHC supplementary monthly premiums, which replace deductible and coinsurance amounts borne by Medicare beneficiaries in the fee-for-service system. For high-option enrollees, the supplementary dues also cover the cost of additional benefits.

Under the risk-sharing contract, enrollees may obtain both Part A and Part B Medicare coverage or Part B only. Part A covers hospital and skilled nursing care; Part B covers physician care, hospital outpatient treatment, and other miscellaneous services. During the study, more than 99 percent of GHC's Medicare population had both Part A and Part B Medicare coverage.

Methods

Study sample

The study sample included Medicare beneficiaries enrolled in GHC during the demonstration period (October 1, 1976, to December 31, 1979) through the risk-sharing program. Individuals eligible for Medicare status at any point in the study, as well as those who became ineligible because of disenrollment or death before the demonstration ended, were included in the analysis. This resulted in a total study population of 21,466. There were 16,683 GHC Medicare enrollees in the lock-in period and 20,682 in the waiver period. Out-of-plan cost and volume were analyzed separately for the lock-in and the waiver according to claim type (Part A or Part B).

Data collection

Data were collected from all Part A and Part B out-of-plan claims filed by GHC Medicare beneficiaries. Claims were processed directly by GHC or by Medicare intermediaries. All analyses were

based on secondary data provided by GHC medical abstractors on the out-of-plan claim experience of GHC Medicare enrollees during the study period. Supplementary demographic and enrollment data were obtained from internal GHC records and documents, Medicare intermediaries, and HCFA records.

Analysis

The dependent variables, cost and volume, were annualized to control for differences in the lengths of the lock-in and waiver periods and length of enrollment. Dependent variables were log transformed to compensate for skewed distributions resulting from a few extremely high-cost claims and a few individuals with extensive out-of-plan use. To control for inflationary effects during the study, cost variables were converted to October 1976 dollars at monthly intervals, using the medical care component of the national Consumer Price Index.

Cost and volume changes from the lock-in to waiver period were analyzed separately for Part A and Part B out-of-plan claims, using one-way analysis of variance with paired *t*-tests. Multiple regression was used to test for possible relationships between selected demographic and enrollment variables and the cost and volume of out-of-plan use.

Data for the entire GHC Medicare population is shown in all tables to provide a complete picture of the overall effects of the waiver on GHC as an organization. Additionally, because enrollment fluctuations are important considerations to HMO's interested in risk contracts, we have presented findings that reflect the impact of turnover in the population base. In order to control for possible bias induced by including individuals with brief Medicare enrollment, a sample was drawn of GHC Medicare members with at least 9 months of continuous enrollment in both the lock-in and waiver periods. The 9-month

enrollment time was selected because it maximized the number of enrollees in each study period, and provided a sufficient length of time to evaluate changes in use. This continuous enrollment sample contained 14,753 subjects, or 69 percent of the total population. Paired analyses were performed on both the continuous enrollment sample and the total Medicare population in order to verify cost and volume comparisons between the lock-in and waiver periods.

Findings

Enrollee characteristics

During the study, 6,678 Medicare enrollees (31 percent of the GHC Medicare population) filed at least one out-of-plan claim. During the 15 months of the lock-in, 3 percent of GHC's Medicare population filed Part A out-of-plan claims for hospital services, and 16 percent filed Part B out-of-plan claims for physician and outpatient medical services. During the 24 months of the waiver, 10 percent filed Part A out-of-plan claims and 24 percent filed Part B out-of-plan claims. Claims for self-referred out-of-plan services which were prohibited during the lock-in were filed during the waiver period by 3 percent of Medicare enrollees for Part A services and by 6 percent for Part B services.

The frequency distribution for individuals filing Part A or Part B out-of-plan claims during the study is shown in Table 1. As expected, Part B Medicare claims were by far more frequent, accounting for 91 percent of all out-of-plan use. The majority of those filing Part B claims had fewer than five out-of-plan claims during the study, although a few individuals used out-of-plan services extensively. Of those Medicare enrollees using Part A out-of-plan hospital

Table 1
Out-of-plan Medicare claims, by claims per enrollee: October 1, 1976–December 31, 1979

Claims per enrollee ²	Out-of-plan claims ¹			
	Part A, hospital services		Part B, medical services	
	Number of persons	Percent of Medicare population	Number of persons	Percent of Medicare population
0	19,142	89.1	15,219	70.9
1	1,446	6.7	1,603	7.5
2	424	2.0	894	4.2
3	190	0.9	613	2.9
4	90	0.4	434	2.0
5	41	0.2	362	1.7
6-9	84	0.4	823	3.8
10-19	35	0.2	842	3.9
20-49	14	0.1	581	2.7
50 or more	0	0.0	95	0.4
Persons with 1 or more claims during study	2,324	10.8	6,247	29.1

¹ The total number of out-of-plan claims was 55,329, with 4,909 (9 percent) Part A claims and 50,420 (91 percent) Part B claims.

² The range of claims per person for Part A was 0-42 and for Part B, 0-220.

services during the study, more than one-half had only one such claim.

The demographic and enrollment characteristics of Medicare enrollees who used out-of-plan services during the study are compared with nonusers in Table 2. Medicare enrollees who used out-of-plan services tended to be older; they were more likely to have been GHC Medicare members prior to initiation of the risk-sharing contract, have a residence outside of GHC's primary service area, and to have voluntarily disenrolled or died during the study period. There were no significant differences in overall use of out-of-plan services between males and females.

Further analyses, not shown in Table 2, revealed that those GHC Medicare enrollees who self-referred for out-of-plan services during the waiver were younger; they were more likely to have joined during an open enrollment period and to have disenrolled

voluntarily from GHC than were Medicare enrollees who used out-of-plan services for emergency care or because of GHC medical staff referrals.

Cost of out-of-plan use

Our major objective in this study was to provide information on the cost of Medicare out-of-plan use at GHC under lock-in and waiver conditions. Cost statistics are broken down by claim type and time period in Table 3. An inflation-adjusted total of \$5.2 million in reimbursable out-of-plan services was generated by GHC Medicare enrollees during the demonstration period. Using the data in Table 3, it can be shown that each GHC Medicare enrollee during the demonstration period incurred \$6.22 per month (\$7.29 in real dollars) for out-of-plan services.

Cost differences between the lock-in and waiver were first examined using a paired before/after panel

Table 2
Characteristics of Group Health Cooperative (GHC) Medicare enrollees who used out-of-plan services, by selected characteristics: October 1, 1976–December 31, 1979¹

Selected characteristic	GHC Medicare enrollees not using out-of-plan services	GHC Medicare enrollees using out-of-plan services	Proportion using out-of-plan services	Chi-square significance level
	Percent			
Sex				
Male	45.0	44.1	31	} $p = .23$
Female	55.0	55.9	31	
Age²				
Under 65 years, aged-in	17.6	5.0	11	} $p < .001$
Under 65 years, disabled	3.8	5.9	41	
65-74 years	58.5	55.8	30	
75-84 years	16.7	25.0	40	
85 years or over	3.4	8.3	52	
Eligibility				
Aged	96.2	94.1	31	} $p < .001$
Disabled	3.8	5.9	41	
Medicare insurance				
Part A (hospital only)	0	0	0	} $p = .14$
Part B (medical only)	0.6	0.4	21	
Part A & B	99.4	99.6	32	
Enrollment method				
Original transfer	59.4	76.0	37	} $p < .001$
Open enrollment	9.0	7.2	27	
Aged-in	31.6	16.8	19	
Disenrollment reason				
Died	4.2	15.2	62	} $p < .001$
Voluntary	2.4	5.8	52	
Involuntary	0.1	0.1	32	
Still active	93.3	78.9	28	
Residence³				
In GHC service area	86.1	70.3	27	} $p < .001$
Out of GHC service area (in Washington State)	5.6	6.0	33	
Out-of-State	1.0	2.1	49	
Missing	7.3	21.6	57	

¹Includes all GHC Medicare subscribers enrolled during the study (21,466).

²Age was calculated using the midpoint of the study, May 15, 1978. Individuals aging into the Medicare category after this date would appear younger than the effective age for Medicare coverage (65 years).

³Residence information was not available for individuals who died or left GHC voluntarily or involuntarily during the study.

analysis on the sample of the GHC Medicare population mentioned earlier. From the lock-in to the waiver periods, the average out-of-plan cost per Medicare enrollee increased significantly for both Part A and Part B services. Analyses that were performed but not illustrated in the tables demonstrated that the annual cost of Part A out-of-plan claims doubled during the waiver period, increasing from \$24.42 to \$48.57 per Medicare enrollee ($p < .001$). The increase in the cost per enrollee for Part B out-of-plan claims was somewhat smaller, with a 68 percent rise from \$21.80 in the lock-in to \$36.61 in the waiver ($p < .001$).

Because individuals who joined GHC's Medicare population late in the lock-in period or during the waiver period were not included in the continuous enrollment sample, lack of experience with the lock-in or unfamiliarity with the plan's operation are not likely as alternative interpretations of these findings.

Other variables (including age, sex, enrollment method, and disability status) also remained constant in the continuous enrollment sample and, therefore, were not direct causes of observed cost increases. When this cost analysis was repeated using the entire GHC Medicare population, the observed cost increases during the waiver for Part A and Part B claims remained highly significant ($p < .001$).

To compare waiver costs with routinely covered out-of-plan costs, the enrollees' reasons for using out-of-plan services were examined for the entire GHC Medicare population (Table 4). Self-referred out-of-plan services during the waiver represented 22 percent of Part A costs and 16 percent of Part B costs. During both the lock-in and waiver periods, more than 50 percent of out-of-plan costs were attributable to services arranged by the GHC medical staff; another approximately 25 percent was attributable to in-area or out-of-area emergencies.

Table 3
Reimbursement for out-of-plan use by Group Health Cooperative Medicare enrollees during lock-in and waiver period

Reimbursement	Total out-of-plan claims in study period		Lock-in period		Waiver period	
	Part A and Part B	Part A	Part B	Part A	Part B	
Total reimbursed for out-of-plan claims	\$6,103,568	\$773,411	\$753,108	\$2,734,962	\$1,842,087	
Total reimbursement adjusted for inflation ¹	5,210,448	720,743	702,152	2,243,069	1,544,484	
Average annual amount reimbursed per Medicare enrollee (all out-of-plan services) ²	75	35	34	54	37	
Average annual amount reimbursed per Medicare enrollee (self-referred out-of-plan services) ²	18	0	0	12	6	
Average amount reimbursed per out-of-plan claim ²	94	980	49	538	43	

¹ Out-of-plan costs adjusted for inflation using the medical care component of the Consumer Price Index. Amounts are expressed as October 1976 dollars.

² These figures are adjusted for differences in the lengths of the lock-in and waiver periods and inflation.

Table 4
Adjusted cost of out-of-plan use during the lock-in and waiver periods, by reason¹

Reason	Lock-in period		Waiver period	
	Part A cost	Part B cost	Part A cost	Part B cost
Total amount	² \$720,743	\$720,152	\$2,243,069	\$1,544,484
	Percent distribution			
Total	100	100	100	100
Out-of-area emergency	³ 24	14	16	10
In-area emergency	17	7	14	5
Arranged by GHC	44	63	44	69
Allowed by GHC administrative decision	6	10	1	1
Self-referred/section 222 waiver	0	0	22	16
Undetermined ⁴	9	5	3	1

¹ Includes all Group Health Cooperative (GHC) Medicare subscribers enrolled during the study (21,466).

² All cost data are adjusted for inflation using the medical care component of the Consumer Price Index. Costs are expressed as October 1976 dollars.

³ This value indicates the percent distribution of reimbursed costs by reason for out-of-plan use during each time period.

⁴ The undetermined category refers to out-of-plan claims for which no reason was coded.

Table 5
Comparison of annualized out-of-plan costs per Medicare enrollee in the lock-in and waiver periods, by reason

Reason	Lock-in period				Waiver period				Percent increase lock-in to waiver					
	Part A		Part B		Part A		Part B		Part A		Part B		Part A and Part B	
Out-of-area urgent/emergency	\$8.19	\$4.85	\$13.04	\$8.67	\$3.57	\$12.24	+ 6	-26	- 6					
In-area emergency	5.87	2.46	8.33	7.47	1.80	9.27	+27	-27	+11					
Arranged by GHC	15.29	21.18	36.47	23.89	25.55	49.44	+56	+21	+36					
Allowed by administrative decision	2.07	3.52	5.59	0.19	0.21	0.40	-91	-94	-93					
Self-referred section 222 waiver	0	0	0	12.33	5.88	18.21	—	—	—					
Undetermined	3.15	1.65	4.80	1.39	0.07	1.46	-56	-96	-68					

NOTE: Values are expressed as the mean annual cost per enrollee in the lock-in or waiver period adjusted for inflation to represent October 1976 dollars. All Group Health Cooperative (GHC) Medicare subscribers enrolled during the study were included in this analysis (21,466 persons).

Theoretically, waiver of the lock-in would affect only the cost and volume of self-referred out-of-plan utilization by GHC's Medicare enrollees, but changes in other categories of care were also examined (Table 5). During the waiver GHC Medicare enrollees incurred an average of \$18.21 for self-referred out-of-plan services annually, an amount higher than all other categories except referrals by GHC physicians (\$49.44). This self-referred care represented a major portion of the increased cost of out-of-plan use during the waiver; however, a significant increase was also observed for out-of-plan care referred by GHC's medical staff (36 percent) and in-area emergencies (11 percent). Costs for out-of-area emergencies decreased by 6 percent and services allowed by administrative decision decreased 93 percent. Although the reasons for the observed increases are not clear, it is possible that the waiver indirectly provided a stimulus for enrollees to seek other types of out-of-plan care. There are no data to confirm this substitution effect; however, Medicare enrollees may have demanded more outside referrals from GHC physicians, and physicians may have made more referrals because they knew self-referred services would be covered during the waiver. It is also possible that the waiver was used by enrollees and GHC physicians to circumvent access problems.

In order to determine whether Part A and Part B costs were increasing or decreasing for users of out-of-plan services over time, we studied cost trends from the lock-in to the waiver for the subset of GHC Medicare enrollees who used any out-of-plan services during the study (Table 6). Although more Medicare enrollees used out-of-plan services during the waiver than during the lock-in (Part A: 1,983 versus 485; Part B: 4,987 versus 2,653), the adjusted cost of Part A services per user decreased significantly for all categories of out-of-plan use during the waiver. A possible explanation for this finding is that during the waiver, out-of-plan referrals and emergencies were associated with less serious medical conditions.

The cost per user of Part B services also decreased significantly from the lock-in to the waiver period for all categories of out-of-plan use. Again, this may indicate that, during the waiver, GHC Medicare enrollees sought out-of-plan care for medical conditions of a less severe nature, but that these visits were still classified as urgent or emergencies.

Thus, two opposing cost trends occurred from the lock-in to the waiver period. For both Part A and Part B services, per capita cost for out-of-plan users decreased from the lock-in to the waiver, but as discussed previously the per capita out-of-plan cost for the entire GHC Medicare population increased. This indicates that during the waiver more GHC Medicare enrollees used out-of-plan services, but, on the average, these out-of-plan services were less costly per user than those occurring during the lock-in period.

Using the continuous enrollment sample and the total population of GHC Medicare enrollees, several

multiple regressions were performed to examine the possible effects of demographic and enrollment characteristics on the cost of Part A and Part B out-of-plan services. Although many of these variables, including disabled eligibility status and out-of-State residence, were significantly correlated with out-of-plan costs in all regressions, the total amount of variance in cost explained by the demographic and enrollment variables was quite low (less than 2 percent). This finding indicates that such variables cannot be used by HMO's as good predictors of out-of-plan costs.

Volume of out-of-plan use

Our second objective in this study was to examine the effect of waiving lock-in provisions on the volume of out-of-plan use. Out-of-plan claim volume during the lock-in and waiver periods was compared for both the entire Medicare population and the continuous enrollment sample. The observed use trends were similar to the cost trends. The average number of Part A out-of-plan claims per enrollee increased more than threefold from the lock-in to the waiver period ($p < .001$), and the volume of Part B out-of-plan claims per enrollee increased 65 percent ($p < .001$).

Next, Part A and Part B out-of-plan claims were examined by category of out-of-plan use and time period (Table 7). During the lock-in the greatest volume of Part A out-of-plan claims was for services referred by GHC physicians (43 percent), followed by out-of-area emergencies (24 percent), and in-area emergencies (14 percent). For Part B the greatest volume of out-of-plan claims was also for services referred by GHC physicians (58 percent), followed by claims allowed by GHC administrative decision (16 percent), and out-of-area emergencies (14 percent). During the waiver out-of-plan services arranged by GHC physicians continued to be the single largest category for Part A (37 percent) and Part B (50 percent) out-of-plan claims. During the waiver self-referred out-of-plan claims became the second largest category for both Part A (29 percent) and Part B (22 percent). Out-of-area emergencies was the third largest category for both Part A (13 percent) and Part B (10 percent) during the waiver.

Although data are not presented here, we examined Part A and Part B out-of-plan services by encounter site, provider, and type of service. Information on the encounter sites for Part A and Part B out-of-plan services revealed little difference between the lock-in and waiver periods. As expected, the majority of Part A out-of-plan claims occurred in short-stay hospitals. Part B out-of-plan claims were divided between physician offices (46 percent), inpatient hospital visits (18 percent), and other miscellaneous sites (22 percent). Self-referred Part B out-of-plan claims occurred primarily in physician offices (60 percent) and hospital outpatient departments (31 percent).

When Part B out-of-plan claims were analyzed by type of provider or type of service, they showed that

Table 6
Cost trends from the lock-in to waiver period for users of out-of-plan services¹

Type of cost	Part A out-of-plan services				Part B out-of-plan services			
	Lock-in 485 users		Waiver 1,983 users		Lock-in 2,653 users		Waiver 4,967 users	
	Amount	Standard error ²	Amount	Standard error ²	Amount	Standard error ²	Amount	Standard error ²
Amount claimed	\$1,524	\$134	\$698	\$42	\$196	\$8	\$164	\$5
Amount reimbursed	1,189	114	563	35	176	8	149	5
Out-of-area emergency	282	52	90	10	29	4	15	1
In-area emergency	202	48	79	20	15	2	7	1
Arranged by GHC	526	91	251	25	110	6	103	4
Allowed by GHC administrative decision	71	26	2	1	21	2	1	0.3
Self-referred	0	—	129	11	0	—	24	2

¹All comparisons between the lock-in and waiver periods were significant at the .001 level.

²This value represents the mean arithmetic cost per Part A or Part B out-of-plan user annualized and adjusted for inflation for those members of the Group Health Cooperative (GHC) Medicare population using out-of-plan services.

Table 7
Percent and volume of out-of-plan claims during the lock-in and waiver periods, by reason

Reason	Lock-in period				Waiver period			
	Part A claims		Part B claims		Part A claims		Part B claims	
	Percent ¹	Claims per 1,000 enrollees ²	Percent	Claims per 1,000 enrollees ²	Percent	Claims per 1,000 enrollees ²	Percent	Claims per 1,000 enrollees ²
Out-of-area emergency	24	8	14	94	13	13	10	89
In-area emergency	14	5	7	7	8	7	5	40
Arranged by GHC	43	15	58	387	37	38	50	502
Allowed by GHC admini- strative decision	4	2	16	104	.5	.6	.4	4
Self-referred/section 222 waiver	0	0	0	0	29	29	22	193
Undetermined	15	5	6	41	12	12	5	44

¹Percent of claims categorized by reason in given time period.

²Annualized number of out-of-plan claims per 1,000 GHC Medicare enrollees in time period.

NOTE: Total claims for each category were as follows: 735 for Part A lock-in; 14,290 for Part B lock-in; 4,174 for Part A waiver; and 36,030 for Part B waiver.

Table 8
Group Health Cooperative's performance under the risk-based Medicare contract

Year of study	GHC adjusted cost per enrollee per month	Percent of AAPCC ¹	Total incentive payment ²	Cost per enrollee month for out-of-plan services ³	Self-referred out-of-plan cost per enrollee month ³	Incentive payment per enrollee month
1976-77 (15 months)	\$48.66	77	\$1,306,727	\$7.63 (15.7)	0	\$5.22
1978 (12 months)	59.71	85	1,067,121	9.22 (14.1)	41.83 (1.4)	44.07
1979 (12 months)	71.01	90	955,566	—	—	—

¹Adjusted average per capita cost.

²The incentive payment is subject to retrospective adjustment by the Health Care Financing Administration.

³Percent of all Medicare reimbursable costs attributable to the indicated out-of-plan cost is shown in parentheses.

⁴These calculations are based on the total 24-month waiver period (January 1, 1978, to December 31, 1979) with no adjustment for inflation, using data collected for the demonstration.

SOURCES: Statement by Group Health Cooperative (GHC) at U.S. Senate Hearing, July 30, 1981.

GHC Medicare enrollees sought out-of-plan providers primarily for general medical care rather than for specialty services. During the study, about 26 percent of the Part B claims resulted from visits with family practice physicians or general practitioners, 13 percent with medical specialists, and 22 percent with physicians for whom specialties were not specified. About 22 percent of the Part B claims were for ambulance service and medical supplies. The remainder of Part B out-of-plan claims were for other services such as physical therapy and speech therapy. In the case of self-referred out-of-plan services, 46 percent of the claims were from family practitioners, 36 percent were from other specialists, and 18 percent were for miscellaneous services and medical supplies.

As might be expected, the majority of Part B claims (59 percent) were for medical services. Laboratory and X-ray accounted for 13 percent of the claims; miscellaneous services for 23 percent; and the remainder, divided between other categories. Self-referred Part B out-of-plan claims were primarily related to medical services (69 percent), with another 21 percent for laboratory and X-ray.

Performance under risk-sharing

One objective of this study was to determine how waiver of the lock-in would affect GHC's performance under the risk-based Medicare contract. The reimbursable costs for self-referred out-of-plan use generated by GHC's Medicare population during the 2-year waiver of the lock-in were \$911,422 or \$1.51 on a per capita monthly basis. Although the costs stemming from waiver of the lock-in were not trivial, they did not threaten GHC's ability to function as an incentive-based, risk-sharing Medicare HMO. During both the lock-in and waiver periods, GHC provided Medicare services at a cost well below the community AAPCC, and consequently received the incentive payments shown in Table 8.

Throughout the demonstration, GHC's cost per Medicare enrollee increased from 77 percent to 90 percent of the AAPCC. During the 24-month waiver period, GHC's mean cost per Medicare enrollee was \$65.36 per month (the average for 1978-79) for both in-plan and out-of-plan services. All types of out-of-plan use represented 14.1 percent of this amount, and self-referred out-of-plan services allowed by the waiver equaled 1.4 percent. In spite of the additional costs stemming from the waiver of lock-in, we were able to determine using additional data that the proportion of GHC's total Medicare expenditures because of out-of-plan use actually declined slightly (1.6 percent) during the waiver. Thus, although out-of-plan costs increased during the waiver period, they appear to have increased at a slower rate than in-plan costs.

Discussion and conclusions

In this study, new information is provided on the cost and volume of out-of-plan use by Medicare enrollees in a risk-sharing HMO, with and without

lock-in restrictions. The study includes the first presentation of the reasons, settings, cost, and volume of both Part A and Part B out-of-plan Medicare services. Further, this information is particularly important because GHC represents the only site in the Nation where a risk-based section 1876 contract, with incentives for serving Medicare beneficiaries, has been operating for several years.

It should be recognized that some constraints on internal and external validity could limit the generalizability of the findings reported. Potential threats to internal validity arise because the population under study changed throughout the analysis. The continuous enrollment sample of GHC Medicare enrollees, described previously, was used to compensate for these constraints in the key cost and volume comparisons.

In terms of the external validity of the study, GHC's experience under the risk-based contract may not be entirely applicable to other HMO's, unless they share many of GHC's organizational and operational characteristics. Additionally, a previous study has shown that Part B out-of-plan use by GHC's Medicare enrollees before implementation of the lock-in was relatively low in comparison with that of Medicare enrollees in other HMO's (Corbin and Krute, 1975). However, in such a comparative study, differences usually reflect variability in the magnitude of findings, rather than significant divergence of general trends across HMO's.

In this study we found that removal of the lock-in requirement resulted in greater per capita out-of-plan cost and claim volume for GHC's Medicare population. During the waiver of the lock-in, average reimbursement per Medicare enrollee increased significantly for both Part A and Part B out-of-plan services. This increase occurred because a greater number of GHC Medicare enrollees used out-of-plan services during the waiver period (26 percent) than the lock-in period (17 percent), and because users of out-of-plan services had more claims during the waiver period. The average cost per individual out-of-plan user, however, decreased from the lock-in to the waiver period, indicating a preponderance of lower cost out-of-plan visits during the waiver period.

The large increases observed for both per capita cost and volume of Part A out-of-plan services are intriguing. Although the study cannot provide a definitive explanation for this finding, it is possible that GHC was successful in limiting the amount of out-of-plan hospitalization for enrollees while the lock-in was in effect. Once the lock-in was waived, strict utilization control over hospitalization outside the plan appeared to weaken. Self-referrals for out-of-plan hospitalization may have been used to circumvent in-plan queuing for elective surgeries such as hip replacement or cataract removal. Alternatively, self-referral to out-of-plan physicians may have resulted in greater rates of hospitalization. Because the cost effectiveness of HMO's is generally attributed to reduced rates of hospitalization, substantial increases in out-of-plan inpatient admissions could

pose a real threat to the financial viability of an HMO operating under a risk-based contract.

The portion of out-of-plan use classified as self-referred was of central interest in this evaluation because it represents the elective use of non-plan services, which the lock-in provision was specifically designed to prevent. Nearly 20 percent of the cost of Medicare out-of-plan services during the waiver represented self-referred use. Further, these self-referred costs represented 57 percent of the total increase in out-of-plan costs and accounted for nearly one-quarter of all out-of-plan claims filed during the waiver period. During the waiver, 3 percent of GHC's Medicare population (32 percent of all Part A out-of-plan users) self-referred for Part A services and 6 percent (26 percent of all Part B out-of-plan users) self-referred for Part B services. The self-referred out-of-plan use amounted to an annual inflation-adjusted cost of \$18.21 per enrollee during the waiver (\$22.02 in real dollars).

The association between selected demographic and enrollment variables and out-of-plan use was also examined. In general, out-of-plan users were more likely to be disabled, reside outside of the GHC service area, be older, and to have died or voluntarily disenrolled during the study. Although significant correlations exist between demographic and enrollment variables and out-of-plan cost and use, it is not possible to use these variables as efficient predictors of out-of-plan expenditures or utilization.

In this study, we did not directly assess the attitude of GHC's Medicare enrollees toward implementation of the lock-in, but such information is important in judging the acceptability of a lock-in to the Medicare population. Scitovsky, Benham, and McCall (1981) demonstrated that dissatisfaction was significantly linked to out-of-plan use by non-Medicare enrollees in the Kaiser Health Plan. Administrators at GHC reported that initiation of the lock-in provisions did lead to some complaints. A few Medicare beneficiaries felt the lock-in represented unfair, discriminatory action against the elderly because it denied them freedom of choice in the medical care market. The lock-in also prohibited Medicare enrollees from seeking a second opinion outside GHC unless authorized by GHC physicians. In spite of these complaints, the annualized voluntary disenrollment rates for the lock-in period (1.21 percent) and the waiver period (1.19 percent) were nearly identical. Thus, there is no indication that dissatisfaction with the lock-in requirement led to substantial disenrollment.

The large increases in out-of-plan use observed in this study may also relate to the issue of access in a closed-panel HMO. Because GHC's Medicare population grew approximately 23 percent during the study, it is possible that increased out-of-plan use may have been related to decreased access. Although no evidence of access problems was found in this study, enrollees may have self-referred to out-of-plan providers or may have been referred to outside

providers by GHC when timely access to care was not possible through the plan's physicians and facilities.

In the future, it would be helpful to assess the attitudes of Medicare beneficiaries toward HMO's with lock-in provisions and other innovative Medicare reimbursement systems. In addition, HMO's could be assisted in providing more satisfactory in-plan services to Medicare enrollees if more was known about the reasons for their out-of-plan use and the relative effects of access, quality, transportation, convenience, and cost factors on the decision to seek out-of-plan care.

The findings indicate that waiver of lock-in requirements was associated with substantial increases in the cost of out-of-plan Medicare services at GHC. This is significant because many HMO's could not afford the cost of self-referred out-of-plan services allowed by the waiver. During the years of this study, Medicare beneficiaries accounted for only 8 percent of GHC's total enrollment, and, therefore, the financial risk posed by the risk-sharing contract was relatively modest. In HMO's where Medicare enrollment approaches the legal limit of 50 percent, however, the financial risks of allowing unrestricted out-of-plan use could be much greater. Thus, lock-in requirements cannot be easily dismissed because they may save money for both participating HMO's and the Medicare program by reducing costly use outside prepaid plans.

The lock-in restrictions were reinstated at GHC on January 1, 1981. The policy question remains as to whether the lock-in requirement is a necessary component in structuring Medicare risk-sharing payment mechanisms for HMO's. Although some HMO's, such as GHC, may be able to function without lock-in, other HMO's may desire or need lock-in restrictions for financial viability under alternative reimbursement schemes.

The number of HMO Medicare risk contracts has increased in recent years, resulting in significant savings for the Medicare program (Group Health Association of America, 1984). It appears greater savings could be achieved by increasing the number of HMO Medicare risk contracts and the percent of Medicare beneficiaries enrolled in HMO's. The results of this study suggest that lock-in requirements are a key feature in the design of cost-effective Medicare HMO risk contracts.

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References

- Bonnano, J. B., and Wetle, T.: HMO enrollment of Medicare recipients, An analysis of incentives and barriers. *Journal of Health Politics, Policy and Law* 9 (1):41-62, Spring 1984.
- Corbin, M., and Krute, A.: Some aspects of the Medicare experience with group practice prepayment. *Social Security Bulletin*. Vol. 38, No. 3. SSA Pub. No. 13-11700. Office of Policy, Social Security Administration, Washington. U.S. Government Printing Office. Mar. 1975.
- Federal Register*: Medicare program, payment to health maintenance organizations and competitive medical plans. Vol. 50, No. 7. Jan. 10, 1985.
- Galblum, T. W., and Treiger, S.: Demonstrations of alternative delivery systems under Medicare and Medicaid. *Health Care Financing Review*. Vol. 3, No. 3. HCFA Pub. No. 03141. Office of Research, Demonstrations, and Statistics, Health Care Financing Administration. Washington. U.S. Government Printing Office, Mar. 1982.
- Gaus, C. R., Cooper, B. S., and Hirschman, G. G.: Contrasts in HMO and fee-for-service performance. *Social Security Bulletin* Vol. 39, No. 5. SSA Pub. No. 13-11700. Office of Policy, Social Security Administration. Washington. U.S. Government Printing Office, May 1976.
- Greenfield, C., Densen, P., Jones, E., et al.: Use of out-of-plan services by Medicare members of HIP. *Health Services Research* 13(3): 243-260, Fall 1978.
- Group Health Association of America, Inc.: HMO Medicare risk contracts show savings to HCFA. *HMO Managers Letters* 1(1):1, Sept. 1984.
- Luft, H.: Assessing the evidence of HMO performance. *Milbank Memorial Fund Quarterly* 58 (4):501-536, Fall 1980.
- Manning, W. G., Leibowitz, A., Goldberg, G. A., et al.: A controlled trial of the effects of a prepaid group practice on use of services. *New Engl J Med* 310 (23):1505-1510, 1984.
- McCall, N.: Utilization of Medicare services outside the health maintenance organization by Medicare beneficiaries. A comparative study. *Group Health Journal* 4(2):24-33, Summer 1983.
- Richardson, W. C., Diehr, P. K., LoGerfo, J. P., et al.: Comparison of prepaid health care plans in a competitive market; the Seattle prepaid health care project. *Research Summary Surveys*. National Center for Health Services Research. Pub. No. DHEW (PHS-80-3199). Aug. 1981.
- Scitovsky, A. A., Benham, L., and McCall, N.: Out-of-plan use under two prepaid plans. *Med Care* 19(12):1165-1193, 1981.
- U.S. Congress. Senate. Committee on Finance. Subcommittee on Health. *Medicare Reimbursement of HMO's*. 97th Congress, First Session, 1981.
- Weil, P.: Comparative costs to the Medicare program of seven prepaid group practice and controls. *Milbank Memorial Fund Quarterly* 58(3):339-365, Summer 1976.