

Comparative Costs to the Medicare Program of Seven Prepaid Group Practices and Controls

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This research was conducted in order to compare costs to the Medicare program for providing health care service to old people enrolled in two forms of health delivery organization: open market and prepaid group practice (pgp). Two data sources were employed: cost data provided by the Social Security Administration for seven prepaid group practices in five SMSAs and northern California and interviews conducted with administrators of the prepaid groups to determine: organizational sponsorship, incentive structure, pattern of selectivity of patients, and resource availability. Major findings are: (1) Enrollees in prepaid groups incur higher physician costs. This includes services provided by practitioners in and outside the plans. (2) Overall, prepaid groups demonstrate savings to the Medicare program in provider-initiated services—in hospital care and extended care facility services, but not in home health care. (3) Reduced spending in the hospital component does not imply reduction in the extended care facility or home service. (4) Outpatient costs in the hospital are generally higher in the open market modes, probably because this mode of care is viewed as an alternative to physician visits. (5) The greatest cost savings to the Medicare program are demonstrated by groups which are relatively small, yet hospital-based.

It is generally argued that by organizing the delivery of health services into prepaid group practice (pgp), providers have an incentive to minimize the cost of services they render. The drive for efficiency stems from a set budget from which operating costs are subtracted. Reinhardt (1973:205) has made the useful distinction that not only do prepaid providers try to produce services efficiently but they also seek the most economic *mix* of services which will satisfy the patients who have contracted for health care. "The great advantage inherent in prepayment plans such as Kaiser or HIP is that the financial incentives faced by these providers forces them to optimize over the entire range of medical services normally produced by a health care system."

This study examines the aged population—a high-risk group—enrolled in pgps and compares their costs with old people who obtain health service in the open-market system. Three questions are con-

TABLE I
Hospital Use by Subscribers Over 65

	GHA	BC 1970 ^a	Kaiser ^b 1969		GHC ^c 1967	HIP (1957 Fiscal)	GHI ^d (1957 Fiscal)	HIP 1957 (Fiscal)		U.S. ^e 1967		
			Male	Female				Male	Female			
Annual admissions per 1,000	126	232	196	227	163	105.1	111.1	120.3	128.1	96.1	101.1	289
Days per admissions	12.6	12.8	11	10.7	11.4							15.9
Annual days per 1,000	1,617	2,914	2,154	2,442	1,856							3,920

^aGroup Health Association (Washington, D. C.) versus Blue Cross Association in 1970. Source: Perrott (1970).

^bKaiser-Oakland (Northern California). Source: Somers (1971: 39-40).

^cGroup Health Cooperative of Puget Sound. Source: Newman (1968: 122).

^dHealth Insurance Plan of Greater New York compared with Group Health Insurance, Inc. Source: Densen et al. (1960: 1713).

^eNational Statistics of Medicare population. Source: Lowenstein (1971: 6).

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sidered here: (1) which mode of organization is more economical to the Medicare program, (2) what mix of service was utilized in the two modes of delivery, and (3) what are some organizational correlates among pgps studied which contribute to greater economy in delivery of health services?

Probably the most agreed-on finding about prepaid group practice is the cost savings it affords because of reduced hospital admissions. In Table 1 we compile data published in other studies which reveal that even for the older population those in pgps have far fewer annual days per 1,000 in the hospital. Jones et al. (1974), using Medicare data, show that reimbursed charges per person for hospital care were lower for HIP enrollees than for open-market users. These findings were true for two years, 1969 and 1970. The same study indicates that total per capita costs to the Medicare program (including the full range of Part A and Part B benefits) were higher for HIP enrollees than for open-market users. It is one of the objectives of this study to ascertain if this pattern persists for other prepaid groups.

Description of Prepaid Group Plans

In order to accomplish the comparison between the two organizational modes, it was necessary to determine whether prepaid group enrollees had any specific advantage vis-a-vis open-market users which might make their use of health care services cheaper or more accessible or both. Therefore, a telephone interview was conducted with representatives of each pgp to determine the incentive structure of the seven prepaid groups both with respect to monthly contributions required of aged enrollees and compensation provided to the physicians. Further, because we are interested in the full range of Medicare services, data were obtained on the resource availability of all Medicare insured services: hospital care, extended care facility, home health, and outpatient as well as physician services. Additional information on selectivity patterns was obtained—whether and to what degree enrollment was open to the general public. Finally, basic data as to each plan's founding date and sponsorship were solicited.

The format of the following discussion will be to point out the extent of variation over the four dimensions: (1) organizational sponsorship; (2) resource availability; (3) incentive structure; (4) selectivity.

tivity patterns. The results of the telephone survey are summarized in Table 2.

Seven plans are analyzed:

- (1) Health Insurance Plan of Greater New York (HIP)
- (2) Union Family Medical Fund of the Hotel Industry of New York City (UF)
- (3) Community Health Association (CHA) in Detroit
- (4) Group Health Cooperative of Puget Sound (GHC) in Seattle
- (5) Kaiser Foundation Health Plan, Inc. (K-P) in Portland
- (6) Kaiser Foundation Health Plan, Inc. (K-O) in Oakland and northern California
- (7) Kaiser Foundation Health Plan, Inc. (K-LA) in Los Angeles

Organizational Sponsorship

Most (five) of the plans are community-based. That is, they are controlled by a board of directors representative of the communities involved. Also, their enrollees can originate from either group or individual subscribers in a circumscribed geographical area. Union Family of New York is an employer-employee union group. Group Health Cooperative is a consumer cooperative formed along the Rochdale principles. Important here is the principle that capital funds are raised by members.

Organizational sponsorship presumably affects the goals and policies of pgps and some variation in performance would appear to stem from this source. One study by Schwartz (1968: 223–224) contrasts consumer cooperatives and physician-sponsored plans. The comparison showed that policies of consumer cooperatives are more favorable to enrollees in four areas: (1) individual enrollment practices; (2) eligibility policies; (3) complaint procedures; and (4) medical care benefits. On the other hand, physician-sponsored plans had an easier time staffing their plans' clinics with full-time practitioners in various specialties.

The research here seeks to build on this characterization of pgps with different auspices. Unfortunately the seven groups studied do not fall into the dichotomy Schwartz studied. However, we can offer at least one prediction on the sponsorship dimension: GHC, the consumer cooperative, may demonstrate higher costs than the remain-

TABLE 2
Description of Prepaid Group Plans

HIP	Organization Sponsorship (and Date Service Began)	Resource Availability			Incentive Structure Selectivity Patterns	
		No hospital (La Guardia is not owned)	Contracts for ECF Care	Contracts for Home Health Care	(MDs) part-time commitments permitted capitation. No ban on fee-for- service practice	Open to all over 65; 75-80% are conver- sions (i.e., former members)
UF	Employer-union 1950 employees 1962 families	Contracts with two teaching hospitals	"	"	(MDs) majority are part time paid on a session basis. Employers pay monthly premium.	Open to former subscribers only
CHA	Community (primarily UAW union) 1961	Contracts with one hospital 1969 occupancy 73.5 1970 occupancy 75.9	"	"	(MDs) majority. Full-time salary	Open to all over 65 but 90% are conversions
GHC	Consumer Coop. 1947	Hospital 1969 occupancy 83.4 1970 occupancy 86.3	"	Owens & manages home health agency	"	Limited to retirees, aged workers & spouses & aged dependents of workers subject to screening
K-P	Community 1943	1969 occupancy 85.3 1970 occupancy 80.8	"	"	"	Generally open to former subscribers only
K-O	Community 1945	1969 occupancy 79.3 1970 occupancy 77.5	"	"	"	"
K-LA	Community 1942	1969 occupancy 87.6 1970 occupancy 90.0	Owens I ECF but also con- tracts out for this	"	"	"

ing groups. Thus, just as Schwartz found consumer cooperatives to have higher costs, this pure type—without physician ownership—may again prove to have higher costs than the six other pgps where ownership is not confined to the subscriber group.

Resource Availability

Four plans (three Kaisers) and Group Health Cooperative describe themselves as hospital-based—indicating that these prepaid plans finance and operate their own hospitals. Community Health Association (CHA) approaches hospital ownership because its physicians are drawn from the staff of one hospital and 85 percent of the hospital's patient load is drawn from the enrolled membership. However, because it contracts for hospital care, we cannot consider this hospital-based.¹ Health Insurance Plan (HIP) requires its enrollees to acquire supplemental hospital insurance to pay for these costs when needed. HIP physicians carry hospital appointments at various hospitals in the New York City area. Union Family contracts to provide hospital care at two teaching hospitals. Of those with hospital affiliations, the occupancy rate ranges from approximately 77 percent for Kaiser-Oakland and Portland and CHA, to 85 percent and over for Kaiser-Los Angeles, and Group Health Cooperative. Klarman has concluded that the evidence is equivocal whether shortage of available beds in hospital-based pgps creates an artificially reduced utilization rate (Klarman, 1971). It will be interesting to compare hospital based pgps costs using occupancy rate as a probe.

With the exception of Kaiser at Los Angeles (where one extended care facility is adjacent to a hospital), no prepaid group owned or operated its own extended care facility. All other plans contract to provide such care. The Kaiser plans and GHC own and operate their own home health agency. HIP, Union Family, and CHA contract to provide patients with home health services. Finally, all the plans arranged for off-hour and emergency care to be provided by an Emergency Room or Outpatient Department of their affiliated hospital.

In general, the Medicare spectrum of resources are available to

¹It was reported that hard bargaining occurs between CHA and hospital officials who contract to provide hospital care to CHA enrollees. Thus, CHA stands midway between the hospital based pgp on the West Coast and the non-hospital-based pgps of the East Coast.

the Medicare enrollees of prepaid group practices. If the plan does not own or manage the facilities or agencies, it establishes contractual relationships to provide for these kinds of services. In terms of predicting provider initiated care—costs should be highest at Union Family, which uses two teaching hospitals to care for its patients, followed by HIP, which also does not own or manage its own hospital. Kaiser-LA and GHC would be lowest in costs, since their hospitals have high occupancy rates and unlike any other plan Kaiser-Los Angeles did own and manage one extended care facility.

Incentive Structure—Physicians

To a major extent the cost savings of pgps has been attributed to the financial incentives acting on pgg physicians. The argument goes that since physicians operate within a fixed budget, their services are costs to them and not to the patient. To remain competitive, plans cannot have too comfortable a margin for cost overruns and so the "tight" system is believed to deliver health care services most efficiently (Reinhardt, 1973: 203 ff).

Administrators of each plan were asked to what extent end-of-year profits were shared as an incentive mechanism. It was thought that end-of-year profit sharing is a useful administrative tool to remind practitioners of their stake in the financial solvency of the plan. The plans varied in their use of profit sharing: HIP and Kaiser both share and Community Health Association shares indirectly through Metro Hospital's profits. Union Family and GHC do not share. On discussing this strategy, it was found that alternatives such as a yearly salary increase as opposed to a lump-sum bonus payment probably have the same effect on physician behavior. One innovation discussed by GHC offers physicians the choice of increasing their salaries by accepting more enrollees in their groups or of hiring another full-time physician. Overall, the sharing of year-end profits is only one of a number of ways in which physicians were tied to the fate of the organization.

Physicians in these prepaid groups are usually salaried (Glaser, 1970: 25), i.e., paid "a fixed amount of money scaled according to the rank of the job and paid according to the amount of time the doctor gives." All of the plans pay salaries to their full-time physicians. Salaries are often determined by the number of persons for which the particular group of physicians is responsible (capitation), but in the

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case of full-time staff, the income from prepayment is pooled and redistributed in a previously agreed-on manner.

On the other hand, part-time physicians in the plans are generally on the capitation method of compensation (Glaser, 1970: 25) receiving "a fixed annual sum for each person on a list regardless of use by patient." Thus HIP and Union Family, which contract the majority of their physicians on a part-time basis are significantly different from the remaining five plans where over 90 percent of the physician staff are full time. On the face of it, neither capitation nor salary based on group capitation (and other considerations, such as experience and scarcity of specialty) would appear to alter a physician's incentives to economize—to process patients more rapidly, and so on.

However, the distinction between full-time commitment to the plan and part-time would appear to alter behavior in various ways. Thus Freidson (1970) has discussed the motivations of the client-centered physician of the open market in contrast to the colleague-centered physician in closed groups. To the extent that providers are engaged full time, their professional behavior will center on their colleague network. Such full-time physicians who are also appointed at the plan's owned hospital would be more inclined to know well and make referrals to other physicians within the plan. Part-time physicians—who constitute the majority of the same plans where hospitals are not owned—have a more open referral network; hence we would expect more out-of-plan physician services. Weinerman (1956: 306) has focused on the generic problem: "part time medical staffs are not conducive to close professional responsibility for patient care. . . .outside physicians cannot feel the full sense of personal identification so essential to the program. Conflicts in obligation to plan and private patients arise."

The general view of physician incentives assumes that physicians are committed to the plans and that their remuneration derives largely from it. The distinction between part- and full-time commitment by physicians serves as the critical basis for the cost prediction on the incentive structure: higher costs will be evident among plans with more part-time physicians.

Incentive Structure—Enrollees

Most of the respondents were unable to tell us about possible advantages to their enrollees of using health services more than controls.

Administrators were asked who paid for the \$50 deductible and 20 percent coinsurance which Part B required of Medicare recipients. Six of the plans were unable to state definitely whether the enrollee himself, or his employer, pension plan, or union fund paid these costs. Union Family indicated that the deductible and coinsurance were paid for by the employer.

Selectivity Patterns

We inquired about the possibility of any individual old person in the community being permitted to join the plan (open enrollment). Another measure that might reflect exclusionary practices with regard to old people was a comparison of the proportion of Medicare enrollees in the plans with Medicare eligibles in the same geographic areas. To accomplish this, it was necessary to know the plans' starting dates; a plan which began prior to 1949 without open enrollment would have at least some workers who were in our oldest category, 85+.

Five of the plans started prior to 1949. One plan, Union Family, began enrolling workers in 1950 and families of employees in 1962. CHA went into operation in 1961. However, its open-enrollment policy with family coverage available for aged members provides the number of old people needed in the analysis.

Table 3 shows that most of the plans do not have a Medicare (over 65) enrollment which matches their proportion in the counties

TABLE 3
Proportion of Medicare Enrollees in Prepaid Groups
Compared with Open Market Modes
in the Same Counties, 1970

<i>Plan</i>	<i>Total Enrollees (All ages)</i>	<i>Pgp Members enrolled in Medicare—1970 (Column 1)</i>	<i>Proportion Medicare enrollees in counties (Column 2)</i>	<i>Columns 2-1 (Difference)</i>
HIP	778,057	7.0	8.9	1.9
Union Family	25,000	7.3	9.7	2.4
CHA	69,456	5.7	7.1	1.4
GHC	130,146	7.2	7.0	-0.2
Kaiser-Portland	133,000	6.7	9.8	3.1
Kaiser-Oakland	949,800	4.2	6.4	2.2
Kaiser-Los Angeles	880,600	4.0	6.5	2.5

Summary of Predictions

*Low Cost**High Cost*

(Organizational Sponsorship) [Union Family, CHA	Kaisers	HIP]	GHC
(Resource Availability) Kaiser-LA; Kaiser O., P., GHC		CHA	HIP, Union Fam.
(Physician Incentive Structure) Kaisers, GHC, CHA			HIP, Union Fam.
(Selectivity Pattern) Kaisers, Union Family		GHC	HIP, CHA

served. (In this analysis, it will be recalled, Medicaid enrollees are excluded.) The proportion of old people in the plans ranges from 4.0 percent to 7.3 percent. Only GHC had Medicare enrollees which equaled (and in this case slightly exceeded) the Medicare enrollment in the county areas served by the plans.

The more telling question concerned the policy of open enrollment. Restrictive policies concerning who may join the plan are analogous to experience rating by commercial insurance carriers. Hence if poor risks are excluded, then cost savings can hardly be held to be a function exclusively of the other organizational attributes—in particular the physician-incentive structure. Indeed, it was found that four of the plans are open to former subscribers only. HIP and CHA seem to possess liberal enrollment policies and GHC limits its aged population to retirees and aged dependents of workers subject to screening. Partial memberships are offered to high-risk cases.

In sum, the selectivity patterns show that while most of the plans have existed long enough to have retained a significant number of old members, their numbers are proportionately fewer than in the county areas. Leaving aside the issue of migration of some of the former enrollees, the policies of four of the seven groups studied ensure that no replenishment of their old dropouts takes place by prohibiting enrollment of non former group members. Two other plans permit open enrollment (HIP and CHA) with some limited screening by HIP. The last plan, a cooperative, allows members to enroll their aged dependents subject to screening. If one were to predict costs along the selectivity dimension, it would seem that lowest costs would be demonstrated by the four non-open enrollment plans, followed by the careful screening done at GHC and highest costs at HIP and CHA.

Data

The study draws on cost data derived from Social Security Administration records of payments for persons identified as belonging to one of the seven selected prepaid groups. Each prepaid group practice has a matched control group which was formed by drawing a 5 percent sample of all Medicare enrollees who lived in the designated counties which serve the prepaid group practice enrollees. The sample was based on a specified combination of digits in the health insurance claim number.

Costs for the following Medicare-covered health care services are distinguished: (1) inpatient hospital, (2) outpatient hospital, (3) extended care facility, (4) physician services (and other Part B suppliers), (5) home health care. The cost data reflect actual reimbursements to Medicare recipients in the fee-for-service system for each type of health service provided.

For physician services provided in prepaid groups, annual capitation figures are available. In addition out-of-plan physician services are included in the physician-services component so that we have a complete picture of actual costs incurred by the aged in prepaid groups. The data for the other components of the Medicare program are derived from actual payments to eligibles designated as prepaid group members.

Even though the data are fairly comprehensive with respect to the reimbursements under the Medicare program, the following qualifications should be noted. First, the sample was drawn by the Social Security Administration of all persons meeting the following requirements: (1) the beneficiary was enrolled for both Part A (hospital insurance) and Part B (medical insurance) for 1969 and 1970; (2) only terminations due to death remained in both sampled groups; (3) excluded were persons who were "state buy-ins"—individuals for whom the state paid the Part B premium; (4) excluded were members who, for reasons other than death, were part-year members of prepaid groups.

Since the data were organized to suit the needs of fiscal processors, this study lacked control over the content and format of the data source. Four independent variables figure into the analysis: enrollment mode, sex, age, and county areas. Data on health status and education were desired but could not be obtained. The dependent (cost) variables are used under the assumption that the health

level attained among enrollees in either mode is approximately equivalent.

Administrative Arrangements Made with Pgps by Medicare

This study is made possible because of special arrangements negotiated by prepaid groups with the Bureau of Health Insurance—Social Security Administration. At the time for which these data are pertinent (1969 and 1970) the prepaid groups were reimbursed for physician services and other Part B services which they provided their Medicare population.

Special arrangements are best seen by contrasting them with the usual fee-for-service Part B reimbursement mechanism. Part B requires the individual in the open-market mode to pay the first fifty dollars of his medical bills plus 20 percent of any additional medical charges. In contrast, persons who enroll in prepaid groups pay a monthly premium which is determined in the following manner: instead of charging the patient a flat fifty-dollar deductible, the prepaid group takes an average number of visits for its over-65 population and assigns an average cost per visit to each. For the time period of our data, this deductible charge averaged about thirty dollars per person per year. The rationale behind this method of calculating the proper deductible is that the prepaid group should not get from each patient what it does not incur in providing service. The coinsurance (20 percent) to be paid by the patient is an estimated average, again calculated from the experience of the prepaid group's over-65 population.

The monthly premium that individuals pay to their plan varies from plan to plan depending on the number of Medicare services provided, the costing methods used, the efficiency of the plan, and any non-Medicare covered service which the individual elects to take. For the same reasons, Social Security capitations to the plans vary.

It is evident, then, that Social Security reimbursed the plans only for physician and other Part B services which were actually used by the plan members. The data are unusual, however, because they reflect each individual's total Medicare costs, including costs incurred in the plan and costs incurred by using services outside the plan. In Tables 4 and 5 we present the observed means for the seven prepaid groups and controls in 1969 and 1970.

TABLE 4
Observed Means of Medicare Costs for
Seven Prepaid Groups and Controls — 1969

	Number of Beneficiaries	Physicians ^a	Hospital	ECF	Home Health A	Home Health B	Outpatient	Total
HIP Control	47,664 47,148	142.00 107.70	255.20 271.10	19.60 18.83	2.39 2.72	1.10 1.36	2.36 3.87	422.65 405.58
Union Family Control	4,485 37,167	154.00 118.20	261.50 286.20	11.43 18.91	2.47 3.08	.66 1.20	5.18 4.22	435.24 431.81
CHA Control	2,597 14,908	102.00 99.73	151.40 267.60	9.23 19.06	1.16 1.76	.49 .38	1.01 5.00	265.29 393.53
GHC Control	6,927 6,332	94.84 87.40	99.91 216.10	12.85 22.38	2.37 3.11	.57 .55	.76 3.17	211.30 332.71
K-P Control	7,792 5,546	84.65 81.89	103.70 203.30	13.89 21.70	12.37 5.79	.77 .73	1.26 2.26	216.64 315.67
K-O Control	27,949 18,360	116.40 114.10	176.40 238.00	12.37 28.62	7.55 5.89	2.25 1.13	2.87 5.87	317.84 393.61
K-LA Control	25,456 35,931	144.50 126.90	175.30 251.70	27.65 38.22	4.73 4.69	1.48 1.22	1.99 7.42	355.65 430.15

^aIncludes costs incurred by pcp members in plan and out of plan.

organizations and that their mode of accommodating the aged group is a product of years of experience. Finally, their leadership in the field may well influence future HMO development (M. Frankel, personal communication).

The Model

In analysis of variance, we begin by specifying a model—usually a linear model with each term showing the contribution of a unique factor or interaction of two or more factors. For each dependent variable Y , our model posits a mean level to which each factor adds or subtracts a significant sum measured in dollars. The null hypothesis is that the population means for the various levels of each factor are equal.

Since the subclasses contain disproportional numbers of cases, as is usually true in comparative analyses (non-experimental research), then the row and column variables will be intercorrelated and there will be ambiguity as to which variable should be given credit for reducing variance. The Multivariate computer program performs an orthogonalization so that it tests the rows, ignoring the columns, and the columns, ignoring the rows. It also, of course, tests for interaction. Indeed, the major advantage of this design is that it permits the manipulation of independent variables so that their effects can be separated unambiguously, making it possible to assess the main effects, providing interactions are not too large.

To test the null hypothesis it is necessary to determine what each factor contributes to the differences apparent in the dependent variables. To accomplish this, we obtain a least squares estimate of the effects of each factor. These quantities (least squares estimates) represent what we gain in preference to use of the mean; they are the explained sum of squares.

Analysis of Costs

The least squares estimates for the effect of prepaid group costs compared with controls in 1969 show that costs are reduced among prepaid group members controlling for age, sex, and region in three components of the Medicare range of services: hospital, extended care facilities, and outpatient care. (Refer to Table 6, top row). On the other hand, being in a prepaid group practice increases costs in both home health categories and for physician services. The net effect of being in a prepaid group practice in 1969 is to decrease costs

TABLE 6
Least Squares Estimates^a of Savings in Medicare Costs for Seven Prepaid Groups
1969

	Physician	Hospital	ECF	Home Health A	Home Health B	Outpatient	Net Effect	Rank
All control groups less prepaid plans	-12.01 ^b	75.15 ^b	7.76 ^b	-2.76	-.56	2.13 ^b	69.71 ^b	
Non-hospital-based								
HIP	-34.40 ^b	-13.70	-10.77 ^c	-.93	.71	1.20 ^b	-57.89	7
Union Family	-44.70 ^b	6.20	6.88	-.23	-.35	-1.78	-33.98	6
CHA	2.90	135.00 ^b	20.86	-.36	.21	3.78 ^b	162.39	1
Hospital-based								
GHC	-4.22	137.40 ^b	8.45	.97	-.47	2.45 ^c	144.58	2
K-P	.40	97.40	6.55	-5.71	-.44 ^c	.80	99.00	3
K-O	5.90 ^c	54.80 ^b	18.32 ^b	-8.54 ^c	-2.88 ^c	2.74 ^b	70.34	4
K-LA	-9.90 ^b	67.50 ^b	4.07	-4.55	-1.69	5.68 ^b	61.11	5
Grand Mean	119.93	249.34	30.36	6.12	1.69	3.56	411.00	

^aThese estimates are based on fitting the complete model and represent the estimated amount incurred by pcp enrollees subtracted from the amount incurred by controls. Therefore, a negative LSE indicates that the prepaid group exceeded its control in costs.
^bP < .0001 (NOTE: This stringent significance level was selected because of the very large populations being compared and equal variance assumption.)
^cP < .01

TABLE 7
Least Squares Estimates of Savings in Medicare Costs for Seven Prepaid Groups — 1970

	Physician	Hospital	ECF	Home Health A	Home Health B	Outpatient	Net Effect	Rank
All control groups less prepaid plans	-16.60 ^a	63.10 ^a	-4.45	-3.60 ^a	-.69 ^a	2.44 ^a	40.20 ^a	
Non-hospital-based								
HIP	-32.07 ^a	13.46 ^b	-1.08	.24	.08	1.49 ^a	-17.88	7
UF	-33.43 ^a	29.09	5.76	-.82	.23	-2.41	-1.58	6
CHA	-25.14 ^b	54.47 ^b	-27.58	-1.65	.10	3.23	20.24	4
Hospital-based								
GHC	-8.33	118.05 ^a	5.10	-.29	-.11	2.50 ^b	116.92	1
K-P	-9.30	114.05 ^a	13.51 ^b	-8.84 ^a	-2.13 ^a	1.66	108.95	2
K-O	5.13	65.51 ^a	6.74	-10.52 ^a	-1.69 ^a	5.51 ^a	70.68	3
K-LA	-13.18 ^a	46.96 ^a	-33.57 ^a	-3.32	-1.27 ^b	5.09 ^a	1.71	5
Grand Mean	127.23	266.26	23.55	4.72	.90	4.87	427.53	

^a = $p < .0001$

^b = $p < .01$

in the amount of \$69.71. Data for 1970 are depicted in Table 7. Cost savings appear among prepaid groups in the hospital and outpatient department. Like the data for 1969, increased costs (negative savings) are seen in physician services and home health service categories. Interestingly, in 1970, extended care facility costs are somewhat greater for prepaid group enrollees compared with controls. The net effect of being in a prepaid group practice in 1970 is to decrease costs by \$40.20.

Overall, costs to the Medicare Program are reduced among enrollees in prepaid groups. These findings are based on the model fitted for the four independent variables and their associated levels. Thus, the model would suggest that the findings of Jones et al. (1974) are not predictive with respect to overall costs. Furthermore, if physician costs can be considered an index of access, it appears that increased access to physicians exists for enrollees in prepaid groups who not only visit group physicians but go to the open market as well. Here, previous findings are confirmed. More importantly, homebound services also were greater for pgp enrollees—an unexpected finding which contradicts previous published estimates (Brody, 1971: 156)

In connection with our interest in each organization, Tables 6 and 7 show physician costs for the seven prepaid groups and each control. It is evident from the negative savings in least squares estimates, that very substantial increases in physician services are seen among HIP enrollees compared with its control group and for the enrollees of Union Family. Less substantial but nevertheless significant increases in physician services are depicted by enrollees of the Kaiser-Los Angeles group and the Group Health Cooperative enrollees. Virtually no difference is noted between Kaiser-Portland enrollees and their control group—and very little difference (statistically not significant) is seen with respect to Community Health Association and its control. Only Kaiser-Oakland enrollees showed some savings in physician services compared with their controls. For 1970, the same pattern prevails but with even more plans showing greater physician costs than controls. Kaiser-Oakland's savings in this area are not statistically significant in 1970 (refer to Table 7).

Hospital Costs

Data presented in Table 6 show that, for the most part, hospital costs are reduced in pgps which own and manage their own hospitals. In 1969, however, CHA managed to reduce its hospital costs far more

than all other plans GHC excepted. Two factors may have contributed to the excellent performance of CHA. First, "hard bargaining" occurred between the administrators of the Plan and Metro Hospital—the contracted facility which provided all inpatient care. Unlike HIP, for example, which requires its enrollees to purchase hospital insurance elsewhere, CHA included this in its negotiated package of offered services. Second, there are twice as many non-whites in CHA as in its control group. Perhaps the hospital contract combined with racial make-up of CHA creates the reduced utilization in hospital service.

In 1970 (refer to Table 7), HIP demonstrated small but significant savings in hospital costs resulting probably from the Incentive Reimbursement Experiment (Jones et al., 1974), which placed a nurse in six of the 30 clinics "to carry out general maintenance activities with the group's elderly who were considered to be at high risk of hospitalization" and arranged for early discharge planning with hospital personnel for group members. CHA again showed savings but far less dramatic than those in 1969.

It is interesting to note that in 1969 Kaiser-Oakland showed least impressive savings in hospital costs compared with the other hospital-based pgps. Since Kaiser-Oakland had the lowest occupancy rate of all the hospital-based groups, it seems that its performance reflects a looser, less constrained hospital-bed resource situation. In 1970, Kaiser-Los Angeles reflected least cost savings in hospital care among the Kaiser groups.

Again, for hospital-based pgps, the 1970 occupancy rate was lowest in Kaiser-Oakland, but that year Kaiser-Los Angeles showed least savings (Tables 6 and 7). Clearly factors other than limited bed resources are contributing.

Extended Care Facilities and Home Health Care

All the prepaid groups with the exception of HIP saved in extended care facility costs compared with their controls (refer to Table 6). Only Kaiser-Oakland, however, showed a large and statistically significant savings. The relatively weak performance of this pgp in reducing hospital costs may be due in part to the lack of transfer of the aged patient to an extended care facility. This argument suggests that Kaiser-Oakland, instead of complementing hospital care with ECF care, kept patients in the relatively ample hospital system. Cost

savings in ECF care by Community Health Association is apparently big, but our confidence in this estimate is low. Finally, the higher ECF costs of HIP compared with controls parallels their increased hospital costs.

In 1970, Kaiser-Oakland again shows ECF cost savings, but they are less significant, which is in line with its greater savings in the hospital component. This year, Kaiser-Los Angeles, the only ppg with its own ECF, exceeded costs of controls. If CHA showed cost savings in 1969, it demonstrates cost increases in 1970, but they are not statistically significant. Finally, HIP in 1970 has become more like its control and has saved in ECF care compared to 1969 (refer to Table 7).

Home health Part A cost differences between each prepaid group and its control are negligible in all but the three Kaiser groups where negative savings are displayed. Even in Kaiser-Los Angeles, however, the differences are not significant. Part B home health costs are also considerably higher in the Kaiser-Oakland group compared with its control. Less significant cost increases are also seen in the Kaiser-Los Angeles group. Cost patterns are almost identical for 1970 and for 1969. Kaiser-Portland joins the other Kaiser Plans by increasing Part B costs significantly relative to its control (Table 7).

Overall, viewing ECF and home health cost estimates, it appears that Kaiser-Oakland is unique in saving on ECF care and spending on home health care. Kaiser-Portland and Kaiser-Los Angeles spend about the same as their controls on ECF care but exceed their controls in home health care. It seems that home health care in the Kaiser system is used to a greater extent than ECF care, which is contracted out because these closed systems have incorporated home health care into their range of services and timely transfer of patients to home health service within the system is easy. Indeed, it might be suggested that in these tight systems, home health services are used as substitutes and not merely complements to hospital-based health care. To a lesser extent, the data suggest that the Kaiser organizations prefer to substitute home health services (which are operated by the plans themselves) not only for hospital care, but also for extended care facility which is generally contracted out. The obvious exception to this is Kaiser-Los Angeles ECF costs in 1970, where greater costs are evident in addition to more home health costs. This same plan, however, as noted above,

saved more hospital costs in 1970 than in the previous year. Substitution of home health for ECF care is especially evident in Kaiser-Oakland.

Despite the apparent substitution of less expensive (home health) for more expensive (hospital) health care services by the Kaiser plans, these groups do not save as much vis-à-vis their controls as do Community Health Association and Group Health Cooperative in 1969. The greatest departure of a prepaid group from its control in 1970 was Group Health Cooperative, followed by Kaiser-Portland. In general, the greatest dollar savings are evidenced by groups which depart from their controls significantly in hospital care, less so in ECF care, and have virtually identical costs in home health care compared with controls.

Hospital Outpatient Department

Finally, outpatient savings are generally evident for each ppg compared with its control. Union Family, however, shows an insignificant increase compared with its control (Table 6). Data from 1970 reveal an identical pattern with Union Family's increase in outpatient costs approaching statistical significance (Table 7). These findings are probably a consequence of the fact that outpatient service is only used at off hours in prepaid groups. In contrast, outpatient services are a continuously available option in the fee-for-service system. In effect, it is argued that persons in the open-market modes employ outpatient clinic services as substitutes for visits to physicians in their offices. This view is supported, in part, by findings of Hill and Veney (1970), who point out that outpatient services are not substitutes for hospital services.

Discussion of Net Savings of Each Group

At this juncture, having discussed the individual plan's results on each dependent variable, we will discuss the overall or net effect of each plan contrasted with its control group. This analysis, it should be remembered, does not look at the simple observed means; rather, least squares estimates are used in an effort to subtract out the unique effect of differences in age distribution, sex distribution, and regional variation. What is left, we hope, is the effect of each organization reflecting its differences in charges to the Social Security Administration's Medicare Program.

Referring to Table 6, it is evident that the greatest cost savings to the Medicare Program are provided by CHA and GHC. These are the stars of the predictive model. What are the organizational similarities? If we go back to the summary of predictions, we note that, ironically, in two of the four dimensions—sponsorship and selectivity patterns—GHC and CHA respectively were predicted to have the *highest* costs. The two groups are very different in sponsorship—a cooperative of long standing in the case of GHC is very unlike a recently recomposed, community-based (formerly UAW-sponsored), prepaid group. Furthermore, as depicted in Table 3, GHC has a slightly higher proportion of Medicare enrollees than those enrolled in the county area, while CHA ranks second, with only 1.4 percent fewer Medicare members than those living in the area it serves.

On the resource-availability dimension, GHC and CHA are in the middle range of the predicted costs. The pgps are associated with hospitals with varied occupancy rates, 83 percent in the case of GHC, 74 percent for CHA. Finally, with respect to the physician's incentive structure, both groups with the Kaiser plans are on the predicted low-cost end of the continuum. How, then, do these two plans, which come together only on the physician-incentive structure, differ from the Kaiser groups?

It might be suggested that both CHA and GHC are like each other and different from Kaiser in the number of enrollees and the number of clinics in the plans. CHA has only 2,600 members and five health centers. GHC has 6,900 members and eight clinics. In terms of the number of enrollees, among the predicted low-cost Kaiser groups, the Portland group is closest to the GHC group with 7,800 enrollees. Interestingly, and possibly significantly, this group (Kaiser-Portland) ranks third in the cost savings to the Medicare program. In 1970 Kaiser-Portland assumes second place, showing slightly greater savings compared with its control than in 1969. CHA in 1970, inexplicably, to this writer, reduced its savings relative to its control, especially in hospital costs. (In general, the range in the net effect has narrowed in 1970 compared with 1969. Refer to Tables 6 and 7.)

Data for both years suggest that, while a critical mass in terms of enrollment is a prerequisite to formation of a pgp, it may be that significant cost savings can only be realized when the number of enrollees in any one pgp is kept from growing too large. In effect,

this suggests another relevant dimension: absolute size of the prepaid group.

It should be noted that while Union Family has only 4,500 enrollees and five health centers, the nature of its hospital linkages and the physicians' incentive structure seem to act as effective blocks against economies. Thus, the organizational dimensions that have been investigated are not inconsequential. Indeed the two groups most often predicted to have higher costs, HIP and Union Family, do in fact, demonstrate this pattern.

Some theoretical support for the benefits of smaller numbers enrolled in pgps is provided by Auger and Goldberg (1974:368) in their discussion of consumer and provider moral hazard. They suggest that prepaid groups (including foundations) vary in the effectiveness with which they overcome the "third party syndrome" and "the prepayment syndrome." Third-party syndrome occurs under insurance where a consumer's demand for medical care is increased because it is paid for by a distant and impersonal business entity toward which the consumer has (Auger and Goldberg, 1974, 367) "little sense of responsibility, loyalty or trust." The prepayment syndrome is akin to the insurance syndrome, since again the consumer may wish to consume additional medical services in order to recoup his premium in terms of service.

Auger and Goldberg (1974:376) suggest that because the salient and nearby prepaid group incurs the cost of his care, and because his behavior can be monitored, he is more likely to feel more of a "sense of responsibility" toward the prepaid plan than toward a distant third party. "The degree to which this constraining effect is realized depends upon the size of the plan and on the way in which it is organized. The consumer is likely to feel a stronger sense of belonging if he is a member of a small, local health plan." Our data of Medicare costs for physician services cannot validate this point of consumer behavior. This is because capitation to the plans varied not only by the number of visits old people made, but by the different benefit packages, overhead costs, etc., that figured into each plan's reimbursement.

However, these authors (Auger and Goldberg, 1974:379) further maintain that physicians in smaller groups will adhere to the incentives to contain costs by minimizing hospital stays. "As the size of the firm increases and ownership is diffused, the personal constraint on the physician's behavior recedes in importance and the im-

portance of the third party syndrome will increase." In large pgps, these authors suggest, physicians face the Prisoners' Dilemma: if all follow the behavior pattern they will be worse off than if none follows it; but they all have incentives to cheat—to follow the behavior pattern while hoping that others restrain themselves. In sum, the varied savings to the Medicare program among the groups we studied probably result from limited hospital resources. Further investigation is needed to ascertain whether some social psychological factors operate with greater force for economy on physicians in the smaller plans.

Conclusions

Evidence has been presented which indicates that major cost savings to the Medicare program occur in prepaid groups which reduce hospital costs. While physician costs are generally higher among enrollees in pgps (as a result of out-of-plan use) overall, the membership in these closed practices incur lower costs than Medicare enrollees in the counties which these pgps service. The problem of selectivity of prepaid groups for healthier or more cooperative aged persons limits our ability to assert that our findings are exclusively the effect of the mode of health service delivery.

In terms of the Medicare mix of services, prepaid group enrollees generally incur higher costs for physician services and home health care, while those in the open market incur higher costs for hospital care and outpatient services. Some evidence is presented to support the concept that it is the smaller hospital-affiliated ppg which effects greatest cost savings.

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