

# Health Status and Health Care Use by Type of Private Health Coverage

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THE HEALTH STATUS AND THE HEALTH CARE utilization of members of prepaid group practices relative to members of other health maintenance organizations is a subject of continuing interest and some controversy. The interest is raised by the fact that almost all studies have shown a lower volume of inpatient hospital use among members of prepaid group practices than among other populations, a situation recently reviewed by Luft (1980). The controversy relates to the reasons why this difference exists.

In an attempt to obtain pertinent information on this problem we sought data on the health status and health care utilization of populations under age 65 enrolled in prepaid group practices and in other types of private health coverage.

## Source of Data

Each year the National Center for Health Statistics obtains extensive information through the Health Interview Survey (HIS) on health status and health care utilization, based on a sample of about 116,000 people in the civilian noninstitutional population of the United States.

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The HIS for 1975 contained detailed questions regarding the types of private health coverage of the respondents. Particular emphasis was placed on defining the population with private plans who were members of prepaid group practices (Choi and Ries, 1978). In the HIS study (p. 1) "members of prepaid group plans were defined as including both those who belonged to plans classified as health maintenance organizations (HMO) and those who belonged to other prepaid group practice plans."

Thus the major distinction in the HIS survey, and in this paper, is between those in prepaid group practice plans (PGPs) and those with all other forms of private health care coverage. The latter category includes those who were members of individual practice associations (IPAs). In many recent studies, including some in this issue of the *Milbank Quarterly*, the term "health maintenance organization" (HMO) is used to encompass a variety of arrangements that include both prepaid group practices (PGPs) and individual practice associations (IPAs).

This paper compares those in PGPs with those in all other forms of private health care coverage, including IPAs.

The questions used in the HIS to obtain the respondents' type of health coverage were complex. The major exclusions from private health coverage were:

#### Government Plans

- Medicare
- Crippled Children's Services
- Medicaid
- Civilian Health and Medical Program of the Uniformed Services (CHAMPUS)
- Veterans' benefits

#### Limited Plans

- Accidents only (e.g., school)
- Dread diseases only (e.g., polio, cancer)
- Liability insurance (e.g., automobile)
- Income maintenance (i.e., whether or not in hospital)
- Work loss benefits
- Dental only

The plans included are defined as those "specifically designed to pay all or part of the hospital, doctor, surgeon or other medical expense of the insured individual." There is some ambiguity as to whether a major medical plan that supplemented basic coverage would be considered as one or as two plans by a respondent. Indemnity plans, which pay a fixed number of dollars per hospital day, were included, regardless of the percentage of actual hospital charges these dollars might pay for.

The names of all plans reported by the respondents were listed by the surveyors. The classification into "PGP" and "all other" was based on decisions by the survey staff and not on the respondents' opinion of whether they or other household members were in an HMO. As noted above, individual practice associations (IPAs) were classified as other private coverage.

The HIS realized that respondents may not have been familiar with the terms health maintenance organization or prepaid group practice. In fact, only about one-half of the sample in a prepaid group practice—as determined by their plan name—knew that they were in an "HMO."

In summary, the HIS was unlikely to result in errors of omission on private health coverage. However, there was some chance that sophisticated respondents could have overstated their overlapping or duplicate coverage and all respondents probably included individual hospital indemnity plans as coverage, regardless of how little these plans paid per day. For our purposes, the major limitation of the data source was the inability to distinguish respondents who had been offered an HMO choice from those who had not.

## Selection of the Subsample for Analysis

A published report from the National Center for Health Statistics provides considerable information about the characteristics of those with PGP coverage, as contrasted with those having other private coverage or no private coverage (Choi and Ries, 1978). The data showed that the population enrolled in a prepaid group practice plan, when compared with those with other private coverage, had a greater percent of persons with limitation of activity, a higher number of

restricted-activity days per person per year, and a greater number of bed-disability days per person per year. They also showed that those in the PGP population had fewer short-stay hospital discharges per hundred persons per year but somewhat more doctor visits per person per year than those with fee-for-service coverage only.

We reviewed many unpublished tables from the 1975 HIS provided by the National Center for Health Statistics. The percent of respondents who claimed to have both PGP and other private coverage seemed high. In fact, some prepaid group plans that were not hospital-based provided hospital coverage through another private carrier such as Blue Cross. This is much more characteristic of PGPs in the East than of those in the West, which are more likely to have their own hospitals. This situation favored the use of data from western areas. In the present study, those with both PGP and other private coverage are classed with the PGP members.

We analyzed data on the health care coverage of the population under age 65 from HIS tapes for each of the western standard metropolitan statistical areas (SMSAs). Because of possible differences in health status and in patterns of health care utilization even within the West, we sought a more homogeneous area and selected those California SMSAs with sizable PGP enrollments for further study.

The study sample is shown in Table 1. As of July 1975, the eight metropolitan areas listed had a total population of 16.97 million of the state total of 19.68 million. It is probable that over 95 percent of the PGP members in California resided within one of these eight metropolitan areas. About one-third of the sample were in northern California and two-thirds were in southern California. Each of these areas was designated as "self-representing" by the HIS. In effect, the sample size in each of these SMSAs was proportional to its population, a fact that permitted pooling the samples without concern for sampling ratios.

These eight metropolitan areas provided a sample of 8,449 persons under age 65, of whom 1,278 were in prepaid group practices. Another 4,900 had other forms of private coverage, and 2,271 had no private coverage. Thus, 26.9 percent of the population under age 65 in these areas had no private health care coverage. This figure was higher than expected and may relate to adverse economic conditions in 1975.

The column to the right in Table 1 gives PGP members as a percent

TABLE 1  
HIS Sample, under Age 65, by Private Health Coverage Status in Selected California Metropolitan Areas (1975)

Metropolitan Area*	Number of People in Sample by Type of Health Coverage			No Private Coverage as a Percent of All	PGP as a Percent of All with Any Private Coverage
	PGP	Other Private Coverage	No Private Coverage		
Northern California					
San Francisco-Oakland SMSA	322	779	387	26.0	29.2
Vallejo-Napa SMSA	24	53	54	41.2	31.2
Santa Clara County	76	451	140	21.0	14.4
Sacramento SMSA	89	248	130	27.8	26.4
Subtotal	511	1,531	711	25.8	25.0
Southern California					
Los Angeles City	254	674	343	27.0	26.8
Other L. A. County	322	1,273	559	26.0	20.2
San Bernardino-Riverside Counties	66	300	234	39.0	18.0
San Diego SMSA	73	364	221	33.6	16.7
Orange County	52	738	203	20.4	6.6
Subtotal	767	3,369	1,560	27.4	18.3
Total People	1,278	4,900	2,271	26.9	20.7

\*Each of these areas is a standard metropolitan statistical area (SMSA), although the county names have been used for some areas. Los Angeles City and other L.A. County together comprise Los Angeles County, which is the Los Angeles-Long Beach SMSA.

of all those with private coverage in each of these study areas. The PGP market share was 20.2 percent of those with any private coverage.

The percent of the sample population who had no private health care coverage for each age under 65 is shown in Figure 1. Some of the variation by age is caused by the relatively small samples in the 1-year age intervals. There were nevertheless important and real differences by age. Over 40 percent of persons aged 22 and 23 had no private health coverage, and the figure was well over 30 percent for each age between 19 and 25. Many of these young adults could have had problems in obtaining private health care coverage since many were too old to continue coverage on their parents' health plans and had no suitable opportunity for joining a group to replace this lost coverage. People in this age group frequently have temporary work or work in industries where group health coverage is not common. Although they could obtain individual coverage, limited incomes and good health may discourage its purchase.

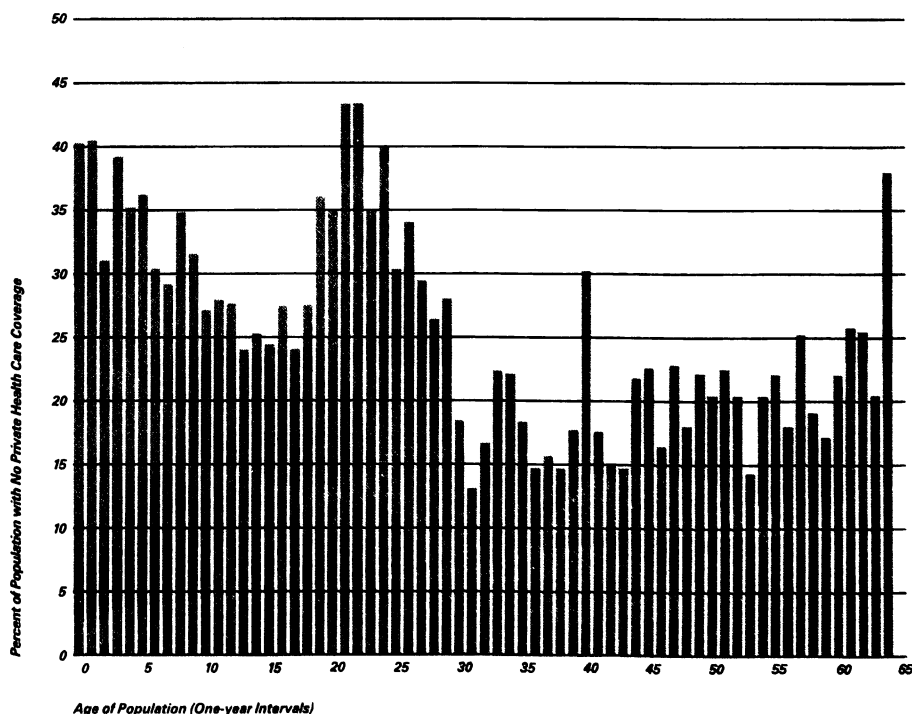


FIG. 1. Percent of population with no private health care coverage, by age of population, in eight California SMSAs (HIS 1975).

Over 40 percent of those under age 2 had no private health care coverage. Their mothers were concentrated among those in their early twenties because age-specific birthrates peak for women in this age category. This gap in private coverage for young mothers and their infants contributes to the substantial Medicaid involvement with childbirth. As children get older, fewer are without private health care coverage. The percent was a minimum for those of high-school age.

Among adults, absence of private health coverage was lowest among those aged 30 to 40, and rose gradually after that. (The peaks in Fig. 1 at ages 40 and 64 were probably due to chance.)

Figure 2 shows the percent of those with private health care coverage who were enrolled in prepaid group practices. Apart from the variation caused by sampling, there are no major peaks and valleys. There is a slight decline in the PGP market share with increasing age from birth through 43 and a somewhat lower market share among those aged 44 through 64. The average PGP market share is higher among those under 18 than the average for all age groups (i.e., 20.7

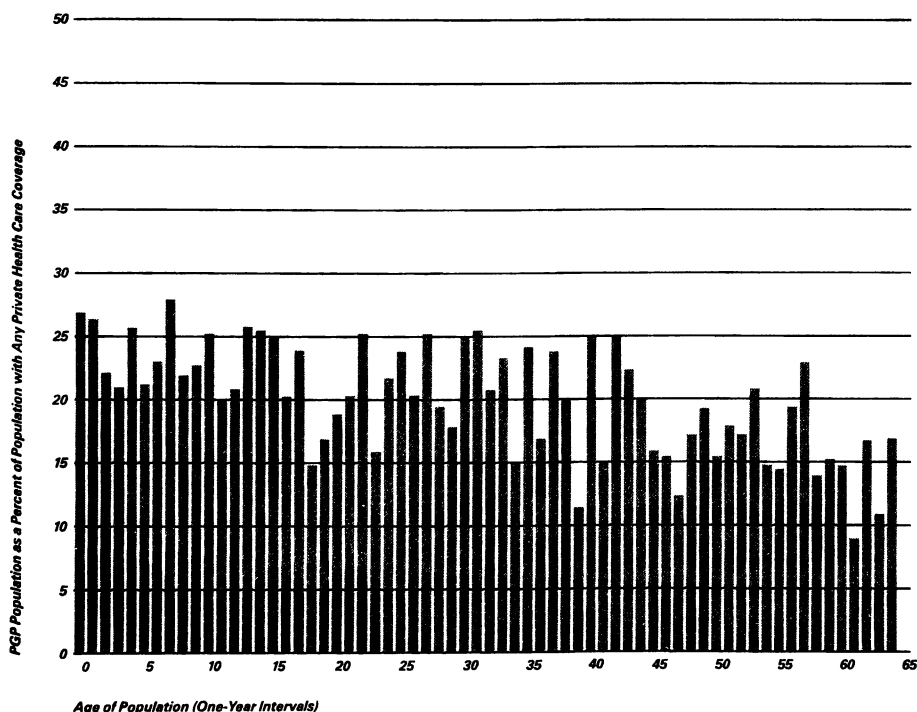


FIG. 2. Population with prepaid group practice coverage as a percent of population with any private health care coverage, by age of population, in eight California SMSAs (HIS 1975).

percent), which suggests that the PGP had more attraction for families with dependent children than did the alternative carriers.

This information on PGP market share by age cannot be used to determine the relative health status of those in PGPs and those with other private health care coverage. For example, one might believe that those in the PGP had fewer chronic conditions because the PGP share of those in the older age groups was less. But this conclusion depends on the assumption that the age-specific prevalence of chronic conditions in the PGP population is the same as or less than for those with other private plans. Direct measures of health status of populations by type of health care coverage are needed to determine their relative health status.

## Health Status Findings

Information on the percent of persons in the sample with limitation of activity due to one or more chronic conditions is given in Table 2. Among those under age 65, heart conditions were the leading cause of such limitations, with hypertension and asthma also important. However, various conditions or impairments of the musculoskeletal system formed the largest group of those with such limitations (National Center for Health Statistics, 1977). The percent of persons

TABLE 2  
Limitation of Activity Due to Chronic Conditions; Percent of People under Age 65, by Type of Health Coverage, in Selected California SMAs (1975)

Limitation of Activity Due to Chronic Conditions	Type of Health Coverage		
	PGP	Other Private Coverage	No Private Coverage
Percent unable to carry on major activity	1.0%	1.1%	4.6%
Percent limited in amount or kind of major activity	6.0	5.4	6.5
Percent otherwise limited in activity	4.1	4.3	4.1
Total percent limited in activity	11.1%	10.8%	15.2%
Average number of chronic conditions causing limitation in activity per person with limited activity	1.30	1.29	1.43



having any limitation in activity due to a chronic condition was slightly higher (11.1 percent) in the PGP sample than in other forms of private coverage (10.8). The highest percent (15.2) occurred among those who had no private coverage.

Table 2 also gives the average number of chronic conditions causing limitation per person with limited activity. The average for both categories of those with private coverage is similar but is somewhat higher for those with no private coverage.

Self-appraised health status is an important explanatory variable for respondents' use of hospital services. The multiple regression models of Newhouse and Phelps (1976) illustrate the empirical use of the variable. Although the health status question is subjective, the respondents' replies may be a combination of their actual health status and their opinion regarding it. Both aspects can contribute to respondents' use of health services. The self-appraised health status by health care coverage is shown in Table 3. The responses of the PGP sample and of the sample with other private coverage are almost identical in distribution. In contrast, the health status of those with no private coverage is somewhat worse than for those with private coverage.

The restricted-activity day is another measure of health status used by HIS and is defined (Bureau of the Census, 1975) as "one on which a person cuts down on his usual activity for the whole of that day because of an illness or an injury." Table 4 gives annual restricted-activity days per person (based on a 2-week sample period) by type of

TABLE 3  
Self-Appraised Health Status of HIS Sample under Age 65, by Type of  
Health Coverage, in Selected California SMAs (1975)

Self-Appraised Health Status	Type of Health Coverage		
	PGP	Other Private Coverage	No Private Coverage
Excellent	57.4%	56.9%	43.3%
Good	33.4	34.5	42.0
Fair	7.7	6.7	9.8
Poor	1.4	1.6	3.6
Not reported	0.2	0.3	1.3
Total	100.0%	100.0%	100.0%

TABLE 4  
Annual Restricted-Activity Days per Person\* for HIS Sample under Age 65  
by Type of Health Coverage in Selected California Sites (1975)

Type of Restricted-Activity Days	Type of Health Coverage		
	PGP	Other Private Coverage	No Private Coverage
Number of bed-disability days	6.3	5.9	9.4
Number of other restricted-activity days	14.9	12.0	14.1
All restricted-activity days	21.2	17.9	23.5

\*Based on a 2-week recall period.

health coverage. Note that these restricted-activity days include those due to either acute or chronic conditions. The number of days for PGP members was slightly higher than for those with other private coverage, and highest for those with no private coverage. These data show that total restricted-activity days resulting from chronic or acute conditions are somewhat higher among those in prepaid group practices than among those with other private coverage.

### Physician Visits

A physician visit is defined by HIS as "consultation with a physician in person or by telephone, for examination, diagnosis, treatment or advice. The visit is considered to be a physician visit if the service is provided directly by the physician or by a nurse or other person acting under a physician's supervision."

Data on physician visits by type of health care coverage are given in Table 5. The number of physician visits per person per year was slightly higher for those with no private coverage and lowest for those with other private coverage, with an intermediate figure for those in PGPs, but the differences were small. The percent of those who had made at least one physician visit in the previous 12 months was highest for those in a PGP. The number of physician visits per person per year for those who had made at least one visit in the past 12 months was highest for those with no private coverage and lowest for those in a

TABLE 5  
Physician Visit Measures for HIS Sample under Age 65 by Type of Health Coverage in Selected California SMSAs (1975)

Physician Visit Measures*	Type of Health Coverage		
	PGP	Other Private Coverage	No Private Coverage
Number of visits per person per year	4.15	4.05	4.33
Percent with one or more visits in past 12 months	65.7%	60.0%	57.9%
Number of visits per person per year for those with at least one visit in past 12 months	6.32	6.75	7.48

\*Based on 1-year recall period.

PGP. Note that the data for physician visits (and those for hospital episodes) included all such services whether or not paid by the PGP.

Both doctor visits and hospital episodes were based on a recall period of 1 year. In contrast, the question on HMO coverage pertained to the time of the survey. There was no way to determine the health coverage status of the sample at the time of each doctor visit (or for each hospital episode). This should not result in bias if health care use does not differ substantially for those who changed coverage within the study year. A paper on ambulatory services used by Kaiser Foundation Health Plan members in Oregon (Mullooly and Freeborn, 1979) stated that, in general, these findings suggest that length of time in plan does not affect ambulatory care use.

## Hospital Use

The portion of the survey relating to hospital use was based on respondent recall for the 12 months preceding the interview and thus depends on the accuracy of recall for this period. (Most reports of HIS data use a 6-month recall period for hospital utilization.) All short-term episodes were included regardless of their location. The study includes stays in federal hospitals and in hospitals outside the

respondents' areas of residence. For the prepaid group practice members, the hospital stays include those in facilities belonging to or associated with the PGP as well as other hospital stays, whether or not authorized and paid for by the PGP. Thus the utilization data include all services, even those not included in a PGP's utilization data. This is a potential improvement over data derived only from the records of PGPs and other third parties.

It is important to keep in mind that the survey was limited to the civilian, noninstitutional population (e.g., excluding residents of penal institutions and nursing homes). Active military personnel are excluded but their dependents are included, provided they did not live in group quarters.

Obviously, decedents could not be interviewed nor were their survivors interviewed about health use of decedents. This causes an understatement of health care use, particularly hospital services among the aged with high death rates. But this leads to little error in reported hospital use for the under-65 population studied here because their death rate is very low.

There was some concern that the sample size might not be adequate to provide comparative data on short-term hospital use, since such care is relatively uncommon among those under age 65. However, the sample provided a total of 919 stays and 5,585 short-term hospital days. The greatest length of stay observed for any hospital episode in this sample was 90 days, and there were a number of other observations between 60 and 90 days. Thus these aggregate data are not skewed by a few cases with excessively long stays.

The data on hospital use rates by type of health coverage are shown in Table 6. The lowest rate of hospital use in days per 1,000 persons per year occurred for the PGP members, and the highest for those with no private coverage. Despite the fact that those in the PGP are similar to those with other private coverage in their general health status, limitations of activity, and chronic conditions, the days per 1,000 were 22 percent lower for those in PGPs. Just over half of this reduction was due to shorter lengths of stay; the remainder was due to fewer episodes per 1,000 persons per year.

These hospital utilization figures follow the conventional approach of omitting well newborns but including sick newborns and obstetric cases. The Health Interview Survey determined the reasons for each hospitalization, but these data are on a separate tape that has not yet

TABLE 6  
Annual Short-Term Hospital Use\* per 1,000 in HIS Sample under Age 65,  
by Type of Health Coverage

Hospital Use	Type of Health Coverage			
	PGP	Other Private Coverage	No Private Coverage	All Persons in Sample
Days per 1,000 persons per year	469.5	604.1	891.7	661.0
Episodes per 1,000 persons per year	93.1	104.6	126.4	108.8
Average length of stay (days)	5.04	5.78	7.05	6.08
Estimated nonobstetric episodes per 1,000 persons per year	75.1	91.7	100.9	91.8

\*Excludes well newborns.

been analyzed. The sample under age 1 has been used as a proxy for obstetric deliveries in the preceding 12 months, since almost all deliveries occur in hospitals. The number of deliveries is not exactly equal to the number of children under the age of 1. The small number of stillborns and infant deaths tends to offset the small number of multiple births. Thus the annual volume of obstetric deliveries should be very close to the number of children under the age of 1.

The estimated nonobstetric episodes per 1,000, shown at the bottom of Table 6, were derived by subtracting the obstetric deliveries (Table 7) from all hospital episodes.

TABLE 7  
HIS Sample under Age 65 and under Age 1, by Type of Health Coverage,  
in Selected California SMSAs (1975)

HIS Sample	Type of Health Coverage			
	PGP	Other Private Coverage	No Private Coverage	All Persons in Sample
A. Number under age 1	23	63	58	144
B. Number under age 65	1,278	4,900	2,271	8,449
C. Crude birthrate per 1,000 under age 65 (A/B) $\times$ 1,000	18.0	12.9	25.5	17.0

Estimated obstetric delivery data by type of coverage are presented in Table 7. The figures in line C are simply obtained from the relation  $(A/B) \times 1,000$  and are estimates of crude birthrates for the samples of members with different types of health care coverage. The estimated crude birthrate of those with PGP coverage was almost 50 percent higher than for those with other private coverage (18.0 vs. 12.9). The highest rate was found for those with no private coverage, 25.5 per 1,000. About 40.3 percent of all those under age 1 in the selected California SMSAs had no private coverage.

Adjustments for obstetric hospital care are important since the admission rate per obstetric delivery is not likely to be changed by the mother's health care coverage. Furthermore, the number of nonobstetric admissions associated with pregnancy or sterilization can equal those for obstetric deliveries—e.g., tubal ligations, some hysterectomies, abortions, pre- and postpartum complications (National Center for Health Statistics, 1980). Hence, the magnitude of the difference between hospital admission rates for PGP and for other types of private health coverage, exclusive of all pregnancy and related conditions, was greater than shown.

## Government Workers

In the State of California, all workers with Federal Employee Health Benefits in the study area were offered Kaiser Foundation Health Plan and some other PGPs under a plural- or dual-choice system. In addition, all State of California employees were offered similar plural choices if they resided in the study areas. The situation for local government employees including school districts was not as uniform but the great majority of these were also offered a PGP choice in the metropolitan areas included in the study. Hence government workers were an identifiable large pool of eligibles with a PGP choice through their work. For this reason, they were studied separately.

There were 697 government workers under the age of 65 in the sample. Of these, 220 or 31.6 percent were in a PGP, 56.4 percent had other private coverage, and 12.1 percent had no private coverage (some of the latter may have had veterans' benefits, CHAMPUS, or other government coverage). A major proportion of these plans for government workers required an employee contribution, which could

explain why some had no private coverage. In addition, there were a few workers who were not eligible for coverage because of the nature of their work or other conditions of employment.

The data in Table 8 summarize the findings for this sample of government workers under age 65. (Note that these data are for workers only and do not include the workers' dependents.) The data on line a indicate that a higher percent of those in the PGP were

TABLE 8  
Summary of Health Status and Measures of Health Care Use by Type of  
Health Coverage for Government Workers\* under Age 65  
in Eight California SMSAs† (1975)

Health Status and Measures of Health Care Use	Type of Health Coverage		
	PGP	Other Private Coverage	No Private Coverage
Sample size: number of workers	220	393	84
Limitation of activity due to chronic conditions			
a. Percent with a limitation	13.6%	10.2%	9.5%
b. Number of chronic conditions causing limitations per person with limitations	1.37	1.20	1.00
Self-assessed health status			
c. Percent "fair" or "poor"	11.4%	10.7%	7.1%
Restricted-activity days per year‡			
d. Bed-disability days	3.4	6.9	5.3
e. Other restricted-activity days	12.1	15.8	10.5
f. Total restricted-activity days	15.5	22.7	15.8
Physician visits§			
g. Per person per year	4.47	4.07	3.60
h. Percent of persons with one or more in past year	70.9%	65.9%	58.3%
Hospital Care§//			
i. Episodes per 1,000 person-years	82	109	95
j. Average stay in days	4.44	5.34	5.77
k. Days per 1,000 person-years	364	582	548

\*Includes federal, state, and local government workers; excludes their dependents.

†San Francisco-Oakland; Los Angeles-Long Beach; Riverside-Ontario-San Bernardino; Vallejo-Napa; San Jose; Sacramento; San Diego; Orange County.

‡Based on 2-week recall.

§Based on 1-year recall.

//Excludes well newborns.

limited in activity because of a chronic condition than were those with other private coverage (13.6 vs. 10.2 percent). Those in the PGP were a little more likely to have a "fair" or "poor" health status (line c). However, those in PGPs had fewer restricted-activity days per year than those with other private coverage (lines d, e, and f). Average numbers of physician visits per person per year were higher among those in the PGP, as was the percent of persons with one or more physician visits in the past year (lines h and i).

Total hospital days per 1,000 person-years were only 364 in prepaid group practices, whereas they were 582 for those with other private coverage. This difference was due largely to a lower number of episodes per 1,000 person-years but due also to a shorter average stay for those in the PGPs.

## Discussion

The present analysis provides objective information on a representative sample of the California metropolitan area population, which included prepaid group practice members who comprised about half of all such members under the age of 65 in the United States in 1975. Those in PGPs were 15 percent of the entire sample but were 21 percent of those with any private health coverage, because 27 percent of the sample had no private coverage.

Most government workers in California are offered an HMO choice. About 36 percent of government workers with private health care coverage in the study areas were in a PGP. These market share data are more pertinent to the issue of competition between private third parties than those that simply take PGP members as a percent of the general population. Persons with no private coverage are not part of the market for such coverage. A substantial portion of those in the private sector with "other private coverage" are not offered an HMO choice.

The study shows that those with no private coverage were less healthy and used more health care services than those with private coverage. A surprisingly high 27 percent of the entire sample under age 65 had no private health care coverage. Preschool children and adults in their early twenties were least likely to have private coverage. About 40 percent of the entire sample under age 1 had no private



health care coverage. Many young adults had no private coverage in the period between losing their dependent status on their parents' plans and obtaining stable employment with health care coverage as a fringe benefit. In the United States, birthrate peaks for women at age 23. Thus, many young mothers and their infants are part of the significant population without private health care coverage.

Individual members of a prepaid group practice are self-selected since all have voluntarily enrolled. Those PGP members in groups that have dual or plural choice have also voluntarily enrolled. Thus the great majority of PGP members are self-selected. The real issue is the effect of this self-selection process on the health characteristics of those in the PGP.

On an a priori basis, most investigators believe that there are important offsetting factors that could influence the health characteristics of those who join PGPs under a dual-choice system or enroll as individuals (Donabedian, 1969). On the one hand, the generally broader benefits in the PGP might attract those who have more health problems. But, on the other hand, the necessity of selecting a new physician when joining a PGP may serve as a barrier to those in poorer health who are most likely to have active physician ties.

Direct measures of health status of a cross-section of those enrolled in PGPs and other private coverage are provided by this study. It is clear from the foregoing analysis of the California sample, summarized in Table 9, that the percents of those with limitations on activity due to chronic conditions, and of those whose self-appraised health status was "fair" or "poor," were slightly higher among PGP members than among those with other private coverage. The PGP population had somewhat more restricted-activity days and bed-disability days per person (due to both acute and chronic conditions) than those with other private coverage. The rate of physician visits for PGP members was about the same as for those with other private coverage, but those in PGPs were more likely to have made at least one visit to a physician during the preceding year.

The population sample in this study resided in eight different metropolitan areas of a large state. Although the health status of the PGP members was similar to that of those with other private coverage, on the average, it is possible that this relation could have varied from area to area. But the present analysis indicates that PGPs are not favored with a healthier population in California. The results of the present

TABLE 9  
Summary of Health Status and Measures of Health Care Use by Type of  
Health Coverage for Population under Age 65 in Eight California  
SMSAs\* (1975)

Health Status and Measures of Health Care Use	Type of Health Coverage		
	PGP	Other Private Coverage	No Private Coverage
Sample size: number of people	1,278	4,900	2,271
Chronic conditions			
a. Percent of sample with chronic conditions causing limitation in activity	11.1%	10.8%	15.2%
b. Average number of chronic conditions causing limitations per person with limitation in activity	1.30	1.29	1.43
Self-assessed health status			
c. Percent "fair" or "poor"	9.2%	8.3%	13.4%
Restricted-activity days per year†			
d. Bed-disability days	6.3	5.9	9.4
e. Other restricted-activity days	14.9	12.0	14.1
f. Total	21.2	17.9	23.5
Physician visits‡			
g. Per person per year	4.15	4.05	4.33
h. Percent of persons with one or more in past year	65.7%	60.0%	57.9%
Hospital care,‡§ episodes per 1,000 person-years			
i. Obstetric delivery	18.0	12.9	25.5
j. All other	75.1	91.8	100.9
k. Total episodes	93.1	104.7	126.4
l. Average stay in days	5.04	5.78	7.05
m. Days per 1,000 person-years	469.5	604.1	891.7

\*San Francisco-Oakland; Los Angeles-Long Beach; Riverside-Ontario-San Bernardino; Vallejo-Napa; San Jose; Sacramento; San Diego; Orange County.

†Based on 2-week recall.

‡Based on 1-year recall.

§Excludes well newborns.

study were similar to those of the more limited 1968 study (Roemer et al., 1972) conducted in Los Angeles County.

Despite morbidity equal to or greater than that of persons with other private coverage, the PGP population did use substantially fewer short-term hospital days per year because of lower admission rates and shorter lengths of hospital stay. (Note that the present study included *all* hospital use, including any that might not have been covered by the PGPs.)

Because the PGP members have a much higher crude annual birth-rate than those with other private health coverage (18.0 vs. 12.9 per 1,000 under age 65), the disparity in use of nonobstetric hospital services was even greater than that in total hospital use. And for every obstetric delivery admission, there is usually at least one other conception-related admission. The high obstetric delivery rate of those in the PGP was consistent with a rational decision by those offered a choice of plans, because PGPs have generally offered far more complete maternity benefits than alternative plans.

During any given year, there are many factors that influence the relative health status of those enrolled in a PGP (or any other form of health care coverage). These factors include the characteristics of all those who join and those who terminate (including births and deaths), as well as changes in the continuing members caused by the passage of time. Each year, each continuing member becomes a year older, and net changes in the PGP due to gaining or losing members may or may not offset the risk effects of this aging process of the majority of members who continue. It is impossible to determine the health status of those in PGPs relative to that of any other population except by direct questions or observations regarding the health status of all (or a sample) of the populations being compared.

For these reasons, it is not possible to draw conclusions about the health status of PGP members in general solely on the basis of the health status of those who joined recently. (It is equally fallacious to impute the health status of those in the PGP from the characteristics of those who terminate).

Luft (1980) has raised the question of whether PGP members are more averse to hospital care than nonmembers. The physician visit rates of PGP members are at least as high as for those with other health care coverage. As the patient controls the visit rate to a consid-

erable degree, those in PGPs do not appear averse to seeking physician services. Nor is any evidence offered to support the hypothesis that PGP members simply dislike hospital care. A review of many unpublished and published surveys on reasons for selecting a PGP plan under a dual-choice system has failed to show that the reputation of the PGP regarding per member hospital use was ever mentioned by the respondents, either pro or con. Health economists understandably are interested in the differences in hospital use for various forms of health care coverage. But this interest may not be shared by the average person.

## Alternative Hypotheses

Most of the published speculation on what contributes to the lower hospital use by PGP members concerns some process within the PGP, and the predominant fee-for-service (FFS) sector is tacitly considered the norm. The fee-for-service sector is predominant in the volume of services provided but its position as the norm can be challenged. A number of alternative hypotheses occur if the PGP is considered the norm and FFS is considered aberrant in its behavior.

We offer an alternative set of speculative hypotheses on the observed differences in hospital use between the PGP and FFS. These hypotheses are based on the different economic incentives faced by providers and enrollees of these two types of private health care coverage and their corresponding delivery modes.

1. With fee-for-service, patients are often willing and able to shop for nonemergency office care since their third-party coverage of office services is still limited by deductibles, copayments, and exclusions. As a result, prices for many office services reflect a somewhat competitive market.

2. In contrast, FFS patients are less able or willing to shop for hospital services. In addition, the physician fees and other cost components of hospital care are more completely covered by third parties than those for office (or home) services. This makes FFS patients less sensitive to prices for inpatient care than for office care.

3. The considerable practice expenses of FFS physicians are largely for office services. Physician services in the hospital result in little

practice expense to physicians, particularly at the margin. Hence, compared with office services, a much higher proportion of physician fees for hospital services is net revenue.

4. As a consequence, physician net income per hour for hospital services substantially exceeds their net income per hour for office services. This disparity has widened over time, in part because of the substitution of usual and customary fees for fees based on fixed relative values. This system permits fees for hospital services to increase more rapidly than those for office services.

5. These circumstances provide FFS physicians with a growing economic incentive to hospitalize, particularly for some medical and surgical care that could be performed effectively without admission to a hospital. This incentive is reinforced by some noneconomic benefits to the physician for hospital care (e.g., house officer services).

6. The FFS patient also has economic incentives favoring hospitalization, since the out-of-pocket costs to the patient are likely to be less for the hospital care than for extensive office (or home) care.

7. The individual physicians comprising the prepaid group practice have little or no personal economic incentive affecting the place where appropriate care is given since their individual incomes do not depend on the location of the care they provide. Physicians in prepaid group practice and physicians in FFS practice probably share many of the same noneconomic incentives to hospitalize.

8. The PGP patients are likely to have negligible out-of-pocket costs, regardless of where their care is provided. Consequently, their economic concern is limited to the indirect costs (e.g., family convenience) of hospital care compared with those of office care.

## Conclusion

Luft et al. (1980) have summarized the relative hospital utilization of those in HMOs, as follows:

Total medical care costs are substantially lower for HMO enrollees than for the general population and these lower costs are attributable to lower hospitalization rates. The reasons for this lower hospitalization are less clear. . . . Two major alternative explanations remain: (1) that HMOs provide the appropriate level of care, and the conventional system too much; and (2) that utilization differ-

ences are attributable to the self-selection of different types of people into HMOs and into the conventional system. (Luft et al., 1980:178-179)

We believe that, for those with private health care coverage, the findings presented in this analysis greatly increase the likelihood that the first explanation is correct and that the second is not. The PGP will be understood better when more is known about the alternative forms of health care coverage and delivery with which it is compared.

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