

The Study of Preferred Provider Organizations

Executive Summary

Susan Hosek, M. Susan Marquis,
Kenneth E. Wells, Deborah Garnick,
Harold Luft

RAND

The research described in this report was supported by the U.S. Department of Health and Human Services, Grant No. 100-84-0073 and by the National Institute of Mental Health.

ISBN: 0-8330-1066-2

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Published by The RAND Corporation
1700 Main Street, P.O. Box 2138, Santa Monica, CA 90406-2138

R-3798-HHS/NIMH

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PREFACE

This report summarizes the results of a study of five employers who included a preferred provider organization (PPO) in their employee health benefit plans. The study analyzed employee participation in and satisfaction with the PPOs, differences between PPO and nonPPO participants in their use of health care services and the costs of those services, and provider experiences with PPO membership. The utilization and cost analyses focused on all health services, mental health services, and episodes of care for specific diagnoses.

The research was conducted in RAND's Health Sciences Program under a contract from the Assistant Secretary for Planning and Evaluation in the U.S. Department of Health and Human Services. Supplemental funding for analyses of mental health services was provided by the National Institute of Mental Health.

Other publications from this study include:

Elizabeth S. Rolph, J. Peter Rich, Paul B. Ginsburg, Susan D. Hosek, Karen M. Keenan, and Gary B. Gertler, *State Laws and Regulations Governing Preferred Provider Organizations*, R-3442/2-HHS/FTC, August 1986.

Elizabeth S. Rolph, *Introducing the PPO Option into Health Benefit Plans: Three Case Studies*, N-2958-HHS, forthcoming

Susan D. Hosek and M. Susan Marquis, *Participation and Satisfaction in Employer Plans with Preferred Provider Organization Options*, R-3799-HHS/NIMH, February 1990.

Susan D. Hosek, M. Susan Marquis, and Kenneth Wells, *Health Care Utilization in Employer Plans with Preferred Provider Organization Options*, R-3800-HHS/NIMH, February 1990.

ACKNOWLEDGMENTS

We are especially grateful to the employers who participated in this study, provided data on their employees, and assisted us in fielding the employee survey used for this report. We would also like to thank Cheryl Austein of the Department of Health and Human Services and Paul Widem of the National Institute of Mental Health, the project officer for this project, for their support. Our colleague, Naihua Duan, designed the sample for the employee survey. Jan Hartman, David Rumpel, Belinda Operskalski, and Carol Edwards ably carried out the difficult and often frustrating task of processing the claims files, in addition to the other data files used in the study. Survey operations were directed by Julie Brown. We are indebted to Lloyd Dixon, Neal Thomas, and Jerry Kominsky for reviewing drafts of the RAND reports summarized here and suggesting various improvements. Finally, we acknowledge the many contributions made by Paul Ginsburg, the project's principal investigator in its early stages.

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I. STUDY DESIGN

Preferred provider organizations (PPOs), an alternative to health maintenance organizations (HMOs) and traditional indemnity plans, are growing rapidly in number and enrollment. Although PPOs have the potential to become an important competitive force in the health care market, to realize their potential, they will have to demonstrate their ability to attract beneficiary participants and provide these participants with cost-effective care. This study, using data from five employers who were among the first to offer their employees PPO options, estimates:

- PPO participation by enrolled employees and dependents,
- The PPOs' effects on participants' use of health care services in general and mental health care services in particular,
- Differences in practice patterns between PPO and nonPPO providers, and
- Providers' experiences with PPOs.

The data analyses were accompanied by case histories of the development of the PPOs and their inclusion in the employers' health benefits plans.

The most common form of PPO plan is an option incorporated in a standard fee-for-service indemnity health insurance plan. The enrolled beneficiary can, at the point of obtaining health care services, use either a nonPPO provider or a provider who has contracted to participate in the PPO's preferred provider panel. The beneficiary is given an incentive to use PPO providers, usually in the form of lower cost sharing and sometimes involving coverage of additional services. The contracting providers may agree to discount their fees and adhere to the PPO's utilization management program. If the PPO works as intended, the providers receive in return a bigger patient volume and both employers and covered employees face lower health care costs.

The reduced cost sharing can put the PPO at an initial financial disadvantage if the participating beneficiaries respond by using more services. A PPO plan that substantially reduces cost sharing may channel more patients to its providers, but the PPO will have to carefully select its provider panel and maintain an effective utilization management program to offset any increases in the demand for care and obtain additional savings.

CHARACTERISTICS OF PPO PLANS STUDIED

The PPOs and employers were selected before the initiation of the study, in late 1983 and early 1984, from the relatively small set of PPOs that were in operation at that time and had negotiated a contract with at least one medium size to large employer. Table 1 summarizes important characteristics of the five employers covered in this report and the PPOs offered to their employees. There is some overlap between employers and PPOs; one of the two PPOs offered by employer A is also offered by employer B, and employers C and D offer the same large PPO. In every case, however, the employer or a coalition of employers had a major role in encouraging the PPO's formation and monitoring its performance.

The first two employers added PPOs as enrollment options to their existing menu of plans; employer A's PPO plans reimbursed less generously for nonPPO services, but employer B's plan was an Exclusive Provider Organization (EPO) without nonPPO coverage except in emergencies. The other three employers added a PPO option to their standard indemnity plans, with the level of cost sharing lowered when PPO providers were used.¹

INCENTIVES TO USE THE PPO

As Table 2 summarizes, the employers offered different incentives to use PPO providers; two waived all cost sharing, one waived the deductible, one waived the coinsurance, and one cut in half the coinsurance

Table 1

EMPLOYER AND PPO CHARACTERISTICS

Employer	Location	No. Covered Employees	No. PPOs	PPO Organizer	Type of Plan	MD Fee Discounts
A	Ohio	2,600	2	Hospital	Enroll	10%-20%/None
B	Ohio	2,100	1	Hospital	Enroll	None
C	Florida	22,000	1	Insurer	Option	20%-30%
D	Florida	18,000	1	Insurer	Option	20%-30%
E	California	18,000	1	Hospital	Option	None

¹All of the employers had included HMOs in their benefits options for some time. Enrollment in these HMOs varied from a low of 7 percent at employer B to a high of 54 percent at employer D.

Table 2

DIFFERENCES IN COST SHARING: NONPPO COMPARED WITH PPO

Employer	Deductible		Coinsurance		Services Subject to Cost-Sharing
	NonPPO	PPO	NonPPO	PPO	
A	\$150/\$300	\$0	20%	0%	All
B	\$100/\$250	\$0	20%	20%	Physician
C	\$100-\$400/ \$200-\$800	\$0	20%	0%	All
D	\$150/\$300	Same	20%	0%	Outpatient and inpatient without second opinion program
E	\$100/\$300	Same	20%	10%	Physician

for physician services. Unlike some other PPO plans, however, none covered additional services in the PPO. Finally, the employee's premium contributions for the enrollment PPO plans equaled the contributions for the nonPPO plans.

In 1985, when our post-PPO data were collected, the two PPOs offered by employer A and, for one of them, by employer B each consisted of a network of a half-dozen hospital-based PPO networks and approximately 1200 and 350 physicians under contract, respectively. The PPO offered by employers C and D was very large; in 1986, it had 14 hospitals and 1200 providers under contract. Employer E's PPO was the smallest, with a single hospital and approximately 300 providers in 1986.

During the period being studied, each PPO operated a utilization management program that included prior authorization for hospital admissions and concurrent review of hospitalized patients but limited retrospective review or review of ambulatory care. Unlike at least some other PPOs (see de Lissovoy et al., 1987), none had developed the capability to profile physicians' practice patterns. The concurrent and retrospective reviews that were undertaken tended to use the reviewer's judgment rather than quantitative guidelines to identify potential cases of excessive use. Consultation rather than nonpayment was the enforcement mechanism.²

²See the case histories for further details on benefits structures, preferred provider panels, and utilization management programs. These are documented in Rolph (forthcoming).

DATA SOURCES

We used data from three sources: personnel records, medical claims records, and surveys of employees and physicians. The first source contained records for all individuals employed during the year before the PPO was implemented and two years thereafter. We had claims records for all employees and dependents covered under the indemnity plans but not for those enrolled in HMOs.

We fielded the employee survey in 1986 to obtain information not otherwise available on family composition, other insurance coverage, regular sources of care, health status, satisfaction with care received under the employers' plans, and such demographic characteristics as family income and education. Individual information was requested for the employee, spouse, and the child who generally used the most health care. We undersampled HMO enrollees and oversampled new employees. The sample for each employer included up to 3200 employees (fewer for the smaller employers). The response rates to this mailed survey averaged 54 percent for four of the five employers and only 25 percent for the fifth employer, where we were able to complete only a first mailing.

Using information from the personnel records, we analyzed the response bias by employee group. The response rates differed by salary level, but not by age, plan enrollment (HMO versus indemnity), or job tenure. We believe that the higher response rates we observed for employees earning more than \$30,000 reflect underlying differences by education level.

The second survey, conducted in late 1988, was of physicians who were network members and nonmembers. The sample included 800 physicians who had treated six or more patients covered by the employers' plans. The response rates were 52-54 percent in two geographic areas and 61 percent in the third.

II. EMPLOYEE PARTICIPATION AND SATIS- FACTION WITH THE PPOs

PARTICIPATION RATES

Approximately two years after the PPO options were first offered, they had attracted a substantial share of the indemnity enrollees (Hosek and Marquis, 1990). As shown in Table 3, 24–65 percent of the employees and covered dependents were PPO participants; more than half of them represented new patients to the PPO providers. These estimates are based on the employee survey and include individuals who actually used or intended to use a PPO provider as their regular source of care. The higher rates appeared to occur in plans that provided a larger incentive to use PPO providers. In only one case did HMO enrollment decline after the PPO was introduced, although PPO participation was relatively high among the few who did disenroll from an HMO.

Logistic regressions uncovered few differences between PPO and nonPPO participants, especially in the plans that did not require an

Table 3

LEVELS OF EMPLOYEE PARTICIPATION BY TYPE OF PLAN
(Percent of covered employees)

Employer	Employee Enrollment ^a		PPO Participation of Indemnity Plan Enrollees ^b		
	HMO	Indemnity	PPO	NonPPO	Unclassified
A	26	74	55	34	11
B	7	93	34	56	0
C	35	65	64	28	8
D	54	46	49	40	11
E	43	57	24	61	15

^aTotal indemnity plan enrollment and HMO enrollment from personnel data for all employees.

^bPPO and nonPPO participation rates estimated from survey data, reweighted to be representative of all employees. The sum of these two percentages does not equal total indemnity plan enrollment because of the unclassified group.

enrollment change to use the PPO. In particular, we found very little evidence of general health selection in the PPOs. Neither self-reported health status nor prior utilization consistently affected participation. However, since healthy individuals without a prior source of care frequently intended to use PPO providers if they needed care, overall PPO participation rates were predicted to be somewhat higher in the healthiest group, at least for adults with family coverage.

In contrast to the results for general health status, we did find a consistently positive participation effect for lower mental health status, particularly among new employees. However, these results generally did not achieve statistical significance at conventional levels.

PATIENT SATISFACTION

The employee survey included a five-item satisfaction question. The items were: (1) access to care, including arranging for and getting to the care; (2) financial matters, including premiums and patients' costs of care; (3) technical skills of the providers; (4) interpersonal manner of providers; and (5) overall satisfaction with the care received under the employee's plan.

Levels of satisfaction were fairly high for all of the employers' plans (Hosek and Marquis, 1990). Among PPO and nonPPO participants in the indemnity plans, 80–90 percent were satisfied or very satisfied overall, compared with 70–75 percent among HMO enrollees.

Using regression analysis to control for the effects of personal characteristics, we found that three of the four nonexclusive PPO plans had higher satisfaction levels across all five items. Participants in the fourth nonexclusive PPO and the exclusive PPO showed the same overall satisfaction levels as nonPPO participants.

III. PPO EFFECTS ON THE USE OF HEALTH CARE SERVICES

To measure the effects the PPOs had on the use of health care for participants, we estimated a two-part regression model. In the first part of the model, the dependent variable indicated whether the individual used any health care during the year. Dependent variables included, in addition to PPO participation, utilization before the PPO, age, sex, income, time employed by the firm, and education. Again, we identified PPO participants according to regular source of care and limited the analysis to survey respondents. Separate regressions were estimated for any outpatient use, hospital use, and mental health outpatient use in the three largest employee groups. We did not have sufficient data to analyze mental health inpatient use.

The second part of the model, concerning the level of use conditional on having some use during the year, was estimated from data for the larger population of all covered individuals. The dependent variables measured the quantity of use (physician visits, hospital days, and mental health visits), the charges for each type of care, total charges for all services, and total reimbursements. PPO participants were identified as those who obtained the majority of each type of care from PPO providers. Other covariates included use of services before the implementation of the PPO, age, salary, and length of time employed.

The estimated differences between PPO and nonPPO employee participants in the proportion using any health care and the total charges and reimbursements for users are shown in Table 4 (Hosek, Marquis, and Wells, 1990). With the exception of employer B, we found that PPO participants were more likely to use some health care. Only at employers B and C, however, were the estimated differences statistically significant. These employers were the only ones to waive cost sharing altogether in an optional PPO.

Among users, we again find a consistent pattern of lower levels of use, as measured by total charges and reimbursements. Data deficiencies prevented our estimating significance levels for the results at employer A, but the differences for the other employers except D were significant. Combining the point estimates for the probability and level of use for an average employee at each employer, we estimate that the reimbursements for PPO participants were \$200–\$300 lower for three employers and from \$80 lower to \$50 higher for the other two employers, depending on the year.

Table 4

PPO EFFECTS ON USE OF HEALTH CARE SERVICES

Employer	Change in Probability of Use, %	Change in Charges if Use, \$	Change in Reimbursements if Use, \$
A—Year 1	+9.2 ^a	-404 ^a	-603 ^a
Year 2	—	—	—
B—Year 1	—	—	—
Year 2	-5.5 ^b	-240	-302
C—Year 1	+17.7 ^b	-319 ^b	-156
Year 2	+14.7 ^b	-461 ^b	-241 ^b
D—Year 1	+3.6	-230	-165
Year 2	+2.5	+33	+8
E—Year 1	+7.8	-702 ^b	-572 ^b
Year 2	+3.1	-546 ^b	-446 ^b

NOTE: The data were incomplete for employer A in the second year and for employer B in the first year; the figures shown for employer A are for the first full year after the PPO, or six to eighteen months after the start date.

^bSignificant at the 0.05 level with a two-tailed test.

^aStandard errors could not be calculated because of data limitations.

The most consistent results for level of use were for outpatient physician services. For almost every employer in both years, we found a significantly lower number of visits among PPO participants and a correspondingly lower level of charges. Since visits were lower in the PPO, we can rule out discounts as the only explanation for the lower charges. Although it is always difficult to rule out favorable selection as a cause of lower utilization, our results do not support this explanation. First, the PPO difference is measured after controlling for prior use. Second, we found almost no difference in the PPO effect between persons who used PPO providers in the pre-PPO year, when there was no incentive to do so, and those who switched to PPO providers in response to the incentive.

The results for inpatient care are less conclusive. We found almost no significant differences between PPO and nonPPO users in the probability of having an admission or the number of days once admitted. The exception was employer B (with the exclusive PPO), where PPO enrollees were less likely to be admitted and had fewer days if

admitted. For all employers, we estimated that inpatient costs once admitted were lower in the PPO group, but the estimated differences were significant only for employers B and E. In this and the other more detailed analyses, data limitations did not permit us to include employer A.

Only employee groups C–E were large enough to warrant a separate analysis for mental health services, including both propensity to use and level of use. In the first post-PPO year, two of the three groups showed a lower propensity to use mental health services in the PPO, but the difference all but disappeared by the second year. Thus, these PPOs may have transiently decreased the proportion of users, but we have no evidence for a long-standing difference in access to mental health care.¹ Among PPO mental health users, we found a consistent pattern of lower levels of use in terms of visits and charges. These findings are consistent with the results noted above for the effects of the PPOs on the use of all outpatient services. Thus, although PPOs may reduce outpatient mental health costs because of lower visit rates per user, they may also cause a transient decrease in access to mental health care. The initially lower propensity to use mental health care in the PPO did not result from the selection of healthier participants; if anything, individuals with lower mental health status were more likely to be PPO participants.

Combining the results regarding propensity to use and level of use, we estimated that the PPO generally experienced lower costs. By the second post-PPO year, the charges for four of the five employers were lower by 11–38 percent; the charges for the fifth employer were higher by 5 percent. (In general, we were not able to determine the statistical significance of these estimates, but it is doubtful whether the smaller estimates are significant.) For the four employers with lower costs, reimbursements were estimated to be 5–37 percent lower. The three employers experiencing large savings included the two with enrollment PPOs and the employer with the smallest and most selective PPO.

The results for covered dependents are similar. The PPO effect on the propensity to use health care was generally positive but not statistically significant. Among users, the PPO group tended to have lower levels of use but the differences were consistently significant only for ambulatory physician services. Across all services, the only significant differences in charges and reimbursements were for children.

¹Enrollees in the exclusive PPO at employer B also were less likely to use mental health care, but the sample size was too small for an analysis of the level of use.

IV. PRACTICE PATTERNS IN THE PPO

PPOs can control use of health care services by selecting cost-effective providers or by causing the providers who join to become more cost-effective through utilization review. We used claims data for employer D to compare utilization and charges for patients treated by PPO versus nonPPO physicians in the pre-PPO year and two post-PPO years (Garnick et al., 1989a). This was the only employer for which we had a large number of PPO claims and the ability to identify the claims for PPO physicians in the pre-PPO year.

The analysis was carried out for episodes of care for patients with nine conditions: joint pain, back pain, chest pain, hypertension, convulsive disorders, gastrointestinal or liver disorders, asthma, upper respiratory infection, and otitis media. The cost comparisons controlled for patients' age and sex, occurrence of hospitalization, and reason for consult. With the exception of episodes of asthma, there were no significant differences in the pre-PPO year between the eventual PPO physicians and other physicians. For six of the nine types of episodes in the post-PPO years, the number of visits per episode was lower for PPO physicians, but the total charges were not significantly different. However, for one other condition (otitis media), charges per episode were significantly higher. The general finding that visit rates were lower, but charges were not significantly different, is consistent with the more aggregate results reported for this employer earlier.

Since physicians who participate in PPOs usually agree to utilization review and sometimes discount their fees, we wanted to know whether they provided more or fewer services to their PPO patients than to their indemnity patients and whether the discounting resulted in lower expenditures for PPO patients. During one of the study years (1984), we had claims data for PPO patients from employer C and nonPPO patients from employer D for the same providers. We used these data to compare episodes of care provided by physicians belonging to the PPO when they treated PPO and nonPPO patients with the diagnoses: chest pain, hypertension, joint pain, gastrointestinal or liver disorders, and lower back pain (Garnick et al., 1989b). Across the five diagnoses, PPO patients had equal or somewhat lower billed charges per consultation but generally had more consultations and therefore higher billed charges for all consultations in an episode. For services such as laboratory tests, diagnostic x-rays, and room and board, PPO and indemnity patients' charges were not significantly different.

V. PHYSICIAN EXPERIENCES

The physicians who contracted with these four PPOs were similar to other physicians treating patients under the employees' indemnity plans. In fact, 60 percent of the other physicians belonged to other PPOs. The major reasons for joining any of the PPOs were maintaining and increasing patient volume, although a minority cited physician and hospital recommendation. A third of the study PPOs' members believe that the promise of additional patients has been realized.

The physicians reported that they were twice as likely to discount their fee for a PPO patient. This difference remained after controlling for other physician characteristics and was reflected in greater dissatisfaction with this aspect of PPOs than with other aspects. Satisfaction levels were high with the other aspects and three-quarters of the physicians believed their decision to join the PPO was a good one.

The PPOs' utilization review programs have not been highly visible to the physicians. Of those with hospital privileges, one-third reported that they rarely encounter the PPOs' prior authorization programs. This proportion is over one-half for concurrent review and even higher for outpatient review.

VI. CONCLUSIONS

The five PPO plans studied here were all successful in attracting indemnity plan enrollees to PPO providers, although the participation rate was significantly lower in the one plan that offered a small PPO and little incentive to use it. Our results indicate that waiving all cost sharing in a PPO may risk a noticeable increase in the propensity to use health care. Among users, however, all of the PPOs successfully curbed the level of outpatient use in general and for mental health care. Our results for inpatient services are inconclusive, primarily because the large variances for these services made our estimates imprecise.

Combining the PPO effects on propensity to use care and the level of use, we estimate that the two enrollment PPOs and the optional PPO with the smallest and most cost-sensitive provider panel showed the largest savings. The differences in either charges or reimbursements for the other two optional PPO plans were negligible. More recently, the PPO used by these plans has undergone considerable development designed to deliver more cost-effective care.

We made various attempts to uncover and correct for the possibility that less healthy patients might use the PPOs, but we could find no evidence that favorable health selection accounted for our findings of lower utilization levels in the PPOs. Nevertheless, there may be differences in the health status or severity of illness between PPO and nonPPO patients that we were unable to detect.

For employer D, we were able to conduct a more detailed analysis of the practice patterns for patients with specific diagnoses. The results were consistent with our more aggregate findings for this employer. However, the results differed when we compared the practice patterns for PPO versus nonPPO patients treated by physicians belonging to the same PPO. In this analysis of episodes of care for five diagnoses, we found that the insurer generally paid more for PPO patients. This could be a result of physician behavior to compensate for discounts granted to the PPO or of patient or physician response to free care in the PPO.

Finally, both patients and providers seem to be well-satisfied with their experiences with the PPOs. The levels of satisfaction among PPO participants are at least as high and sometimes higher than the levels for nonPPO participants. Similarly, very few PPO physicians would change their original decision to join the PPO.

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RAND/R-3798-HHS/NIMH

