
Gatekeeper Effects on Patterns of Physician Use

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The impact of primary care gatekeeping on selected patterns of physician use was examined among Medicaid beneficiaries in two demonstration programs. The evidence indicates that beneficiaries enrolled with gatekeepers were significantly less likely to see specialists when compared with unenrolled beneficiaries in comparison groups. Primary care visits increased to offset these reductions only when gatekeepers were paid on a fee-for-service basis. Increased overall reliance on pri-

mary care physicians as opposed to specialists was also observed in the gatekeeper programs. Findings also indicate that enrolled beneficiaries received care from fewer sources than they had prior to enrollment. Although these changes in patterns of use have the potential to assure access to a more stable and structured system of care, the clinical and long-term economic consequences of such changes remain unknown.

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Public and private purchasers of medical services have turned to the enrollment of beneficiaries with primary care gatekeepers to contain cost and improve access. Physicians who agree to become gatekeepers are expected to alter the utilization patterns of their enrollees. An accumulating literature from state Medicaid initiatives attests to the partial realization of this goal in a number of gatekeeper programs. Most of this evidence has focused on changes in total volume of services, diversion of care from hospital emergency departments, and the impact on Medicaid expenditures. Little attention has been focused on the dynamics of changes in the types and number of physicians from whom beneficiaries obtain services.

While hopes for substantial savings from these initiatives have faded in the face of empirical findings, interest in gatekeeper programs persists because of their potential to offer a structured and coordinated system of service delivery. State Medicaid agencies remain interested in the opportunity to link beneficiaries with a formally obligated source of care and to curtail "doctor

shopping," which results in discontinuous and inefficient service delivery.¹ Moreover, certain program designs can increase the likelihood that this source of care is an individual primary care physician rather than an institutional provider. Beyond Medicaid, proponents of state risk pools and other mechanisms for covering the medically indigent are interested in some of the same features that primary care gatekeeping programs can offer: a stable, relatively inexpensive "medical home" for persons facing constrained access to care.

A study was undertaken to examine how selected patterns of use were changed when Medicaid beneficiaries enrolled with primary care gatekeeper physicians. Change in physician utilization is the principal focus given the central role physicians play in the delivery system. This study also examined patient reliance on primary care as compared with specialist care providers. Because of the restraints on free access to providers in gatekeeper programs, changes in the numbers of providers of care seen by patients were examined for evidence of greater concentration or consolidation of care. Such concentration, if detected, would suggest that continuity of service may be enhanced as a result of these program designs, which require prior authorization of specialist and nonurgent emergency department use.

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Background

Primary care gatekeeper programs typically enlist the participation of primary care physicians who agree to become the sole portal of entry into the medical care

system for a group of enrollees.^{2,3} The initial and one of the most comprehensive studies of private sector gatekeeping was performed in the Safeco United Healthcare program.^{4,5} Since the Safeco experience, more than 30 state Medicaid agencies have developed variants of this general approach.^{6,7}

Empirical evidence is now available from approximately 18 Medicaid gatekeeper programs.⁸⁻¹⁴ Although a comprehensive synthesis of findings has not yet been completed, several observations can be made. The programs have not produced dramatic cost savings. The typical program finding suggests annual savings in the range of 0% to 15% for Aid to Families with Dependent Children (AFDC) beneficiaries, the eligible group most commonly enrolled. In addition, the programs have been extremely difficult and time consuming to implement, often because hospitals and physicians resist them and because the resources required to mount such complex initiatives are underestimated.^{15,16}

Despite limited cost savings, several effects on beneficiary utilization have been reported. Although hospital inpatient service reductions have been minimal, reductions in use of emergency departments have been substantial. Hurley et al¹⁷ report reductions in the likelihood of an emergency department visit of 25% to 40% for both AFDC adults and children in the four programs they examined. Long and Settle¹³ and Bonham and Barber¹¹ present similar findings from two other programs. Several studies have noted reductions in physician visits, especially when primary care physicians were placed at some financial risk. Ancillary use, measured by a variety of constructs, has been lower, apparently because of reductions in services duplicated through multiple physician contacts.⁸

Thus far, little attention has been paid to the substitution of primary care services for those of specialists. Long and Settle¹³ found no reduction in specialist use in the Utah program. This finding differs from the earlier Safeco findings, which indicated primary care physician visits were substituted for specialist visits.⁵ Long and Settle suggest their findings may be due to the Medicaid beneficiaries' increased access to primary care physicians, who in turn discover more conditions for referral to specialists. There are no published data on the number of providers seen by enrolled beneficiaries or the proportion of care obtained from primary care providers vs specialty providers. Prior research has used both of these measures as indicators to study the relationship of medical specialty to patient care-seeking patterns,¹⁸ but these measures have not been applied previously to analyze formal gatekeeping arrangements.

Study Hypotheses

The primary care physician who becomes a gatekeeper assumes a formal responsibility to provide and authorize the medical care required by his or her enrolled beneficiaries. This responsibility may be expected to alter both care-seeking and service-rendering patterns for patient and physician. The enrolled beneficiary is prevented from freely seeking services without initial assessment and authorization by the primary care physician. Likewise, the gatekeeping physician is expected to exercise discretion in determining which care to provide directly and which care to arrange on referral.

Formalizing the traditionally implicit gatekeeper role of the primary care physician has created some concerns among specialty societies and other organizations. Some of these concerns relate to the potentially adverse impact on the numbers of referrals made to specialists.^{19,20} In particular, financial incentives may discourage gatekeepers from making referrals and thus raise the possibility of conflicts of interest.²¹ For example, several Medicaid programs have offered gatekeepers opportunities to share in savings from reductions in use of referral services, including specialist referrals.

To explore the possibility of changes in patterns of utilization, the following hypotheses were tested: Compared with Medicaid beneficiaries not enrolled in primary care gatekeeper programs, enrollees will (1) be less likely to see specialist physicians and be more likely to see primary care physicians, especially if the primary care physician is paid on a fee-for-service basis; (2) obtain an increased proportion of their ambulatory care from primary care providers irrespective of how the primary care physician is paid; and (3) obtain their ambulatory care from fewer providers.

Methods

To test these hypotheses, data were analyzed from Medicaid primary care gatekeeper programs in Monterey County, California, and in Atlantic and Camden counties, New Jersey. Both of these programs were part of the Medicaid Competition Demonstrations, which have been described elsewhere.²² Both programs enlisted primary care physicians to become gatekeepers for enrolled beneficiaries. The Monterey program was countywide and mandatory, requiring all of the approximately 21,000 AFDC adults and children to enroll. Primary care gatekeepers were paid on a fee-for-service basis plus a nominal monthly fee per enrollee for their gatekeeper duties.¹⁵

The New Jersey program was a voluntary enroll-

ment demonstration project in which approximately 12,000 AFDC adults and children elected to enroll with primary care providers rather than remain in the traditional Medicaid program. The primary care gatekeepers were paid on a capitation basis for primary care services and were given an opportunity for sharing the savings associated with reductions in referral services, excluding inpatient care.

To employ a quasi-experimental research design, comparison groups of beneficiaries in traditional freedom-of-choice fee-for-service Medicaid were selected for each site. Beneficiaries in Ventura County in California, another nonurban central coastal county, were selected to be compared with Monterey enrollees. In New Jersey a comparison group of beneficiaries in Atlantic and Camden counties was selected from among those who had not chosen to enroll voluntarily. The data used in the analysis were developed from stratified random samples of adults and children drawn from the two demonstration sites and the two comparison sites for the year before implementation (predemonstration year) and the first year of the demonstration (demonstration year). Each sample contained approximately 2000 children and 1000 adults.

For each person in the samples, all claims were accumulated and combined to form a claims history. The claims were grouped into inpatient, prescription, and medical events using grouping algorithms. The medical events, which corresponded to ambulatory visits, represented all ambulatory services rendered to an individual on the same day by any provider. A number of characteristics of the event were identified and coded to permit detailed analysis of these events such as who provided what services for what conditions in which locations. The events were combined with personal characteristics from eligibility files to create person-level analysis files.²³

The claims history files were derived from the Medicaid Management Information System (MMIS) for the enrollee group and comparison group samples for the predemonstration year. The MMIS also was the data source for the utilization history of the comparison group individuals in the demonstration year. Utilization data for enrollees in the demonstration sites came from the encounter (claims) data submitted as required by the demonstration program managers. In Monterey, where all providers were paid fee-for-service, the encounter data were virtually identical to MMIS data. In New Jersey, capitated case managers were required to submit pseudo-claims for the capitated primary care services. These claims were similar to Medicaid invoices but were not processed for payment. Services rendered by all other providers, such as by specialists and hospitals, were billed according to traditional Medicaid regulations.

The providers of care were classified by type and, in the case of physician services, by specialty. Based on reported specialty, physicians were subdivided into primary care and specialists. The primary care physicians included general practitioners, family physicians, pediatricians, and general internists as well as obstetricians-gynecologists and general surgeons, who in both cases were permitted to be primary care gatekeepers. All other physicians were coded as specialists. The specialty variable was used to calculate the proportion of persons with primary care and specialist visits and a count of visits for users of each type of visit. In addition to these measures of individual utilization, an aggregate measure was developed for each sample of the proportion of all physician visits made to primary care and to specialist physicians. Finally, by using the Medicaid provider number as an indicator, the number of different providers each beneficiary encountered during his or her period of eligibility was computed.

The data from the enrollee groups and comparison groups for both years were analyzed to determine whether significant changes in patterns of use were detectable that might be associated with the gatekeeper programs. Bivariate and multivariate analyses of the probability of having either at least one primary care or one specialist visit were conducted. Similar analyses of the number of visits were performed for beneficiaries who had at least one such visit. The multivariate analyses estimated the probability of use with logistic regression. Utilization by users was analyzed with ordinary least squares. A number of beneficiary characteristics were included in the regression model as covariates or control variables including age, sex, duration of eligibility, race (not available in California), and availability of other insurance coverage. Separate analyses were conducted for adults and for children.

A similar approach was used to analyze the variable "mean number of providers seen." In addition, frequency distributions for the number of different providers seen were produced to provide supplemental information as to changes in this variable in the demonstration site relative to the year prior to the demonstration program. For the measure of relative reliance on primary care compared with specialist physicians, physician visit use rates were computed in the predemonstration and the demonstration years for both comparison and enrollee groups. The variation in method of payment of primary care gatekeepers between Monterey (fee-for-service) and New Jersey (capitation) permits an appraisal as to how the relative reliance may have been affected by the extent of financial risk.

Table 1. Gatekeeper Effects on Specialist and Primary Care Visits, Comparing Predemonstration and Demonstration Years

	Children		Adults	
	Predemonstration Year	Demonstration Year	Predemonstration Year	Demonstration Year
Percent with specialist visit				
Monterey	14.1	6.3*	23.7	16.4*
Ventura	13.1	12.5	17.5	16.3
NJ Enrollees	19.8	12.4*	36.3	20.9*
NJ Nonenrollees	20.7	20.1	33.1	34.8
No. of specialist visits per person for users				
Monterey	3.5	3.0	3.9	3.7
Ventura	3.0	3.0	3.6	3.6
NJ enrollees	1.9	1.8	2.4	2.4
NJ nonenrollees	2.2	2.5	3.3	3.8
Percent with primary care visit				
Monterey	42.1	38.4	39.5	42.6*
Ventura	46.2	41.4	43.1	40.6
NJ enrollees	64.9	58.8*	60.6	57.9*
NJ nonenrollees	62.5	64.4	65.7	67.3
No. of primary care visits per person for users				
Monterey	4.1	4.6	4.9	5.8*
Ventura	4.1	4.4	5.6	4.9
NJ enrollees	4.8	4.1*	4.0	4.0
NJ nonenrollees	3.7	4.1	4.9	5.6

Note: Monterey and New Jersey enrollees are gatekeeper programs; Ventura and New Jersey nonenrollees are comparison groups.

*P < .05.

Results

Table 1 displays the results of the analysis examining changes in the proportion of persons with at least one specialist and one primary care visit as well as use for users of each type of provider. For simplicity, the table shows only regression-adjusted levels of use. The tests for statistical significance have been performed with the multivariate models described above and statistically controlled for individual differences among beneficiaries in the gatekeeper and comparison programs.*

In Monterey there was a statistically significant reduction in the probability that both adults and children would have had a visit to a specialist. The reduction was from 14.1% to 6.3% for children. A smaller reduction for adults was observed (23.7% to 16.4%). The samples from Ventura, the comparison county, remained stable in the probability of specialist use. No significant differences in specialist use for users was detected between Monterey and Ventura.

With respect to primary care physician visits, changes for children were not significant in either the probability or use for user measures. For adults, how-

ever, there were statistically significant increases in both variables in Monterey in the demonstration year. Thus, primary care visits were inversely correlated to specialist contacts for this group of beneficiaries in Monterey.

In the New Jersey enrollee group, there were also statistically significant reductions in the probability of having at least one visit to a specialist provider. The reduction for children was from 19.8% to 12.4%, and 36.3% to 20.9% for adults. Little change was noted in the comparison nonenrollee group.

The findings regarding primary care use in New Jersey are notable for their variance from the Monterey evidence. For both adults and children there were small but significant reductions in the probability of a primary care visit among enrollees of gatekeepers. These findings suggest that primary care visits did not increase to offset reductions in specialist visits. There was also a significant reduction in the number of primary care visits for users among children. In New Jersey, gatekeepers were paid on a capitated basis for their primary care services, while in Monterey, gatekeepers were paid on a fee-for-service basis with a case management fee.

Changes in financial incentives might alter (reduce) the total number of enrollee visits. Such reductions could affect the ability to detect shifts in relative reliance on

*The individual regression results are available from the authors on request.

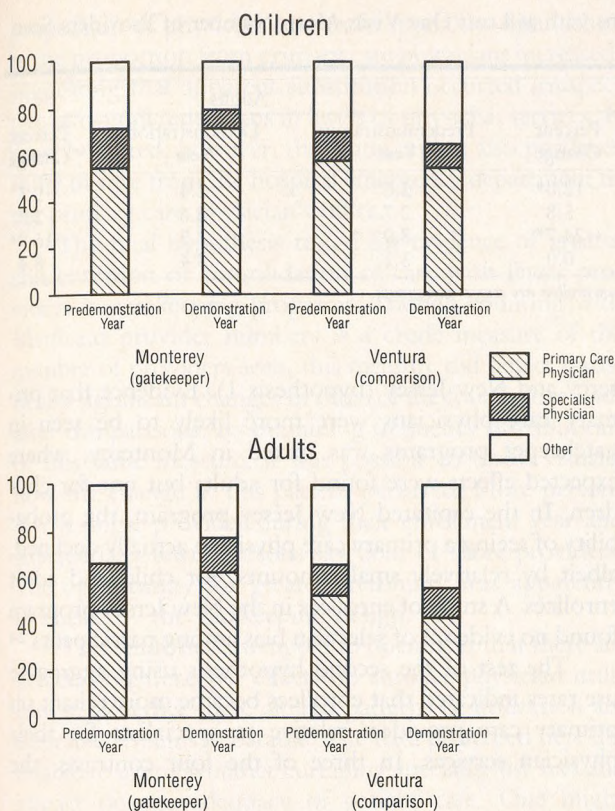


Figure 1. Relative reliance on physicians in California sites (%). Proportion of total physician visits to primary care, specialty care, and other providers.

primary care vs specialist providers. To examine this possibility, aggregate use rates (all visits/all persons) were calculated for sample members for all physician visits and for primary care and specialist physician visits. Figures 1 and 2 present descriptive results from these calculations. The "other" category shown on these charts reflects physician visits to institutional providers in which physician specialty was not reported. The preponderance of these other visits were to hospital emergency departments. The shrinkage on the other category in three of the four enrolled groups is consistent with the reported findings of sharp reductions in emergency department use in Monterey and New Jersey.¹⁷

Increased reliance on primary care physicians with diminished reliance on specialists was evident in both programs for adults and children with the single exception of children in New Jersey. In each of the four contrasts, the proportion of visits to specialists was lower in the gatekeeper programs, though by a larger amount in Monterey than in New Jersey. The comparison groups again remained stable. The relative reliance measure offers additional confirmation of the impact of gatekeeping on patterns of physician use.

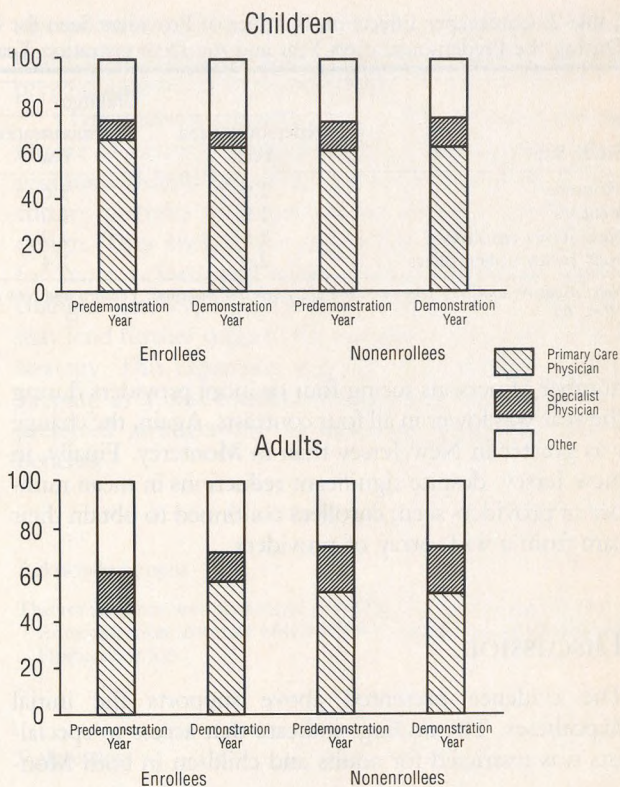


Figure 2. Relative reliance on physicians in New Jersey sites (%). Proportion of total physician visits to primary care, specialty care, and other providers.

Table 2 shows the mean number of providers seen by enrollees with at least one physician visit. This variable was tested for statistically significant differences using the multivariate approach described earlier. The findings indicate that significant reductions in the number of providers seen were associated with gatekeeping for children in both demonstration programs and for adults in New Jersey. The change for adults in Monterey is also in the expected direction but did not attain statistical significance.

An alternative way to examine the effect of gatekeeping on contact with multiple providers is to examine the frequency distribution of persons who saw one, two, three, and four or more providers during their period of eligibility. Figures 3 and 4 illustrate these findings for the two demonstration programs by comparing number of providers seen before and during gatekeeping. In both the adult and child contrasts for each demonstration program, there were increases in the proportion of persons seeing only one provider. This pattern was more pronounced in New Jersey than in Monterey, perhaps because of the capitation of primary care in the New Jersey group. At the other end of the distribution, the

Table 2. Gatekeeper Effects on Number of Providers Seen for Persons with at Least One Visit: Mean Number of Providers Seen During the Predemonstration Year and the Demonstration Year

Study Site	Children			Adults		
	Predemonstration Year	Demonstration Year	Percent Change	Predemonstration Year	Demonstration Year	Percent Change
Monterey	1.9	1.6	-12.0*	2.6	2.4	-9.5
Ventura	1.9	2.0	5.8	2.7	2.6	-2.3
New Jersey enrollees	2.5	1.9	-24.7*	3.0	2.5	-16.9*
New Jersey nonenrollees	2.4	2.4	0.0	3.1	3.4	8.4

Note: Monterey and New Jersey enrollees are gatekeeper programs; Ventura and New Jersey nonenrollees are comparison groups.
*P < .05.

number of persons seeing four or more providers during the year was lower in all four contrasts. Again, the change was greater in New Jersey than in Monterey. Finally, in New Jersey, despite significant reductions in mean number of providers seen, enrollees continued to obtain their care from a wide array of providers.

Discussion

The evidence presented above supports the initial hypotheses. The findings indicate that access to specialists was restricted for adults and children in both Mon-

terey and New Jersey (hypothesis 1). Evidence that primary care physicians were more likely to be seen in gatekeeper programs was mixed in Monterey, where expected effects were found for adults but not for children. In the capitated New Jersey program, the probability of seeing a primary care physician actually declined, albeit by relatively small amounts, for child and adult enrollees. A study of enrollees in the New Jersey program found no evidence of selection bias among participants.²⁴

The test of the second hypothesis using aggregate use rates indicated that enrollees became more reliant on primary care providers relative to specialists for their physician services. In three of the four contrasts, the

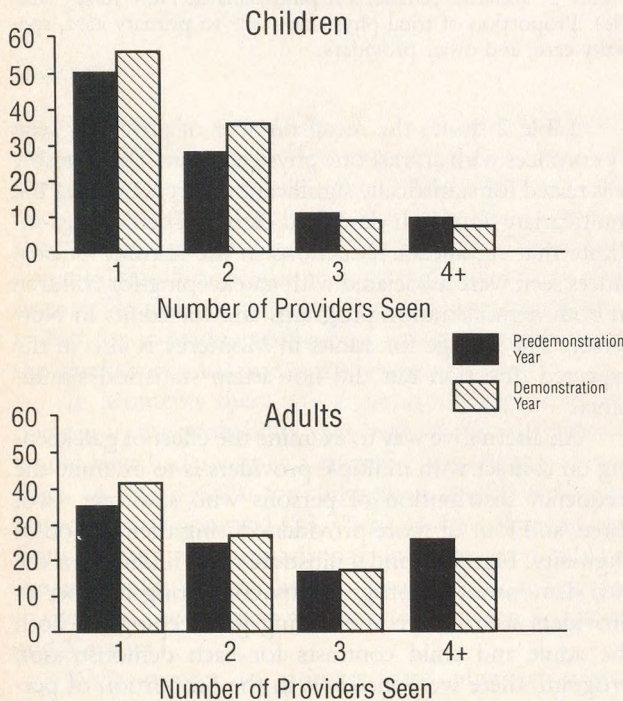


Figure 3. Proportion of beneficiaries with at least one visit seeing 1, 2, 3, and 4 or more providers in Monterey demonstration program in predemonstration and demonstration year (%).

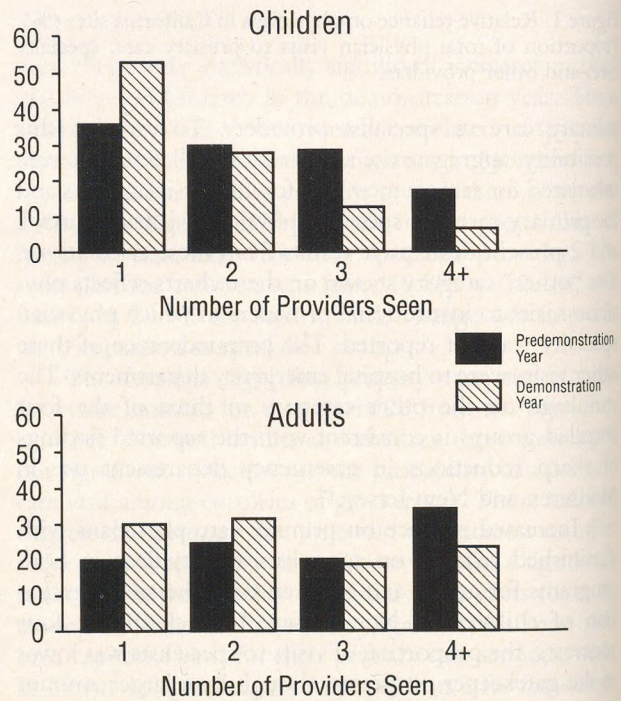


Figure 4. Proportion of beneficiaries with at least one visit seeing 1, 2, 3, and 4 or more providers in New Jersey demonstration program in predemonstration and demonstration year (%).

proportion of physician care from specialists diminished as the proportion from primary care physicians increased, suggesting that apparent substitution occurred irrespective of overall reductions in levels of physician services. It must be noted, however, that gatekeeping also produces shifts in care from the hospital emergency department to the primary care physician's office.

The final hypothesis tested for evidence of greater concentration or consolidation of care with fewer providers in gatekeeping programs. Though counting with Medicaid provider numbers is a crude measure of the number of providers seen, this measure did detect statistically significant changes in three of the four before-and-after comparisons. By examining frequency distributions of this same measure, it was possible to assess visually how the change in this pattern occurred. More persons saw a single provider during their enrollment year and substantially fewer persons saw four or more providers. The opportunity for greater continuity was apparently increased by the gatekeeping design.

This study has attempted to document that there are detectable gatekeeper effects on enrollee-physician utilization. Whether these altered patterns of utilization are desirable remains debatable. The data presented here are unable to assess whether curtailing specialist use had any impact on the adequacy of patient care. One might hypothesize that primary care physicians are providing a broader scope of services or rendering more intensive services.³ Likewise, they may be treating a wider range of conditions that previously may have been referred to specialists. Such behaviors would be compatible with the evidence presented but are beyond the scope of this study and its data to examine. Moreover, this study has made no attempt to assess the quality of care rendered by either primary care or specialist physicians.

With respect to the increased concentration of care reported, episode-of-care analysis could be used to examine the extent to which the potential for improved continuity of care might be realized when services are rendered by fewer providers. Other analyses with these data²⁴ have indicated that ancillary and prescription drug use are lower in the gatekeeping programs, suggesting efficiencies in care may result, but this evidence again fails to address the question of effectiveness of care. An extensive analysis of quality of care in two other Medicaid Competition Demonstration sites was carried out.²⁵ The study used process and outcome measures and did not detect substantial differences in quality between these programs and traditional freedom-of-choice Medicaid.

Like the Safeco program, neither the Monterey nor the New Jersey gatekeeping program achieved significant reductions in services expenditures relative to their comparison groups. The Monterey program was ultimately

discontinued as a result of insolvency,¹⁵ and New Jersey terminated its demonstration program to pursue another prepaid alternative delivery model.

This analysis responds to several questions about the impact of primary care gatekeeping. Proponents of such programs should appreciate the malleable nature of beneficiary patterns of physician use under a gatekeeping design. They should also recognize, however, the need for more refined and longer term assessments of the changes gatekeeping produces. Such studies, if done, may lend further support for continued expansion of this strategy. This expansion will not be in pursuit of gatekeeping as a cost-containment panacea, but rather as a preferred arrangement for assuring access to medical benefits.

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References

1. Freund D. Medicaid reform: four studies of case management. Washington, DC, American Enterprise Institute, 1984.
2. Spitz B, Abramson J. Competition, capitation, and case management: barriers to strategic reform. *Milbank Mem Fund Q* 1987; 65(3):348-68.
3. Hurley R. Toward a behavioral model of the physician as case manager. *Soc Sci Med* 1986; 23(1):75-82.
4. Moore S, Martin D, Richardson W. Does the primary care gatekeeper control the cost of health care? *N Engl J Med* 1983; 309:1400-7.
5. Richardson W, Martin D, Diehr P, et al. Consumer choice and cost containment: Safeco's United Healthcare Plan. Health Care Financing Administration Grant and Contract Report under grant No. 18-P-9712210. Washington, DC: Government Printing Office, 1984.
6. Freund D, Neuschler E. Overview of Medicaid competition and case management initiatives. *Health Care Financing Rev*, 1986 (ann suppl):21-30.
7. Hurley R, Freund D. Typology of Medicaid managed care. *Med Care* 1988; 26:764-73.
8. Holahan J, Bell J, Adler G, eds. Medicaid program evaluation: final report (working paper 9.2). Baltimore, Md: Health Care Financing Administration, Office of Research and Demonstrations, 1987.
9. Final report: Medicaid competition demonstrations, prepared under HCFA contract No. 500-83-0050. Research Triangle Park, NC: Research Triangle Institute, 1988.
10. Evaluation of the Arizona health care cost containment system, prepared under HCFA contract No. 500-83-0027. Menlo Park, Calif: SRI International, 1989.
11. Bonham G, Barber G. Use of health care before and during Citicare. *Med Care* 1987; 25:111-19.
12. The children's Medicaid program: final report. Elk Grove, Ill: American Academy of Pediatrics, 1988.
13. Long S, Settle R. An evaluation of Utah's primary care case management program for Medicaid recipients. *Med Care* 1988; 26:1021-32.
14. Vertrees J, Manton K, Mitchell K. Case mix adjusted analyses of

- service utilization for a Medicaid health insuring organization in Philadelphia. *Med Care* 1989; 27:397-411.
15. Aved B. The Monterey health initiative: a post-mortem of a California Medicaid demonstration. *Med Care* 1987; 25:111-19.
 16. Freund D, Hurley R. Managed care in Medicaid: selected issues in program origins, design and research. *Ann Rev Public Health* 1987; 8:137-63.
 17. Hurley R, Freund D, Taylor D. Emergency room use and primary care case management: evidence from four Medicaid demonstrations. *Am J Public Health* 1989; 79:843-46.
 18. Goldberg H, Dietrich A. The continuity of care provided to primary care patients. *Med Care* 1985; 23:63-73.
 19. Position statement on physician gatekeeping programs. In: Socio-economic factbook on surgery. Chicago: American College of Surgeons, 1984.
 20. Eisenberg J. The internist as gatekeeper. *Ann Intern Med* 1986; 102:543-8.
 21. Ellsbury K, Stephens G. Can the family physician avoid conflict of interest in the gatekeeper role? *J Fam Pract* 1989; 28:698-704.
 22. Hurley R. The status of the Medicaid competition demonstrations. *Health Care Financing Rev*, 1986 (Winter):65-75.
 23. Utilization and cost analysis, vol 3, prepared under HCFA contract No. 500-83-0050. Research Triangle Park, NC: Research Triangle Institute, 1988.
 24. Enrollment choice and biased selection, volume 8, prepared under HCFA contract No. 500-83-0050. Research Triangle Park, NC: Research Triangle Institute, 1988.
 25. Quality of care study, vol 4, prepared under HCFA contract No. 500-83-0050. Research Triangle Park, NC: Research Triangle Institute, 1988.

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