



Effects of Managed Mental Health Care
on Service Use in Rural Areas



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EXECUTIVE SUMMARY

Managed behavioral health care is often described as a mental health carve-out because either the purchaser or the managed care organization separates the financial risk for mental health claims from the risk for general medical services by contracting with a managed behavioral health organization (MBHO). The MBHO can do a better job of eliminating inappropriate utilization, assuring quality, and modifying the practice style of mental health specialty providers than a general service managed care organization. One strategy to accomplish these goals is to direct mental health care away from the primary care setting toward the mental health setting where MBHO management practices have the greatest effect. In rural areas, where a major portion of the mental health care is provided by primary care practitioners, this strategy may result in decreased access to mental health services.

This study takes advantage of a “natural experiment,” resulting from the reassignment of all Maine state employees to a MBHO in December, 1992. By comparing mental health claims before and after that date, the effects of the carve-out on mental health utilization are investigated.

Key Findings:

Following the implementation of the carve-out, the penetration rate, defined as the proportion of beneficiaries who sought help for an affective disorder, increased significantly in both rural and urban areas ($p < .001$). However, the rural penetration rate remained significantly lower than the urban rate (before: 25.8 vs. 52.2 users per 1000 enrollees, $p < .001$); after: 57.8 vs. 85.8 users per 1000 enrollees, $p < .001$). Similarly, rural utilization rates, defined as the average number of outpatient mental health visits per user, were significantly lower than urban rates both before and after implementation of the carve-out (before: 9.2 vs. 12.9 visits per user, $p < .001$; after: 9.8 vs. 13.3 visits per user, $p < .001$). Before-after differences are not significant. In addition, we found that the proportion of mental health care provided in the primary care setting increased after implementation of the carve-out (from 9.5 percent of all visits before, to 12.6 percent of all visits after, $p < .001$).

Conclusions:

The increase in penetration rates, both urban and rural, is attributed, in part, to a member education initiative undertaken during the transition from fee-for-service to managed care. The increase in the proportion of mental health care provided in the primary care setting is attributed to the greater ability of primary care practitioners (PCPs), as compared with mental health specialty providers, to accommodate the increased demand evidenced by the increased penetration rate. We conclude that this type of carve-out arrangement does not threaten to reduce access to mental health services, provided the MBHO managing the carve-out is willing to accept PCPs as part of its provider network.

INTRODUCTION

That certain mental health problems are more likely to be seen and treated by primary care practitioners (PCPs) than by mental health providers is an accepted fact in many rural areas. Often the policies of both public and private agencies, including insurers and payers, do not seem cognizant of this simple reality of rural mental health services. For example, while managed mental health care has the potential to improve the quality of mental health care while containing costs, there is a danger that it will undermine the existing, primary-care based mental health care system.

In this study, we investigate the effects of a current strategy for managing mental health care on mental health utilization patterns among Maine state employees and their dependents suffering from depression or bipolar affective disorders. We specifically address whether this strategy, typically referred to as a mental health “carve-out,” has affected the role of PCPs in delivering mental health services in rural areas, and, if so, whether this change has had a negative effect on access to mental health services by rural beneficiaries.

BACKGROUND:

Managed Behavioral Healthcare

As of January, 1995, the relatively new industry of managed behavioral health care had an enrollment of 108 million Americans; roughly half of the insured population (Hiebert-White 1995, Huskamp, et al. 1996). Managed behavioral health care (MBHC) is often described as a mental health carve-out, because either the purchaser or the managed care organization separates the financial risk for mental health claims from the risk for general medical services by contracting with a managed behavioral health organization (MBHO). In a variant on this model, the insurer retains the financial risk, but contracts with an MBHO for all other functions typically handled by such organizations. These functions

include recruiting a provider panel, establishing utilization management and referral protocols and prior authorization mechanisms, and, in some cases, quality management (Mechanic et al. 1995).

Some studies have found that over 50 percent of mental health care is provided by primary care practitioners (PCPs). This is due to an inadequate supply of mental health providers, stigma associated with mental health utilization, and limited insurance coverage for mental health services (Knesper et al. 1984; Stuve et al. 1989). This pattern has been termed a "de facto" mental health system (Regier et al. 1993). In a recent study, we found that rural Medicaid beneficiaries with depression were twice as likely as their urban counterparts to receive their mental health care in a primary care setting (Lambert, Agger and Hartley 1996).

Carve-outs: What are the incentives?

Mental health carve-outs are based, in part, on the assumption that a firm specializing in the management of mental health utilization can do a better job of eliminating inappropriate utilization, assuring quality, and modifying the practice style of mental health specialty providers than a general service managed care organization (MCO) (Mechanic et al. 1995, Wholey et al. 1996). Thus, part of their strategy may include directing mental health care away from the primary care setting toward the mental health setting, where their management practices presumably have the greatest effect. Directing mental health care away from the primary care sector assumes the presence of a mental health services system to provide mental health services that were previously provided by PCPs. In rural areas that are in short supply of mental health service providers, the carve-out may direct enrollees away from primary care providers with no mental health providers present and ready to provide those services. The MBHO may have a panel of providers that requires rural patients to travel significantly further for mental health care than they would have if that care were provided in the primary care setting. Thus, the net effect of MBHO carve-outs may be reduced access to mental health services in rural areas.

On the other hand, a conscientious MBHO may make an effort to assure that all enrollees have access to needed services by placing mental health providers in areas previously underserved, either through satellite offices, "circuit riders", or telemedicine. Few contracts include specific access standards for rural areas (Oss, et al. 1998). While some purchasers rely on accreditation standards, such as the National Committee for Quality Assurance (NCQA), these standards are vague, and allow the MBHO to set its own standards (Oss et al. 1998). Alternatively, the MBHO may approve and pay for mental health services delivered by PCPs to beneficiaries living in areas with an undersupply of MH providers.

The contracts that MCOs have with PCPs also create an incentive to refer mental health problems to the mental health sector, whether or not a carve-out contract is involved. Typically, the capitation or partial capitation rate paid to the primary physician does not include a mental health capitation rate. Mental health services provided by the PCP must therefore be covered out of the primary care capitation rate, resulting in more total visits with no additional reimbursement. If the PCP believes that a depressed patient will not receive mental health services elsewhere, due to the patient's unwillingness to seek care in the mental health sector, or due to a lack of available mental health services, the PCP has a countervailing incentive to treat the depression, knowing that, left untreated, it is likely that increases in general medical service utilization will result.

When MBHO carve-outs come into play, the balance of incentives may shift. Once mental health risk has been transferred to the MBHO, the MCO has an increased incentive to direct mental health care away from its PCPs. To manage its risk, the MBHO uses two strategies. It includes in its contract with the HMO, or purchaser, a gatekeeping function, whereby patients must have either a referral from their PCP, or a prior authorization from a utilization review process (often obtained by calling a toll-free number), to access mental health services. In addition, once a patient has seen a mental health provider, the MBHO uses utilization review to limit the number of visits. (While some MBHOs also share risk with

their mental health providers by means of capitation payments, such arrangements have not yet been reported for rural MBHO panels.)

Thus, there may be two effects at work in determining the amount of mental health care provided in the primary care setting under managed care. A general "managed care effect", and an additional "carve-out effect." Both of these effects may direct patients away from primary care toward specialty mental health providers in urban areas. In rural areas, these effects may direct patients away from primary care toward no care at all. In the case of MBHOs that do not assume financial risk, a similar result might be expected, since the MBHO would still have an incentive to direct patients away from the primary care setting toward its panel of mental health providers.

This study

In this study, we address three research questions:

1. What effects do managed behavioral healthcare carve-outs have on access to mental health services for patients with depression or bipolar affective disorder as indicated by penetration and utilization rates. Does managed care affect urban and rural access differently?
2. Is there an urban-rural difference in the percentage of mental health services provided in the primary care sector? What is the effect of a managed behavioral healthcare carve-out on that percentage? Is there an urban-rural difference in this effect?
3. What is the role of the supply of mental health providers in general, and the supply of mental health providers within the approved panel, in explaining observed geographical differences in mental health utilization by these patients?

METHODS

Study Design:

This study takes advantage of a “natural experiment” that allows observations before and after an intervention. Maine state employees have been insured under various Blue Cross Blue Shield health plans for several years. Since December 1992, behavioral health benefits have been managed by GreenSpring of Maine, an MBHO. GreenSpring has not assumed risk, but has managed utilization and has handled all provider relations, including recruitment to the provider panel. Prior to the GreenSpring contract, mental health benefits had an annual maximum payment of \$1000 per person with 50 percent coinsurance. Under the new contract, the coinsurance was reduced to 30 percent (a decrease in the employee cost) for within-plan providers, but remained at 50 percent for out-of-plan. The annual cap was replaced with a lifetime cap of \$50,000.

Immediately following the GreenSpring contract, from January-June 1993, all state employees were switched from an indemnity policy to a point-of-service (POS) managed care policy for medical benefits.

Claims from 1991 can be used to represent the “before” observation, that is, a fee-for-service health plan, with no behavioral health carve-out. Starting with July 1992, claims represent post-intervention observations, point-of-service managed care with a behavioral health carve-out that does not transfer financial risk to the MBHO. Because there was a six-month period of transition from fee-for-service to point-of-service, claims from January to June of 1992 will not be used in the analysis.

Since managed care and managed behavioral health were implemented at approximately the same time, it is not possible to separate the two effects previously discussed using this data set. On the other hand, since the two effects are expected to affect utilization and access the same way, this study will measure the combined effect of the two changes.

Data Source/Study Population

Since 1991, claims data for this group have been maintained by the Maine Health Information Center. The state employees data set includes approximately 40,000 covered lives, nearly one third of whom reside in rural Maine.¹ We examined claims for one calendar year, January 1, 1992 - December 31, 1992, for utilization patterns under fee-for-service with no behavioral health carve-out. We then examined claims for three fiscal years, July 1 - June 30, 1993-4, 1994 -5 and 1995-6. All three of these periods represent point-of-service managed care with a behavioral health carve-out that does not transfer financial risk to the MBHO. Utilization patterns for the three years were used to determine whether changes observed between the first two periods could be attributed to the policy interventions of interest as opposed to being part of a trend, presumably attributable to other causes, and whether any observed effects were lasting.

For each period, we identified all beneficiaries with any claim having a diagnostic code associated with major or minor depression, depressive psychoses, bipolar affective disorder or affective personality disorder. We chose to focus our analysis on these mental disorders because they can be treated by PCPs (Main et al. 1993, Hartley et al. 1998, Hartley 1997). If a beneficiary had any claim during the year with such a diagnosis, all of his or her mental health claims (as identified by procedure codes) were used to investigate utilization patterns.

Since Maine state employees exhibit a low turnover rate (approximately two-thirds of the beneficiaries enrolled at any time during the four-year period were enrolled in all four years), we chose to include only those beneficiaries enrolled in all four periods for our analysis. Thus, observed changes in utilization patterns cannot be attributed to changes in the population prevalence.

Measures

We placed each outpatient claim into one of two categories according to the site or type of provider delivering the service, primary care or mental health. Indicators used to study utilization patterns included (1) the penetration rate, defined as the total number of beneficiaries using any mental health service during the year (in either sector), (2) the utilization rate, defined as the total number of outpatient visits in a year per beneficiary for only those beneficiaries who used at least one mental health service (also referred to in Table 1 as “visits per user”), and (3) several indicators associated with how much care was delivered in the primary care setting.

In Maine, metropolitan areas are not defined in terms of whole counties. Consistent with previous studies, we use primary care analysis areas as our geographic unit of analysis. There are 63 such areas in Maine. They are used by the Bureau of Primary Care for purposes of identifying health personnel shortage areas. We have defined “rural” as those PCAAs with a population density of less than 96 persons per square mile. Our measure of the supply of mental health providers has also been used in previous studies. For each PCAA we calculate the ratio of licensed mental health providers, including psychiatrists, psychologists, social workers and counselors, to the total population. These ratios are converted to an ordinal variable with values of one through three for low, medium and high supply.

To test the effect of within-plan supply, we used GreenSpring’s list of approved providers to create a dichotomous variable. For each PCAA, this variable has a value of one if GreenSpring has no local providers while our general supply measure indicates that at least one non-panel provider serves the area. This variable also has a value of one if there are only one or two panel providers in the PCAA, while the total number of providers in the PCAA is five or more. For all other PCAAs, this indicator has a value of zero.

FINDINGS

Penetration Rates

Approximately 26,800 beneficiaries were enrolled in all four periods. The number varies slightly from year to year because the total is adjusted for total months of enrollment in the year. Approximately a third of these beneficiaries reside in rural areas of Maine. As shown in Table 1, the penetration rate -- the proportion of beneficiaries who had at least one visit for one of the targeted diagnoses -- increased significantly following the implementation of managed care and the carve-out (43.5 users per 1000 enrollees vs. 68.1 users per 1000 enrollees, $p < .001$). Rural penetration rates were significantly lower than urban penetration rates for all four years, but the rural rates increased significantly under managed care with a carve-out. In fact, although rural beneficiaries continued to have a lower penetration rate throughout the four-year period, the increased penetration associated with managed care implementation appears to have benefited rural beneficiaries more than their urban counterparts. That is, the urban penetration rate increased by a factor of 1.6 (from 52.2 to 85.8) while the rural rate increased by a factor of 2.2 (from 25.8 to 57.8) between year one and year four.

Table 1 has several additional findings of interest. The penetration rate in the primary care sector was also significantly lower for rural than for urban beneficiaries, yet the penetration rate in this sector increased more dramatically over the four year period. For rural beneficiaries, the primary care penetration rate increased by a factor of 3.0 (13.5 to 40.6 users per 1000 enrollees). By the fourth year, the rate of rural beneficiaries using the primary care sector was essentially the same as the rate using the mental health sector (40.6 vs. 43.7). Another indicator of this trend can be found by comparing the primary care penetration rate in year two (28.7 users per 1000 enrollees) with the overall penetration rate in year one (25.8 users per 1000 enrollees). By these measures, we find no evidence of a negative

Table 1 Penetration Rates.

What proportion of beneficiaries have sought help for an affective disorder?

	1/1/92 to 12/31/92			7/1/93 to 6/30/94			7/1/94 to 6/30/95			7/1/95 to 6/30/96		
	urban	rural [†]	total	urban	rural [†]	total	urban	rural [†]	total	urban	rural [†]	total
members	17,934	8,943	26,877	17,896	8,956	26,522	17,876	8,967	26,843	17,712	9,083	26,795
users (at least one visit, any setting)	937	231	1,168	1,399	407	1,806	1,504	492	1,996	1,519	525	2,044
rate: users per 1000 enrollees	52.2	25.8	43.5	78.2 [‡]	45.4 [‡]	68.1 [‡]	84.1	54.9	74.3	85.8	57.8	76.3
primary care users (at least one mental health visit in a primary care setting)	461	121	582	853	257	1,110	950	328	1,278	993	369	1,362
rate: primary care users per 1000 enrollees	25.7	13.5	21.7	47.7	28.7	41.9 [‡]	53.1	36.6	47.6	56.1	40.6	50.8
mental health users (at least one mental health visit in a mental health setting)	863	201	1,064	1,184	333	1,517	1,248	384	1,632	1,215	397	1,612
rate: mental health users per 1000 enrollees	48.1	22.5	39.6	66.2	37.2	57.2 [‡]	69.8	42.8	60.8	68.6	43.7	60.2

[†] All urban-rural comparisons are significant at p<.001

[‡] All year one vs. year two comparisons are significant at p<.001

impact on access to mental health services in the primary care sector. In fact, the effect is a significant increase in this access indicator.

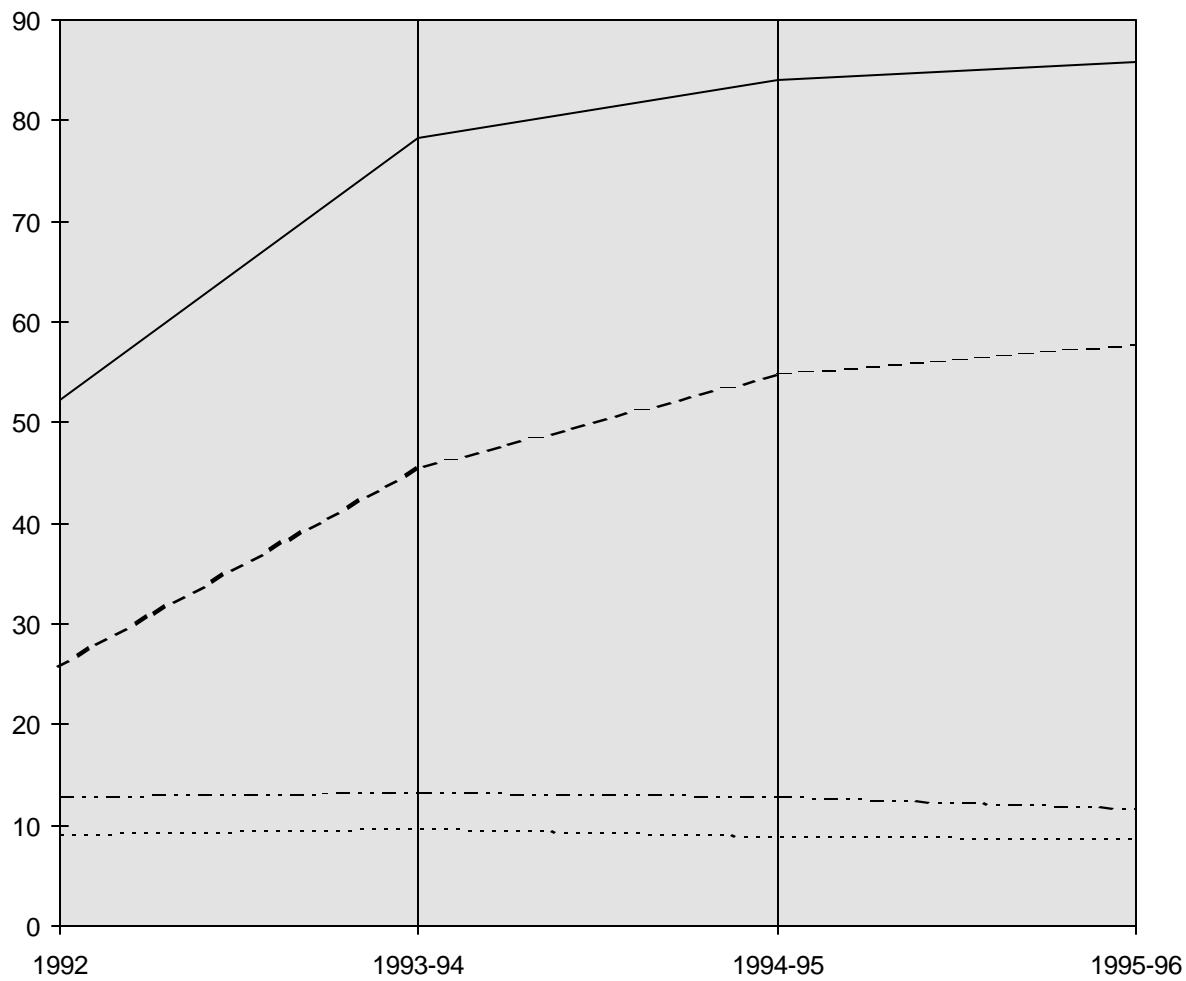
These patterns are illustrated graphically in Figure 1, which indicates the substantial increase in both urban and rural penetration rates from year one to year two, and the parallel but significantly different penetration rates when urban and rural rates are compared.

Utilization Rates

Table 2 presents utilization rates, the number of visits per mental health service user, for urban and rural beneficiaries, including total rates for each year, and the proportion of visits that took place in a primary care setting. Rural utilization rates are significantly lower than urban rates in all years. While overall utilization rates did not change significantly following implementation of managed care with a behavioral health carve-out (12.2 vs. 12.5), the percentage of visits that took place in the primary care setting increased significantly in year two, and increased further by the last year of the study period. Thus, the carve-out arrangement has apparently encouraged the provision of mental health services in the primary care setting.

To further examine the role of primary care practitioners in providing mental health services to this population, we examined utilization rates for three mutually exclusive sub-groups: beneficiaries who received mental health services exclusively in the primary care setting, those who received services exclusively in the mental health setting, and those who received services in both settings (Table 3). While utilization rates did not change significantly for the mental health only group or the both settings group, the primary-care-only group experienced a significant decrease in visits per user from year one to year two. When combined with the increase in primary care visits as a proportion of

Figure1 Penetration and Utilization Rates



— urban users per 1000 enrollees
- - - rural users per 1000 enrollees
- · - · visits per urban user
· · · · visits per rural user

Table 2 Outpatient Utilization Rates.

Of those seeking care for an affective disorder, how many outpatient visits did they have, and what proportion of those visits took place in a primary care setting?

users	1/1/92 to 12/31/92			7/1/93 to 6/30/94			7/1/94 to 6/30/95			7/1/95 to 6/30/96		
	urban users	rural users	total users	urban users	rural users	total users	urban users	rural users	total users	urban users	rural users	total users
	937	231	1,168	1,399	407	1,806	1,504	492	1,996	1,519	525	2,044
total visits: any setting	12,131	2,128	14,259	18,541	4,007	22,548	19,539	4,441	23,980	17,979	4,644	22,623
rate per user: total visits per user	12.9	9.2†	12.2	13.3	9.8†	12.5	13.0	9.0†	12.0	11.8	8.8†	11.1
total primary care visits (mental health visits in a primary care setting)	1,159	197	1,356	2,245	591	2,836	2,358	652	3,010	2,335	767	3,102
percentage: primary care visits as percent of all mental health visits	9.5	9.25	9.5	12.1‡	14.75‡	12.6‡	12.07	14.7	12.5	13.0	16.5	13.7

† Urban rural comparisons significant at p<.001

‡ Time one vs. time two comparison significant at p<.001

Table 3 Outpatient Utilization Rates by Setting

Total visits and visits per user for sub-sets of beneficiaries who had visits exclusively in primary care setting, exclusively in mental health setting, and in both settings.

users	1/1/92 to 12/31/92			7/1/93 to 6/30/94			7/1/94 to 6/30/95			7/1/95 to 6/30/96		
	urban users	rural users	total users	urban users	rural users	total users	urban users	rural users	total users	urban users	rural users	total users
	937	231	1,168	1,399	407	1,806	1,504	492	1,996	1,519	525	2,044
mental health setting only												
users	476	110	586	546	150	696	554	164	718	526	156	682
visits	6,167	1,076	7,243	7,478	1,630	9,108	7,381	1,683	9,034	6,688	1,540	8,228
visits per user	13.0	9.8§	12.4	13.7	10.9†	13.1	13.3	10.3§	12.6	12.7	9.9§	12.1
primary care setting only												
users	74	30	104	215	74	289	256	108	364	304	128	432
visits	472	116	588	765	152	917	846	206	1,052	954	259	1,213
visits per user	6.4	3.9	5.7	3.6‡	2.1§‡	3.2‡	3.3	1.9§	2.9	3.1	2.0§	2.8
beneficiaries who received mental health services in both settings												
users	387	91	478	638	183	821	694	220	914	689	241	930
visits	5,556	956	6,512	10,393	2,289	12,682	11,417	2,577	13,994	10,425	2,876	13,301
visits per user	14.4	10.5†	13.6	16.3	12.5§	15.4	16.5	11.7§	15.3	15.1	11.9§	14.3

† Urban rural comparisons significant at p<.05

§ Urban rural comparisons significant at p < 01

‡ Time one vs. time two comparison significant at p<.05

all mental health visits shown in Table 2, this finding suggests that the small subset of primary care only users may consist of patients whose affective disorders are less severe, and who can be treated by their PCP with one or two visits.

It should also be noted that the subset of users with visits in both sectors was smaller than the mental-health-only subset of users in year one, but has been the largest subset in all years since the initiation of the carve-out. In addition, this group is exhibiting more visits per user than the mental health only group. A possible explanation for these findings is an increased collaboration between mental health and primary care, whereby the PCP continues to see a patient to prescribe and monitor medications, while a mental health provider (presumably not an M.D.) provides therapy. This explanation has been corroborated by the clinical director of GreenSpring of Maine.

Factors Influencing Penetration and Utilization Rates

To investigate the respective contributions of the supply of mental health providers and the GreenSpring panel to urban rural differences in penetration and utilization rates while controlling for other factors that might influence these rates, we used two multivariate methods. For effects associated with the penetration rate, we used logistic regression, with the probability that a beneficiary received any mental health services in year two as the dependent variable. For those effects associated with the utilization rate, we used ordinary least squares regression, with the total number of visits as the dependent variable (only those who had at least one mental health visit in year two were included in this analysis).

Since the best predictor of utilization is often prior utilization, in the logistic regression we included a dichotomous variable indicating whether the beneficiary had any mental health claims in year one. For the least squares analysis we used year one utilization (total visits) to capture this effect. Additional independent variables include the urban-rural dichotomous variable, as well as the two supply variables previously described, and two severity indicators. These were dichotomous variables indicating whether

or not the beneficiary had any other mental health diagnosis in year two, and whether or not he or she had any claims with a substance abuse diagnosis. Our multivariate analyses also controlled for age and sex.

Table 4 presents findings from the logistic regression. Not surprisingly, next to the two severity variables, the strongest predictor of being a user of mental health services in year two is being a user in year one. Two variables in the model -- mental health supply and the urban-rural variable -- are highly correlated ($r=.759$). Thus, these two variables compete in the multivariate analysis. While urban residence appears to be the stronger predictor, supply is marginally significant in the model ($p=.055$). This finding confirms our suspicion that one factor contributing to lower penetration rates in rural areas is the local supply of mental health practitioners. The fact that the two variables are both significant suggests that other aspects of rural residence, not specified in this model, also contribute to the urban-rural differential.

Table 5 presents the results of a stepwise ordinary least squares regression. We chose stepwise regression for this analysis because of the correlation between the urban-rural variable and the mental health supply variable. When all eight variables were entered into the model, neither of these variables were significant. However, in a stepwise procedure, which adds variables to the model in the order in which they contribute most to explaining the variance, the urban variable was selected at step five, while the supply variable was selected at step eight. The seven-variable model is presented here to eliminate the competition between the two highly correlated variables.

Table 4 Factors Influencing Penetration Rate in Year Two
Logistic Regression (n=27,930)

Variables	Odds Ratio	95% confidence interval	probability (based on Wald chi-square)
any mental health service in year one	6.71	5.63-7.98	0.0001
urban residence	1.26	1.01-1.58	0.04
mental health supply	1.18	1.00-1.39	0.055
GreenSpring panel shortage	1.05	.83-1.33	0.67
comorbid mental health diagnosis	23.0	20.1-26.3	0.0001
substance abuse diagnosis	16.0	9.88-26.0	0.0001
Age	1.01	1.006-1.014	0.0001
sex (2=female)	1.71	1.51-1.94	0.0001

chi-square for model = 4747.2, p=.0001

Table 5 Factors Influencing Utilization Rate in Year Two
Least Squares Regression (n=1797)

Variables	parameter estimate	standard error
Total mental health visits in year one (any setting)	.554‡	.027
Urban residence	1.96*	.982
GreenSpring panel shortage	.642	1.36
Comorbid mental health diagnosis	1.74†	.66
Substance abuse diagnosis	6.62‡	1.41
Age	-.0697†	.0243
Sex (2=female)	1.29§	.69

‡ p<.001

† p<.01

* p < .05

§ p=.06

The multivariate analysis confirms that slow panel development by GreenSpring did not affect initial access and total utilization by these enrollees. Since GreenSpring has allowed beneficiaries to use other providers, albeit with a higher copayment, access to mental health services by this population (as indicated by the penetration rate) has been marginally influenced by the general supply of mental health providers in the local area. This specific finding confirms findings from a study of managed behavioral health for the Medicaid population concluding that managed behavioral health did not exacerbate existing shortages in most states, but did not resolve such shortages either (Lambert et al. 1998).

DISCUSSION AND CONCLUSIONS

Concerns that access might decline under managed behavioral health are not supported by our analysis. The message of **Figure 1**, that insurance changes between December 1992 and July 1993, increased the penetration rate for state employees with affective disorders, is striking. This increase may have been influenced by a member education initiative that was mounted during the transition period (approximately November 1992 - February 1993). Our discussions with staff at the Maine Department of Human Resources and at GreenSpring revealed that the member education undertaken at the time of the change to managed care included supplying each beneficiary with a provider directory and information on how to use the toll-free referral line. GreenSpring also provided information to primary care providers regarding referral of mental health problems. These are not uncommon tactics for managed behavioral health plans, and are usually thought of as components of a utilization management plan.

The fact that the higher penetration rate has persisted for three years suggests, however, that the increase has other causes. Another aspect of the change to managed care is the switch from annual limits to a lifetime limit on mental health benefits. While this change might be expected to affect the utilization rate, it is less likely to have affected the penetration rate, since the increase consists of beneficiaries who

did not use mental health services in the previous year, we suspect that many of them are first-time users who would be unlikely to be concerned about the annual cap.

The significant increase of the proportion of mental health care provided in the primary care setting may be explained by the overall increase in users – the penetration rate -- combined with the inability of the mental health sector to meet the increased demand. This explanation assumes that the PCPs are better able to handle increased demand than are mental health providers. Support for this explanation can be found in the fact that the rate of increase in the number of primary care users per 1000 rural enrollees was greater than the rate of increase in the mental health sector. By year four, these rural penetration rates were essentially equal (40.6 per 1000 in primary care, and 43.7 per 1000 in the mental health sector). Further evidence that PCPs have been better at accommodating increased demand in rural areas can be found in Table 2. Here one can observe that primary care visits represented a greater percentage of all mental health visits in rural areas as compared to urban areas in all years following the implementation of managed behavioral health.

We found marginal evidence ($p=.055$) that overall supply of mental health providers affects the penetration rate, but no evidence that it affects utilization. Our ability to detect this effect is compromised by the high correlation between our measure of supply and the urban-rural variable. Perhaps more to the point, we found no evidence that the adequacy of GreenSpring's panel affected access. It would appear that flexibility for out-of-plan use offered by a point-of-service plan has assured that slow panel development will not compromise access.

In previous studies we have attempted unsuccessfully to detect a substitution effect whereby PCPs substitute for mental health providers in areas of low supply (Lambert et al. 1997). In the current study, the role of primary care in the observed increase in penetration rates suggests that some sort of substitution is at work, due, in part, to increased demand. Because Greenspring of Maine allowed enrollees to receive mental health care from PCPs, much of the increased demand was absorbed by the

primary care sector. MBHOs that discourage PCPs from providing mental health care may bring about significantly different results. For example, the mental health carve-out contract for the Medicaid population in Montana did not recognize PCPs as acceptable mental health providers. Implementation of that contract in 1997 brought about severe mental health access problems for beneficiaries living in rural areas where there were no mental health providers (Lambert and Hartley 1997).

LIMITATIONS

Several features of this study suggest that caution should be exercised in interpretation of the findings. As mentioned, the mental health carve-out investigated here does not involve financial risk to providers or to the MBHO. Thus, this study examines only the effects of the administrative aspects of managed mental health care, primarily, utilization review. In addition, this study is limited to one MBHO in a rural state with limited experience in managed care. The Maine state employees insured under this plan had very few hospitalizations, so the effect of this type of carve-out on inpatient utilization could not be studied.

Despite these limitations, we believe this study is highly suggestive that managed behavioral health care, without financial incentives, poses no inherent threat to rural mental health access. We hasten to add that a more draconian approach to utilization review could lead to dramatically different access rates.

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