
Access and Use of Health Services by Chronically Mentally Ill Medicaid Beneficiaries

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This article has two objectives: to quantify the access and utilization of services received by chronically mentally ill Medicaid recipients, and to compare service utilization and access under prepayment and fee-for-service (FFS) payment. The study setting is Hennepin County (Minneapolis), Minnesota, where 35 percent of Medicaid recipients were randomly assigned to receive services from prepaid plans. An algorithm was developed to identify recipients with chronic mental illness, resulting in 739 study participants, split approximately evenly between prepayment and FFS Medicaid. Data were collected through in-person surveys at baseline, and after 1 year. We found slight improvements in the majority of access measures studied and no significant decreases in the use of inpatient or outpatient services for enrollees in prepaid health plans. The results support efforts to expand the use of prepaid health plans to meet the needs of non-institutionalized chronically mentally ill Medicaid beneficiaries.

In 1986, the Health Care Financing Administration (HCFA) authorized six States to demonstrate the efficacy of enrolling Medicaid beneficiaries in prepaid health plans, or health maintenance organizations (HMOs). Minnesota was one of those States, with Hennepin County (containing Minneapolis) serving as an urban site for the demonstration. Hennepin County was unique in that it was the only site in which Medicaid recipients were randomly assigned to prepaid versus FFS care. It was also the site enrolling the broadest cross-section of Medicaid recipients into prepaid plans, including those classified as disabled because of mental illness.

The purpose of this article is to compare the access to and utilization of physical and mental health services for chronically mentally ill individuals who were part of the Hennepin County demonstration. The first section reviews the relevant literature, in order to place the findings in context. The second section describes the operations of the Hennepin County program as they pertain to the research. A third section discusses the evaluation design and data sources, followed by a description of the access to and utilization of services by the prepaid and FFS groups at baseline. The subsequent sections present the differences between the two groups with respect to access and utilization during the year following enrollment in the demonstration. The article

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concludes with a discussion of the implications of the study and the limitations of the findings as they now stand.

BACKGROUND

Two quite different models have been proposed that would employ capitated financing for mentally ill public program beneficiaries (Christianson, 1989). Under one model, services would be provided by a "mental health HMO" consisting of community-based mental health providers who agreed to provide all necessary mental health care (and, under some variations, arrange for physical health services as well) for a capitated payment. This model was discussed by Sharfstein (1982) who saw it as a means to rationalize mental health care delivery through substituting community for inpatient care, and using a case management approach to coordinate services. Variants of this approach have been attempted in Utah, Arizona, and Pennsylvania.

A second model involves the mainstreaming of public program beneficiaries who are mentally ill into prepaid plans that would provide both physical and mental health care (Christianson, 1989). The Hennepin County demonstration provides one example of this model.

HMOs have traditionally drawn their enrollees from private employed groups. It is only recently that the enrollment of Medicare and Medicaid beneficiaries in HMOs has reached significant levels. By 1992, an estimated 3.6 million Medicaid recipients (almost 12 percent of the total) were in managed care plans in 36 States with an increasing number of States enrolling entire Medicaid populations (Medicine and Health, 1992). Medicaid beneficiaries are presumed to be less able to

protect themselves against the potential for under-service that exists under capitated payments. Some policy analysts have expressed concern that Medicaid beneficiaries who have a chronic mental illness might fare poorly in prepaid plans (Schlesinger, 1986).

There is almost no published research concerning outcomes of any type that are associated with enrolling chronically mentally ill Medicaid beneficiaries in HMOs. A relatively small number of studies have addressed the use of mental health services by employed groups enrolled in HMOs. In one of the few studies that employed a design in which individuals were randomly assigned to a prepaid plan and the FFS system (thus minimizing the potential for selection bias), Manning and Wells (1986) found that HMO enrollees were more likely than individuals covered by FFS insurance to use outpatient mental health services, but had fewer visits to trained mental health specialists. Non-randomized studies also found that the use of outpatient mental health services was greater in prepaid plans, but that inpatient admission rates were lower and lengths of stay for psychiatric hospitalizations were shorter (Craig and Patterson, 1981; Fullerton, Lohrenz, and Nycz, 1976; Diehr et al., 1984; Williams et al., 1979). In a recent study, Norquist and Wells (1991) found that enrollees in HMO and FFS plans had a similar prevalence of psychiatric disorder, but that HMOs used a less intensive style of care (i.e. fewer visits to mental health specialists) in treating a comparably sick population.

Extrapolation of these findings to the experience of chronically mentally ill Medicaid beneficiaries in prepaid plans would be questionable, at best. In fact,

there are relatively few data available that compare the characteristics of Medicaid and privately insured patients with chronic mental illness as would be required to make such an extrapolation. However, one study found that Medicaid patients with psychiatric hospitalizations were more severely ill but had shorter lengths of stay than did those with private insurance (Wallen, 1988).

HENNEPIN COUNTY DEMONSTRATION

In Hennepin County, 35 percent of all Medicaid beneficiaries were randomly assigned to receive services from prepaid health plans, with the remainder continuing to receive services from FFS providers. An independent broker managed the enrollment process, educating beneficiaries about plan characteristics, and enrolling them in the plan of their choice. Beneficiaries who did not attend informational meetings or respond to mailings were contacted by the broker by phone, if possible, to inform them of their options. Individuals who did not choose a plan within 60-90 days were randomly assigned to one by the broker. Unless beneficiaries requested a change of health plan within 60 days of initial enrollment, they remained in their health plan for 1 year.

Enrollment for the entire demonstration began in November 1985, with the initial enrollment efforts focused on the Aid to Families with Dependent Children (AFDC) eligibles. Enrollment efforts for individuals in the aged, blind, and disabled category, from which the analytic sample in this study was drawn, were delayed 1 year to allow further planning and educational efforts with beneficiaries and contracting health plans. Enrollment of this population was accomplished on a

month-to-month basis from November 1986 to April 1987, with service delivery for early enrollees beginning on January 1, 1987.

Seven prepaid plans contracted with the State to provide services under the demonstration. The plans were permitted to choose the Medicaid beneficiary categories they desired to enroll (AFDC, aged, blind and disabled) with the constraint that they must choose at least one category in addition to AFDC. Four plans chose to enroll beneficiaries in the blind and disabled category, which included chronically mentally ill individuals. Three of these plans were individual practice association (IPA) model HMOs and one was a network plan. Their sponsoring organizations were Blue Cross/Blue Shield (BC/BS), Hennepin County, the University of Minnesota, and an independent organization. Although the Twin Cities is a mature HMO market, with more than 40 percent of the population enrolled in HMOs, none of the four largest HMOs that serve the private sector chose to enroll this population. BC/BS, the fifth largest HMO in the Twin Cities, formed a separate health plan to participate in the demonstration, and enrolled beneficiaries in the blind and disabled category. The prepaid plans used a variety of approaches to manage provision of mental health services, including case management teams, psychiatric nurse case managers for high-risk individuals, and prior approval for non-emergency admissions. Most physicians who provided services to prepaid plan enrollees were salaried employees of the plan, or were paid on a discounted FFS basis with fee-withhold arrangements that varied by plan.

Capitated rates under the demonstration were determined for 74 rate cells

based on age, sex, Medicare participation, institutional versus non-institutional residence, and eligibility status. Rates did not vary across plans, and were set at 95 percent of projected costs for aged, blind, and disabled beneficiaries. (Christianson et al. [1988], give further details on ratesetting.)

During the conceptualization and early implementation of the demonstration, most concerns relating to mental health services delivery under prepayment were raised by community-based mental health providers. These concerns related primarily to the possible disruption of ongoing treatment during the transition period, and to the ability of the prepaid plans to adequately provide appropriate care to this population. As the demonstration progressed, however, the prepaid plans began to voice their concerns with the way in which the State was managing the demonstration, particularly with respect to resolution of issues related to service delivery for chronically mentally ill enrollees. Also, "adverse selection" within this population became an important concern for some of the contracting plans. BC/BS argued that it was being "selected against" by new enrollees because of the relatively large number of mental health providers in its network; beneficiaries with chronic mental illness were likely to find that their provider participated in the BC/BS plan and, in fact, may have been encouraged by their providers to join that plan. In August 1987, BC/BS announced that it intended to terminate its participation in the demonstration, citing financial losses resulting from an unexpectedly high use of services by AFDC enrollees. Because BC/BS enrolled more than 50 percent of the blind and disabled group in Hennepin County, State officials were

concerned about the mental health impact of transferring beneficiaries to the three remaining plans, as well as the willingness and capacity of these plans to accept all of these enrollees. Therefore, the blind and disabled group of beneficiaries was transferred back to FFS Medicaid effective January 1, 1988.

RESEARCH DESIGN

The primary hypotheses of the study are:

- Chronically mentally ill Medicaid beneficiaries enrolled in prepaid plans will have less access to services of all types (physical and mental health) than individuals in FFS Medicaid.
- Chronically mentally ill Medicaid beneficiaries enrolled in prepaid plans will utilize fewer services of all types (physical and mental health) than individuals in FFS Medicaid.

To test these hypotheses, a randomized, time series, control group design was utilized. The well-known advantages of this design include the elimination of threats to internal validity, including the effects of unique historical events, maturation of the sample, testing or instrumentation effects, effects because of regression toward the mean, selection, mortality, and any interaction of these effects (Campbell and Stanley, 1966). In addition, estimates can be made with more precision and a smaller sample size than are possible with quasi-experimental designs.

To define the study population, Medicaid recipients 18–65 years of age whose eligibility status was classified as disabled were identified. Chronically mentally ill individuals were selected from this population using an algorithm based on the *International Classification of Dis-*

eases, 9th Revision, Clinical Modification (ICD-9-CM) (Public Health Service and the Health Care Financing Administration, 1980) diagnosis codes, and the number and frequency of claims for specific mental health diagnoses. The algorithm was applied to Medicaid claims tapes for disabled beneficiaries covering the 2 years preceding November 1986. (Moscovice, Finch, and Lurie [1989] discuss this algorithm; Lurie et al. [1992b] discuss its accuracy for schizophrenic patients.) As a result, 500 individuals with chronic mental illness were randomly assigned to the prepaid group. However, 104 were not eligible for inclusion in the study sample for a variety of reasons (e.g. language problems, deceased, moved out of the area). Three hundred and sixty-nine, or about 93 percent of the remaining individuals, were interviewed at baseline. Similarly, 510 individuals assigned to FFS Medicaid were identified as chronically mentally ill using the algorithm, with 90 excluded from the study, and 370 (about 93 percent of the remainder) interviewed at baseline.

The baseline interviews were conducted prior to the time when the prepaid group in the study sample actually began to receive services from health plan providers. Information was collected on de-

mographic characteristics, health and functional status, access to care, satisfaction, and the utilization of services for all 739 individuals in the study. There were no significant differences in the demographic characteristics of the prepaid and FFS samples at baseline (Table 1).

A followup interview was planned for 1 year after the baseline interview for all study members. However, the decision by the State to cancel the demonstration for the disabled group as of January 1988 necessitated a revision of this interview schedule. For individuals enrolled in prepaid plans, followup data were collected during the time period between notification of the State's intent to withdraw clients and 2 weeks following their disenrollment from the plan. This resulted in followup periods of from 7 to 12 months, with an average length of 11 months. Followup data for the FFS group were collected according to the same timeframe, with individuals randomly selected for interview at 7-12 months. Followup interviews were completed with 354 individuals in the prepaid group and 366 in the FFS group, resulting in complete baseline and followup data for about 96 percent of the individuals completing the baseline survey.

Table 1
Demographic Characteristics at Baseline

Characteristic	Prepaid		Fee-for-Service	
	Mean	Standard Deviation	Mean	Standard Deviation
Age	41.5	11.7	41.6	12.0
Years in Hennepin County	21.9	14.7	22.9	16.0
Years of Education	12.1	2.5	11.7	2.5
Monthly Income	\$384.2	246.7	\$404.1	226.1
Chronic Health Conditions (Range 0-18)	3.6	2.7	3.6	2.5
	Percent			
Female	52.8	—	58.9	—
Married	4.5	—	5.1	—
Caucasian	84.3	—	83.9	—
Employed or Student	14.6	—	12.5	—

SOURCE: Moscovice, I., Lurie, N., Christianson, J. et al., University of Minnesota, 1993.

ACCESS AND UTILIZATION OF SERVICES AT BASELINE

Self-reports of access and utilization of services collected from all respondents at the baseline survey provide a detailed description of these constructs for a poor, chronically mentally ill group of Medicaid enrollees (Tables 2-4). Indicators of access were standard measures used in several national studies including the National Medical Care Expenditures Study sponsored by the Agency for Health Care Policy and Research. Separate questions were asked relating to access to physical health services and mental health services. At baseline, there were no significant differences in any of our nine measures of access for the prepaid and FFS populations. This is not surprising given the decision to randomize Medicaid eligibles into each group as part of the demonstration project.

Almost 75 percent of respondents were able to identify a specific provider they used if they had a physical health problem, and almost 85 percent were able to

identify a specific provider they used for treatment of a mental health problem. Travel time to physical health providers averaged 26 minutes in urban-based Hennepin County with an additional 2 minutes to reach mental health providers. Office waits averaged almost 30 minutes for physical health providers but were 8 minutes less for mental health providers. For those individuals who did not have regularly scheduled appointments, appointment waits averaged 6 days for physical health providers, and approximately 10 days for mental health providers. However, more than four-fifths of all respondents had regularly scheduled appointments with their mental health providers (Table 2). Finally, 12 percent of respondents indicated that they were refused care at least once during the previous year by a health provider. Overall, the baseline data indicate that chronically mentally ill Medicaid clients in Hennepin County had relatively good access to physical and mental health services prior to the demonstration.

Self-reported use of health services was summarized by the following measures:

- Percent of the sample hospitalized during the past year for physical health, mental health, or chemical dependency reasons.
- Number of hospitalizations during the past year for the same three categories.
- Percent of the sample that used outpatient services during the 3 months prior to the interview for the same three categories.
- Number of outpatient visits during the prior 3 months for the same three categories.

Table 2

Access to Health Care at Baseline

Access Measure	Prepaid	Fee-for-Service
Physical Health		
Percent with Specific Provider	72.4	74.2
Mean Travel Time (Minutes)	25.2	26.3
Mean Office Wait (Minutes)	29.6	27.3
Mean Non-Regularly Scheduled Appointment Wait (Days)	6.2	6.7
Mental Health		
Percent with Specific Provider	86.5	81.9
Mean Travel Time (Minutes)	28.3	27.8
Mean Office Wait (Minutes)	19.5	21.7
Mean Non-Regularly Scheduled Appointment Wait (Days)	8.8	11.1
General		
Percent Refused Care During Previous Year	14.8	10.4

SOURCE: Moscovice, I., Lurie, N., Christianson, J. et al., University of Minnesota, 1993.

At baseline, the only significant difference comparing the prepaid and the FFS samples on the 12 utilization measures was a higher number of mental health admissions for the FFS group (Tables 3 and 4).

Almost 25 percent of the survey respondents reported an inpatient admission during the previous year for physical health reasons, approximately the same proportion reported an inpatient admission for mental health reasons, and less than 5 percent reported a chemical dependency admission. With respect to outpatient use, almost 70 percent of the sample reported a visit for physical health care in the 3 months prior to the interview, with an average of more than three visits during that 3-month period. A larger percent (78) reported a visit for mental health treatment during the same period, with an average of 11 visits across both groups. Ten percent of the sample reported a visit for chemical dependency treatment, with an average of slightly more than one visit during the 3-month period. The utilization

results reflect the accessibility of health services for this group, as documented in Table 2, and indicate the extensive use of inpatient and outpatient services by chronically mentally ill Medicaid enrollees.

PREPAID VERSUS FFS COMPARISONS

Comparisons of the access and utilization of services by enrollees in prepaid plans versus beneficiaries in FFS Medicaid are presented using self-report data from the baseline and followup interviews. Although the randomization employed in this study was successful in producing two comparable groups of beneficiaries at baseline, the use of covariates to calculate "regression adjusted" results can substantially reduce the sampling error, and provide more efficient estimates of the impact of enrolling in prepaid plans. A full list of the covariates used in the regression models is contained in Table 5. The use of binary dependent variables (e.g. whether or not a hospitalization occurred) in a regression model

Table 3
Utilization of Inpatient Services at Baseline

Utilization Measure	Prepaid	Fee-for-Service
Physical Health		
Percent with Any Admissions Past Year	22.8	23.2
Mean Number Admissions Past Year	0.46	0.48
Mental Health		
Percent with Any Admissions Past Year	19.9	26.4
Mean Number Admissions Past Year	0.30	0.52
Chemical Dependency		
Percent with Any Admissions Past Year	4.8	4.8
Mean Number Admissions Past Year	0.05	0.05

¹p < 0.01.

SOURCE: Moscovice, I., Lurie, N., Christianson, J. et al., University of Minnesota, 1993.

Table 4
Utilization of Outpatient Services at Baseline

Utilization Measure	Prepaid	Fee-for-Service
Physical Health		
Percent with Any Visits Past 3 Months	67.5	72.3
Number of Visits Past 3 Months	3.4	2.8
Mental Health		
Percent with Any Visits Past 3 Months	79.7	77.1
Number of Visits Past 3 Months	9.5	12.5
Chemical Dependency		
Percent with Any Visits Past 3 Months	10.9	9.4
Number of Visits Past 3 Months	1.2	1.1

SOURCE: Moscovice, I., Lurie, N., Christianson, J. et al., University of Minnesota, 1993.

Table 5
Covariates Used in the Estimation of
Regression-Adjusted Differences

Prepaid versus fee-for-service (FFS)
Age
Sex
Race
Education
Income
Participation in Medicare
Possession of private insurance
Number of mental health admissions, prior year
Number of physical health admissions, prior year
Number of chemical dependency admissions, prior year
Mental health outpatient visits, past 3 months
Physical health outpatient visits, past 3 months
Chemical dependency outpatient visits, past 3 months
General health status (excellent-poor)
Number of comorbid conditions
Living arrangements
Marital status
Physical functioning index
Global Assessment Scale score
Scores on SADS-C subscales ¹
Number of impairments in community function
Number of days in plan
Interaction of prepaid or FFS status with mental and physical health care admissions
Interaction of prepaid or FFS status with mental and physical health outpatient visits

¹SADS-C indicates Schedule of Affective Disorders and Schizophrenia-Change version.

SOURCE: Moscovice, I., Lurie, N., Christianson, J. et al., University of Minnesota, 1993.

violates the assumptions of ordinary least squares regression techniques. Therefore, logit models were employed to estimate relationships for these variables. For continuous dependent variables, we constructed change scores, computing the difference between the value of the dependent variable at the baseline and followup interviews. We then used these change scores as dependent variables in our analyses. This approach avoids the problems that can occur when a dependent variable has a large proportion of zero values, as was sometimes the case for our utilization measures. In Tables 6-8, differences are presented for raw change scores and for regression adjusted change scores.

Access

The adjusted comparisons indicate that there were no significant differences in changes over time in any of the nine access measures (Table 6). Access to health

Table 6
Access to Health Care: Prepaid (PP) Versus Fee-for-Service (FFS) Comparisons

Access Measure	Time 2-Time 1 Changes		P-Value	Difference in Percent (PP-FFS) ¹	Adjusted Difference in Time Trend (PP-FFS) ²	P-Value
	Prepaid	FFS				
Physical Health						
Percent with Specific Provider	-3.55	-2.58	0.36	6.77	—	0.26
Travel Time for Care (Minutes)	-0.54	0.42	0.62	—	-2.29	0.43
Office Wait at Provider (Minutes)	-4.31	1.17	0.03	—	-4.24	0.25
Number of Days Usual Wait for Appointment	-0.14	-0.03	0.94	—	0.78	0.76
Mental Health						
Percent with Specific Provider	-6.43	-2.26	0.01	5.91	—	0.15
Travel Time for Care (Minutes)	-1.06	0.87	0.27	—	-2.63	0.32
Office Wait at Provider (Minutes)	-1.71	-4.06	0.14	—	0.78	0.74
Number of Days Usual Wait for Appointment	2.69	-2.55	0.14	—	3.92	0.71
General						
Percent Refused Care During Past Year	3.24	1.98	0.27	-1.98	—	0.66

¹This column presents the difference in percent of those enrolled in prepaid health plans compared with FFS for specific outcome measures at the 1-year followup.

²This column presents the regression adjusted results for the change over time in specific outcome measures for those enrolled in prepaid health plans compared with FFS.

SOURCE: Moscovice, I., Lurie, N., Christianson, J. et al., University of Minnesota, 1993.

services remained high during the study period for both groups. Although the results were not significant, enrolling in a prepaid health plan increased the probability of having a specific health provider by 6 percent to 7 percent, and reduced travel times and office wait times. The results do not support fears that enrollment of the chronically mentally ill in prepaid health plans will lead to reduced access to physical and mental health care. On the contrary, there was a small improvement in six of the nine access measures that we tracked over time for prepaid health plan members.

Inpatient Utilization

The unadjusted comparisons of changes over time in the use of inpatient services indicate a significant increase ($p < 0.01$) in the number of mental health admissions in the prepaid group during the study period, and an almost significant increase ($p < 0.08$) in the probability of a prepaid group member having a chemical dependency admission (Table

7). The adjusted comparisons indicate that enrollment in a prepaid health plan increased the likelihood of a chemical dependency admission by 7.9 percent ($p < 0.04$) and a mental health admission by 6.3 percent, and decreased the likelihood of a physical health admission by 0.5 percent. The change over time in the mean number of physical health and mental health admissions was not significantly different between prepaid and FFS enrollees. The differences in the conclusions based on the unadjusted and adjusted models highlight the importance of comparing regression-adjusted means.

Outpatient Utilization

We defined physical health care visits as visits to any source for physical health care including hospital emergency rooms, hospital clinics, and community health clinics. Mental health visits were defined as visits to any mental health professional or to a general physician's office for the purpose of mental health care. This measure did not include visits to

Table 7
Inpatient Utilization: Prepaid (PP) Versus Fee-for-Service (FFS) Comparisons

Utilization Measure	Time 2-Time 1 Changes		P-Value	Difference in Percent (PP-FFS) ¹	Adjusted Difference in Time Trend (PP-FFS) ²	P-Value
	Prepaid	FFS				
Physical Health						
Percent with Any Admissions Past 12 Months	-4.50	-8.06	0.42	-0.55	—	0.92
Number of Admissions Past 12 Months	-0.90	-0.12	0.68	—	0.17	0.11
Mental Health						
Percent with Any Admissions Past 12 Months	-0.96	-6.77	0.31	6.34	—	0.24
Number of Admissions Past 12 Months	0.08	-0.20	0.01	—	-0.01	0.90
Chemical Dependency						
Percent with Any Admissions Past 12 Months	0.32	-2.89	0.08	7.91	—	0.04
Number of Admissions Past 12 Months	-1.29	2.58	0.14	—	(³)	(³)

¹This column presents the difference in percent of those enrolled in prepaid health plans compared with FFS for specific outcome measures at the 1-year followup.

²This column presents the regression adjusted results for the change over time in specific outcome measures for those enrolled in prepaid health plans compared with FFS.

³Sample too small to complete multivariate analysis.

SOURCE: Moscovice, I., Lurie, N., Christianson, J. et al., University of Minnesota, 1993.

drop-in centers, day treatment programs, or residential treatment facilities. Chemical dependency visits included visits to health professionals in office or clinic settings, detoxification centers or counselors, emergency rooms, and crisis centers.

The adjusted comparisons indicate that the probability of a prepaid group member visiting any source increased by 9.5 percent for physical health care and 7.2 percent for chemical dependency treatment; for mental health care it decreased by 3.3 percent (Table 8). The average change in the number of outpatient visits for the prepaid group was 0.68 visits less during the 3-month period for physical health and 0.75 less for mental health; the change was 0.2 visits greater for chemical dependency treatment. Although none of these results were statistically significant, they generally support previous literature that suggests that prepaid health plan membership tends to increase the probability of use of services

and decrease the rate of use of services by the mentally ill (Manning and Wells, 1986).

Table 9 presents differences in the use of various types of providers of mental health services on the part of prepaid health plan and FFS members. The results indicate that prepaid enrollees were more likely to use psychologists and less likely to use hospital medical clinics. The use of other mental health providers, including psychiatrists, social workers, community mental health centers, emergency rooms, and crisis centers, remained relatively stable for prepaid health plan and FFS members. No significant differences were present in changes in visits, by provider type. These findings suggest there were not substantial substitutions of less specialized mental health providers for other types of mental health providers in the prepaid health plans serving chronically mentally ill Medicaid beneficiaries.

Table 8
Outpatient Utilization: Prepaid (PP) Versus Fee-for-Service (FFS) Comparisons

Utilization Measure	Time 2—Time 1 Changes			Difference in Percent (PP-FFS) ¹	Adjusted Difference in Time Trend (PP-FFS) ²	P-Value
	Prepaid	FFS	P-Value			
Physical Health						
Percent with Any Visits Past 3 Months	-6.11	-0.65	0.26	9.55	—	0.14
Number of Visits Past 3 Months	-0.42	0.06	0.35	—	-0.68	0.23
Mental Health						
Percent with Any Visits Past 3 Months	-6.43	-2.26	0.20	-3.34	—	0.59
Number of Visits Past 3 Months	-0.19	0.79	0.12	—	-0.75	0.39
Chemical Dependency						
Percent with Any Visits Past 3 Months	-6.43	0.97	0.01	7.18	—	0.09
Number of Visits Past 3 Months	4.50	-0.23	0.70	—	0.21	0.82

¹This column presents the difference in percent of those enrolled in prepaid health plans compared with FFS for specific outcome measures at the 1-year followup.

²This column presents the regression adjusted results for the change over time in specific outcome measures for those enrolled in prepaid health plans compared with FFS.

SOURCE: Moscovice, I., Lurie, N., Christianson, J. et al. University of Minnesota, 1993.

DISCUSSION

The increased growth of Medicaid expenditures in the past decade has led policymakers to include the Medicaid program in current health care reform discussions. The marriage of Medicaid and managed care is at the core of these discussions. HCFA initiated the Medicaid competition demonstration in the mid-1980s to test alternative delivery and financing approaches to provide health care services to Medicaid enrollees. However, the evaluation evidence relating to Medicaid managed care is mixed and

somewhat dependent on the State environment and managed care approach used (Hurley, Freund, and Paul, 1992).

Medicaid managed care has been primarily used for the AFDC population of low-income women and children. Special needs populations, such as the chronically mentally ill, have generally not participated in managed care demonstration projects involving Medicaid beneficiaries. Advocates for the chronically mentally ill have criticized managed care plans for severely curbing access to mental health and chemical dependency services, and

Table 9

Outpatient Mental Health Utilization by Provider Type: Prepaid (PP) Versus Fee-for-Service (FFS) Comparisons

Utilization Measure	Difference in Percent (PP-FFS) ¹	Adjusted Difference in Time Trend (PP-FFS) ²	P-Value	Utilization Measure	Difference in Percent (PP-FFS) ¹	Adjusted Difference in Time Trend (PP-FFS) ²	P-Value
Psychiatrist				Number of Visits Past 3 Months			
Percent with Any Visits Past 3 Months	2.31	—	0.70	—	-0.73	0.26	
Number of Visits Past 3 Months	—	-0.10	0.75	Community Mental Health Center			
Psychologist				Percent with Any Visits Past 3 Months			
Percent with Any Visits Past 3 Months	14.27	—	0.01	0.001	—	1.00	
Number of Visits Past 3 Months	—	-0.60	0.75	Number of Visits Past 3 Months			
Social Worker				Hospital Emergency Room			
Percent with Any Visits Past 3 Months	-1.10	—	0.79	-3.97	—	0.27	
Number of Visits Past 3 Months	—	0.28	0.42	Percent with Any Visits Past 3 Months			
Hospital Medical Clinic				Crisis Center			
Percent with Any Visits Past 3 Months	-9.19	—	0.01	2.25	—	0.47	
Number of Visits Past 3 Months	—	0.43	0.07	Number of Visits Past 3 Months			
Hospital Psychiatric Clinic				General Practitioners Office			
Percent with Any Visits Past 3 Months	-0.21	—	0.54	2.87	—	0.23	
				Percent with Any Visits Past 3 Months			
				Number of Visits Past 3 Months			
				— -0.03 0.75			

¹This column presents the difference in percent of those enrolled in prepaid health plans compared with FFS for specific outcome measures at the 1-year followup.

²This column presents the regression adjusted results for the change over time in specific outcome measures for those enrolled in prepaid health plans compared with FFS.

SOURCE: Moscovice, I., Lurie, N., Christianson, J. et al., University of Minnesota, 1993.

for the narrow view these plans have of mental health care (*Minneapolis Star and Tribune*, 1991).

This study evaluated the experience of using prepaid health plans to serve chronically mentally ill Medicaid beneficiaries. Using multiple measures of access and service utilization, we did not find evidence of decreased access and service use of beneficiaries enrolled in prepaid health plans. In contrast, we found slight improvements in the majority of access measures studied, and no significant decreases in the use of inpatient or outpatient services for enrollees in prepaid health plans. The report of null findings raises the issue of whether increased power in the design would have yielded results with substantive significance. A review of Tables 6, 7, and 8 suggests that the use of inpatient and outpatient chemical dependency services is one area where increased power may have yielded substantive results.

Before discussing the implications of these results, it is important to recognize the limitations of the research. First, providers in the Twin Cities have considerable experience practicing medicine as part of prepaid organizations in a competitive environment. Observed differences could be fewer (or more) in other communities where providers have less experience with prepaid organizations.

Second, although enrollees did not experience decreased access or health care use relative to the FFS group, this may reflect the relatively short time period that they were in prepaid plans or their previous relationships with IPA physicians. Although the period covered by the study was long enough to detect any immediate adverse consequences associated with disruptions in provider relationships and

treatment regimes, it was not sufficient to detect long-term trends. In addition, only 15 percent of prepaid plan enrollees changed their usual health care provider. Many FFS providers were members of at least one of the IPA plans that participated in the demonstration.

Third, there are limitations in using self-reported data to assess the utilization of services. For self-reported data, the issue of recall is important for individuals suffering from chronic mental illness or their proxy respondents. Because of the randomized design, we did not expect differences in reported utilization to reflect underlying population differences. Thus, although the amount of self-reported use may be inaccurate, the magnitude and direction of any reported differences most likely represents an effect due to the experiment. In contrast, the issue of health plan incentives to accurately and completely report utilization via dummy claims data is of concern. In particular, although hospital utilization data appeared to be fairly accurate, the physician visit and emergency room data reported by some plans were suspect. Therefore, claims data were not used in the analyses of utilization reported in this article.

In summary, the results of this study coupled with our previous results (Lurie et al., 1992a), which found no consistent evidence of worsened health status for prepaid health plan enrollees, support current efforts to expand the use of prepaid health plans to meet the needs of non-institutionalized, chronically mentally ill Medicaid beneficiaries in Minnesota. The generalizability of our findings may depend on the specific types of managed care approaches used by other States for their Medicaid population. Given the current health care reform inter-

est in the use of managed care plans for the poor, we suggest continued research on the long-term effects of these approaches on "high risk" populations within Medicaid.

REFERENCES

Campbell, D., and Stanley, J.: *Experimental and Quasi Experimental Designs for Research*. Chicago. Rand McNally, 1966.

Christianson, J.: Capitation of Mental Health Care in Public Programs. In Scheffler, R.M., and Rossiter, L.F. eds.: *Health Economics and Health Services Research*. Greenwich, CT. JAI Press, 1989.

Christianson, J., Lurie, N., Finch, M., and Moscovice, I.: Mandatory Enrollment of Medicaid-Eligible Mentally Ill Persons in Prepaid Health Plans: The Minnesota Demonstration Project. *Administration and Policy in Mental Health* 16(2):51-64, 1988.

Craig, T., and Patterson, O.: A Comparison of Mental Health Costs and Utilization Under Three Insurance Models. *Medical Care* 19(2):184-192, 1981.

Diehr, P., Williams, S., Martin, D., and Price, K.: Ambulatory Mental Health Services Utilization in Three Plans. *Medical Care* 22(1):1-13, 1984.

Fullerton, D., Lohrenz, F., and Nycz, G.: Utilization of Pre-Paid Services by Patients with Psychiatric Diagnoses. *American Journal of Psychiatry* 133(9):1057-1060, 1976.

Hurley, R., Freund, D., and Paul, J.: *Managed Care in Medicaid: Lessons for Policy and Program Design*. Ann Arbor. Health Administration Press, 1992.

Lurie, N., Moscovice, I., Finch, M., et al.: Does Capitation Affect the Health Care of the Chronically Mentally Ill? Results From a Randomized Trial. *Journal of the American Medical Association* 267(24):3300-3304, 1992a.

Lurie, N., Popkin, M., Dysken, M., et al.: Accuracy of Diagnoses of Schizophrenia in Medicaid Claims. *Hospital and Community Psychiatry* 43(1):69-71, 1992b.

Manning, W., and Wells, K.: Preliminary Results of a Controlled Trial of the Effect of a Prepaid

Group Practice on the Outpatient Use of Mental Health Services. *Journal of Human Resources* 21(3):293-320, 1986.

Medicine and Health: Medicaid Managed Care Enrollment Jumps. 46(47):2, December 7, 1992.

Minneapolis Star and Tribune: Move to HMO's Has Cut Some Services to Poor People, Critics of System Claim. P. 1, November 11, 1991.

Moscovice, I., Finch, M., and Lurie, N.: Plan Choice by the Mentally Ill in Medicaid Prepaid Health Plans. In Scheffler, R.M., and Rossiter, L.F., eds.: *Health Economics and Health Services Research*. Greenwich, CT. JAI Press, 1989.

Norquist, G., and Wells, K.: How Do HMO's Reduce Outpatient Mental Health Care Costs. *American Journal of Psychiatry* 148(1):96-101, 1991.

Public Health Service and Health Care Financing Administration: *International Classification of Diseases, 9th Revision, Clinical Modification*. DHHS Pub. No. 80-1260. Public Health Service. Washington. U.S. Government Printing Office, September 1980.

Schlesinger, M.: On the Limits of Expanding Health Care Reform: Chronic Care in Prepaid Settings. *The Milbank Memorial Fund Quarterly, Health and Society* 64(2):189-215, 1986.

Sharfstein, S.: Medicaid Cutbacks and Block Grants: Crisis or Opportunity for Community Health. *American Journal of Psychiatry* 139(4):406-470, 1982.

Wallen, J.: Case Mix and Treatment Patterns of Medicaid and Privately Insured Psychiatric Patients in Short-Term General Hospitals. Hospital Cost and Utilization Project Research Note 9, DHHS Pub. No. (PHS) 87-3402. National Center for Health Services Research and Health Care Technology Assessment, Hospital Studies Program. Rockville, MD. 1988.

Williams, S., Diehr, P., Drucker, W., and Richardson, W.: Mental Health Services: Utilization by Low-Income Enrollees in a Prepaid Group Practice Plan and in an Independent Practice Plan. *Medical Care* 17(2):139-151, 1979.

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