ORIGINAL ARTICLE

The Effect of a Managed Behavioral Health Carve-Out on Quality of Care for Medicaid Patients Diagnosed as Having Schizophrenia

Alisa B. Busch, MD, MS; Richard G. Frank, PhD; Anthony F. Lehman, MD, MSPH

Context: Managed behavioral health carve-outs (MBHCOs) are a regular feature of public and private mental health care systems and have been successful in reducing costs. The evidence on quality impacts is limited and suggests comparable quality overall, except that people with severe psychiatric disorders may be those most disadvantaged by MBHCOs.

Objective: To explore the effect of implementing an MBHCO on the quality of outpatient care received by enrollees diagnosed as having schizophrenia.

Design and Participants: Observational retrospective cohort study using a quasi-experimental design of state Medicaid enrollees diagnosed as having schizophrenia, aged 18 to 64 years between 1994 and 2000 in the carve-out and comparison regions (8082 person-years).

Setting: Ambulatory care.

Main Outcome Measures: Quality indicators derived from the Schizophrenia Patient Outcomes Research Team recommendations.

Results: There was no statistical difference between the carve-out and integrated arrangements in the likelihood of receiving any antipsychotic medication (odds ratio [OR], 1.02; 95% confidence interval [CI], 0.81-1.29), second-generation antipsychotics (including clozapine: OR, 1.05; 95% CI, 0.86-1.28; not including clozapine: OR, 1.05; 95% CI, 0.85-1.29), or antiextrapyramidal medication (OR, 1.36; 95% CI, 0.84-2.19). The carve-out was negatively associated with receiving any individual therapy (OR, 0.27; 95% CI, 0.22-0.33), group therapy (OR, 0.19; 95% CI, 0.14-0.25), and psychosocial rehabilitation (OR, 0.31; 95% CI, 0.26-0.38). Family therapy occurred for less than 1% of this population in both carve-out and integrated regions.

Conclusions: The MBHCO was not associated with changes in medication quality (for which it was not at financial risk). It was significantly associated with sharp decreases in the likelihood of receiving psychosocial treatments (for which it was financially at risk)—independent of whether a clinical evidence base supported them.

Arch Gen Psychiatry. 2004;61:442-448

From the Departments of Psychiatry (Dr Busch) and Health Care Policy (Dr Frank), Harvard Medical School, Boston, Mass; Department of Psychiatry, University of Maryland School of Medicine, Baltimore, Md (Dr Lehman); Alcohol and Drug Abuse Treatment Program, McLean Hospital, Belmont, Mass (Dr Busch); and National Bureau of Economic Research, Cambridge, Mass (Dr Frank).

MANAGED BEHAVIORAL health carve-outs (MBHCOs) are a regular feature of the mental health care delivery landscape[1] and have been successful in reducing costs.[2-4] As states struggle to control Medicaid spending, they have turned to managed behavioral health care organizations to ration public mental health–substance abuse (MH/SA) care. More than 20 states have adopted carve-outs to manage MH/SA care in the Medicaid program.[1] Carve-outs serve to separate part of the risk in a health insurance arrangement and manage it under a separate contract. Two sets of health insurance risks where this occurs frequently are mental health and substance abuse care (together referred to as *behavioral health care*) and prescription medications. There are several different approaches to organizing carve-out arrangements.[5]

There are multiple ways in which states can contract with carve-outs. In the analysis presented in this article, we focus on a carve-out contract where the state directly contracts with a specialty managed behavioral health care vendor. This arrangement is quite common within state Medicaid programs. Arizona, Colorado, Florida, Iowa, Massachusetts, Maryland, New Jersey, and Utah, among others, have adopted this approach. Under such contracts, specialty mental health services—which include psychotherapy, medication management, day treatment, inpatient care, psychosocial rehabilitation, and case management services—are managed by the carve-out vendor. The contract frequently includes financial risk for the carve-out vendor and some performance requirements.

©2004 American Medical Association. All rights reserved.
Downloaded From: http://archpsyc.jamanetwork.com/ on 08/20/2014

Risk-based contracts range from pure capitation arrangements to contracts specifying high levels of risk sharing between the state Medicaid program and the vendor. Performance requirements span from the speed at which telephones for intake are answered to indicators of continuity of care. Carve-out contracts generally do not include management of prescription drug utilization.

The MBHCOs offer potential advantages and disadvantages. Among the disadvantages are incentives for cost shifting and concerns regarding barriers to access and coordination of care.[5] The advantages include the application of specialized expertise to the rationing of MH/SA care, scale economies for smaller health plans, and, in some circumstances, protection against adverse selection.[5,6] The idea of using clinical expertise, instead of cost-sharing provisions and limits on service use, to ration care offers the potential to contain costs and to maintain or improve quality of care by precisely targeting waste and inappropriate treatment. Additionally, such expertise can be used to develop performance standards and monitor the quality of care that patients receive.[7] Existing research suggests that there are abundant opportunities to eliminate inefficient and ineffective MH/SA care.[8] Extant evidence indicates that Medicaid MBHCOs decrease costs in the specialty mental health sector,[2,3,6,9] but the literature is mixed with respect to the effect of MBHCO arrangements on quality of care, particularly for severely and persistently mentally ill patients in Medicaid.[1-3,8-15]

This study uses a natural experiment in implementing an MBHCO within a state Medicaid program. Because existing evidence points to adverse impacts for people with severe mental disorders under managed care arrangements, we focus on the quality of care provided to people diagnosed as having schizophrenia. We make use of the treatment recommendations from the Schizophrenia Patient Outcomes Research Team (PORT)[16] to measure quality of care. In addition to quality measures recommended by the PORT, we also include one measure (ie, psychosocial rehabilitation) that the PORT did not endorse because of an inadequate evidence base. This was to answer the following question: Does an MBHCO that is meant to apply specialized expertise in its care management discriminate between treatments supported by evidence-based recommendations and those that are not?

METHODS

THE EXPERIMENTAL CONTEXT

Before the implementation of the MBHCO in 1996, the state's Medicaid enrollees were served in a fee-for-service program where the primary care physicians also received a capitation payment for providing gatekeeping and case management services. The exception was that persons enrolled in a state Medicaid health maintenance organization (HMO) had their mental health services managed by the HMO. In 1996, the state obtained a 1915b waiver from the federal government to implement a prepaid mental health plan demonstration. As a result, a private for-profit MBHCO vendor was awarded a contract to manage specialty MH/SA Medicaid services in one region of the state. Enrollees in HMOs were excluded from the carve-out arrangement. The contract was a "full-risk" or capitation contract, meaning that the MBHCO carried 100% of the financial risk for mental health costs (inpatient and outpatient treatments), excluding prescription drug costs. This means that prescription costs were borne by the state, not the carve-out. The carve-out, in turn, shared financial risk with local community mental health centers (CMHCs). The CMHCs received capitation payments, but 4% was held back and put into a risk pool to cover cost overruns. The CMHCs were able to recoup 50 cents on the dollar in excess costs up to their total contribution to the risk pool; further costs were reimbursed at 25 cents on the dollar. Thus, the CMHCs were buffered from the full loss if they exceeded the capitation amount. Since CMHCs were responsible for costs incurred, they were also responsible for utilization management. The carve-out and CMHCs developed guidelines for medical necessity, length of stay, and diagnosis-based treatment protocols. Thus, CMHCs did not seek "authorization" but rather notified the carve-out concerning services required for an individual patient. Services delivered that were not in concert with the established protocols did not count toward compensation from the risk pool. The remainder of the state's non-HMO Medicaid program remained in the lightly managed fee-for-service system with primary care gatekeepers. This created a natural experiment in a carve-out arrangement.

STUDY DESIGN AND SOURCES OF DATA

The cohort included Medicaid enrollees from July 1, 1994, through June 30, 2000. The structure of this natural experiment allowed us to implement a quasi-experimental design. That is, the region where the carve-out was introduced was viewed as the experimental intervention and 2 similarly urban regions were chosen as controls. The data were obtained from the state and included administrative records on service utilization and spending. The administrative claims files contained records of inpatient hospitalizations, outpatient treatments, diagnoses, and medications received, as well as the timing of these services or diagnoses. Previous studies have found substantial agreement between Medicaid claims-based diagnoses of schizophrenia and clinical interviews (A.F.L., unpublished data, 2002) and chart reviews.[17] Thus, using Medicaid administrative claims to develop a cohort of enrollees with schizophrenia has demonstrated validity.

We used the Medicaid membership files to determine the race, sex, Medicaid eligibility category, Social Security Disability status, and date of birth. We excluded enrollees who were dually eligible for Medicare and Medicaid because Medicaid claims would not contain complete service utilization records for this subpopulation. Enrollees diagnosed as having schizophrenia who ever received a diagnosis of substance use disorder were considered to have a substance use disorder comorbidity. Substance use disorder diagnoses in *International Classification of Diseases, Ninth Revision* that were included were the alcohol and drug psychoses (codes 291 and 292) and other alcohol and drug abuse diagnoses with the exception of tobacco and antidepressant abuse (codes 303, 304, 305.0, 305.2-305.7, and 305.9).

SCHIZOPHRENIA COHORT

In an attempt to balance minimizing the false-positive and false-negative rates, the following diagnostic algorithm was used to define the study cohort. Enrollees with at least 2 schizophrenia diagnoses (codes 295.0-295.9) were considered to have schizophrenia. This accounted for nearly 88.5% (N=29952) of the population who received any schizophrenia diagnosis in the claims data. Sensitivity analyses were conducted for the population who received a single inpatient discharge schizophrenia diagnosis (n=794). Of those, an additional 611 did not have any diagnoses of bipolar disorder, and they were therefore included in this study sample. For enrollees who received only 1 outpatient

©2004 American Medical Association. All rights reserved.
Downloaded From: http://archpsyc.jamanetwork.com/ on 08/20/2014

diagnosis of schizophrenia (n=1849), we were concerned that the diagnosis may have been formulated with less observation of a patient than that based on a full inpatient stay, possibly resulting in more false-positive results. We also did not want to exclude the most difficult-to-engage patients with schizophrenia who may have occasionally showed for treatment. Therefore, for enrollees with a single outpatient diagnosis of schizophrenia, we conducted sensitivity analyses in which we varied the "threshold" (ie, the percentage of total mental health outpatient claims that the single schizophrenia claim represented) between 10% and 50%. Use of the strictest criteria resulted in 541 not meeting the 50% threshold, and they were excluded from the study population. Therefore, 94.2% (n=31871) of the state's Medicaid enrollees who were diagnosed as having schizophrenia met our diagnostic study criteria. Enrollees aged 18 through 64 years who met the diagnostic criteria and resided in the comparison and carve-out regions were included.

As noted above, the people identified as having schizophrenia had to be continuously enrolled to be included in this cohort. Continuous enrollment was defined as the following: per fiscal year, months not enrolled in Medicaid plus months in a Medicaid HMO must be less than 6 months.

DEPENDENT VARIABLES: QUALITY OF CARE MEASURES

Lehman et al[16] conducted exhaustive reviews of the treatment outcomes literature for schizophrenia and published evidence-based recommendations for pharmacologic and psychotherapeutic treatments. These PORT treatment recommendations were rated according to the level of evidence supporting them. The PORT recommendations are therefore a useful tool to describe the quality of care received by enrollees diagnosed as having schizophrenia. Process measures observable in claims data were selected from the PORT recommendations, characterized as dichotomous variables and analyzed at the person–fiscal year level. They were the receipt of (1) *any* antipsychotic medication; (2) a first-generation antipsychotic medication; (3) a second-generation antipsychotic medication (not including clozapine); (4) clozapine; (5) "anti–extrapyramidal symptom" medication, conditional on receiving a first-generation antipsychotic medication; (6) family therapy (*Current Procedural Terminology* [*CPT*] codes 90846, 90847, 90848, and 90849); (7) individual therapy (state-specific Medicaid codes and *CPT* codes 90804, 90843, 90805, 90810, 90855, 90811, 90875, 90806, 90844, 90807, 90808, 90842, 90809, 90812, 90813, 90814, 90815, and 90876); and (8) group therapy (state-specific Medicaid codes and *CPT* codes 90853 and 90857). The PORT recommends that anti–extrapyramidal symptom medications should be determined on a case-by-case basis. Therefore, the absolute proportion of persons who receive an anti–extrapyramidal symptom medication is less important for this analysis than whether the carve-out is associated with changes in the prescribing of these medications.

Psychosocial rehabilitation was not recommended by the PORT because of an inadequate evidence base, but has face validity as being a helpful treatment. Psychosocial rehabilitation (state-specific Medicaid codes for psychosocial evaluations, basic living skills training, rehabilitation, and social rehabilitation, as well as *CPT* codes 97003 and 97004 for occupational therapy) was included in this analysis to determine whether the carve-out responded differently to treatments with a stronger or weaker evidence base to support them.

In addition, the PORT recommends assertive community treatment, which includes, but is not limited to, case management. There is no specific procedure code for assertive community treatment, and "case management" procedure codes could reflect a heterogeneous set of services that are not specifically PORT recommended. Therefore, we did not include case management as a quality measure in this analysis. In addition, the PORT recommends vocational rehabilitation for patients who want to work and meet specific clinical and work history criteria. Because those clinical characteristics are unknowable in claims data, this measure was not examined.

EXPLANATORY VARIABLES

Explanatory variables included age, sex, race, Medicaid eligibility category, Social Security Insurance status, and presence of substance use disorder comorbidity. We also controlled for the months enrolled in the program (independent of carve-out status) in a given fiscal year. All variables were measured as dummy variables except age and months enrolled. The difference in difference analysis used dummy variables for region (ie, carve-out vs comparison regions) and time (ie, before vs after carve-out), and an interaction term between the two served as the difference in difference estimator. Thus, the estimator is the difference in the before and after periods in the region that adopted the MBHCO relative to the difference in the before and after periods in the control regions. The strength of this design is that it allows us to factor out differences in utilization that are independent of the carve-out but might otherwise be attributed to it, such as baseline utilization differences between the regions.

STATISTICAL ANALYSIS

Bivariate summary statistics were computed by region and before– vs after–carve-out period; unpaired, 2-tailed *t* tests were used for continuous variables and Wald χ^2 for categorical variables. The difference in differences model was estimated by means of logit regressions for each of the dependent quality measures. To account for clustering and autocorrelation in the context of nongaussian error terms, we used the generalized estimating equation. Thus, the estimated standard errors are robust to autocorrelation and clustering.[18]

RESULTS

Initial analyses showed that the schizophrenia populations in the carve-out and comparison regions changed differently during the after–carve-out period in 2 ways: (1) the comparison regions more than doubled in their schizophrenia person-year population, whereas the carve-out region grew only 7% relative to the before–carve-out period, and (2) after carve-out, the comparison regions differed in their populations based on Medicaid eligibility categories (ie, Social Security Insurance, Aid to Families With Dependent Children, or otherwise eligible). The regions also differed in their ethnic composition in both before and after periods. Therefore, instead of comparing the before and after periods for all schizophrenia-diagnosed enrollees in these regions, we matched enrollees in the before period on Medicaid eligibility category and race, and similarly matched enrollees in the after period. **Table 1** shows the results of that matching. After matching, the populations were similar in both matched and unmatched characteristics for the before and after periods.

QUALITY MEASURES BY REGION

Table 2 describes, after matching, the person-year frequency with which the schizophrenia-diagnosed enrollees received any care consistent with each quality indicator. Regardless of region or study period, more than

©2004 American Medical Association. All rights reserved.
Downloaded From: http://archpsyc.jamanetwork.com/ on 08/20/2014

Table 1. Population Characteristics by Region Before and After Carve-Out*

Population Characteristics	Region, No. (%)		Test Statistics and *P* Value
	Carve-Out	Comparison	
Before Carve-Out			
Total No. of schizophrenia-diagnosed Medicaid enrollee person-years 1994-2000, after matching	2000	2000	NA
Age, mean, y	40.6	40.3	$df = 3991$, $t = -0.96$, $P = .34$
Female sex	1056 (52.8)	1074 (53.7)	$\chi^2 = 0.325$, $P = .57$
Total months otherwise Medicaid-eligible >total SSI or AFDC	25 (1.2)	25 (1.2)	$\chi^2 = 0$, $P > .99$
Total months AFDC > total SSI or otherwise Medicaid-eligible	53 (2.6)	53 (2.6)	$\chi^2 = 0$, $P > .99$
Total months SSI > total AFDC or otherwise Medicaid-eligible enrollees	1922 (96.1)	1922 (96.1)	$\chi^2 = 0$, $P > .99$
Substance use disorder comorbidity	201 (10.0)	207 (10.4)	$\chi^2 = 0.098$, $P = .75$
Ethnicity			
Black	549 (27.4)	549 (27.4)	$\chi^2 = 0$, $P > .99$
White	1021 (51.0)	1021 (51.0)	$\chi^2 = 0$, $P > .99$
Hispanic	13 (0.6)	13 (0.6)	$\chi^2 = 0$, $P > .99$
Other	417 (20.8)	417 (20.8)	$\chi^2 = 0$, $P > .99$
After Carve-Out			
Total No. of schizophrenia-diagnosed Medicaid enrollee person-years 1994-2000, after matching	2041	2041	NA
Age, mean, y	40.8	41.1	$df = 4073$, $t = 0.75$, $P = .45$
Female sex	1017 (49.8)	1066 (52.2)	$\chi^2 = 2.35$, $P = .13$
Total months otherwise Medicaid-eligible > total SSI or AFDC	73 (3.6)	73 (3.6)	$\chi^2 = 0$, $P > .99$
Total months AFDC > total SSI or otherwise Medicaid-eligible	39 (1.9)	39 (1.9)	$\chi^2 = 0$, $P > .99$
Total months SSI > total AFDC or otherwise Medicaid-eligible	1929 (94.5)	1929 (94.5)	$\chi^2 = 0$, $P > .99$
Substance use disorder comorbidity	208 (10.2)	213 (10.4)	$\chi^2 = .07$, $P = .80$
Ethnicity			
Black	495 (24.3)	495 (24.3)	$\chi^2 = 0$, $P > .99$
White	1102 (54.0)	1102 (54.0)	$\chi^2 = 0$, $P > .99$
Hispanic	24 (1.2)	24 (1.2)	$\chi^2 = 0$, $P > .99$
Other	420 (20.6)	420 (20.6)	$\chi^2 = 0$, $P > .99$

Abbreviations: AFDC, Aid to Families With Dependent Children; NA, not applicable; SSI, Social Security Insurance.
*The *df* = 1 unless otherwise noted.

Table 2. Quality Measures by Region, Before and After Carve-Out (Person-Years Frequencies)*

Quality Measure	Carve-Out Region (n = 4041 Person-Years)		Comparison Regions (n = 4041 Person-Years)	
	Before (n = 2000)	After (n = 2041)	Before (n = 2000)	After (n = 2041)
Any antipsychotic medication	1728 (86.4)	1802 (88.3)	1724 (86.2)	1788 (87.6)
First-generation antipsychotic medication	1488 (74.4)	1124 (55.1)	1515 (75.8)	1111 (54.4)
Second-generation antipsychotic medication (not including clozapine)	434 (21.7)	1064 (52.1)	409 (20.4)	996 (48.8)
Clozapine	107 (5.4)	226 (11.1)	132 (6.6)	204 (10.0)
Anti-EPS medication, conditional on receiving first-generation antipsychotic	99 (5.0)	97 (4.8)	112 (5.6)	99 (4.9)
Family therapy	5 (0.2)	1 (0.05)	12 (0.6)	12 (0.6)
Psychosocial rehabilitation	793 (39.6)	335 (16.4)	975 (48.8)	876 (42.9)
Individual therapy and/or group therapy	1433 (71.6)	414 (20.3)	1129 (56.4)	753 (36.9)
Individual therapy	1277 (63.8)	334 (16.4)	966 (48.3)	541 (26.5)
Group therapy	658 (32.9)	172 (8.4)	428 (21.4)	365 (17.9)

Abbreviation: EPS, extra pyramidal symptom.
*Data are given as number (percentage) of person-years.

85% of these enrollees received some antipsychotic medication. In contrast, very few enrollees (<1%) in any region received family therapy. Before carve-out, more schizophrenia-diagnosed patients in the carve-out region received individual therapy (63.9% vs 48.3%), group therapy (32.9% vs 21.4%), or either (71.7% vs 56.5%) compared with those in comparison regions. The opposite was true for psychosocial rehabilitation: 39.7% in the carve-out region vs 48.8% in the comparison regions. In contrast, after carve-out, schizophrenia-diagnosed patients in comparison regions had higher frequencies of all of the PORT-recommended psychosocial treat-

©2004 American Medical Association. All rights reserved.
Downloaded From: http://archpsyc.jamanetwork.com/ on 08/20/2014

Table 3. Effect of Carve-Out on Receiving Quality Measures

Outcome*	β_3 Carve-Out Status × Before/After Carve-Out			
	β	OR	CI	*P* Value
Receiving any antipsychotic medication	0.174	1.021	0.807-1.291	.86
Receiving second-generation antipsychotic medication (not including clozapine)	0.458	1.050	0.852-1.293	.65
Receiving second-generation antipsychotic medication (including clozapine)	0.460	1.047	0.860-1.275	.65
Receiving anti-EPS medication, conditional on receiving first-generation antipsychotic medication	1.252	1.357	0.842-2.187	.21
Receiving psychosocial rehabilitation	−11.134	0.313	0.255-0.384	<.001
Receiving any individual therapy and/or group therapy	−15.332	0.195	0.159-0.241	<.001
Receiving any individual therapy	−12.553	0.266	0.216-0.327	<.001
Receiving any group therapy	−12.138	0.188	0.144-0.246	<.001

Abbreviations: CI, confidence interval; EPS, extrapyramidal symptom; OR, odds ratio.
*Family therapy claims occurred too infrequently to be modeled as a dependent measure.

ments; they were still at less than 50% of the population (individual therapy, 16.4% in carve-out region vs 26.5% in comparison regions; group therapy, 8.4% in carve-out region vs 17.9% in comparison regions; individual or group therapy, 20.3% in carve-out region vs 36.9% in comparison regions). Also, after carve-out, psychosocial rehabilitation was more likely to be received by schizophrenia-diagnosed enrollees in comparison regions than those in the carve-out (42.9% vs 16.4%, respectively).

IMPACT OF CARVE-OUT ON QUALITY

Table 3 reports the difference in differences results of each of the logit regressions. Separate models were run for the outcome measure of all second-generation antipsychotics (ie, including clozapine) and all second-generation antipsychotic medications excluding clozapine. The results for both models were quite similar for the 2 specifications. The estimated coefficients for the difference in differences estimator implies that people enrolled in the carve-out program had the same likelihood of being treated with antipsychotic medications—including the more expensive second-generation antipsychotic medications—as those who were treated in the comparison regions (any antipsychotic: odds ratio [OR], 1.02; 95% confidence interval [CI], 0.81-1.29; second-generation antipsychotic [not including clozapine]: OR, 1.05; 95% CI, 0.85-1.29; second-generation antipsychotic [including clozapine]: OR, 1.05; 95% CI, 0.86-1.28). Also, the carve-out was not associated with changes in the likelihood of receiving anti–extrapyramidal symptom medications, conditional on receiving a first-generation antipsychotic (OR, 1.36; 95% CI, 0.84-2.19). In contrast, schizophrenia-diagnosed persons in the carve-out region were one-fourth to one-fifth as likely to receive any PORT-recommended individual therapy (OR, 0.27; 95% CI, 0.22-0.33), group therapy (OR, 0.19; 95% CI, 0.14-0.25), or either (OR, 0.20; 95% CI, 0.16-0.24) than otherwise similar enrollees not enrolled in the carve-out. Medicaid recipients diagnosed as having schizophrenia were about a third as likely to receive any psychosocial rehabilitation (not a PORT recommendation) in the MBHCO region (OR, 0.31; 95% CI, 0.26-0.38). Family therapy claims occurred too infrequently to be used as a dependent measure.

COMMENT

LIMITATIONS AND STRENGTHS

This analysis relies on diagnoses based on administrative data to determine its cohort. While the gold standard for diagnosis is a structured clinical evaluation, comparisons between Medicaid claims-based diagnoses of schizophrenia with clinical interviews and chart reviews[17] have demonstrated substantial agreement between them. Thus, claims-based schizophrenia diagnoses appear to have adequate validity for case finding. Furthermore, this schizophrenia cohort was constructed in an effort to maximize inclusion of all enrollees who were true positives (and minimize false positives) for the diagnosis. We used a "confirmatory diagnosis" in the claims data and also established criteria so as not to exclude those who received only 1 diagnosis of schizophrenia because they were not successfully engaged in treatment. However, there is evidence that people who meet criteria for schizophrenia by clinical examination may not be diagnosed as such in the claims data. Thus, while we have likely maximized the true positives, we are less confident of the false negatives who did not meet these cohort criteria and therefore are not included in the study.

These results are consistent with previous studies documenting that family and group therapies are not extensively used in the treatment of schizophrenia, independent of managed care.[19,20] They are also consistent with the PORT conformance study results[21,22] that showed considerably higher rates for antipsychotic medications than for psychosocial treatments. While conformance to PORT-recommended antipsychotic use is similar in both studies (87.1% vs 89.2%-92.3% in the PORT), the outpatient psychotherapies differ: in fiscal years 1994 to 1996, the overall proportion receiving individual and/or group psychotherapy was 61.4% in this study compared with 45.0% in the PORT conformance study, but after 1996 the proportion decreased to 28.6% overall. Family therapy was also more prevalent in the PORT conformance study than in this population (<1% vs 9.6% in the PORT). However, these data are not directly comparable. The PORT used chart review data and clinical interviews, whereas this study relies only on claims data. Similarly, while approxi-

©2004 American Medical Association. All rights reserved.
Downloaded From: http://archpsyc.jamanetwork.com/ on 08/20/2014

mately 85% of all beneficiaries with schizophrenia in our analysis were treated with an antipsychotic medication, unlike the PORT, we did not assess whether they received appropriate doses for adequate durations. This analysis used a far looser indicator of quality: whether a patient received *any* prescription for antipsychotics in a given fiscal year. Similarly, our therapy quality measures were defined as whether these patients had at least 1 session in a given fiscal year; we did not assess the "dose" or duration of therapy utilization. While in general it is difficult to define exactly what is an appropriate level of utilization, it is reasonable to expect that a high proportion of patients with schizophrenia receive *at least one* of these services (ie, family therapy, group or individual therapy).

The low rate of family therapy codes in Medicaid (independent of region or time) does not necessarily mean that family members were uninvolved in treatment or received no services. Dixon et al[23] interviewed a randomly selected sample of Medicaid patients from one state and found that 30% of those with ongoing family contact reported their family received information about their illness, treatment, or support and advice. However, only 8% responded that their family attended an educational or support program. Analysis of Medicaid claims showed that 7.1% of the patients diagnosed as having schizophrenia (including those with and without ongoing family contact) had a claim for family therapy services. Thus, while claims data likely do not fully reflect the receipt of any education, support, or advice, they do appear to reflect family therapy of an intensity that is most likely to be consistent with PORT recommendations.

It is important to note particular limitations of psychosocial process measures identified through claims data. First, the PORT recommends individual, group, and family therapies that are well defined and contain specific content tailored to an individual's or family's needs. The specific content of psychosocial treatments is not knowable in administrative claims, nor is such information easily or accurately assessed through patient interview or chart review.[21] As in all quality assessment of usual care, variations in quality of a specific service are expected because of a combination of varying levels of clinician skill, knowledge of evidence-based care, and adequacy of resources. While possible, it is unlikely that the reduction in individual and group psychotherapies associated with the carve-out represents only cuts in therapies that were not conforming to PORT content recommendations.

Recently, Dickey et al[24] also examined the impact of an MBHCO on the receipt of PORT-recommended quality measures for schizophrenia-diagnosed Medicaid enrollees in Massachusetts and found no differences between the MBHCO and fee-for-service groups. That study is not directly comparable to ours. In our analysis all non–dually eligible (ie, Medicaid and Medicare) recipients diagnosed as having schizophrenia were eligible; the analysis by Dickey et al included those dually eligible and also only those who presented for care in a crisis during the study period. Utilization in our study was determined solely by claims data and was considered for each person-year; in the study by Dickey et al, utilization was determined by clinical interview and/or claims data and only for the first 6 months after presenting for treatment in crisis. Also, significantly, our study used a different design: we used a quasi-experimental design that allowed us to control for trends independent of the carve-out, whereas theirs was cross-sectional. Finally, Dickey et al examined a different set of contractual relationships between the MBHCO and the state. In Massachusetts, the MBHCO had limited risk of financial gain or loss. In our study, the MBHCO assumed full financial risk for all nonpharmacologic mental health treatments. Despite these differences in determination of population and utilization, study design, and local context, in the one quality measure directly comparable between studies (ie, any antipsychotic use), both analyses indicated similar levels of PORT conformance.

Finally, this study found that the likelihood of receiving the nonclozapine second-generation antipsychotic medications increased by approximately 250% during the study period, independent of the carve-out. However, it is unclear whether this penetration rate is appropriate. Current recommendations are that persons who are stable with first-generation antipsychotic medication and not experiencing significant adverse effects should not be switched to second-generation antipsychotics.[25] Therefore, in the absence of knowing other clinical details of these patients, it is impossible to comment on the appropriateness of this observed prescribing pattern.

POLICY IMPLICATIONS

The results of the analysis of the quasi-experiment suggest that for continuously enrolled non-HMO Medicaid recipients diagnosed as having schizophrenia, the MBHCO was associated with a sharp reduction in the likelihood of receiving any individual and/or group therapy and psychosocial rehabilitation. In fact, the reductions in the probability of receiving individual and/or group therapy were greater than for the probability of receiving psychosocial rehabilitation treatments—despite the fact that these latter treatments have greater clinical therapeutic uncertainty. The results also indicate that the carve-out did not affect the likelihood of being treated with medications indicated for the treatment of schizophrenia—even the newest, most expensive antipsychotic medications that offer therapeutic advantages over first-generation antipsychotics. Of importance, prescribing these medications had no direct economic consequence for the carve-out vendor.

The analyses described herein lead us to a number of observations with implications for policy. First, the data suggest that there are some clear indications of shortcomings in the quality of care for schizophrenia that are independent of whether the mental health care was carved out. The low rates of adoption of measures consistent with evidence-based practices such as individual/group and family therapy are striking.

Carve-out programs respond to the incentives contained in their contracts. Our analysis shows that, in an area where strong financial incentives were implemented, substantial reductions in quality were observed. In contrast, when the carve-out was not financially at risk, we saw no decrement in quality. Two policy issues stem from these observations. One is that the use of high-powered incentives to contain costs of caring for disadvantaged and vulnerable populations will likely yield substantial savings but appears to also result in important reductions in the qual-

©2004 American Medical Association. All rights reserved.
Downloaded From: http://archpsyc.jamanetwork.com/ on 08/20/2014

ity of care for people with schizophrenia, particularly if the contract does not include quality performance standards. Contracts with weaker financial incentives for the carve-out vendor may offer a more attractive trade-off between cost containment and quality.

A second policy issue concerns efforts to improve quality through public reporting. The results reported herein indicate that quality problems occur where there are high-powered incentives in place. In the mental health field, where carve-out arrangements virtually never include incentives to reduce prescribing of psychotropic medication, quality assessment efforts that focus on pharmacotherapies may not be measuring the therapeutic services that are most at risk. This means that quality-of-care measurement efforts should include measuring treatments that are likely to be affected by incentive arrangements.

These results also raise questions regarding the argument that MBHCOs use specialized expertise in the rationing of MH/SA care. In the wake of these financial incentives, the specialty mental health carve-out arrangement was associated with sharp cuts in psychosocial treatments that have a known evidence base supporting them, as well as those without such an evidence base. These results point to limitations in the use of evidence-based practice recommendations in the face of high-powered financial incentives.

Finally, while there were clear treatment quality problems in this population that appear to be independent of the carve-out, quality problems in usual-care practice are not limited to one state, service system, disorder, or medical discipline. The American health care system does not do well with complex, chronic conditions.[26-29] Add financial stress to the system (as is often the case, particularly in the public sector) and conditions can worsen. Full-risk contracts clearly reduce cost but, without adequate accountability, run the risk of deteriorating quality of care for vulnerable patients. Improving quality requires quality assessment as well as accountability that penalizes for poor-quality care. By "paying for quality," policymakers can realign the financial incentives to promote quality standards, not just cost containment.

Submitted for publication May 19, 2003; final revision received September 23, 2003; accepted November 19, 2003.

This study was supported by grants R01MH62028 and R01MH59254 from the National Institute of Mental Health, Bethesda, Md, and the Dr Ralph and Marian Falk Medical Research Trust, Chicago, Ill (Dr Busch). The funding organizations had no role in the collection, analysis, or interpretation of the data. They also had no role in the preparation, review, or approval of the manuscript.

An earlier version of this analysis was presented as a poster at the Academy Health Annual Research Meeting; June 25, 2002; Washington, DC.

Corresponding author and reprints: Alisa B. Busch, MD, MS, McLean Hospital, Proctor Bldg, 115 Mill St, Belmont, MA 02478 (e-mail: abusch@hcp.med.harvard.edu).

REFERENCES

1. Substance Abuse and Mental Health Services Administration (SAMHSA). *SAMHSA Managed Care Initiative State Profiles.* Washington, DC: Substance Abuse and Mental Health Services Administration, US Dept of Health and Human Services; 1999.
2. Shern DL, Robinson P, Stiles P, Boothroyd R, Giard J, Murrin MR, Snyder K, Chen H, Massey T, Boaz T, Dow M, Ward J, Armstrong MI. *Evaluation of Florida's Prepaid Mental Health Plan: Year 3 Report.* Tampa: University of South Florida; 2000.
3. Shern DL, Giard J, Robinson P, et al. *Evaluation of Florida's Prepaid Mental Health Plan: Year 4 Report.* Tampa: Louis de la Parte Florida Mental Health Institute, University of South Florida; July 2001.
4. Mechanic D, McAlpine DD. Mission unfulfilled: potholes on the road to parity. *Health Aff (Millwood).* 1999;18(5):7-21.
5. Frank RG, McGuire TG. The economic functions of carve-outs in managed care. *Am J Manag Care.* 1998;4(suppl):SP31-SP39.
6. Frank RG, McGuire TG. Economics and mental health. In: Culyer A, Newhouse J, eds. *Handbook of Health Economics.* Amsterdam, the Netherlands: Elsevier; 2000: 893-954.
7. Mechanic D. Managing behavioral health in Medicaid. *N Engl J Med.* 2003;348: 1914-1916.
8. Young AS, Klap R, Sherbourne CD, Wells KB. The quality of care for depressive and anxiety disorders in the United States. *Arch Gen Psychiatry.* 2001;58:55-61.
9. Bloom JR, Hu T-W, Wallace N, Cuffel B, Hausman JW, Sheu ML, Scheffler R. Mental health costs and access under alternative capitation systems in Colorado. *Health Serv Res.* 2002;37:315-340.
10. Mechanic D, McAlpine DD. Utilization of specialty mental health care among persons with severe mental illness: the roles of demographics, need, insurance and risk. *Health Serv Res.* 2000;35:277-292.
11. Manning WG, Liu CF, Stoner TJ, Gray DZ, Lurie N, Popkin M, Christianson JB. Outcomes for Medicaid beneficiaries with schizophrenia under a prepaid mental health carve-out. *J Behav Health Serv Res.* 1999;26:442-450.
12. Callahan JJ, Shepard DS, Beinecke RH, Larson MJ, Cavanaugh D. Mental health/substance abuse treatment in managed care: the Massachusetts Medicaid experience. *Health Aff (Millwood).* 1995;14:173-184.
13. Dickey B, Normand SLT, Norton EC, Azeni H, Fisher W, Altaffer F. Managing the care of schizophrenia: lessons from a 4-year Massachusetts Medicaid study. *Arch Gen Psychiatry.* 1996;53:945-952.
14. Cuffel BJ, Bloom JR, Wallace N, Hausman JW, Hu TW. Two-year outcomes of fee-for-service and capitated Medicaid programs for people with severe mental illness. *Health Serv Res.* 2002;37:341-359.
15. Ray WA, Daugherty JR, Meador KC. Effect of a mental health "carve-out" program on the continuity of antipsychotic therapy. *N Engl J Med.* 2003;348:1885-1894.
16. Lehman AF, Steinwachs DM, Co-Investigators of the PORT Project. Translating research into practice: the Schizophrenia Patient Outcomes Research Team (PORT) treatment recommendations. *Schizophr Bull.* 1998;24:1-10.
17. Lurie N, Popkin M, Dysken M, Moscovice I, Finch M. Accuracy of diagnoses of schizophrenia in Medicaid claims. *Hosp Community Psychiatry.* 1992;43:69-71.
18. Zeger SL, Liang KY. Longitudinal data analysis for discrete and continuous outcomes. *Biometrics.* 1986;42:121-130.
19. Rosenheck RA, Desai R, Steinwachs D, Lehman A. Benchmarking treatment of schizophrenia: a comparison of service delivery by the national government and by state and local providers. *J Nerv Ment Dis.* 2000;188:209-216.
20. Yanos PT, Crystal S, Kumar R, Walkup JT. Characteristics and service use patterns of nonelderly Medicare beneficiaries with schizophrenia. *Psychiatr Serv.* 2001;52:1644-1650.
21. Lehman AF, Steinwachs DM, Co-Investigators of the PORT Project. Patterns of usual care for schizophrenia: initial results from the Schizophrenia Patient Outcomes Research Team (PORT) Client Survey. *Schizophr Bull.* 1998;24:11-20; discussion, 20-32.
22. Lehman AF. Quality of care in mental health: the case of schizophrenia. *Health Aff (Millwood).* 1999;18(5):52-65.
23. Dixon L, Lyles A, Scott J, Lehman A, Postrado L, Goldman H, McGlynn E. Services to families of adults with schizophrenia: from treatment recommendations to dissemination. *Psychiatr Serv.* 1999;50:233-238.
24. Dickey B, Normand SL, Hermann RC, Eisen SV, Cortes DE, Cleary PD, Ware N. Guideline recommendations for treatment of schizophrenia: the impact of managed care. *Arch Gen Psychiatry.* 2003;60:340-348.
25. Marder SR, Essock SM, Miller AL, Buchanan RW, Davis JM, Kane JM, Lieberman J, Schooler NR. The Mount Sinai conference on the pharmacotherapy of schizophrenia. *Schizophr Bull.* 2002;28:5-16.
26. Executive summary. In: Adams K, Corrigan JM, eds. *Priority Areas for National Action: Transforming Health Care Quality.* Washington, DC: National Academy of Sciences; September 2003:1-14. Available at: http://books.nap.edu/execsumm_pdf/10593.pdf.
27. Beckles GL, Engelgau MM, Narayan KM, Herman WH, Aubert RE, Williamson DF. Population-based assessment of the level of care among adults with diabetes in the U.S. *Diabetes Care.* 1998;21:1432-1438.
28. Burwen DR, Galusha DH, Lewis JM, Bedinger MR, Radford MJ, Krumholz HM, Foody JM. National and state trends in quality of care for acute myocardial infarction between 1994-1995 and 1998-1999: the Medicare Health Care Quality Improvement Program. *Arch Intern Med.* 2003;163:1430-1439.
29. Stolar MW, Endocrine Fellows Foundation Study Group. Clinical management of the NIDDM patient: impact of the American Diabetes Association practice guidelines, 1985-1993. *Diabetes Care.* 1995;18:701-707.

©2004 American Medical Association. All rights reserved.
Downloaded From: http://archpsyc.jamanetwork.com/ on 08/20/2014