Regular Article

The Effect of a Medicaid Managed Care Program on Patterns of Psychiatric Readmission Among Adolescents: Evidence from Maryland

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Abstract

This study evaluates the effect of Maryland's Medicaid managed care program on patterns of psychiatric readmission for adolescents. Rates and frequency of readmissions are compared before (FY 1997) and after (FY 1998) the implementation of Maryland's Medicaid managed care program. Medicaid claims files were reviewed for 881 adolescents consecutively admitted to three major Maryland psychiatric hospitals between July 1, 1996 and June 30, 1998. Adolescents admitted after the managed care reforms were more likely to experience multiple readmissions. The 1-year cumulative rate of readmission pre- and postmanaged care was 33% and 38%, respectively; the highest risk period fell within the first 15–30 days postdischarge. The high rate of early readmissions raises concern about the quality of care and the adequacy of community-based services. Findings also suggest that youths with serious emotional disturbances who are high users of inpatient care may be adversely affected by the managed care reforms.

Introduction

Over the past decade, rising health care costs and Medicaid expenditures have resulted in a dramatic increase in public-sector managed care behavioral healthcare programs.[1,2] Between 1995 and 2002, the percentage of Medicaid beneficiaries enrolled in state Medicaid managed care programs nearly doubled.[3] These changes have significantly impacted the way children's mental health services are financed and delivered in this country.

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One of the most notable effects of these managed reforms has been the substantial reduction in hospital lengths of stay and the pronounced shift away from high-cost inpatient services to outpatient care.[4] Although these changes have been well received by clinicians, health care policy analysts, and advocates, there is some concern that managed care has adversely affected quality of care, resulting in frequent readmissions to psychiatric hospitals and repeated use of the same short-term services. Moreover, consumers must also contend with a shortage of long-term services for emotionally disturbed children and adolescents, who are often "high users" of inpatient care.[5]

Despite the rapid infiltration of managed care into the public sector and concerns about quality of care, surprisingly little is known about the effects of Medicaid managed care programs on patterns of mental health care for children.[6–9] To date, the majority of studies have focused predominantly on adults, yet children, especially those with serious emotional disturbances, may be particularly vulnerable to poorer outcomes within managed care because of their unique characteristics.[8,10,11] Children with emotional and behavioral disorders have complex needs and require a broad array of services from multiple professionals; often, high intensity services over extended periods of time and involvement from multiple systems including public mental health, child welfare, and juvenile justice are necessary.[12] Managed care's orientation to short-term treatment and tendency to control costs by limiting lengths of stay and use of high intensity services may potentially restrict access to needed services for children at greatest risk. In fact, a multistate study comparing youths with serious emotional disturbances covered by Medicaid managed care and fee-for-services plans found that youths enrolled in managed care plans were less likely to receive certain types of services (eg, inpatient/residential, nontraditional services, and medication), despite the children's need for treatment.[13] Moreover, the fact that children are often involved with multiple service systems increases the likelihood for cost-shifting within managed care.[8,14]

In a recent review, Hutchinson and Foster[8] identified only two studies between 1995 and 2001 that examined the effects of Medicaid managed care programs on quality of care for children; both evaluated the effects of Massachusetts' behavioral health program on readmission rates[6,15] Callahan and colleagues[15] found that 30-day readmission rates for children and adolescents increased from 7.5% to 10.1%. Dickey et al.[6] examined patterns of posthospitalization readmissions and outpatient follow-up within 30 days of discharge and found that continuity of care increased slightly for Aid to Families with Dependent Children (AFDC) Medicaid beneficiaries but decreased for disabled children; specifically, readmission rates increased and outpatient follow-up decreased for disabled children. A subsequent study by Saunders et al.[13] examined the impact of TennCare, Tennessee's Medicaid managed care program, on service utilization patterns for school-age children and found that 30-day readmission rates also increased from 9.2% in 1995 to 12.2% in 2000.

Although these findings are preliminary, they suggest that managed care practices may adversely affect quality of care, particularly for children with chronic and disabling conditions. It should be noted, however, that the Massachusetts and Tennessee plans utilize financial incentives designed to reduce inpatient admissions, as the managed behavioral health care organization assumes some level of financial risk. These incentives may have a differential impact on service use and access compared to other managed care programs that employ different types of payment mechanisms such as administrative service-only contracts.[16]

This study evaluated the effects of Maryland's Medicaid managed care behavioral health plan on patterns of psychiatric readmission among adolescents. The primary objective was to compare the rates and frequency of readmissions before (Fiscal Year 1997) and after (Fiscal Year 1998) the implementation of Maryland's Medicaid managed care program. Most importantly, the study examined patterns of readmission over time, which has been neglected in prior research. Understanding which specific time intervals pose the most risk is critical to treatment planning and evaluation of health policies.

Maryland's Medicaid Managed Care Behavioral Health Care Program

Before Maryland's Medicaid reform, the public mental health system focused predominantly on adults and children with severe mental illness. The mental health program was financed and managed by two separate state agencies, Medicaid and the Mental Hygiene Administration (MHA). The Medicaid state agency administered all services under the Medicaid state plan including acute care psychiatric hospitalization, clinic services, individual psychotherapy, medication, and laboratory testing. In contrast, MHA was responsible for administering state funds for services to uninsured individuals and services not covered under the state Medicaid plan. These non-Medicaid reimbursable services were funded through grants or contracts. Local mental health authorities, called core service agencies (CSAs), were responsible for disbursing these grants to local providers, along with developing and monitoring community-based services for individuals with severe mental illness within their jurisdiction. Providers relied on a combination of state grants and fee-for-service payments and were required to treat all patients within their catchment area, including uninsured and indigent patients.[17]

This grant-funded system was not without problems, however. Consumers were limited to providers within their geographic jurisdiction or catchment area. Many Medicaid beneficiaries were enrolled in the Maryland Access to Care (MAC) program and voluntary HMOs, which restricted access to mental health services. The financing and management of services by separate state agencies also created a fragmented system, lacking uniform standards, and impeding coordination.[17,18] Because of the complexity of the system, it was difficult to track or monitor service utilization patterns.

Although Maryland's Medicaid reforms were designed to address some of these limitations, the primary reason for the restructuring of the public mental health system was to control escalating Medicaid costs. On October 30, 1996, Health Care Financing Administration (HCFA) approved Maryland's 1115 waiver proposal to implement a statewide mandatory managed care program for all Medicaid recipients, with implementation beginning on July 1, 1997.[19] Under this new Medicaid managed care program, referred to as HealthChoice, physical health, "primary" mental health, and substance abuse services are provided by private managed care organizations using a capitated, risk-adjustment payment system. Each Medicaid beneficiary is assigned to a primary care provider who is responsible for medical care along with treatment of substance abuse and minor psychiatric problems.

Specialty mental health services (SMHS) are managed and financed by a separate system using a carve-out arrangement.[20] Children and adolescents are eligible for services through the public mental health system if they are: (1) Medicaid recipients eligible for the 1115 waiver (eg, TANF, Supplemental Security, Seventh Omnibus Budget Reconciliation Act); (2) Medicaid recipients not covered under the waiver (eg, medically needy, institutionalized persons); and (3) non-Medicaid recipients (eg, uninsured and underinsured). In fiscal year 1999, 81,774 individuals received mental health services in Maryland through the public mental health system; 76% were eligible under the Medicaid waiver whereas 24% were uninsured.[21,22] Children and adolescents constituted 36% of the total population served.

MHA, in conjunction with the CSAs and a contracted administrative service organization, Maryland Health Partners (MHP), oversees the management of the specialty mental health system. MHA has broad oversight of the entire public mental health system and is responsible for developing policies and regulations, statewide planning, resource allocation, and quality improvement. CSAs continue to manage the public mental health system at the local level; however, they are now responsible for overseeing service provision for all Medicaid beneficiaries in their jurisdiction, not just individuals with serious emotional disturbances. Services are reimbursed to providers on a fee-for-service basis, with the administrative service organization processing claims, making payments to providers on behalf of the CSAs, and preauthorizing

services based on newly designed medical necessity criteria. Any provider may participate in the program.

MHA has contracted with MHP, a private behavioral health services organization, to provide administrative services. As an administrative service organization, MHP assumes no clinical functions or financial risks. Their primary responsibilities include: eligibility verification, claims processing and payment, utilization management (concurrent and retrospective reviews of mental health services) and service authorization, and evaluation and monitoring of the program. Cost control and access to services are determined by medical necessity criteria and utilization management. At the commencement of the managed care reforms, MHA in conjunction with the administrative organization developed a uniform set of medical necessity criteria and referral guidelines for all mental health services. With the exception of emergency and court ordered services, all mental health care is preauthorized.

Medical necessity criteria for inpatient care is based on imminent risk of harm to self or others. An intended goal of utilization management is to lower costs by reducing hospital admissions, curtailing lengths of stay, and diverting children to less restrictive environments. In contrast, the old system was unmanaged with regard to utilization management—some services were retrospectively reviewed (eg, inpatient and residential care), whereas other services were not clinically reviewed except on a special case basis (eg, fraud reviews). Utilization was largely controlled by low reimbursement rates and limitations through licensing regulation on numbers of providers. The Department of Medicaid was responsible for approving and monitoring utilization of inpatient care. For acute psychiatric care (lengths of stays less than 30 days), the state contracted with Delmarva Foundation, a nonprofit health quality improvement organization, to preauthorize admissions and monitor treatment. With the exception of emergency admissions, all services provided on psychiatric units in general acute care hospitals were preauthorized and monitored by a team of nurse reviewers and physicians who relied on detailed clinical information submitted by the hospitals. For private psychiatric hospitals, considered chronic care facilities at that time (lengths of stay greater than 30 days), medical necessity was determined by retrospective chart reviews. Medical necessity was based on the federal regulations for inpatient psychiatric care.[23] Admission to residential treatment centers required approval and review from local coordinating councils (LCCs) as mandated by state law.[24] LCCs are committees (composed of representatives from the local department of education, social services, juvenile justice, mental health and developmental disabilities) set up in each local jurisdiction to review cases for residential placement.

Under this new system, eligible children and adolescents have access to Medicaid reimbursable services that were previously available under the Maryland state plan. These Medicaid reimbursable services include: inpatient hospital and emergency room, physician, individual mental health professionals, prescription drugs, laboratory, freestanding clinics, partial hospitalization, and psychiatric rehabilitation. The waiver also covers additional state-funded services (non-Medicaid reimbursable) that were not previously available. These include case management, mobile crisis services, respite care, intermediate residential programs (eg, group home, therapeutic group homes, and residential rehabilitation services), residential crisis services, and peer support/family-to-family education and support.[25] MHP and the CSAs act as gatekeepers to control access to these expanded services. State-funded services are approved on a case-by-case basis depending upon medical necessity criteria and availability of limited resources. Like in other states, however, increasing budget pressures have encouraged the greater use of Medicaid-reimbursable services over-state funded services.[26,27]

Funding for the SMHS comes from Medicaid and non-Medicaid state mental health dollars, which are pooled into a single funding stream. By blending funds together, the state hopes to avoid the problems inherent in categorical funding and "create a one-tiered system of care governed by uniform standards."[28]

Methodology

Study design

To evaluate the effects of Maryland's Medicaid managed care reforms on rates of readmission, a nonconcurrent prospective cohort design was used. The target population included all Medicaid eligible adolescents consecutively admitted to three private acute-care psychiatric hospitals in Maryland over a 2-year period, from July 1, 1996 to June 30, 1998. This time period was selected because it represented the year before (Fiscal Year 1997) and after (Fiscal Year 1998) the implementation of Maryland's Medicaid managed care program. Adolescents were tracked for a fixed 1-year period after their index admission to determine whether they were readmitted to any Maryland psychiatric hospital. Thus, depending on their date of admission, youths could be conceivably readmitted during year 1 or year 2 if their index admission was in FY 1997 or year 2 or 3 if their index admission was in FY 1998. Rates and frequency of readmission were compared pre (FY 1997) and post (FY 1998) managed care. Readmission was defined as any inpatient hospitalization to a Maryland psychiatric facility (including state, general, and private hospitals) occurring within 1 year of the adolescent's index admission. Same-day transfers were not considered readmissions.

Sample

The sample consisted of 881 adolescents drawn from a larger pool of 3,363 adolescents admitted to the hospitals during the study period. Eligibility for inclusion in the sampling frame was based on four selection criteria: (1) admitted to one of three private acute-care psychiatric hospitals between July 1, 1996 and June 30, 1998; (2) covered by Medicaid or eligible for Medicaid at the time of the index admission; (3) between the ages of 11 and 17.99; and (4) a resident of Maryland. These hospitals were chosen for two reasons. First, state trends suggest that the vast majority (62%) of inpatient admissions for adolescents are to private psychiatric hospitals.[29] In Maryland, there are a total of five private psychiatric hospitals for children and adolescents. The three hospitals selected (two nonprofit and one for-profit) serve a diverse population of privately and publicly insured children from central and western Maryland. Second, these hospitals are the major psychiatric facilities serving adolescents in Maryland, accounting for 47% of the total adolescent beds (N = 96 of 202) and 72% of the total adolescent private psychiatric beds in the state.[29]

Data sources and measures

The primary data sources for this study were Medicaid claims files. Because these claims exclude patients admitted to state psychiatric hospitals, these files were merged with data from the Hospital Management Information System (HMIS), a database on state hospital admissions. Information was collected on the adolescent's age, gender, admission and discharge dates, hospital provider, length of stay, and primary DSM-IV diagnosis at discharge.

The dependent variables for this study were time (in days) to first readmission after discharge and total number of readmissions. Because current clinical evidence suggests differences in the characteristics of first-time and repeat readmissions, the variable representing total number of readmissions was recoded into four discrete categories (0 = no readmissions, 1 = one readmission; 2 = two readmissions, and 3 = three or more readmissions).

Statistical analyses

Study subjects were divided into two groups based on their year of admission to the psychiatric facility: premanaged care (Fiscal Year 1997) or postmanaged care (Fiscal Year 1998). To

Table 1

Demographic and clinical characteristics of Maryland adolescents admitted pre- and postmanaged care, fiscal years 1997 and 1998

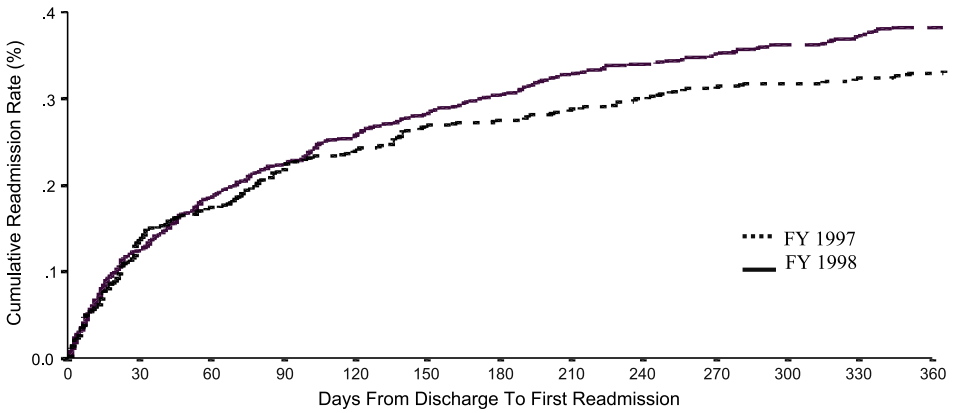
Characteristic	Premanaged care FY 1997 (*N* = 334)	Postmanaged care FY 1998 (*N* = 547)	χ^2
Age at admission (years)			
Mean (SD)	14.38 (1.93)	14.36 (1.69)	1.61 (*t*)
Gender %			2.48
Male	53.00	47.50	
Female	47.00	52.50	
Hospital (%)			8.98*
Hospital A	40.40	46.80	
Hospital B	32.00	34.20	
Hospital C	27.50	19.00	
Length of stay (days)			1.34 (*t*)
Mean (SD)	25.96 (40.08)	22.28 (38.38)	
Median	10.00	8.00	
Range	1–274	1–396	
Primary diagnosis (%)			54.99**
Adjustment disorders	6.40	4.20	
Affective disorders			
Major depression	21.90	18.30	
Bipolar I and II	16.10	25.20	
Other depressive[a]	29.50	24.10	
Other mood[b]	2.40	9.30	
Psychotic disorders	3.00	3.70	
Behavioral disorders			
Oppositional defiant	2.10	2.70	
Attention deficit	7.30	3.10	
Conduct	2.10	1.80	
Impulse control disorder	6.10	3.10	
Anxiety	2.40	3.30	
Other[c]	0.60	0.90	

[a]Other depressive disorders include dysthymia and depressive disorder NOS.
[b]Other mood disorders include bipolar disorder NOS, mood disorder NOS, and cyclothymia.
[c]Other disorders include anorexia nervosa and substance abuse disorders.
*$p < 0.05$, **$p < 0.0005$.

compare the two groups on demographic and clinical characteristics, descriptive analyses were initially performed. Statistical differences between the groups were examined using the chi-square statistic for categorical variables and *t*-tests for continuous level variables. Time to first readmission and cumulative readmission rates were estimated using Kaplan–Meier methods. Kaplan–Meier is a type of survival analysis that estimates the probability of a particular event occurring during a designed time period.[30] It is especially suited for longitudinal data of this type because it takes into account censored observations (eg, events of interest that have not occurred

Figure 1

Cumulative readmission rates for Maryland adolescents admitted pre- and postmanaged care, fiscal years 1997 and 1998 (N = 881).



Number of adolescents at risk

FY 1997	334	288	276	259	253	244	242	238	233	229	227	226	223
FY 1998	547	478	445	426	408	395	384	371	263	357	350	343	338

during the study period) and time period at risk. In this case, Kaplan–Meier methods were used to estimate the probability that an adolescent was readmitted for the first time at 30, 60, 90, 180, 270, and 365 days after discharge. As all adolescents were followed for a fixed 12-month period after their index admission, they were therefore right censored at 365 days. Statistical differences between the readmission curves for the pre- and postmanaged care time periods were compared using the log-rank test. P values of less than 0.05 were considered statistically significant.

To determine the pattern of readmission over time, hazard rates were calculated. Although mathematically equivalent to survival functions, hazard functions are particularly useful to include because they indicate the "instantaneous risk" of readmission at each month during the follow-up period for patients still at risk for readmission.[31] This technique shows whether the risk of readmission increases, decreases, or remains constant over time. Finally, to determine whether or not there were statistical differences in the frequency of readmissions pre- and postmanaged care, chi-square analysis was used. All analyses were conducted using SPSS version 11.5 (SPSS Inc., Chicago, IL, USA).

Results

Description of study sample

Of the 881 adolescents studied, 334 were admitted in fiscal year 1997, and 547 were admitted in fiscal year 1998; 26 adolescents were admitted during both fiscal years. Table 1 compares the demographic and clinical characteristics of adolescents admitted in fiscal years 1997 and 1998. There were no statistical differences between the groups with respect to age and sex. The mean age for the entire sample was 14.36 years. Males and females were equally distributed. The median length of stay for adolescents admitted in 1997 was 10 days; in 1998 it was 8 days. Although nonsignificant, these results indicate a declining trend in the mean (25.9 vs. 22.3 days) and median (10 vs. 8 days) length of stay over the 2 years.

Table 2

Number of adolescents readmitted and not readmitted to a hospital within 1 year of discharge, pre- and postmanaged care, fiscal years 1997 and 1998[a]

		Readmitted		Not readmitted			
Group	**Total**	***n***	**%**	***n***	**%**	**χ^2 log-rank**	***p***
FY 97	334	111	33.2	223	66.8	1.76	0.184
FY 98	547	209	38.0	338	61.8		
Total	881	320	36.3	561	63.7		

[a]From Kaplan–Meier survival function.

Nearly three-quarters (72%) of the sample were diagnosed with affective disorders, either depressive or bipolar disturbances. In 1998, however, there was an increase in the proportion of adolescents diagnosed with bipolar disorders. There was also a significant difference in the percentage of youth admitted to the three hospitals. In 1998 a higher percentage of youth were admitted to Hospital A and Hospital B (81% vs. 72%) compared to 1997. This shift was likely due to the 1997 closing of another private acute care psychiatric hospital that served significant numbers of youths in the greater Baltimore area.

Rates of readmission

Figure 1 displays the Kaplan–Meier cumulative readmission curves for the two groups. As shown in Table 2, the product-limit estimates of the cumulative 1-year readmission rates for the pre- and postmanaged care period were 33.2% (±2.58) and 38% (±2.08), respectively. This comparison indicates that there were no statistical differences in the overall rates of readmission before and after the implementation of Maryland's Medicaid managed care program.

Figure 2

Risk (hazard) for readmission at 1-month intervals for Maryland adolescents admitted pre- and postmanaged care, fiscal years 1997 and 1998 (N = 881).

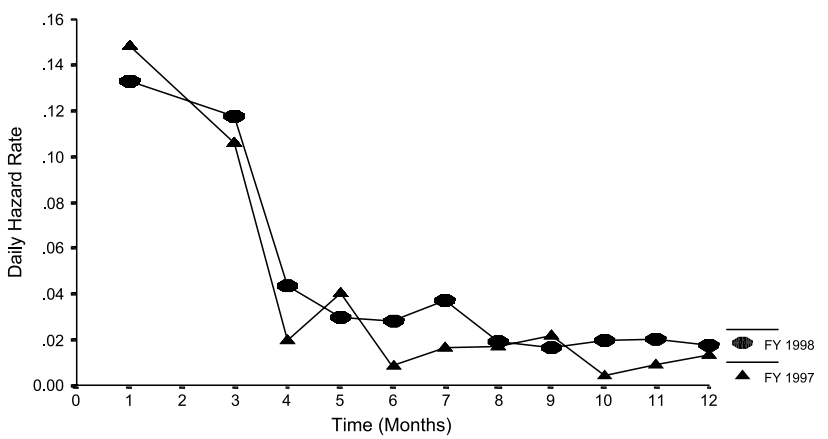
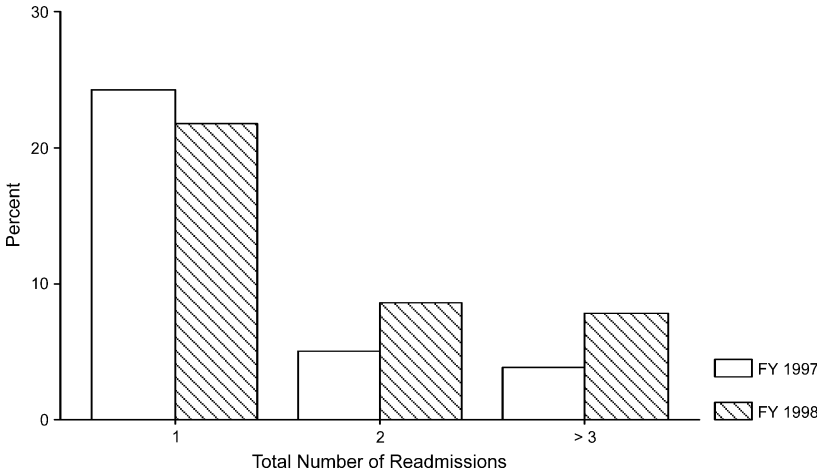


Figure 3

Frequency of readmissions pre- and postmanaged care, fiscal years 1997 and 1998 (N = 881).



Pattern of readmission over time

Figure 2 displays the daily hazard rates for fiscal years 1997 and 1998. The graph of the estimated hazard functions shows a declining trend in the rates of readmission over the 1-year period. Although there is some variation, the highest risk period for both years occurred within the first 15 days (7.8% in 1997 and 8.4% in 1998) to 30 days (13.8% in 1997 and 12.4% in 1998) after discharge. The hazard rate remained high for the first 3 months, dropped sharply from the 3rd to 4th months, then remained fairly constant from the 5th to the 12th month. By 63 days half of the adolescents experienced their first readmission (46 days in 1997 vs. 63 days in 1998).

Frequency of readmission

The results indicate that of the 881 youths in the study sample, 200 (22.7%) experienced one readmission, 64 (7.3%) had two readmissions, and 56 (6.4%) had three or more readmissions. The overall mean frequency of readmissions for the entire sample was 0.63, with a range of 1–11 readmissions per person. The mean frequency of readmissions was higher in 1998 (0.70) compared to 1997 (0.52). There was a significant difference in the proportion of adolescents with two or more readmissions in 1997 compared to 1998 ($\chi^2 = 10.02$; $p < 0.018$). As illustrated in Fig 3, the proportion of adolescents who had two readmissions increased by 69% in the postmanaged care period (5.1% in FY 1997 to 8.6% in FY 1998) and by 102% for adolescents who were readmitted three or more times (3.9% in FY 1997 to 7.9% in FY 1998).

Discussion

Little is known about the impact of Medicaid managed care programs on quality of care for children's mental health services. The primary objective of this study was to address this gap by evaluating the early impact of Maryland's Medicaid managed care program on readmission rates for a sample of adolescents admitted to three of the most widely utilized private psychiatric hospitals in Maryland. Rates and frequency of readmissions were compared for fiscal years 1997

and 1998, the year before and after the implementation of Maryland's Medicaid managed care program.

Our findings indicate that adolescents admitted after the Medicaid managed care reforms were more likely to experience multiple readmissions; the percentage of adolescents who were readmitted three or more times more than doubled during this period. These findings are consistent with prior studies on chronically disabled adults and children, and suggest that youths with severe disorders may be adversely affected by short hospital stays.[6,32,33]

The high rate of early readmissions was also noteworthy. The highest risk period for both years was within the first 15–30 days postdischarge from the hospital; half of the adolescents experienced their first readmission within 2 months after discharge. There are two possible explanations for these findings. One explanation is that youths may be prematurely discharged without adequate stabilization. Early readmissions are presumed to be an indicator of quality of care linked to the previous hospital stay. The assumption is that these readmissions are preventable—the adolescent was discharged too soon or that the treatment was somehow inadequate due to a failure to meet basic treatment objectives or standards of care, poor discharge planning, and/or lack of continuity of care.

It also possible that early readmissions may be an indicator of inadequate or substandard community-based services. In fact, interviews with providers and families confirmed shortages of community-based services in Maryland, particularly crisis intervention, mobile treatment, targeted case management, family support (respite and in-home services), and step-down services.[34,35] Stakeholders also noted that availability of services varied considerably by locale and were particularly difficult to access in rural areas outside of the greater Baltimore metropolitan area. Additionally, services were sometimes delayed, as they were largely dependent upon the expertise of core service agencies, which varied considerably in their organizational structure, background, and ability to develop provider networks in their areas.[34,35]

Safety-net providers also faced increasing fiscal challenges during the early years of the implementation of the Medicaid managed care program, which may have affected the delivery of mental health services to children and adolescents. Prior to the managed care reforms, providers relied on a combination of grants and fee for services from Medicare and Medicaid. Grants were allocated to outpatient community mental health centers for the provision of mental health services to uninsured (gray zone) populations and for nonbillable services. Under the new system, providers rely solely on fees received for services, although the state provided some grants to providers to assist with the transition to the new fee-for-service system. The shift from a grant-funded system to fee-for-services system coupled with increased administrative burdens associated with utilization management, low reimbursement rates, and delays in payment from the ASO placed considerable financial strains on community mental health centers.[17,36] Although some clinics were able to remain financially solvent by increasing their patient caseloads or reorganizing, 15 community mental health centers throughout the state were forced to close.[36] Over time, however, there has been a substantial increase in the number of providers in Maryland, particularly psychiatric rehabilitation programs; whether this growth is sufficient to treat the rapidly expanding patient population is unknown.[15,37]

The increased demand for services was another factor that affected availability and accessibility to community-based services. Because of the expansion of Medicaid eligibility, the number of children and adolescents receiving services jumped from 23,591 in FY 1998 to 36,220 in FY 2002, far beyond the program's intended capacity and resources.[15] As a result, consumers contended with long waiting lists due to increasing demand for services.[34,35] The inability of recently discharged patients to access care in a timely fashion in turn contributed to early readmissions.

The cumulative 1-year rate of readmission was 33.2% for 1997 and 38% for 1998. These results indicate that overall there were no significant differences in the rates of readmission before and after the implementation of the managed care program. There are several possible

explanations for these findings. First, these results may indicate that policy changes had virtually no effect on readmission rates. Second, given the time period of the study, the results may not accurately reflect the impact of the managed care program once the program was in place and running smoothly. Third, because readmission is an event that can potentially occur multiple times for a single person, frequency of hospital stays may be a more accurate measure of the effects of these policy changes.

Limitations

Study findings may not be entirely generalizable to other states who differ in their approach, structure, and financing of Medicaid managed care programs. For example, it is likely that states with payment mechanisms that include capitated full or partial risk contracts will have greater impact reducing inpatient admissions and lengths of hospital stay because of strong financial incentives to control costs and utilization.[16] Under the Maryland system, the administrative service organization is expected to contain costs through the use of utilization management procedures; however, the administrative service-only contract assumes no actual risk. As such, the financial structure of the contract creates no incentives to reduce services. Nevertheless, the administrative service organization faces pressure from the MHA to constrain the total service expenditures or its contract may not be renewed. The fee-for-service arrangement also provides few incentives for providers to develop community-based services or divert children from inpatient care.

Moreover, because the sample was derived predominantly from private nonprofit hospitals, findings may not be generalized to state or general hospitals, or other private nonprofit hospitals because readmission patterns may differ by hospital type. It should be noted, however, that study findings closely parallel statewide Medicaid readmission data. For example, the 1998 Maryland statewide Medicaid readmission rates for adolescents were 13%, 17%, and 20% at 30, 60, and 90 days, respectively.[38]

It is also possible that changes within these private psychiatric hospitals could be attributable to larger industry trends that have resulted in dramatic reductions in inpatient lengths of stays across hospital types and payment sources, rather than the new Medicaid managed care program. For example, in Maryland average lengths of stays for adolescents with private insurance are about 3–5 days compared to 7–9 days for Medicaid.[34] Although there is no doubt that public and private systems have become increasingly similar, the sharp decline in average lengths of stay for adolescents on Medicaid in private hospitals in Maryland between 1996 and 1998 from 24.31 to 14.69 days (40% decrease) suggests that changes in these private hospitals can be attributed, at least in part, to the implementation of the Medicaid managed care reforms.[39]

Another limitation involves the time period of observation for the study, 1 year before and 1 year after the full implementation of the Medicaid managed care program. Like many other states, Maryland encountered numerous administrative problems during the initial implementation stages of the waiver. The administrative service organization (Maryland Health Partners) and the Mental Hygiene Administration drastically underestimated the number of enrolled Medicaid patients (over 30,000), creating a tremendous burden for the ASO and providers. Resulting problems included delays in utilization reviews due to the massive call volume, claims processing difficulties, and delays in payment to providers.[18] Although these problems primarily affected outpatient providers and occurred within the first few months of implementation, the speed by which outpatient providers responded may have affected inpatient rates of admission. Moreover, as the demand for services increased and the state overspent its budget to meet this need, MHA reduced access to some community-based services and tightened medical necessity criteria to control costs.[36] The 57% reduction in length of stay from 1998 to 2000 is further evidence of this trend.[39]

Implications for Behavioral Health

Several important implications can be gleaned from this study. First, the increased frequency of readmissions after the implementation of the Medicaid managed care program suggests that short-term, crisis-oriented inpatient hospitalization may not be appropriate for certain groups of children with more severe psychiatric problems. Children and adolescents with serious emotional and behavioral disturbances have complex needs often necessitating the use of long-term, intensive mental health services. Short hospital stays of a few days or a week may not be sufficient to adequately stabilize these youths and secure an appropriate placement. Although it is generally assumed that multiple readmissions are a negative outcome associated with system failure, whether more frequent readmissions result in poorer clinical outcomes is unknown.[40] Moreover, it is unclear if repeated, short stays on inpatient units coupled with well-coordinated linkages to outpatient care remain a more effective method for managing children with severe mental illness than long-term hospitalization.[41] Further research is needed to examine the association between multiple readmissions and patient outcomes.

Second, the relatively high rates of early readmission found in this study raise questions about quality of care and highlight the need for increased quality monitoring. The increasingly competitive hospital marketplace along with managed care's emphasis on shortening lengths of stay has imposed greater pressure on hospitals to provide efficient care and manage lengths of stay aggressively. It is unclear whether children and adolescent experience negative clinical outcomes as a result of these shortened lengths of stay; however, some evidence[42] suggests that lengths of stay may be arbitrarily reduced without full consideration of severity of illness and other clinical and environmental factors. The challenge that hospitals face is to achieve a balance between controlling lengths of stay without compromising quality of care. Clearly, some patients will benefit from short lengths of stay; however, certain patient populations with more complex and severe disturbance will likely need longer lengths of stay. Perhaps what is needed are fiscal incentives for hospitals and community providers to base decisions about length of stay on level of risk and develop discharge plans that will result in successful community tenure. It will be important for further research to develop risk adjustment models to determine optimal lengths of stay for children and adolescents and establish a more definitive link between early readmission and quality of inpatient care.

Third, study findings underscore the importance of access to community-based services. As states develop managed care programs designed to reduce costs by lowering utilization of inpatient treatment and lengths of stay, success will depend upon adequate service capacity. Ongoing monitoring of provider networks, particularly safety-net providers and the projected demand for services resulting from Medicaid eligibility expansions, will also be critical. Successful transition from the hospital to the community is dependent upon timely and appropriate follow-up treatment.[43] If community providers are limited and systemic barriers (eg, waiting lists, administrative burdens associated with utilization review process) prevent access to services, there will be an increased risk of readmission. Moreover, if youths do not have access to evidenced-based treatments or the quality of community-based services is poor, this will also negatively affect clinical outcomes. Current guidelines and best practice models for children and adolescents emphasize the need for access to an integrated, seamless system that features a comprehensive array of high quality services.[44–46]

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