
Children's Mental Health Services in Fee-for-Service Medicaid

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This study analyzed annual service use and payment data for children in racial/ethnic subgroups in Medicaid Programs of four States, and compared service use of youth treated with mental health or substance abuse (MH/SA) conditions to youth without such conditions. In addition to geographic variation in rates (6.2 to 10.7 percent used MH/SA related care), results showed children who used MH/SA services to be disproportionately older, male, and white when compared with all Medicaid children. Examination of costs per claimant found costs for the MH/SA population of children to be three to six times greater than a comparison sample.

INTRODUCTION

Mental health conditions, over the span of a lifetime, can be very disabling—the combined burden of mental health and substance use disease, measured in terms of disability-adjusted life years, is reported to be higher than that from all cardiovascular conditions in 1990 (Murray and Lopez, 1996). An examination of costs of chronic conditions in a Medicaid population found costs related to certain mental illnesses to be the highest (Garis and Farmer, 2002). While the importance of mental health disorders is established, the impact of these disorders on health services utilization, particularly among chil-

dren, is understudied (New Freedom Commission on Mental Health, 2003; National Institute of Mental Health, 1998; U.S. Department of Health and Human Services, 2001; U.S. Public Health Service, 2000). National expenditure data in 1997 found 13 percent of all MH/SA expenditures were for children (age 0-17), and the distribution of spending on children, compared to other age groups, was more likely to be on specialty mental health providers (Harwood et al., 2003). Medicaid is one important source of payment for MH/SA care for children in low income families; an estimated 24 percent of total mental health costs for all U.S. children were covered by Medicaid in 1998 (Sturm et al., 2000). Medicaid also pays for more supportive, home-based services than other types of insurance (Ringel and Sturm, 2001; Stroul et al., 1998).

Mental health problems among children and adolescents affect an estimated 10 to 20 percent of children age 9-13, and rates of treatment appear to be increasing, even among very young children age 2-4 (Friedman et al., 1998; Howell et al., 2000; Kelleher et al., 2000; Pastor and Reuben, 2002; Perrin et al., 1999; Rappley et al., 1999; Zito et al., 2000; 2002). Evidence suggests that the overall rate of diagnosable MH/SA disorders is comparable across racial/ethnic subgroups, although the distribution of diagnoses may differ. Yet, numerous studies document that unmet treatment need is greater among black, Hispanic, and other racial/ethnic groups than white children (Chow, Jaffee, and Snowden, 2003; Kataoka,

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Zang, and Wells, 2002; Ringel and Sturm, 2001; Sturm et al., 2003; U.S. Department of Health and Human Services, 2001; Wells et al., 2001). Zito and colleagues (1997; 1998; and 2003) have consistently found differences in prescribing patterns across geographic areas and racial/ethnic groups, with black youth distinctly less likely to receive psychotropic medication as a part of treatment than white youth. Sturm and colleagues (2003) observe that national averages on unmet MH/SA needs obscure large variation between States.

Children in foster care, a small portion of all Medicaid children, but a particularly vulnerable group, are more likely than other children to receive MH/SA care (DosReis, et al., 2001; Halfon et al., 1992; Harman, Childs, and Kelleher, 2000; Leslie et al., 2000). A three-State study found MH/SA treatment rates for this high-risk group varied substantially across States, from 23 to 38 percent, exceeding even the high utilization rates among disabled children (Rosenbach, Lewis, and Quinn, 2000). This is consistent with another study of Medicaid children where the majority of the MH/SA high-cost group was eligible for Medicaid through child-related categories rather than disability (Buck, Teich, and Miller, 2003). These disparities in utilization trends by geographic area, race/ethnicity, and reason for enrollment may portend differences in all types of mental health service utilization, demonstrating the importance of studying additional individual State patterns (Buck, 1997; Buck, Teich, and Miller, 2003; Dougherty Management Associates, 2003; Rosenbach, Lewis, and Quinn, 2000).

In this article, we present updated analyses of annual Medicaid service use and payments for two groups of children and adolescents in all eligibility categories: those with treated MH/SA conditions during the year (MH/SA claimants), and a

comparison group without such conditions. We compare use and costs of selected MH/SA services for racial/ethnic subgroups for four States. These data pre-date many of the State health care reform initiatives, and thus provide important data for a baseline period.

METHODS

Data Sources

This study presents analysis from data files constructed by the Medicare, Medicaid, and Managed Care Analysis (MMMCA) study funded by the CMHS (Larson et al., 1998; Medstat Group, 2001). Medicaid analysis files were derived from the State Medicaid Research Files (SMRF). SMRF data provide paid claims for all Medicaid paid services as well as eligibility and demographic information.

During this period encounter data from managed care plans were incomplete in virtually all States, a limitation affecting all Medicaid claims studies in the 1990s. Thus, analysis is limited to enrollees in the fee-for-service (FFS) Medicaid Programs. To increase the robustness of the Medicaid estimates, we analyzed four States from SMRF (1993 data from Michigan, New Jersey, and Washington, and 1994 data from Pennsylvania). Data from all Medicaid enrolled children age 2-19 at the end of the year were selected for analysis.

Identifying MH/SA Claimants and Comparison Sample

Claims files for all children were scanned to determine if they met criteria as a MH/SA service user during the year. We used the classification approach developed for the MMMCA study to identify most MH/SA conditions recognized as mental disorders, but excluded mental retardation/

developmental delays (American Psychiatric Association, 1994), by examining primary diagnosis codes based on ICD-9-CM. (Centers for Disease Control and Prevention, 2004). We anticipated underreporting of diagnosis (given social stigma and benefit restrictions), so we also scanned claims and selected any child with a psychiatric or chemical dependency procedure or a provider (regardless of diagnosis or procedure). A very small number of children with only secondary diagnoses of MH/SA conditions who met no other criteria were excluded since that care could be attributable to a medical condition.

The MMMCA also created a random sample of approximately equal size of health care claimants with no evidence of MH/SA care for each State. Before drawing the random sample the potential comparison group health care claimants were stratified on age, race/ethnicity, and sex. After both samples were identified, we retrieved all paid claims during the study year including care for all medical/surgical disorders from inpatient, outpatient, long-term care, and pharmacy files.

Data Completeness and Exclusions

The most important exclusion resulted from lack of sufficient information on encounter records for health care claimants in managed care. Managed care enrollees were excluded since unobserved utilization and costs would not be uniform across States and children subgroups, thus biasing the estimates. Also, analyses for certain tables are restricted to children where race/ethnicity was reported.

Analysis

Number of children with MH/SA conditions was first calculated as a utilization rate per 1,000 total children enrollees by

State stratified by key demographic characteristics (i.e., age, sex, race/ethnicity, and Medicaid eligibility category). Total annual utilization of health services was compared for children receiving MH/SA care to the children from the random comparison sample. These comparison analyses used utilization and payment measures such as the frequency of inpatient stays, the average number of inpatient days, and average Medicaid payments per user for all services, all MH/SA-related services, and for selected types of care (inpatient, psychiatric institution, physician services, and ambulatory facilities).

RESULTS

Demographic Differences in Treatment Rates

Table 1 describes the demographic characteristics of the MH/SA study population of children and the total children enrollees for each State, and presents the rates of MH/SA service use (utilization) in each demographic subcategory. Rates for each subgroup varied dramatically across States, affirming the importance of examining data from several States to increase generalizability of findings. Of all child enrollees, MH/SA service users were 6.2 percent of enrollees in New Jersey, 8.3 percent in Washington, 8.7 percent in Michigan, and 10.7 percent in Pennsylvania. However, despite absolute differences across States, most trends in subgroup differences were consistent across States, allowing for an opportunity to generalize some subgroup differences. The number of service users with MH/SA conditions (MH/SA claimants) was highest among preteen and early teen children (age 10-14), where it ranged from 89 to 157 per 1,000 enrollees, again with large variation in absolute rate across States. MH/SA claimant rates were

Table 1

Demographic Characteristics of Service Users with MH/SA Conditions and Total Enrollees, Medicaid Children in Four Study States 1, 2: 1993-1994

Characteristic	Michigan			New Jersey			Pennsylvania			Washington		
	MH/SA Claimants (N=39,609)	All Enrollees (N=455,265)	MH/SA Use Rate Per 1,000 Enrollees	MH/SA Claimants (N=21,184)	All Enrollees (N=940,495)	MH/SA Use Rate Per 1,000 Enrollees	MH/SA Claimants (N=54,884)	All Enrollees (N=512,901)	MH/SA Use Rate Per 1,000 Enrollees	MH/SA Claimants (N=20,557)	All Enrollees (N=248,384)	MH/SA Use Rate Per 1,000 Enrollees
Age		Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
2-4 Years	10.8	25.4	37	12.1	26.3	29	8.7	23.6	40	13.3	25.9	43
5-9 Years	32.7	30.8	93	30.0	30.3	62	30.5	31.1	105	31.8	31.0	85
10-14 Years	32.2	22.7	123	32.7	22.7	89	33.6	22.9	157	30.7	23.5	108
15-19 Years	24.3	21.1	100	25.3	20.7	76	27.2	22.5	129	24.2	19.6	102
Eligibility Group												
AFDC	80.3	94.2	74	80.0	93.5	53	66.5	86.6	82	75.8	72.1	87
Disabled	19.7	5.8	298	19.9	6.5	191	26.6	8.6	331	11.0	4.0	228
Other	NA/NR	NA/NR	NA/NR	NA/NR	NA/NR	NA/NR	6.9	4.8	153	13.3	24.0	46
Sex												
Female	39.8	51.2	68	42.0	52.1	50	39.0	49.9	84	45.9	52.2	73
Male	60.2	48.8	107	58.0	47.9	75	61.0	50.1	130	54.1	47.8	94
Race												
White	71.6	62.5	100	34.1	24.3	87	70.2	71.3	105	69.5	70.8	81
Black	23.0	28.8	69	36.8	44.4	52	19.0	19.2	106	4.1	6.3	54
Hispanic	2.2	5.3	35	19.5	26.1	47	9.8	7.7	137	4.4	13.5	27
Asian	<0.1	1.2	<1	0.2	0.7	16	0.3	1.2	28	0.9	2.8	27
Native American	0.6	0.7	83	2.0	0.5	243	0.1	0.1	131	2.9	4.1	58
Unknown	2.6	1.5	14	7.3	4.0	113	0.6	0.6	104	18.2	2.5	594

¹ Data years (1993 for Michigan, New Jersey, and Washington and 1994 for Pennsylvania).

² In cells where the number of children were fewer than 50, we report data as NA/NR (not available or not reported).

NOTES: MH/SA is mental health/substance abuse. AFDC is Aid to Families with Dependent Children.

SOURCES: Larson, M.J., New England Research Institutes, Miller, K., Medstat, Sharma, S., and Manderscheid, R., Center for Mental Health Services.

Table 2
Numbers of MH/SA Service Users Per 1,000 Enrollees, Medicaid Children, by Eligibility Group¹ and Race/Ethnicity²: 1993-1994

Age and Sex	White		Black		Hispanic		Asian		Native American	
	AFDC	Disabled	AFDC	Disabled	AFDC	Disabled	AFDC	Disabled	AFDC	Disabled
2-4										
Female	28	121	25	109	22	169	4	³ NA/NR	26	³ NA/NR
Male	43	182	34	140	34	216	9	83	38	³ NA/NR
Total	36	158	30	129	28	200	6	112	32	210
5-9										
Female	59	230	43	175	40	275	7	79	51	³ NA/NR
Male	113	371	80	282	75	414	10	31	94	162
Total	86	321	61	246	58	367	8	50	72	285
10-14										
Female	96	292	71	201	63	309	17	118	125	³ NA/NR
Male	134	422	96	277	83	446	20	74	140	288
Total	115	375	83	251	73	398	19	89	133	292
15-19										
Female	94	275	70	216	54	261	33	66	117	³ NA/NR
Male	103	300	75	209	63	299	19	0	109	0
Total	97	289	72	212	57	286	27	28	114	150
Overall Rate	81	308	61	224	53	334	15	60	86	239

¹ Children in other eligibility groups and unknown racial/ethnic groups excluded from this table.

² Data years (1993 for Michigan, New Jersey, and Washington and 1994 for Pennsylvania).

³ In cells where the number of child enrollees was fewer than 50, we report data as NA/NR (not available or not reported).

NOTE: AFDC is Aid to Families with Dependent Children.

SOURCES: Larson, M.J., New England Research Institutes, Miller, K., Medstat, Sharma, S., and Manderscheid, R., Center for Mental Health Services.

also high, but somewhat lower, in the adolescent group (age 15-19) that may present for treatment with substance abuse disorders as well as MH/SA conditions. The lower utilization rate suggests this age group may be receiving more care outside the Medicaid payment system. MH/SA rates among young children were less variable across States, and about one-third the rate of older youths. Despite the lower treatment rate, children under age 10 still represented 39 to 45 percent of MH/SA claimants, reflecting the age composition of the enrollee groups.

The largest gap between subgroups was associated with the disability status. Utilization was considerably higher among children enrollees eligible for Medicaid because of a disability, with the number of MH/SA users ranging from 191 to 331 per 1,000 enrollees; three to five times higher than among the non-disabled enrollees.

While disabled children were only 4.0 to 8.6 percent of all children enrollees, they represented 20 to 27 percent of MH/SA service users in three of the four States.

The MH/SA claimants were disproportionately male in all States and white in Michigan and New Jersey. MH/SA claimants represented from 50 to 84 per 1,000 of total enrolled Medicaid females, and 75 to 130 of total Medicaid enrolled males. Pennsylvania—where overall MH/SA utilization rates were highest—had high treatment rates for Hispanic and Native American racial/ethnic subgroups that exceeded the rates of white children.

Table 2 further investigates the impact of race/ethnicity on the number of MH/SA users in the study States. Since in any one State the number of children in some subgroups was small, we combined data across States to compare differences in MH/SA treatment rates stratifying by age

Table 3
Service Users with Psychiatric Conditions¹ Among White and Other Race/Ethnicity²
Children/Adolescents, Four Medicaid States Combined: 1993-1994

Diagnosis	Number of Claimants		Claimants per 100,000 Enrollees		
	White	Other ²	White	Other ²	Ratio
Mental Health Conditions					
Schizophrenia	1,419	994	156	109	1.4
Major Depression	6,059	1,940	665	213	3.1
Other Affective Psychoses (i.e., Bipolar Disorder)	2,315	743	254	82	3.1
Other Psychoses	5,724	2,005	629	220	2.9
Stress and Adjustment Disorders	26,899	12,642	2,954	1,388	2.1
Personality Disorders	1,244	869	137	95	1.4
Childhood Disorders	41,086	16,399	4,512	1,801	2.5
Other Mood Disorders and Anxiety	13,440	5,745	1,476	631	2.3
Other Mental Disorders (Not Elsewhere Specified)	4,614	2,528	507	278	1.8
Substance Abuse Conditions					
Alcohol Psychoses	41	54	5	6	0.8
Alcohol Dependence/Non-Dependent Abuse	1,964	826	216	91	2.4
Drug Psychoses and Mood Disorders	133	118	15	13	1.1
Drug Dependence/Non-Dependent Abuse	2,007	1,354	220	149	1.5

¹ Psychiatric conditions are based on ICD-9-CM diagnostic codes.

² Other race/ethnicity includes black, Hispanic, Asian, and Native American but excludes unknown.

³ Data years for States (1993 for Michigan, New Jersey, and Washington and 1994 for Pennsylvania).

NOTE: ICD-9-CM is *International Classification of Diseases, Ninth Revision, Clinical Modification*.

SOURCES: Larson, M.J., New England Research Institute, Miller, K., Medstat, Sharma, S., and Manderscheid, R., Center for Mental Health Services.

and sex, two characteristics that were associated with service use rates (Table 1). The pattern of higher MH/SA utilization rates among the disabled children than among the Aid to Families with Dependent Children (AFDC) children was consistent across racial/ethnic subgroups as shown in Table 2. However, overall rates for white AFDC children were higher than all other subgroups, except Native American children. In general, of the AFDC enrollees, 81 of 1,000 who were white and 86 of 1,000 who were Native American used MH/SA services, while the overall rate for black children was only 61, for Hispanic children 53, and for Asian children only 15. (Since the total number of Asian children in the study population is very small, under 400 MH/SA children, findings for this age group should be interpreted cautiously. However, the lower utilization rate is consistent with other studies.) This pattern of a racial/ethnic gap is consistent across age and sex groups, but the discrepancy in rates is greatest for AFDC teenagers age

15-19. The treatment rates for AFDC children who are age 2-4 are most similar across racial/ethnic groups. Among the disabled, white and Hispanic children had higher overall rates of MH/SA treatment than children from other subgroups, 308 and 334 per 1,000 enrollees, respectively—a pattern consistent across sex and age groups.

Type of Condition Treated

In Table 3 we examine differences in types of MH/SA conditions reported on claims for MH/SA service users identified as white or other racial/ethnic groups (combined). Child/adolescent claimants in all four States are combined, and claimants with unknown racial/ethnic were excluded for this analysis. The total number of claimants with any claim with the specified MH/SA diagnosis is reported, as well as the rate of claimants in each racial/ethnic group per 100,000 enrollees in the racial/ethnic group. Table 3 also compares the claimant

rates and expresses the comparison as a ratio of white to non-white claimants. Nearly all diagnoses are more common among Medicaid recipients that are white, with MH/SA diagnoses rates among white claimants over two times the rate of diagnoses of children in other racial/ethnic groups combined. Major depression, bipolar disorders, and other psychoses are nearly three times more common among white child/adolescent claimants than youth in other racial/ethnic groups.

In further analysis limited to children with inpatient (short-term) hospital stays for a MH/SA condition, we examined the most frequent primary MH/SA diagnoses associated with such stays. By way of context, MH/SA admissions as a proportion of all inpatient (short-term) hospital stays varied across States: only 14 percent in Washington, 30 percent in Michigan, 37 percent in New Jersey, and 54 percent in Pennsylvania. Major depression and bipolar disorders accounted for the largest group of MH/SA hospital admissions (about 4,700), over twice as many as adjustment disorders and conduct disorders (ranked second and third), and four times as many as each of these conditions: other disorders of childhood, attention deficit/hyperactivity disorder (ADHD), schizophrenia, and anxiety. Combined, these most prevalent conditions accounted for 83 percent of MH/SA hospital admissions. Alcohol and drug disorders combined accounted for less than 4 percent of hospital admissions, a finding apparently demonstrating that Medicaid benefits are especially restricted for hospital care for substance abuse.

Total Annual Utilization

Differences existed between the study group of children with MH/SA disorders and children in the random sample comparison group without MH/SA disorders

in their annual utilization of all health services (MH/SA and medical/surgical care). Table 4 summarizes the differences in rates of use, days per user (inpatient care), and average cost—that is, total Medicaid payments and, where applicable, average length of stay. Total annual health services use by the study population was higher than the comparison group in each State, overall and for most service types. Children with MH/SA conditions had both higher rates of service use and higher costs per user; that is, given some service use in a service type, the costs were higher. We explore later the extent to which these higher costs are attributable to the MH/SA costs.

Table 4 also shows that average annual costs per claimant in the MH/SA population of children was three to six times greater, depending on State, than costs per claimant in the comparison sample. Average costs ranged from \$3,189 per MH/SA claimant in Washington to \$5,069 in New Jersey, while average costs for comparison sample children did not exceed \$1,500 in any State. Thus, children with MH/SA treatment consistently had greater service costs than other comparable children; nevertheless the costs differed tremendously across States.

Greater use of inpatient hospital services was one source leading to higher costs for the MH/SA population. The rate of use for inpatient hospital care ranged from 83 to 142 users per 1,000 claimants in the MH/SA population. Typically, the rate was double or at least one-third higher than the rate among the comparison sample. Further, in all States, (except Washington), services for children treated in specialized psychiatric institutions (long-term care) were eligible for Medicaid reimbursement, and the use rate of this service ranged from 44 to 104 users per 1,000 claimants in the MH/SA claimants. Interestingly,

**Table 4
Total Service Use and Costs for MH/SA Claimants and Comparison Claimants, by Selected Services and Study State¹: 1993-1994**

Use and Cost	Michigan		New Jersey		Pennsylvania		Washington	
	MH/SA Sample	Comparison Sample						
All Claimants (n)	39,621	34,049	21,185	19,036	54,884	65,378	20,559	16,568
Annual Costs per Claimant	\$3,941	\$751	\$5,069	\$1,479	\$4,861	\$829	\$3,189	\$966
Inpatient Services								
Users/1,000 Claimants	93	62	138	77	142	63	83	63
Days Per User	8.8	3.5	14.8	7.7	22.3	4.0	9.6	4.9
Average Length of Stay	6.2	3.0	9.4	4.7	16.0	3.4	5.7	2.9
Cost Per User	\$5,924	\$3,414	\$8,517	\$7,154	\$10,146	\$3,637	\$5,981	\$4,373
Psychiatric Institution								
Users/1,000 Claimants	48	NA	44	NA	104	NA	NA	NA
Days Per User	55.2	NA	122.2	NA	22.2	NA	NA	NA
Cost Per User	\$25,396	NA	\$38,381	NA	\$10,772	NA	NA	NA
Other Long-Term Care								
Users/1,000 Claimants	1	<0.1	<0.1	1	2	1	<0.1	<0.1
Days Per User	204.4	221.4	176.3	310.6	321.1	324.2	180.8	246.8
Cost Per User	\$45,278	\$52,813	\$45,103	\$81,400	\$62,562	\$65,742	\$19,171	\$32,060
Physician Services								
Users/1,000 Claimants	889	791	825	744	793	707	877	790
Cost Per User	\$293	\$175	\$171	\$115	\$204	\$140	\$402	\$277
Ambulatory Facilities								
Users/1,000 Claimants	891	563	864	515	874	552	840	441
Cost Per User	\$874	\$300	\$1,472	\$777	\$927	\$192	\$2,033	\$238
Lab and X-Ray								
Users/1,000 Claimants	596	482	608	482	570	450	676	551
Cost Per User	\$59	\$46	\$75	\$51	\$116	\$85	\$229	\$179
Prescription Drugs								
Users/1,000 Claimants	838	748	835	776	822	752	798	719
Cost Per User	\$225	\$105	\$283	\$171	\$307	\$143	\$191	\$111
Other Services								
Users/1,000 Claimants	814	714	725	628	761	660	773	691
Cost Per User	\$1,065	\$166	\$706	\$358	\$2,539	\$1,179	\$407	\$260

¹ Data years (1993 for Michigan, New Jersey, and Washington and 1994 for Pennsylvania).

NOTES: MH/SA is mental health/substance abuse. NA is not applicable.

SOURCES: Larson, M.J., New England Research Institutes, Miller, K., Medstat, Sharma, S., and Manderscheid, R., Center for Mental Health Services.

Pennsylvania had the highest hospitalization rate for both inpatient (short-stay) hospital services and psychiatric institutions. Recall Pennsylvania had the highest rate of MH/SA use among disabled child enrollees. Washington, a State that did not have payments to psychiatric institutional providers, did not have lower annual costs per claimant in the comparison group than Michigan or New Jersey, but its annual costs per MH/SA claimant were lower than other States.

Other non-hospital services, including physician, ambulatory facilities, and prescription drugs were used by the majority of claimants in both the MH/SA population and comparison samples. Again, however, in each State, the use rate was higher in the MH/SA population than for the comparison sample. Cost per user was also higher. Particularly noteworthy was the difference in use of the ambulatory facility setting that would include such places as community health clinics, hospital outpatient departments, and rural clinics. Use rates among children with MH/SA treatment had a relatively small range, from 840 to 891 users per claimant, but nearly twice the rate for comparison group children in each State. Cost per user ranged from \$874 to \$2,033 for MH/SA children, at least double the cost of comparison group children in all States, and as much as nine times greater per user in Washington.

Use of MH/SA Related Care

Table 5 shows the proportion of care for the MH/SA population that was associated with a MH/SA diagnosis, procedure, or provider. It is clear that the majority of costs for the MH/SA population in each State are associated with MH/SA care rather than other medical/surgical care. Costs of care clearly linked to an MH/SA condition accounted for 58 to 73 percent of

all costs for this population, with average annual MH/SA costs ranging from \$1,856 per claimant in Washington to \$3,571 in Pennsylvania.

Use of inpatient services for treatment of MH/SA disorders varied tremendously across States. Washington relied only a little on inpatient care for MH/SA treatment, with only 18 percent of all inpatient costs for the MH/SA population being used for MH/SA care and 44 percent of days of care, although this in part may reflect less reporting of diagnoses on inpatient claims and an exclusion of State hospital data. In Pennsylvania, by contrast, 76 percent of all inpatient costs and 88 percent of days of care for the MH/SA population were associated with a MH/SA condition. For inpatient care in each State, the average cost per day for MH/SA care was lower than the cost per day for other medical/surgical hospital care (data not shown).

Examining ambulatory facility services, the majority of MH/SA claimants who used services in these settings used at least some services for MH/SA care, from 77 to 85 percent. Further, the majority of costs for services in ambulatory facilities for this population were for MH/SA care, although there was wide variation by State. In Michigan, only 50 percent of ambulatory facility costs for MH/SA claimants were for MH/SA care, while in Washington nearly all costs (92 percent) were for such care. This pattern supports the notion that Washington relies more heavily on ambulatory settings for its MH/SA care, perhaps diverting care delivered by other States in hospital stays.

Table 6 compares the use of all MH/SA services and separately for four selected services for children of white and other racial/ethnic groups in each State. Comparing the average annual MH/SA costs for white MH/SA claimants to other MH/SA racial/ethnic claimants shows the

Table 5
MH/SA Service Use and Costs for MH/SA Claimants, by Selected Services and Study State¹: 1993-1994

Use and Cost	Michigan			New Jersey			Pennsylvania			Washington		
	MH/SA Claims	All Claims	% of Total Claims	MH/SA Claims	All Claims	% of Total Claims	MH/SA Claims	All Claims	% of Total Claims	MH/SA Claims	All Claims	% of Total Claims
All MH/SAs												
Cost Per Claimant	\$2,306	\$3,941	59	\$3,099	\$5,069	61	\$3,571	\$4,861	73	\$1,856	\$3,189	58
Inpatient Services												
Users/1,000 Claimants	32	93	34	62	138	45	83	142	59	15	83	11
Costs Per Claimant	\$174	\$551	32	\$491	\$1,174	42	\$1,098	\$1,444	76	\$88	\$498	18
Days Per Claimant	0.41	0.82	50	1.2	2.04	59	2.79	3.17	88	0.35	0.8	44
Psychiatric Institution												
Users/1,000 Claimants	48	48	100	44	44	100	104	104	100	NA	NA	NA
Costs Per Claimant	\$1,222	\$1,222	100	\$1,681	\$1,681	100	\$1,123	\$1,123	100	NA	NA	NA
Days Per Claimant	2.65	2.65	100	5.35	5.35	100	2.31	2.31	100	NA	NA	NA
Physician Services												
Users/1,000 Claimants	451	889	51	332	825	40	309	793	39	415	877	47
Costs Per Claimant	\$72	\$261	28	\$30	\$141	22	\$43	\$162	27	\$75	\$353	21
Ambulatory Facilities												
Users/1,000 Claimants	688	891	77	683	864	79	741	874	85	667	840	79
Costs Per Claimant	\$391	\$778	50	\$808	\$1,272	64	\$671	\$810	83	\$1,568	\$1,708	92

¹ Data years (1993 for Michigan, New Jersey, and Washington and 1994 for Pennsylvania).

NOTES: MH/SA is mental health/substance abuse. NA is not applicable.

SOURCES: Larson, M.J., New England Research Institutes, Miller, K., Medstat, Sharma, S., and Manderscheid, R., Center for Mental Health Services.

difference in costs is relatively small; the biggest gap is in Michigan, 13 percent. We further investigate utilization and cost differences for four major service types: inpatient, psychiatric institution, physician, and ambulatory services. Use of MH/SA related inpatient (short-term) hospital care, and cost per MH/SA claimant was always higher for white children than non-white MH/SA children. In Pennsylvania in particular, both inpatient services, and use of psychiatric institutions was higher for white MH/SA children than children of other racial/ethnic subgroups. Furthermore, in Pennsylvania, physician service utilization was 68 percent higher for MH/SA children who are white than for children of other racial/ethnic groups. For ambulatory settings, the pattern is more complex with similar use rates across racial/ethnic subgroups, and lower costs per claimant for white than non-white MH/SA children in Michigan and Pennsylvania.

LIMITATIONS

In general these estimates probably understate the cost of care associated with MH/SA conditions. The misclassification (false negatives) of true MH/SA users are an inherent problem using claims data for socially stigmatized conditions. MH/SA care is also missed, as some claims systematically do not carry a diagnosis code (pharmaceutical, laboratory, durable medical equipment). Much more complex analysis that builds episodes of care related to MH/SA conditions would partially address the problem of misclassified MH/SA care. Further, we made no adjustments for partial-year enrollment in Medicaid, another source of underestimating costs. Prior analysis demonstrated that adjustments for partial-year enrollment did not change conclusions about relative costs between MH/SA and comparison

groups (Larson et al., 1998). The underestimation of costs may have been somewhat offset by the exclusion of children in managed care plans; during this period managed care children typically were enrolled from low-risk groups.

Studies based on claims data cannot adequately control for differences in the level of MH/SA need. Claims data do not contain sufficient clinical information to distinguish mild and severe impairment from MH/SA disorders. Prior studies have found that utilization is linked to level of impairment, not just the presence of a MH disorder (Burns et al., 1995). Thus, some differences observed across States and racial/ethnic groups could be driven by MH/SA needs not adequately captured in claims data.

Further, these children may have made use of other services paid for by other public or private (i.e., out-of-pocket) sources. Children with psychiatric needs are found disproportionately in other public service systems including schools, safety net State MH/SA programs, child welfare, and juvenile justice systems. It is difficult to estimate what portion of care delivered in these other settings are paid for by Medicaid versus other public sources (Dougherty Management Associates, 2003). Burns and colleagues (1995) assessed the source of care for children with mental health problems and impairments and concluded that 40 percent received services from the mental health specialty sector, 70 percent received services from schools, 16 percent from child welfare, and 4 percent from the juvenile justice sector. However, this research was not based exclusively on Medicaid-enrolled children. Nevertheless, if children of different racial/ethnic groups receive care disproportionately in settings not captured by Medicaid claims, this could bias the estimates of this study.

**Table 6
MH/SA Service Use and Costs for MH/SA Claimants, Selected Services, by Study State^{1, 2} and Race/Ethnicity: 1993-1994**

Service Type	Michigan			New Jersey			Pennsylvania			Washington		
	White	Other	Ratio White: Other	White	Other	Ratio White: Other	White	Other	Ratio White: Other	White	Other	Ratio White: Other
All MH/SA Claimants (n)	28,381	10,230	NA	7,226	12,409	NA	38,526	16,027	NA	14,297	2,515	NA
"All MH/SA Services, Cost Per MH/SA Claimant"	\$2,336	\$2,070	1.13	\$3,323	\$2,993	1.11	\$3,580	\$3,531	1.01	\$1,505	\$1,497	1.01
Inpatient Services												
Users/1,000 Claimants	33	27	1.23	65	60	1.10	91	64	1.42	15	14	1.08
Costs Per Claimant	\$188	\$131	1.43	\$572	\$423	1.35	\$1,120	\$1,028	1.09	\$86	\$72	1.19
Days Per Claimant	0.45	0.29	1.53	1.44	1.03	1.4	3.03	2.16	1.4	0.33	0.42	0.79
Psychiatric Institution												
Users/1,000 Claimants	48	45	1.06	55	39	1.40	124	57	2.18	NA	NA	NA
Costs Per Claimant	\$1,248	\$1,058	1.18	\$1,827	\$1,689	1.08	\$1,261	\$791	1.59	NA	NA	NA
Days Per Claimant	2.74	2.21	1.24	6.41	5.07	1.26	2.61	1.58	1.65	NA	NA	NA
Physician Services												
Users/1,000 Claimants	466	407	1.14	329	325	1.01	350	209	1.68	436	368	1.18
Costs Per Claimant	\$70	\$76	0.92	\$35	\$26	1.31	\$48	\$30	1.58	\$74	\$51	1.44
Ambulatory Services												
Users/1,000 Claimants	682	704	0.97	723	662	1.09	712	810	0.88	645	626	1.03
Costs Per Claimant	\$363	\$458	0.79	\$783	\$794	0.99	\$529	\$1,014	0.52	\$1,242	\$1,271	0.98

¹ Data years (1993 for Michigan, New Jersey, and Washington and 1994 for Pennsylvania).

² Psychiatric Institution claimants for Washington were excluded due to lack of procedure codes.

NOTES: MH/SA is mental health/substance abuse. NA is not applicable.

SOURCES: Larson, M.J., New England Research Institutes, Miller, K., Medstat, Sharma, S., and Manderscheid, R., Center for Mental Health Services.

DISCUSSION AND IMPLICATIONS

Periodic assessment of MH service delivery for Medicaid children is a priority to State and Federal policymakers, both because Medicaid provides health care for the majority of low income, particularly vulnerable children, and because current State health care reforms have unknown consequences that may positively or negatively affect Medicaid's ability to provide care for all enrolled children (Dougherty Management Associates, 2003; Hutchinson and Foster, 2003; McAlpine and Mechanic, 2000; Snowden, Cuellar, and Libby, 2003). In 1998, 58 percent of children in families below the poverty level were enrolled in Medicaid (U.S. Census Bureau, 2000). National Medicaid expenditures for MH/SA care were \$16.7 billion in 1997, more than any other single public source (Mark et al., 2000). Analysis of aggregate spending for children also found that the Medicaid Program is the source of payment for 24 percent of total U.S. payments for children's mental health services (Sturm et al., 2000). A behavioral health tracking study analyzing States' mental health authority and Medicaid funding found more children with mental health needs reached by Medicaid than mental health authorities, however, median expenditures per child served were higher in mental health authority programs (Dougherty Managed Associates, 2003). Since the period reviewed by this study (1993), Medicaid and other public programs rapidly adopted managed care arrangements for children and other public clients, including the disabled and seriously ill, to deliver MH/SA services (Stroul, Pires, and Armstrong, 1998). Annual expenditure estimates for the population remaining in FFS get quickly outdated and must be revisited. Different approaches to managed care

have been adopted and some have introduced welcome changes. For example, an assessment of the early State reform approaches found that early-managed behavioral health programs made it easier for MH/SA clients to obtain home and community-based care, and case management services. Discouraging patterns were also found such as the lack of systematic family involvement in planning, too little attention to cultural issues, and minimal integration between child welfare and Medicaid managed care (Stroul, Pires, and Armstrong, 1998). The FFS baseline estimates for 1993 when the majority of children in these States were still in FFS programs provides an aid in monitoring the effects of the managed care programs adopted in the mid- and late-1990s. Maintaining adequate access to a continuum of psychiatric care for this population is a priority concern (Pottick, McAlpine, and Andelman, 2000; Peele, Lave, and Kelleher, 2002; Perrin et al., 1997).

Consistent with a national study not exclusive to Medicaid, the largest differences in MH/SA utilization rates appeared across States, even when examining rates within demographic subgroups (Sturm, Ringel, and Andreyeva, 2003). This variation also is consistent with another Medicaid benchmarking project (Dougherty Management Associates, 2003). These findings help focus attention on the characteristics of policy choices that may reduce disparities that remain. Policy levers can influence many mechanisms to improve access to care: uniform training of staff in child welfare and juvenile justice programs to identify, assess, and refer to MH/SA services children not currently receiving such care; examining the configuration of MH/SA provider supply in all geographic areas; devising incentives for providers with cross-cultural expertise to fully participate

in Medicaid; and increasing incentives to screen and adequately assess high-risk children (i.e., those in foster care or child welfare) for MH/SA problems.

Between 6 and 11 percent of Medicaid children in this study received some care associated with a MH/SA condition in 1997, however users of MH/SA services were disproportionately older, male, and white when compared with all Medicaid children enrollees. When we stratified by age group, sex, and disability status, the pattern of racial/ethnic disparities remained. Furthermore, white children typically were more likely to receive inpatient services, psychiatric institutional care, and physician services for a MH/SA disorder than other children. From these data we cannot rule out that minority children may be receiving more care in State-only facilities, child welfare, or community-based programs which are not captured in Medicaid data. But these gaps are consistent with survey studies that have found greater unmet need for MH/SA care in minority children than white children (U.S. Department of Health and Human Services, 2001).

Parents, guardians, child welfare, and school officials are all gatekeepers to care for younger children. A growing body of research provides information on both professional expectations and behaviors, and cultural differences of patients and families, that help determine when or if a child will receive needed MH/SA assessments and services. Examining changes on many levels is warranted.

One approach is for States to disseminate more uniform MH/SA treatment algorithms and promote the use of standardized assessment scales to aid in diagnoses and treatment planning (Mark et al., 2003). Mark and colleagues found that even for patients with a common disorder, schizophrenia, there was evidence that black

adult patients received lower quality care than non-black patients in the same service delivery systems; specifically, they were less likely to be prescribed atypical antipsychotic medications and clozapine and had higher rates of typical antipsychotic medications which have worse side effect profiles. At the community level, studies have identified the importance of considering the influence of poverty and environment on help-seeking behaviors and service access (Alegria et al., 2002; Chow, Jaffee, Snowden, 2003). Targeted educational programs can help address the concerns and perceptions of some cultural communities (U.S. Department of Health and Human Services, 2001). Previous studies have found that some Asian cultural groups delay help-seeking because of prior poor experiences in care, mistrust of providers, and a strong social stigma about mental illness that affects self esteem and has impact on other family members (U.S. Department of Health and Human Services, 2001).

States can involve families and providers from all cultural communities to develop educational campaigns, outreach, and targeted programs to understand satisfaction with care for specific cultural groups. Careful analysis of national data found that black respondents reported more positive attitudes toward seeking mental health services than white respondents (Cooper-Patrick et al., 1999; Diala et al., 2001). Yet there is evidence that black adults and families are more likely than white adults and families to prefer to discuss symptoms and problems with primary care clinicians rather than mental health providers (Cooper-Patrick et al., 1999; Snowden et al., 2002). Thus, initiatives to bring best-practice mental health care to primary care settings are warranted. Primary care clinicians can misdiagnose MH/SA problems, particularly when faced with patients with

multiple chronic illnesses, a pattern that has been linked to lower diagnosis among black patients (U.S. Department of Health and Human Services, 2001). Examining the quality of care in all mental health sectors from the perspective of each cultural group is important (Richardson et al., 2003). When Medicaid managed care was introduced in two unique sites, disparities in utilization rates persisted, however black and Hispanic children received more mental health care than before, in part because of greater use of residential treatment centers (Snowden, Cueller, and Libby, 2003). Thus, continuing to broaden the continuum of settings where good quality care is delivered, from primary care to residential programs, may help to reduce current gaps.

Ultimately, public insurance programs such as Medicaid must use multiple points of leverage to increase access, address stigma and misperceptions of care, and influence the quality of care delivered (McAlpine and Mechanic, 2000). Monitoring basic information on which groups (and geographic areas) are and are not using mental health services can help target areas with the most unmet need.

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