Health Care Financing Note

Medicaid support of alcohol, drug abuse, and mental health services

by George E. Wright and Jeffrey A. Buck

Medicaid expenditures for alcohol, drug abuse, and mental health (ADM) services in 1984 were examined for the States of California and Michigan. Persons receiving such services constituted 9 to 10 percent of the total Medicaid population in the two States and accounted for 22 to 23 percent of total Medicaid expenditures. ADM expenditures were 11 to 12 percent of the total. Although the two States had similar proportions of overall expenditures for these services, Michigan appeared to emphasize inpatient psychiatric care, while California emphasized ambulatory and nursing home care. Based on the experience of the two States, national Medicaid expenditures for ADM services exclusive of long-term care were estimated to be $3.5 to $4.9 billion in 1984, two to three times the level suggested by earlier estimates.

Introduction

Medicaid has been identified as the largest single mental health program in the country, and a significant source of funds for the care of the chronically mentally ill (Newman, 1978; U.S. Department of Health and Human Services, 1981). Of 25 States reporting data on a survey of fiscal year 1983 expenditures, Medicaid accounted for nearly one-half of all identified mental health spending by all State agencies (Mazade et al., 1987). Medicaid recipients are also high utilizers of mental health services. Taube and Rupp (1986), for example, found that the use rate of ambulatory mental health services by continuously enrolled Medicaid recipients was 72 percent above that of the general population and 108 percent that of the non-poor population.

Despite the importance of Medicaid to the support of mental health services, limited information exists as to the size or characteristics of such support. Even less is known about Medicaid's support of substance abuse services. This lack of data, and legislative limits on Medicaid payments for services to patients in mental institutions, have contributed to a perception that Medicaid's support of alcohol, drug abuse, and mental health (ADM) services is inadequate. Mechanic (1987), for instance, states that "Medicaid, in many state programs, provides little or no mental health coverage and, even in the most generous states, benefits are relatively limited." Clearly, more information is needed about Medicaid's support of ADM services to adequately evaluate the truth of such claims. In addition, better data about patterns of utilization and expenditures would greatly aid discussion of proposals for program reform in this area.

Most previous efforts to estimate Medicaid ADM expenditures have relied upon one of three methods. The simplest has been to infer such expenditures from existing data for the general population (e.g., Levine and Levine, 1975). This approach has obvious disadvantages related to the differences between the Medicaid and non-Medicaid populations.

A second and better method of estimating Medicaid ADM expenditures has been to use data from various surveys of specialty providers (e.g., psychiatric hospitals) conducted by the National Institute of Mental Health (NIMH). Using this method, researchers calculated Medicaid mental health expenditures to be $1.34 billion in 1983 (Redick et al., 1987). In 1978, federally assisted alcohol treatment programs were estimated to receive $6 million in Medicare and Medicaid funds, and drug abuse programs to receive $12 million in Medicaid (Vischi et al., 1980). Nevertheless, because this method relies on the self-report of specialty providers, it is subject to error, and by definition excludes the cost of all ADM care provided by office-based and non-specialty providers.

A third approach, which helps compensate for these drawbacks, is to survey individuals as to the care they receive. The most commonly used major survey for Medicaid information is the National Medical Care Utilization and Expenditure Survey, conducted in 1980. The information from this survey is limited because it was confined to the non-institutionalized population and primarily relied on individual self-report for determining utilization. However, it provides information about services from non-specialty providers that is not available from inventories conducted by NIMH. Using these data, Rupp et al. (1987) determined that utilization of outpatient mental health services in Medicaid was very skewed, with 10 percent of users accounting for one-third of the costs. In that study, it was also found that 5.9 percent of the Medicaid population had at least one mental health outpatient visit, with an annual user per capita cost of $317. Using data from different surveys of both health care consumers and providers, Taube (1990) estimated that Medicaid expenditures for mental illness exclusive of long-term care amounted to $1.6 billion in 1983.

Although all three of these approaches have their advantages, none can fully substitute for actual Medicaid administrative data. Unfortunately, studies of Medicaid ADM expenditures using such data are very limited. One such investigation focused on Medicaid claims for Aid to Families with Dependent Children (AFDC) recipients in a New York county (Temkin-Greener and Clark, 1988). It was found that mental health services accounted for 20 percent of total expenditures among this group. A much larger study surveyed State Medicaid agencies'

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expenditures for mental health care in 1983 (Mazade, Lutterman, and Glover, 1985). Twenty-five States reported $618 million in mental health expenditures, but no effort was made to ensure that data were complete or that similar services were included in each State's estimates.

To date, then, no systematic study using administrative data has been made of any State's Medicaid ADM expenditures. This article profiles such expenditures in 1984 for California and Michigan. The study combined inpatient, long-term care, ambulatory, and enrollment files developed as part of the Medicaid Tape-to-Tape project conducted by the Health Care Financing Administration. It focused on four questions:

- What proportion of Medicaid enrollees in California and Michigan received ADM services and what were the expenditures for such care?
- How much was spent on non-ADM care for those who received ADM services?
- How did expenditures vary by eligibility and diagnosis?
- Based on the California and Michigan data, what may be estimated for national expenditures for ADM services in the Medicaid program, and how do these compare with previous estimates?

Method

Data in this study were developed from the uniform claims and eligibility files of the Medicaid Tape-to-Tape project. Michigan and California were chosen as study States primarily because of the high quality and completeness of the data elements required for the investigation.

State program characteristics

Available research increasingly confirms the sensitivity of all ADM care to third-party payment policies in areas such as eligibility requirements, coverage limitations, and reimbursement policies (Frank and Lave, 1986; Frank and McGuire, 1986; Wells et al., 1982). Such variations not only affect utilization and expenditures, but influence the generalizability of results. Accordingly, it is necessary to understand the relevant characteristics of individual State Medicaid programs when interpreting studies of their operations.

Table 1 summarizes differences between California and Michigan in program characteristics, with an emphasis on those relevant for ADM services. Together, California and Michigan accounted for some 16 percent of total U.S. Medicaid expenditures and appeared to differ from the national average in two respects. First, the two State programs covered a larger proportion of low-income citizens. California, in particular, had a high ratio of recipients to persons below the poverty line. Second, their expenditures per recipient of service were lower. This is partly because of both States devoting a smaller fraction of expenditures to long-term care than the national average.

Both States covered the optional services that are most clearly applicable to ADM recipients. Of these, only skilled nursing facility services for individuals 65 years of age or over in institutions for mental diseases were not also covered by a majority of other States (Health Care Financing Administration, 1986). Additionally, California operated a home and community-based program for the mentally ill. Such programs allow States to provide services as an alternative to institutionalization that would not usually be covered under Medicaid. Typically, however, the size of such programs is very limited and such a program would not be expected to have a significant impact on total expenditures.

California and Michigan also provided ADM services under a waiver that allowed the States to restrict recipients' freedom of choice of providers. In 1984, Michigan's Primary Mental Health Clinic Sponsor Program delivered case management services in selected counties. Since the program also served a significant number of mentally retarded clients who were not the subject of this study, claims without some other indication of ADM status, such as diagnosis, were excluded. However, some day care services for the retarded may have still been included in the data base. The entire program was discontinued in 1986.

In California, the Short-Doyle program was established prior to the Medicaid program as a system of block grants to counties for providing ADM services to low-income residents. The Medicaid program allows California to receive Federal matching funds for eligible Short-Doyle services provided to Medicaid enrollees. Since these Short-Doyle claims constitute a substantial proportion of services to Medicaid recipients, we incorporated them into this study. Of the 228,000 Medicaid recipients of regularly reimbursed ADM services, 82,000 received Short-Doyle services. Including these recipients raised estimated Medicaid expenditures for ADM services in California by 24 percent, from $635.1 to $786.5 million.

The local nature of the Short-Doyle program has fostered a variety of means of organizing ADM service delivery in California (Scheffler, 1990). County authorities may establish their own treatment centers or contract with existing providers. Although inpatient as well as ambulatory care is offered by most counties, inpatient treatment is typically restricted to crisis intervention. Some programs may include only residential treatment settings that are not Medicaid-reimbursable. County-level differences in public ADM care, therefore, may have a significant influence on Medicaid expenditures and utilization.

Because the Short-Doyle program guarantees funding to providers, they lack clear incentives for identifying Medicaid-eligible recipients and services. This may result in Medicaid expenditures being lower than they might otherwise be. As a related example, a study of one section of Philadelphia found that as much as 32 percent of outpatient care for Medicaid clients was paid not by Medicaid funds but by the city (Schinner and Rothbard, 1989).

Identification of expenditures

The focus of our analysis is on Medicaid expenditures rather than utilization. However, classification of expenditures is limited by the data and the more general issue of what constitutes ADM care. Although claims for psychiatric hospital stays and visits to mental health professionals are obvious instances of ADM care, many

Table 1

Statistical profile and selected Medicaid program characteristics: California and Michigan, 1984

Program data	State comparison	
	California	Michigan
Statistical profile		
Percent of total U.S. Medicaid expenditures, 1982	11.9	4.3
AFDC as percent of recipients (U.S. = 71.2 percent)	68.7	88.2
Percent of recipients also Medicare eligible	18.7	8.7
Ratio of 1982 recipients to persons in poverty, 1979 (U.S. = 0.82)	1.28	0.95
Expenditures per recipient (U.S. = $1,594)	$1,023	$1,363
Percent of Medicaid expenditures for long-term care (U.S. = 44.2 percent)	29.9	33.2
Medicaid program characteristics		
Eligibility criteria:		
AFDC—Need level for family of 4	$9,612—Payments at 85 percent of the poverty level.	$5,904—Payments at 65 percent of the poverty level.
SSI—Payments as percent of the poverty level	112 percent.	74 percent.
Medically needy	Protected income at AFDC level; 6.9 percent of the medically needy are institutionalized.	Protected income at AFDC level; 18.3 percent of the medically needy are institutionalized.
ADM-related optional services	Inpatient hospital, skilled nursing facility (SNF), and intermediate care facility (ICF) services for individuals 65 years of age or over in institutions for mental diseases.	Inpatient hospital, skilled nursing facility (SNF), and intermediate care facility (ICF) services for individuals 65 years of age or over in institutions for mental diseases.
	Inpatient psychiatric services for individuals under 21 years of age.	Inpatient psychiatric services for individuals under 21 years of age.
	Prescribed drugs.	Prescribed drugs.
Service limitations	Prior authorization for hospitalization, SNF, and ICF.	Prior authorization for hospitalization, SNF, and ICF.
	Prior authorization for more than 8 psychiatric visits per 120 days.	Psychiatric visits limited to 12 per year.
ADM programs:		
Home and community-based waiver (2176) programs for the mentally ill	Homemaker, home health aide, personal care, respite care, and case management.	None.
Freedom of choice waivers (2175)	Short-Doyle program with Medicaid reimbursement for county-based ADM programs.	Primary Mental Health Clinic Sponsor Program for ADM ambulatory care—case management and day treatment services.
Other characteristics	Selective contracting for inpatient care with prospective per diem reimbursement.	Drug treatment in country-run programs not reimbursed by Medicaid.
	Capitated program in Monterey and Santa Barbara counties and some Los Angeles hospitals.	

NOTES: AFDC is Aid to Families with Dependent Children. SSI is Supplemental Security Income. ADM is alcohol, drug abuse, and mental health.

SOURCES: Health Care Financing Administration, Office of Research and Demonstrations: Data from the Medicaid Tape-to-Tape project; Health Care Financing Administration: *Statistical Report on Medical Care: Eligibles, Recipients, Payments, and Services*, HCFA Form-2082 (1984); U.S. House of Representatives: *Background Material and Data on Programs within the Jurisdiction of the Committee on Ways and Means* (1989); National Governors' Association: *Medicaid Eligibility: Selected Program Characteristics* (1990); Social Security Administration: *Characteristics of State Assistance Programs for Supplemental Security Income Recipients:* (1989); Health Care Financing Administration: *A Decade of Medicaid Experience, Fiscal Years 1973 through 1982* (1985); Ruther, M. et al., *Medicare and Medicaid Data Book, 1986. Health Care Financing Program Statistics,* 1987. Skellan D. and Yanek, J.: Analysis of State Medicaid Program Characteristics, 1984. *Health Care Financing Program Statistics* (1985).

others are not. This is most true for non-visit ambulatory services, such as prescriptions, transportation, and laboratory tests. Unless otherwise noted, estimates of ADM expenditures excluded non-visit services. Even with this exclusion, though, different billing conventions in the allocation of ambulatory services between visit and non-visit categories introduced an element of error (e.g., a lab test in a physician's office may or may not be billed as a separate service). Some adjustments to the data were made to account for such discrepancies.

A more problematic issue is the treatment of long-term care expenditures. Nursing home patients often have psychiatric problems coincident with physical morbidity. Twenty-two percent of nursing home admissions had an ADM diagnosis in 1985, but other studies suggest that the true prevalence may be much higher (Kiesler and Sibulkin, 1987). Regardless, to identify all expenditures for nursing home care for such cases as ADM expenditures would be misleading. Moreover, days in an intermediate care facility for the mentally retarded (ICF/MR) for the developmentally disabled with psychiatric problems and stays in nursing homes for patients with dementia or other cognitive dysfunctions are qualitatively different from other forms of psychiatric care. Not reporting such expenditures, however, could also be misleading. As a result, this article distinguishes between total ADM expenditures, including long-term care expenditures, and those "net of long-term care."

To a lesser degree, a similar situation exists for care furnished by non-specialty providers. The type of service provided may offer no information with which to classify it as ADM or non-ADM, and both kinds of problems may be treated within a single unit of service. In these situations, we treated any instance of an ADM diagnosis as indicating ADM care.

Record selection criteria

The data covered the 1984 calendar year and incorporated seven sets of files containing information on providers, patient enrollment, inpatient care, long-term care, ambulatory and physician charges for hospitalized procedures, and a summary of all utilization for the year. The study population included all patients except for those in capitated programs for which detailed claims were unavailable (9.6 percent of enrollees in California and 10.9 percent in Michigan). A Medicaid payment record was identified as an ADM service if it met any of four criteria related to diagnosis, procedure, and type of provider. By far the most important was primary diagnosis, which encompassed all *International Classification of Diseases, 9th Revision, Clinical Modification* (ICD-9-CM) codes between 290.00 and 316.00. This range included organic mental disorders, but excluded mental retardation. We also added scattered ADM diagnosis codes originally identified by Wells et al. (1982). These included ICD-9-CM V and E categories covering areas such as suicide, drug overdose, family problems, and undifferentiated emotional symptoms. Approximately 1.5 percent of the ambulatory claims had these supplemental codes.

Secondary diagnosis was not included as a selection criterion because it was uniformly available only for Michigan inpatient claims. From an analysis of the Michigan inpatient data, secondary diagnoses uniquely identified 2.9 percent of ADM hospitalizations. The majority of these excluded cases had one or more hospitalizations with somatic primary diagnoses and an infrequent secondary diagnosis of drug or alcohol abuse. Because substance abuse is also often underdiagnosed in patients with other health problems (Moore et al., 1989), substance abuse services may be underidentified in this study more than this finding would suggest.

The second selection criterion was indication of a psychiatric procedure (e.g., group psychotherapy). This occurred in less than 5 percent of the inpatient claims selected, but in approximately 60 percent of the ADM outpatient records. However, in neither State did procedure codes uniquely identify ADM claims.

Care by a specialized ADM provider (excluding facilities for the retarded) was used as the third criterion. Psychiatric hospitals accounted for less than 5 percent of the inpatient ADM claims of both States. Among ambulatory claims, mental health clinics were indicated in 36 percent of Michigan's and in 66 percent of California's identified records. In both States, the American Hospital Association classifications were used to check for psychiatric institutions among both acute care hospitals and long-term care facilities. Treatment by a psychiatrist was also checked. Again, only a few records were uniquely identified by this criterion.

The final selection condition represented an alternative method of identifying possible psychiatric inpatient stays. Dates of psychiatric visits were checked against those for hospital treatment. If any of the dates were the same, the inpatient stay was considered to be for psychiatric care. Somewhat surprisingly, there was a significant difference between the two States: 52 percent of ADM hospitalizations in Michigan had such a visit, but only 3 percent in California. This difference could reflect dissimilar billing and payment procedures between the two States, or a greater use of psychiatric consultation in Michigan. Regardless, in both States only a few hospitalizations were uniquely identified by this criterion.

In summary, the selection criteria for the identification of ADM claims were designed to include all cases that could reasonably be characterized as ADM care. Despite the use of multiple criteria, though, primary diagnosis identified 95 percent of all the records included in this study. Inpatient hospitalizations provided the only instance where the other criteria uniquely identified significant numbers of services. This suggests that while the inclusion of multiple identification criteria might have labeled some questionable cases as ADM care, the large majority of identified records appeared to be legitimate instances of such care.

Medicaid claims identified through the above criteria were combined with other data to form the data base for the study. A master list of all recipients of at least one ADM service was developed and all Medicaid claims for the year extracted. Patient-level summary records that categorized expenditures by ADM and non-ADM categories and type of care received were then developed.

For some analyses, an adjustment was required by the fact that Medicaid recipients are enrolled for varying periods of 1 to 12 months. Although this did not significantly affect aggregate statistics, in making comparisons between different groups of recipients,

length of enrollment varied systematically by characteristics such as diagnosis and eligibility group. In such cases, mean expenditures were changed to recipient years by prorating expenditures of those enrolled less than a year to a 12-month basis. The adjustment was relatively minor because over 90 percent of the study cohort was enrolled for more than a year.

Accuracy of identification

The broad set of criteria used to identify ADM claims could have led to some overestimation of ADM care. However, the fact that virtually all of the ambulatory records in both States were identified by diagnosis and that two-thirds met at least one additional criterion suggests that any overestimation would be minimal, probably less than 5 percent.

In contrast, several factors may have contributed to possible underestimation. Some of them may have only affected estimates of ADM care, while the others potentially affected non-ADM services as well. First, as stated earlier, the lack of secondary diagnosis omitted an estimated 3 percent of hospital discharges with a psychiatric component. Second, data for both States excluded services to recipients who for various administrative reasons were not identified on the eligibility files. This group constituted some 3 percent of recipients in California, but less than 1 percent in Michigan. Third, conversations with State officials suggested that hospitals don't always submit Medicaid claims for small amounts, particularly when Medicare is the primary payer. Fourth, the California Short-Doyle program data excluded drug and alcohol treatment services, which in 1986 accounted for approximately 4 percent of all Short-Doyle expenditures. Finally, some costly hospitalizations facing prolonged administrative review may have also been excluded from the data set.

Results

The data on Medicaid-financed ADM services in California and Michigan are presented in three sections. The first section focuses on ADM-related expenditures for the two States, while the second illustrates how these vary by patient diagnosis and eligibility status. Finally, these data are used to estimate national Medicaid expenditures for ADM services.

Comparison of utilization and expenditures

Table 2 presents total utilization and expenditures for ADM services in California and Michigan in 1984. The States are similar in the proportion of the total Medicaid population that utilized ADM services (9 to 10 percent). They are nearly identical in the proportion of total Medicaid expenditures (both ADM and non-ADM) accounted for by this group (22 to 23 percent).

Average annual expenditures for enrollees with at least one record identified as ADM care are exhibited in Table 3, unadjusted for differences in length of Medicaid enrollment. Not all types of service could be accurately allocated between ADM and non-ADM care. More important, the ambiguities of diagnoses in long-term care settings rendered the true distribution of nursing home expenditures between ADM and non-ADM stays less than certain.

In both States, expenditures per ADM recipient were more than twice that of the average Medicaid recipient. However, the two States contrasted markedly in their mean expenditures for ADM institutional and ambulatory care. This difference resulted partly from the relative proportions of hospital and nursing home expenditures in the two States. Of the identified ADM expenditures in Michigan, 56 percent went for hospital stays and another 26 percent for nursing homes. The proportions for California were quite different, with 23 percent for hospitalization and 46 percent for nursing home care.

The other part of the difference centers on expenditures for ambulatory care. In Michigan, only $291 out of $1,628 (18 percent) spent per patient on ADM care was for ambulatory services. Even this amount is an overestimate, because approximately one-half the $82 for medical doctor visits was for care in a nursing home or hospital. The largest single ambulatory service, "Other visits," refers primarily to the services provided by the Michigan Primary Mental Health Clinic Sponsor Program. California spent more per recipient on ADM ambulatory care ($402 versus $291), but less on hospitalization than did Michigan. While Michigan spent $916 per ADM recipient on inpatient psychiatric care,

Table 2

Medicaid alcohol, drug abuse, and mental health (ADM) services, expenditures, and recipients: California and Michigan, 1984

Category	California		Michigan	
	Number and amount in *millions*	Percent of *all Medicaid*	Number and amount in *millions*	Percent of *all Medicaid*
Number of ADM recipients	280,200	[1]10.3	81,228	[1]8.8
ADM expenditures only[2]	$425.8	12.5	$141.8	10.8
ADM expenditures net of long-term care[2]	$231.8	7.7	$110.9	5.5
All expenditures for ADM recipients	$786.5	23.0	$291.0	22.2

[1]Represents percentage of all Medicaid recipients. Percentages are 7.1 percent and 8.1 percent respectively if ADM recipients are compared with total enrollees.
[2]Includes expenditures for non-visit services and drugs which are estimated from the difference between mean expenditures for all Medicaid recipients for these categories and those for ADM recipients.

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations: Data from the Medicaid Tape-to-Tape project.

Table 3

Medicaid expenditures per recipient for alcohol, drug abuse, and mental health (ADM) services, by type of service: California and Michigan, 1984

Type of service	California[1]				Michigan			
	ADM recipients				ADM recipients			
	ADM services	Other services	Total	All Medicaid recipients	ADM services	Other services	Total	All Medicaid recipients[2]
Total Medicaid	[1,3]$1,281	[3]$1,049	[1,3]$2,807	[1]$1,248	[3]$1,628	[3]$1,407	[3]$3,583	$1,410
Institutional								
Total	879	901	1,780	855	1,337	1,292	2,629	1,036
Hospitals	294	618	912	458	916	700	1,616	463
Nursing homes	585	204	789	311	421	477	898	412
ICF/MR	—	79	79	86	—	114	114	161
Ambulatory								
Total	402	[4]148	550	120	[4]291	[4]115	406	110
Outpatient clinics	183	36	219	37	14	18	32	18
Medical doctor visits	89	113	202	77	82	96	178	65
Other visits[5]	130	([6])	130	6	196	([6])	196	27
Other								
Total	—	—	[6]477	273	—	—	[6]548	264
Professional services	—	—	[6]132	92	—	—	[6]151	93
Non-professional services	—	—	173	100	—	—	171	69
Home health services	—	—	3	2	—	—	10	7
Drugs	—	—	169	79	—	—	216	95

[1]California figures include Short-Doyle expenditures by the Medicaid program. Short-Doyle expenditures for "Other visits" may include non-visit services.
[2]In California, the 2,739,149 recipients were 79.1 percent of all Medicaid enrollees (3,462,833). The 929,006 recipients in Michigan were 70.1 percent of all enrollees (1,325,962).
[3]California omitted drug treatment costs in the Short-Doyle program, which in 1986 accounted for 4 percent of Medicaid Short-Doyle expenditures, or about 1 percent of all ADM expenditures. Column totals do not add to $3,583 in Michigan because expenditures for "Total other services" and "Drugs" could not be accurately allocated between ADM and other services.
[4]Some columns may not add to totals because of differences in rounding.
[5]"Other visits" include specialized day care services and partial hospitalization, in which patients may spend 8 hours or more in treatment daily, but still live at home. Expenditures for these particular services were $72 and $34 respectively in California and Michigan.
[6]Some visit charges for "Total" services were classified in Tape-to-Tape files as professional non-visit charges, differently than the classification for ADM care. This resulted in total charges being less than the amount for the same category for ADM care. In California, expenditures for professional non-visit services were lowered by $16 to balance the "Other visit" expenditure category. In Michigan, a similar adjustment amounted to $34.

NOTE: ICF/MR is Intermediate care facility for the mentally retarded.

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations: Data from the Medicaid Tape-to-Tape project.

California spent less than one-third of that, $294. The result was a net saving of over $347 per patient ($1,628 compared with $1,281).

Patient characteristics

Diagnosis

Table 4 displays mean expenditures by diagnostic group. Because a large proportion of expenditures were classified under psychoses or neuroses, these particular groups were disaggregated. Over a year, a patient can have multiple and shifting psychiatric diagnoses. Therefore, a single diagnostic group was assigned by ranking conditions as in Table 4 and categorizing patients according to the highest ranking diagnosis received at any time during the year. For example, paranoid schizophrenics were so classified if they received one such diagnosis regardless of any other conditions noted. Those classified under alcohol and drug abuse had no instance of any other ADM diagnosis. Given the high comorbidity of substance abuse problems with other psychiatric problems (Regier et al., 1990), this assignment methodology probably underestimated the prevalence of alcohol or drug abuse problems relative to higher ranking diagnostic groups, such as psychosis.

The distributions of diagnoses within each of the two States are very similar, with the only possible exception being a slightly greater proportion of psychotic diagnoses in California compared with Michigan. In contrast, mean expenditures by diagnosis varied significantly between the two States. For most diagnoses, Michigan's mean expenditure was greater than that for California. In addition, Michigan allocated a greater proportion of its total ADM expenditures for the treatment of alcohol and drug abuse, and conduct and other childhood disorders. This is primarily because of mean ADM expenditures for these groups that were three to five times greater than those in California. In both States, non-ADM expenditures per recipient in the alcohol and drug abuse group were greater than those for nearly all other diagnoses.

Eligibility

How much did different eligibility groups contribute to total ADM expenditures in the two study States? Figure 1 compares the rankings of the percentage of all ADM expenditures net of long-term care by eligibility group. The dominant share in Michigan was for children eligible under the medically needy program, followed by the categorically needy disabled. In contrast, the categorically

Table 4

Medicaid expenditures per recipient year for alcohol, drug abuse, and mental health (ADM) services, by ADM diagnostic group: California and Michigan, 1984

ADM diagnostic group[2]	California						Michigan					
	Percent distribution of total		Expenditure per recipient year[1]				Percent distribution of total		Expenditure per recipient year[1]			
	ADM net of LTC expenditures[3]	ADM recipients	ADM net of LTC[4]	LTC only[4]	Other non-ADM	Total	ADM net of LTC expenditures[3]	ADM recipients	ADM net of LTC[4]	LTC only[4]	Other non-ADM	Total
All diagnoses	100.0	100.0	$ 872	$ 955	$1,503	$3,330	100.0	100.0	$1,514	$1,099	$1,542	$4,155
All psychosis	67.0	27.4	2,096	1,324	1,545	4,965	44.8	23.3	2,809	1,265	1,332	5,406
Paranoid schizophrenia	25.8	6.9	3,073	1,643	1,188	5,904	11.2	4.4	3,681	332	1,007	5,020
Residual schizophrenia	4.8	2.1	1,792	2,586	1,270	5,648	6.6	3.5	2,636	854	849	4,339
Other schizophrenia	19.2	9.5	1,761	1,295	1,391	4,447	11.4	7.6	2,130	1,471	1,088	4,689
Affective psychosis	14.3	6.8	1,909	507	2,065	4,481	10.8	5.2	3,261	498	1,987	5,746
Other psychosis	2.9	2.2	1,342	1,770	1,990	5,102	4.9	2.6	2,656	4,337	1,941	8,934
Organic brain syndrome	2.1	7.3	271	6,336	1,698	8,305	3.4	8.9	536	7,210	1,068	8,814
All neurosis (except conduct)	21.9	48.7	403	141	1,543	2,087	25.9	50.2	841	161	1,718	2,720
Neurotic depression	8.4	12.4	621	173	1,568	2,362	9.3	12.0	1,259	255	2,265	3,779
Other neurotic disorders	5.1	22.0	198	88	1,701	1,987	3.8	22.9	252	170	1,741	2,163
Personality disorders	1.7	2.3	657	302	1,344	2,303	2.3	3.4	1,370	88	1,553	3,011
Stress and adjustment reactions	6.7	12.1	506	173	1,268	1,947	10.5	11.9	1,410	72	1,158	2,640
Conduct and childhood disorders	6.5	10.8	534	327	812	1,673	19.4	10.5	2,928	362	479	3,769
Alcohol and drug abuse	1.7	4.6	378	324	2,245	2,947	6.4	6.6	1,463	383	3,003	4,849
ADM diagnosis not listed[5]	0.8	1.2	591	808	997	2,396	0.1	0.4	542	4,187	1,769	6,498

[1]Expenditures per recipient of ADM service are prorated to recipient years to correct for differences in length of enrollment as explained in text. Unstandardized total Medicaid and net ADM expenditures per recipient are equal to $3,583 and $1,207 respectively in Michigan. For California, the unstandardized averages are $2,807 and $696.

[2]Diagnosis is assigned to each recipient on a hierarchical basis following the order listed in this table (e.g., an individual with at least one diagnosis of paranoid schizophrenia is counted in this diagnostic group regardless of other diagnoses received).

[3]Total expenditures for ADM care net of long-term care in skilled nursing facility, intermediate care facility, or intermediate care facility for the mentally retarded (ICF/MR) facilities for individual recipients with at least one ADM visit.

[4]Total long-term care is the sum of nursing home and ICF/MR expenditures for all diagnoses.

[5]Lack of ADM diagnosis occurs primarily for individuals receiving ambulatory services in a mental health clinic.

NOTE: LTC is long-term care.

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations: Data from the Medicaid Tape-to-Tape project.

needy disabled predominated in California, accounting for more than one-half of all ADM expenditures. In that State, medically needy children were only the fourth largest eligibility group in terms of ADM expenditures.

Tables 5 and 6 provide further information about the pattern of Medicaid ADM spending by eligibility group. Table 5 displays mean expenditures for eight eligibility groups that accounted for approximately 98 percent of ADM patients in both States. (The number of months of enrollment differed substantially among the groups. Therefore, all data were adjusted to recipient year equivalents based on the number of months of enrollment for all those who received at least one instance of ADM care.)

Table 5 shows that ADM expenditures per recipient year did not vary greatly between California and Michigan for the categorically needy groups. In both States, the highest figures were associated with the medically needy, which is not surprising, given that most of the individuals in this group become eligible through incurring large medical bills. In Michigan, however, the medically needy were a larger percentage of all ADM recipient years (23.3 percent) than in California (16.5 percent). For all groups, psychiatric hospitalization in Michigan constituted a greater percentage of ADM expenditures net of long-term care than it did in California. These two factors certainly contributed to the greater overall spending per ADM recipient year in Michigan than in California.

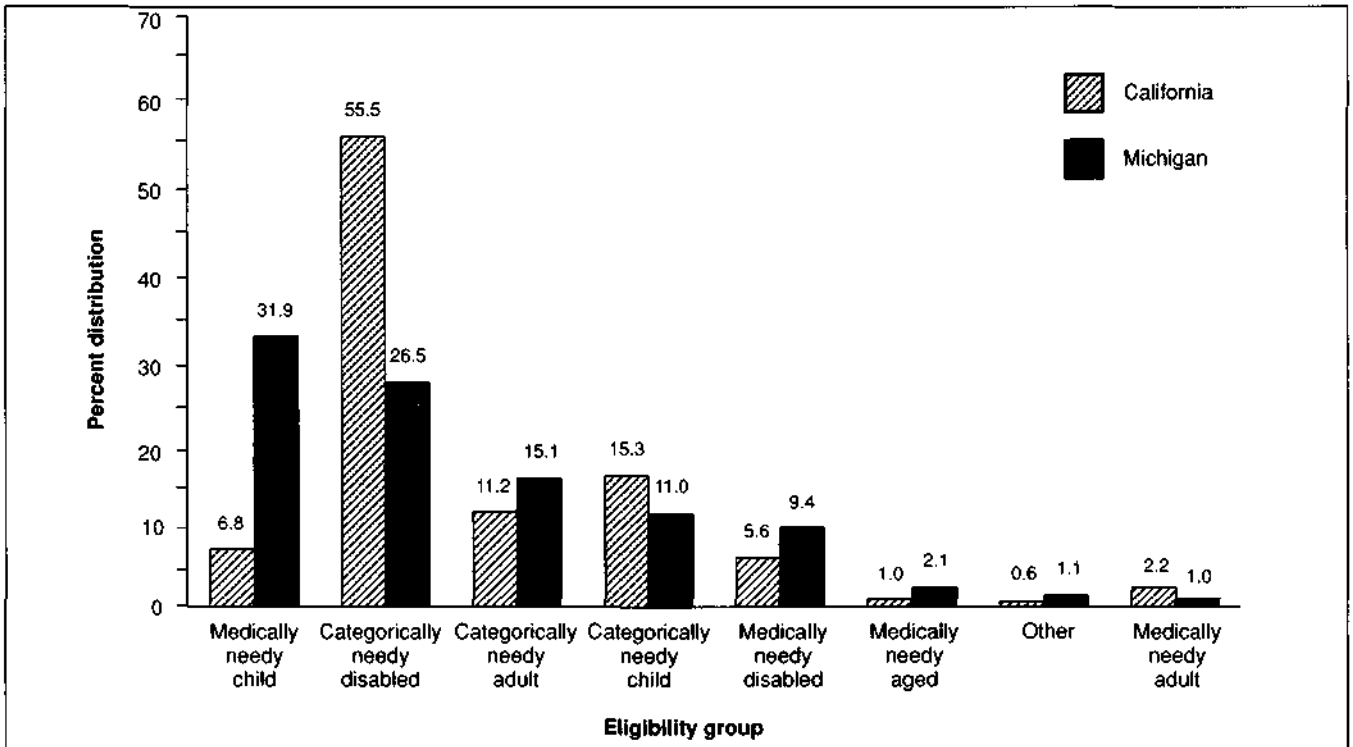
Table 6 illustrates the proportion of expenditures accounted for by ADM recipients within each major eligibility group. For each State, the first column presents the proportion of all recipients within each eligibility group who received at least one instance of ADM care. For example, for categorically needy AFDC adult recipients, 14.0 percent in California and 11.3 percent in Michigan had at least one instance of ADM care.

The next column for each State shows the percentage of all Medicaid expenditures for each eligibility group that were devoted to the care of ADM recipients. For instance, of the expenditures for the categorically needy disabled in Michigan, 28.4 percent went for recipients with at least one instance of ADM care. The next two columns present direct ADM expenditures as a proportion of all Medicaid expenditures, both with and without long-term care expenditures. Because non-visit services could not be reliably related to ADM care, the proportions for direct ADM expenditures net of long-term care also exclude non-visit ancillary services such as prescriptions, lab tests, X-ray charges, home health visits, and transportation.

Across all eligibility groups in California, 10.3 percent of recipients had at least one instance of ADM care, slightly higher than the 8.8 percent rate for Michigan. Although medically needy children receiving ADM treatment in Michigan constituted less than 10 percent of that eligibility group, they accounted for a large proportion of its expenditures. This occurred because nearly all of these expenses resulted from relatively expensive psychiatric hospitalization (Table 5). In contrast, the highest proportions of expenditures within an eligibility group in California were associated with ADM

Figure 1

Distribution of total Medicaid, alcohol, drug abuse, and mental health expenditures excluding long-term care, by eligibility group: California and Michigan, 1984



SOURCE: Health Care Financing Administration, Office of Research and Demonstrations: Data from the Medicaid Tape-to-Tape project.

Table 5

Medicaid expenditures per recipient year for alcohol, drug abuse, and mental health (ADM) services, by eligibility group: California and Michigan, 1984

Eligibility group	California						Michigan					
	Percent of total ADM recipients[1]	Expenditures per recipient year					Percent of total ADM recipients[1]	Expenditures per recipient year				
		All Medicaid	All ADM	ADM net LTC				All Medicaid	All ADM	ADM net LTC		
				Total	Percent hospital	Percent ambulatory				Total	Percent hospital	Percent ambulatory
Total[2]	100.0	$3,127	$1,538	$ 872	44.9	55.1	100.0	$4,155	$1,984	$1,514	78.3	21.7
Categorically needy												
Aged	2.8	4,131	2,149	383	58.0	42.0	2.5	5,489	2,526	525	79.2	20.8
Disabled	32.7	4,172	1,872	1,355	45.9	54.1	22.0	4,292	1,718	1,535	59.3	40.7
AFDC adult	25.9	1,797	400	396	31.1	68.9	33.8	2,471	612	612	68.2	31.8
AFDC child	20.1	1,337	705	692	32.0	68.0	15.5	1,475	958	958	73.2	26.8
Medically needy												
Aged	5.1	8,912	6,173	1,176	72.9	27.1	7.2	9,683	4,950	415	94.2	6.1
Disabled	2.9	9,706	4,808	1,633	62.5	37.5	6.4	8,263	3,229	2,545	75.9	24.1
AFDC adult	3.9	3,477	859	843	51.3	48.7	1.5	3,464	1,193	1,193	75.4	24.6
AFDC child	4.6	3,679	1,943	1,559	63.1	36.9	8.2	7,607	6,790	6,787	94.9	5.1

[1]Percentages are based on unadjusted numbers of Medicaid recipients. All expenditure figures are based on recipient year.

[2]Not shown but included in the total are data for non-cash assistance groups who were not medically needy, those under State-only programs, and cases with missing eligibility data. These categories accounted for less than 1 percent of total ADM recipients.

NOTES: LTC is long-term care. AFDC is Aid to Families with Dependent Children.

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations: Data from the Medicaid Tape-to-Tape project.

Table 6

Percent distribution of total Medicaid recipients and expenditures for recipients of alcohol, drug abuse, and mental health (ADM) services, by eligibility group: California and Michigan, 1984

Eligibility group[3]	California				Michigan			
	Recipients[1]	Expenditures[2]			Recipients[1]	Expenditures[2]		
	ADM services	For ADM recipients	For ADM services	For ADM services net of LTC[4]	ADM services	For ADM recipients	For ADM services	For ADM services net of LTC[4]
	Percent distribution							
Total	10.3	25.1	13.0	9.8	8.8	22.4	10.1	15.1
Categorically needy								
Aged[5]	3.1	12.1	6.5	2.3	7.2	23.0	10.2	10.9
Disabled	24.5	40.6	21.4	22.3	23.6	28.4	11.1	21.6
AFDC adult	14.0	23.7	6.5	5.1	11.3	25.6	5.9	6.9
AFDC child	6.1	21.9	13.5	9.6	3.3	13.2	8.5	9.4
Medically needy								
Aged[5]	12.9	20.0	13.8	4.0	12.8	18.0	8.5	24.4
Disabled	18.8	20.3	11.1	7.2	20.9	19.2	6.5	12.2
AFDC adult	7.5	10.9	3.2	2.3	7.3	15.1	4.6	5.0
AFDC child	4.8	13.9	8.2	4.9	8.8	44.0	38.4	42.1

[1] Calculated by dividing the number of unique individuals receiving at least one instance of ADM service by the number of Medicaid recipients within each eligibility group. No correction was made for the number of months of eligibility.

[2] ADM expenditures exclude non-visit ambulatory services such as laboratory, X-ray, and transportation.

[3] Eligibility groups exclude non-cash assistance groups who were not medically needy (i.e., who receive Medicaid but no cash payments). Also excluded are those under State-only programs and cases with missing eligibility data. These accounted for less than 1 percent of ADM recipients. They are included in the totals.

[4] Calculated by dividing all health expenditures (net of long-term care) for those receiving at least one instance of mental health care by the similar number for all members of the eligibility group.

[5] Percentages calculated on the basis of all recipients. Among the two groups of aged in Michigan, 4.4 percent of those with cash benefits and 38.3 percent of the medically needy were institutionalized. The similar proportions for California were 1.1 and 30.7 percent, respectively.

NOTES: LTC is long-term care. AFDC is Aid to Families with Dependent Children.

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations: Data from the Medicaid Tape-to-Tape project.

treatment for the categorically needy disabled. This group consumed more non-ADM medical care and ADM-related long-term care than the same eligibility group in Michigan.

Estimates of national expenditures

As previously discussed, existing estimates of Medicaid expenditures for ADM care are limited, and usually based on data sources that exclude some categories of services or recipients. Because this study examined actual Medicaid administrative data, it has advantages as a basis for estimating national Medicaid ADM expenditures. Basing such projections on the experience of only two States also has clear limitations. However, in the absence of estimates using better methodologies or more broadly based data, such projections can contribute to an understanding of Medicaid's support of ADM services nationally.

Given these qualifications, how much might the Medicaid program spend nationally for ADM care if other States' experience were similar to California and Michigan? Using the results of Table 6, we adjusted differences in enrollment patterns by weighting the State proportions of expenditures for each eligibility group by the national average distribution of Medicaid expenditures in 1984. Net of long-term care, the California and Michigan data indicated a range of 10.3 to 14.5 percent of all expenditures devoted to direct ADM care and 17.8 to 24.5 percent to all medical care for ADM service recipients.

These figures imply that, exclusive of long-term care, national Medicaid expenditures for ADM services in 1984 were between $3.5 and $4.9 billion. Further, the recipients of such care accounted for a total of $6.0 to $8.3 billion of Medicaid expenditures. Actual expenditures could lie outside these ranges if our estimation method did not fully compensate for differences between the two study States and other States. Nevertheless, the figures for ADM care are two to three times that of the highest existing estimate of national Medicaid expenditures for mental illness in 1983 (Taube, 1990), exclusive of long-term care, and even greater than the level of expenditures implied by other estimates.

It's very unlikely that most of this difference results from any unique characteristics of the Medicaid programs in California and Michigan. Similarly, only a small part of it is explained by the inclusion of substance abuse services in our estimates. The more likely explanation is that the other (lower) estimates were primarily derived from surveys of health care in the general population and/or ADM specialty providers. As a result, they probably underestimated the number of Medicaid recipients who used ADM care, their level of utilization, or the amount of ADM care delivered by non-specialty providers.

Summary

This study used data from the Medicaid Tape-to-Tape project to estimate expenditures for ADM services in California and Michigan in 1984. Because these data were based on State billing records, they offer advantages over other information sources that have relied on the self

report of service providers or beneficiaries, or that were limited to certain services or segments of the service population. Nevertheless, billing record data also have their limitations. Diagnostic information may be restricted in accuracy or completeness, and some services may be difficult to identify as ADM or non-ADM care. Also, they only incorporate services that the Medicaid program actually pays for, and therefore may not fully reflect all service utilization by the study population. These shortcomings probably act to underestimate total expenditures for ADM services, particularly substance abuse services, and the number of persons receiving them.

Despite these data limitations, it appears that ADM services were a significant component of Medicaid spending in California and Michigan in 1984. ADM services exclusive of long-term care accounted for 6 to 8 percent of all Medicaid spending, and recipients of such care constituted 9 to 10 percent of all Medicaid recipients. Equally important, this part of the population used a large amount of non-ADM services, so that total spending on them made up nearly one-quarter of both States' Medicaid budgets.

Spending per recipient on particular ADM services, however, exhibited very different patterns in the two States. Compared with California, Michigan spent more per recipient on all ADM care, and in particular on psychiatric inpatient care. California, on the other hand, placed greater emphasis on outpatient treatment.

These differences do not seem to be much attributable to the makeup of the States' Medicaid ADM populations. In both States, 70 to 80 percent of the ADM population was composed of categorically needy AFDC recipients and those who qualified for Supplemental Security Income because of disability. Approximately one-quarter had psychotic diagnoses and one-half had neurotic ones. However, spending by diagnostic group varied greatly. About two-thirds of total ADM spending in California went for those with psychosis while less than one-half went for the same group in Michigan. In contrast, conduct and childhood disorders accounted for nearly 20 percent of Michigan's ADM spending, three times the comparable percentage in California.

National estimates of Medicaid spending for recipients of ADM services were made by standardizing expenditures by eligibility group to the national average. These estimates confirmed the importance of Medicaid for the support of ADM care, with $3.5 to $4.9 billion projected to have been spent by Medicaid for such care in 1984. This level of support is two to three times that suggested by earlier estimates.

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