Health Care Financing Note

Hospital utilization and expenditures for Medicaid enrollees by major diagnosis group

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Overview

The distribution of Medicaid hospital discharges and expenditures by major diagnosis group for Medicaid enrollees in California, Michigan, and New York during 1982 are examined in this article. Although hospital expenditures represent a major component of Medicaid expenditures, the extent of variation in Medicaid inpatient utilization and expenditures across diagnoses and between States has not been previously studied. In this article, Medicaid inpatient hospital utilization and expenditure data by major diagnosis group from the Health Care Financing Administration's Tape-to-Tape data base are examined to determine whether significant interstate differences exist.

Tape-to-Tape data

The hospital utilization and expenditure data in this article are drawn from the Medicaid Tape-to-Tape data base. The Tape-to-Tape data base contains enrollment, claims, and provider data from the Medicaid Management Information System (MMIS) of five States (California, Michigan, Georgia, New York, and Tennessee) that participate in an innovative data collection effort sponsored by the Health Care Financing Administration. State MMIS data have been extracted and recoded into uniform formats to facilitate the comparison of utilization and expenditure patterns across State Medicaid programs. This detailed multi-State data base provides, for the first time, the opportunity to compare the distribution of Medicaid hospitalizations by diagnosis across States. Only three of the States are included in this study—California, Michigan, and New York—because of the data limitations with Georgia and Tennessee data for the time period covered.

Tape-to-Tape data include data for Medicaid covered services only. Medicare expenditures for dual enrollees are not included in Medicaid files; therefore, total hospital expenditures are understated for crossover enrollees (those enrolled in both programs). Hospital data for health maintenance organization enrollees are excluded from the Tape-to-Tape data base. In this article, data for outpatient hospital care and emergency room care are not considered inpatient hospital care. Data on care provided in inpatient psychiatric hospitals are included. Some Medicaid claims for deliveries include length of stay and expenditures for both mother and baby. The incidence of combined claims for mothers and babies varies with local hospital billing practices. As a result, the frequency of these combined claims varies across and within States.

Medicaid hospital claims contain a primary and, at times, secondary diagnosis. Data are reported based on primary diagnoses. In 1982, all Tape-to-Tape States used the *International Classification of Diseases, 9th Revision, Clinical Modification* for diagnostic coding.

Inpatient discharges

Presented in Table 1 is the distribution of hospital discharges by major diagnosis group. It shows that Medicaid inpatient hospital diagnosis mix was similar across the three States in 1982. In each State, pregnancy was the most frequently occurring condition responsible for hospitalization, accounting for 17.6 to 21.2 percent of all Medicaid discharges. In contrast, pregnancies were only 12.0 percent of the discharges in the general population in 1982 (Haupt, 1983). The Medicaid population contains a larger percent of women of childbearing age than the general population, and some women become categorically eligible for Medicaid after becoming pregnant.

Circulatory, respiratory, and digestive diseases were also among the most common conditions responsible for hospitalization in all three States. The diagnostic group with the greatest geographic variation was mental disorders, which accounted for 8.7 percent of the Medicaid discharges in New York, but accounted for only 2.9 percent in California and 5.3 percent in Michigan.

Length of stay

The Medicaid covered length of stay for inpatient hospital discharges within each major diagnosis group are shown in Table 2. Length of stay was similar across States for most diagnosis groups.

Mental disorders and perinatal disorders were the two diagnoses with the longest lengths of stay in all States. In California, discharges for perinatal disorders had the longest average length of stay (12.0 days), but in both Michigan and New York, discharges for mental disorders produced the longest average length of stay (16.3 and 20.1 days, respectively). Neoplasms were also associated with longer than average hospital stays in each of the

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Table 1

Number and percent distribution of Medicaid inpatient hospital discharges, by major diagnosis group: California, Michigan, and New York, 1982

Code	Major diagnosis group	California		Michigan		New York	
		Number	Percent distribution	Number	Percent distribution	Number	Percent distribution
	All conditions	628,455	100.0	199,070	100.0	493,340	100.0
001-139	Infectious and parasitic diseases	9,700	1.5	3,390	1.7	8,229	1.7
140-239	Neoplasms	27,158	4.3	7,580	3.8	19,730	4.0
240-279	Endocrine, nutritional, and metabolic diseases	18,984	3.0	6,920	3.5	12,226	2.5
280-289	Blood diseases	6,421	1.0	2,425	1.2	6,333	1.3
290-319	Mental disorders	18,511	2.9	10,509	5.3	42,908	8.7
320-389	Diseases of nervous system and sense organs	29,926	4.8	7,007	3.5	18,809	3.8
390-459	Circulatory system diseases	74,098	11.8	18,545	9.3	45,724	9.3
460-519	Respiratory diseases	57,946	9.2	23,521	11.8	44,565	9.0
520-579	Digestive diseases	56,094	8.9	19,828	10.0	38,391	7.8
580-629	Genitourinary diseases	34,217	5.4	13,246	6.7	28,738	5.8
630-676	Pregnancy	110,358	17.6	42,261	21.2	89,005	18.0
680-709	Skin and subcutaneus tissue diseases	9,605	1.5	3,391	1.7	7,917	1.6
710-739	Musculoskeletal system diseases	19,555	3.1	6,425	3.2	10,592	2.1
740-759	Congenital anomolies	7,068	1.1	2,091	1.1	4,551	0.9
760-779	Perinatal disorders	7,576	1.2	2,423	1.2	3,412	0.7
780-799	Symptoms	33,036	5.3	10,003	5.0	17,250	3.5
800-899	Injuries	48,723	7.8	14,655	7.4	29,883	6.1
V01-V82	Contact	59,229	9.4	4,803	2.4	65,077	13.2
E80-E99	External causes	250	0.0	47	0.0	0	0.0
	Missing diagnosis	147	—	0	—	14	—

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

Table 2

Medicaid covered length of stay for inpatient hospital discharges, by major diagnosis group: California, Michigan, and New York, 1982

Code	Major diagnosis group	Average length of covered stay in days		
		California	Michigan	New York
	All conditions	6.3	7.1	7.9
001-139	Infectious and parasitic diseases	7.3	6.9	8.0
140-239	Neoplasms	8.8	11.0	10.9
240-279	Endocrine, nutritional, and metabolic diseases	7.6	9.4	10.6
280-289	Blood diseases	6.3	6.9	6.1
290-319	Mental disorders	11.2	16.3	20.1
320-389	Diseases of nervous system and sense organs	5.0	6.5	7.1
390-459	Circulatory system diseases	8.0	9.8	10.2
460-519	Respiratory diseases	6.0	5.7	5.8
520-579	Digestive diseases	6.5	7.2	6.1
580-629	Genitourinary diseases	6.0	6.4	5.3
630-676	Pregnancy	3.6	3.5	3.3
680-709	Skin and subcutaneus tissue diseases	10.4	10.5	9.3
710-739	Musculoskeletal system diseases	7.6	8.6	8.5
740-759	Congenital anomolies	6.7	5.9	8.4
760-779	Perinatal disorders	12.0	11.2	15.2
780-799	Symptoms	6.1	6.1	8.4
800-899	Injuries	7.7	6.8	9.5
V01-V82	Contact	3.6	6.3	5.2

NOTE: Covered length of stay may understate total length of stay for those dually enrolled in Medicare and Medicaid.

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

States. In contrast, hospital stays for pregnancies averaged 3.3 to 3.6 days. This is similar to the length of stay for pregnancies in the general population (3.4 days) (Haupt, 1983). Medicaid enrollees generally had longer hospital stays than the general population for diagnoses other than pregnancy.

Inpatient expenditures

Total Medicaid hospital expenditures (in thousands of dollars) for inpatient discharges within each major diagnosis group are presented in Table 3.[1] Pregnancies accounted for the largest share of Medicaid inpatient hospital expenditures in California (13.1 percent), and Michigan (17.6 percent), but only the fourth largest share of expenditures in New York (7.8 percent). Mental disorders accounted for the largest share of Medicaid inpatient expenditures in New York (19.6 percent). This was much larger than the share of Medicaid hospital expenditures accounted for by mental disorders in California (3.1 percent) or Michigan (8.8 percent).

National data for the general population from a study by Hodgson and Kopstein (1984) are presented in the last column of Table 3. They show the percent of national hospital expenditures for each major diagnosis group in 1980. Circulatory disease accounted for the largest share of hospital expenditures nationally (16.7 percent). Circulatory disease accounted for the second largest share of Medicaid inpatient expenditures (9.8 to 12.0 percent) in these Tape-to-Tape States in 1982.

One major difference in the distribution of Medicaid hospital expenditures from comparable national data for all inpatients was the larger share of Medicaid expenditure for pregnancy and neonatal care. In the data for the general population, expenditures for pregnancy, perinatal disorders, contact, and external causes are combined into one "other" category which accounted for only 3.5 percent of national hospital expenditures.

Medicaid pays for only a small proportion of hospital expenditures for the aged, most of whom also have Medicare coverage, so hospital discharges for diagnostic categories dominated by that age group showed a different expenditure pattern for Medicaid when compared with the national pattern. The percent of total Medicaid inpatient expenditures attributable to neoplasms, circulatory diseases, and musculoskeletal system diseases were lower than the percent of total inpatient expenditures for each of these diseases in the general population.

Recognizing these differences, it is still surprising how similar the distribution of Medicaid expenditure by diagnosis was to the national pattern, given the marked differences in the populations in terms of age, sex, race, and income. With the exceptions of pregnancy and mental disorders, the rank order of expenditures by diagnosis for these three State Medicaid programs and the general population was similar. The more expensive diagnostic groups included circulatory diseases, digestive diseases, neoplasms, and injuries in each case.

Eligibility group differences

The Medicaid population includes two rather distinct categories of people: Aid to Families with Dependent Children (AFDC), comprising primarily healthy mothers and their children, and Supplemental Security Income (SSI), comprising the aged and disabled. Not surprisingly, these two distinct populations had very different distributions of inpatient diagnoses. These differences are illustrated in Figures 1 and 2.

Figure 1 contains the percent of total hospital discharges and total Medicaid hospital expenditures for the most frequently reported diagnostic categories for the AFDC population; and Figure 2 contains these data for the SSI population. Two bars are presented for each State; the first represents percent of discharges, and the second represents percent of hospital expenditures.

The most common diagnostic group for the AFDC population was pregnancy, which accounted for approximately one-third of the discharges and approximately one-fourth of the hospital expenditures in all three States. Other common AFDC diagnostic categories in all States included injury, digestive system conditions, respiratory conditions, and genitourinary conditions.

In contrast, the most common inpatient diagnosis group for SSI aged and disabled enrollees in all States was circulatory conditions, which also accounted for the largest group of inpatient expenditures. Other frequently occurring categories were neoplasms, digestive conditions, mental disorders (especially in New York where they accounted for 25 percent of expenditures), respiratory conditions, and injury.

Summary

The diagnostic mix of Medicaid inpatient hospital discharges was similar across the three Tape-to-Tape States in this study. In all cases, pregnancy-related discharges predominated. There were some interstate variations in length of stay and expenditures; mental disorders predominated in New York, but not in the other States. AFDC and SSI enrollees had very different distributions of their inpatient hospital diagnoses. AFDC enrollees had a high percent of pregnancy-related hospitalizations. In contrast, SSI enrollees had a more diverse hospital case mix, spread over many diagnostic categories.

With the exception of the dominance of pregnancy-related conditions, the proportionate distribution of Medicaid hospital expenditures by major diagnosis group resembled the national pattern for all

[1]Expenditure data were drawn from preliminary data tabulations. These expenditure data include portions of Medicaid patients' share of hospital cost data for California. As a result, expenditures are overstated by approximately 11 percent in that State. However, the percent distribution of expenditures by diagnosis category should be unaffected.

Table 3

Medicaid hospital expenditures in thousands of dollars for inpatient discharges and percent distribution, by major diagnosis group: California, Michigan, and New York, 1982

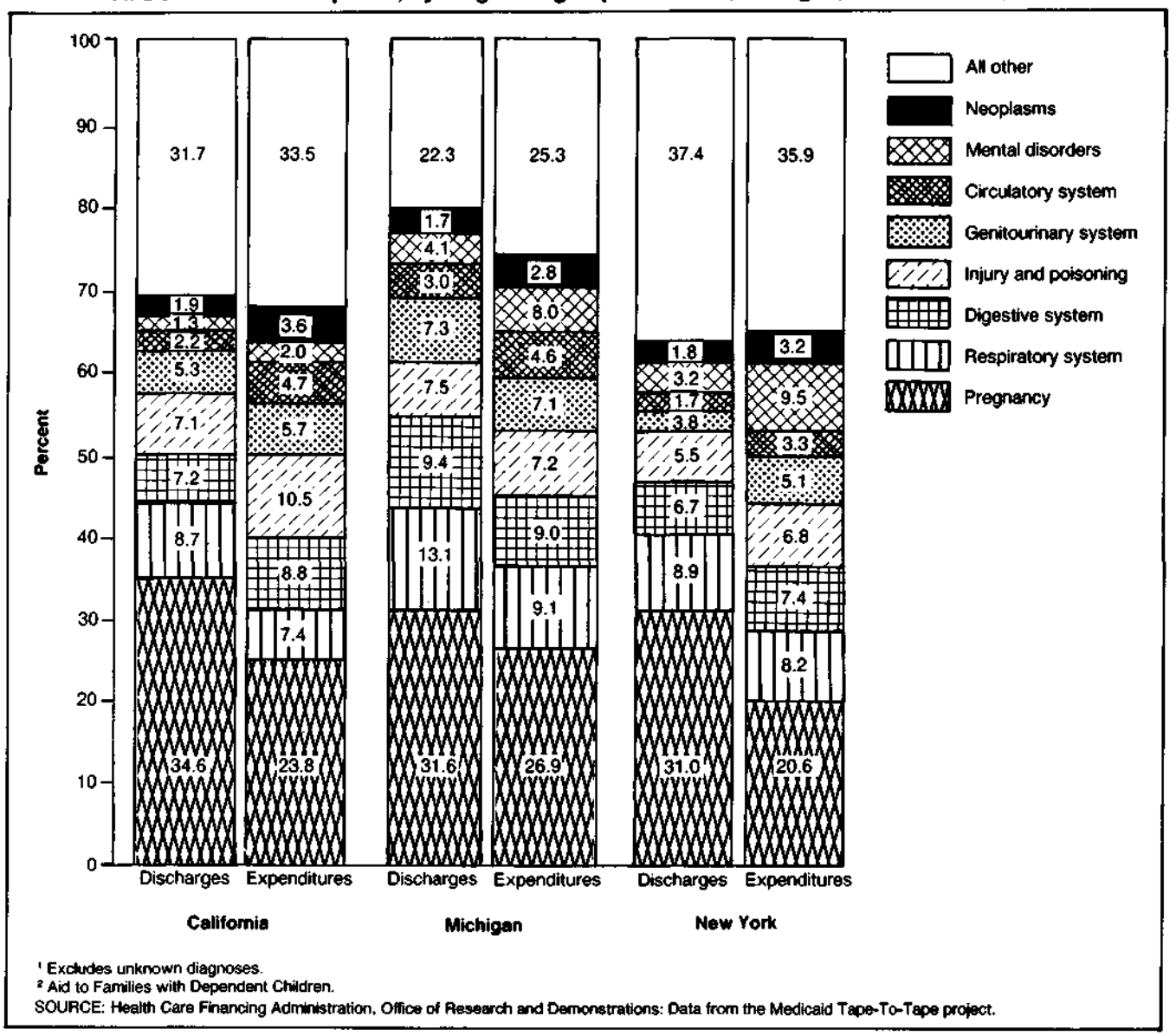
Code	Major diagnosis group	California		Michigan		New York		Percent distribution of U.S. total 1980[1]
		Expenditure	Percent distribution	Expenditure	Percent distribution	Expenditure	Percent distribution	
	All conditions	$1,547,964	100.0	$350,830	100.0	$1,206,876	100.0	100.0
001-139	Infectious and parasitic diseases	29,915	1.9	5,926	1.7	23,862	2.0	2.1
140-239	Neoplasms	89,862	5.8	20,734	5.9	77,548	6.4	9.0
240-279	Endocrine, nutritional, and metabolic diseases	48,229	3.1	11,914	3.4	43,110	3.6	3.3
280-289	Blood diseases	17,398	1.1	4,018	1.1	13,535	1.1	.7
290-319	Mental disorders	47,521	3.1	30,845	8.8	236,647	19.6	12.8
320-389	Diseases of nervous system and sense organs	61,277	4.0	11,044	3.1	42,866	3.6	4.4
390-459	Circulatory system diseases	170,715	11.0	34,227	9.8	145,137	12.0	16.7
460-519	Respiratory diseases	132,992	8.6	30,315	8.6	83,893	7.0	8.4
520-579	Digestive diseases	149,162	9.6	33,979	9.7	76,810	6.4	11.4
580-629	Genitourinary diseases	83,026	5.4	21,449	6.1	50,233	4.2	7.5
630-676	Pregnancy	202,047	13.1	61,809	17.6	94,316	7.8	—
680-709	Skin and subcutaneus tissue diseases	31,194	2.0	7,905	2.3	26,177	2.2	1.6
710-739	Musculoskeletal system diseases	50,748	3.3	12,700	3.6	32,084	2.7	6.2
740-759	Congenital anomolies	37,557	2.4	5,297	1.5	14,549	1.2	.9
760-779	Perinatal disorders	70,216	4.5	10,061	2.9	21,003	1.7	—
780-799	Symptoms	74,101	4.8	12,855	3.7	46,191	3.8	—
800-899	Injuries	164,156	10.6	26,445	7.5	94,948	7.9	11.5
V01-V82	Contact	87,104	5.6	9,274	2.6	83,968	7.0	—
E80-E99	External causes	743	0.0	33	0.0	0	0.0	—
	Other[2]	—	—	—	—	—	—	3.5
	Missing diagnosis	217	—	0	—	44	—	—

[1] Source: Hodgson and Kopstein (1984).
[2] Includes pregnancy, perinatal disorders, contact, and external causes.

NOTE: Total Medicaid expenditures are overstated in California.

Figure 1

Percent distribution of discharges and expenditures for the most frequent inpatient hospital diagnoses[1] for AFDC[2] Medicaid recipients, by diagnosis group: California, Michigan, and New York, 1982

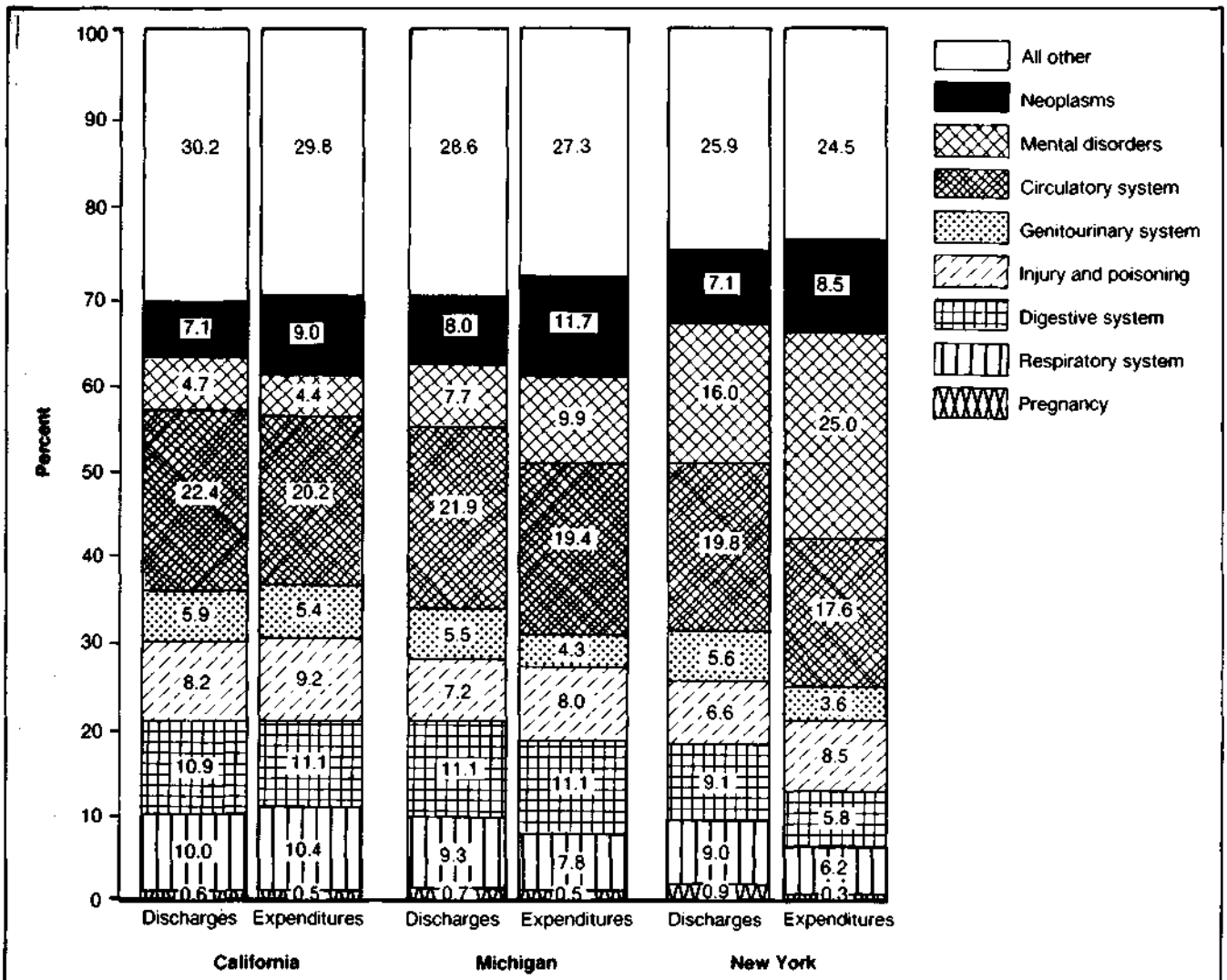


[1] Excludes unknown diagnoses.
[2] Aid to Families with Dependent Children.
SOURCE: Health Care Financing Administration, Office of Research and Demonstrations: Data from the Medicaid Tape-To-Tape project.

hospitalizations. This similarity is perhaps surprising given the many differences between the Medicaid population and the national population. The majority of the Medicaid population are healthy AFDC women and children who have infrequent hospital stays, except for delivery in the case of women. The remainder of the population, the SSI aged and disabled, has high rates of hospitalization. (Medicare pays for the majority of hospital expenses for aged Medicaid enrollees.) In spite of these differences the similarity in expenditure distributions may reflect an underlying similarity in the disease patterns which require hospitalization.

Figure 2

Percent distribution of discharges and expenditures for the most frequent inpatient hospital diagnoses[1] for SSI[2] Medicaid recipients, by diagnosis group: California, Michigan, and New York, 1982



[1] Excludes unknown diagnoses.
[2] Supplemental Security Income.

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

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