Longitudinal patterns of enrollment and expenditures for a Medicaid cohort

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This article is based on 4 years of data for a cohort of Medicaid enrollees in California and Georgia to determine patterns of enrollment and expenditures. The analyses were developed from the statistical system known as Tape-to-Tape, which is based on Medicaid enrollment and claims files from these and other States. The composition of the cohort changed over time as a result of the differential rates of turnover for subgroups of the Medicaid population. Longitudinal expenditure patterns also varied by health service and eligibility group. These Medicaid expenditure patterns differed from those observed previously in Medicare studies, undoubtedly reflecting differences in service coverage under Medicare and Medicaid.

Introduction

Understanding the experience of the Medicaid program, which covers the health care expenses for several groups of low-income people, has become increasingly important as program costs continue to grow. Most analyses of the Medicaid program have used annual, cross-sectional data. The Medicaid Tape-to-Tape data base is a pilot project sponsored by the Health Care Financing Administration (HCFA), which has been collecting claims and enrollment data on all Medicaid enrollees in five States for several years. These data can be linked by person across services and across years. The resulting data base can be used to determine aggregate enrollment and utilization experience for different eligibility groups within the program.

This article provides an analysis of some of the patterns in Medicaid length of enrollment and expenditures. It follows a cohort beginning at a point in time and examines the dropoff in enrollment and the patterns of Medicaid expenditures over a multiyear period. Knowledge about these patterns is often important in evaluating specific aspects of the current program or in evaluating new approaches that may be under consideration for altering the program. Such information may also be particularly useful to policymakers who are concerned with issues of long-term welfare dependency.

The article is divided into two parts. The first part looks at a group of persons enrolled in Medicaid in January 1980 and follows them through 1983 to trace their patterns of continued enrollment as well as their patterns of disenrollment. The second part examines expenditure patterns over the 4-year period for the subset of persons who were continuously enrolled through 1983.

Data and limitations

The data used for this study were extracted from Medicaid enrollment and claims files for two States, California and Georgia. These two States provide an interesting contrast because their Medicaid programs differ substantially in several respects. California has traditionally had one of the more generous Medicaid programs in terms of eligibility and benefits, and Georgia has had a more restrictive program.

Because Medicaid is state-administered, formats and data definitions of raw files vary markedly across States. An important aspect of the Tape-to-Tape project has been the recoding of data to facilitate cross-state comparisons. A detailed description of the data base along with a discussion of its limitations is included in the Technical Note at the end of this article.

Using the uniform Tape-to-Tape enrollment files for the two States, we identified a cohort of approximately 2.5 million persons in California and 375,000 persons in Georgia, who were enrolled in January 1980. For those enrollees, we followed their enrollment experience under Medicaid for 4 years or until they disenrolled or died. All Medicaid enrollment records and claims records were extracted for 1980-83 and aggregated into summary records for analysis.

It is important to note that only the population enrolled in January 1980 was followed in this study. People who entered Medicaid subsequent to January 1980 were not included. The January 1980 full population represents a cross-sectional Medicaid population that includes both short-term and long-term enrollees. However, over time the cohort lost many short-term enrollees through attrition and became quite different from a typical cross-sectional Medicaid population. In particular, the population enrolled for 4 years contained fewer high-turnover medically needy people who enter and exit Medicaid within a short period of time.

Some of those people who were enrolled in January 1980 and who exited the program during the study period were ending a lengthy enrollment period. This caveat must be kept in mind in considering the data presented in the tables that follow. The study population is denoted in the tables, for convenience of description, as groups of persons enrolled for specific periods of time following January 1980. In actuality, the data are for groups of persons enrolled in Medicaid in January 1980, who exited the program in:

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less than 1 year, 1-2 years, 2-3 years, 3-4 years, or 4 or more years.

In the enrollment files, a death indicator was present for Georgia but was not available for California. Accordingly, mortality was studied only in Georgia.

Program characteristics

The Medicaid program is designed to cover those groups of people who are eligible to receive cash payments under Aid to Families with Dependent Children (AFDC) or Supplemental Security Income (SSI). States have the option to provide Medicaid to the "medically needy," that is, persons who fit into one of the categories covered by the cash assistance programs and whose income and assets fall within the medically needy standards or who "spend down" because of their medical bills to the medically needy standards. During the study period, California covered the medically needy, but Georgia did not. Certain groups of people who fall outside the AFDC and SSI cash assistance categories can also be covered by Medicaid. These are primarily low-income children in intact families. These small groups were excluded from this study.

The California and Georgia Medicaid programs were considerably different in other ways in terms of eligibility guidelines and covered services. Some of those differences are highlighted in Table 1. In general, California's program was more generous in scope. California's income levels for eligibility determinations were substantially higher than Georgia's. Program differences undoubtedly explain some of the differences in State enrollment and expenditure patterns presented here. As mentioned, States with contrasting programs were deliberately selected in order to observe those differences.

Enrollment patterns

Background

Several previous studies of welfare populations have described the characteristics of short-term as compared with long-term enrollees in the AFDC program. Bane and Ellwood (1983) found that young mothers who entered AFDC at the birth of their first child, especially if they had no work history before the child's birth, were more likely to have longer term enrollment than older mothers who entered AFDC with more than one child. In the sample studied, about one-third of AFDC spells lasted less than 1 year. The average was 4.7 years.

Plotnick (1983) also found age to be a major factor in length of enrollment; that is, younger mothers had longer average periods of enrollment. Other important variables were the level of wages in the community and AFDC payment levels; lower wages and higher payment levels increased the probability of enrollment. Prior receipt of welfare increased the probability of receiving welfare later.

O'Neill, Bassi, and Hannan (1984) showed many of the same results in a related study, emphasizing the positive effect of prior enrollment on future enrollment and long-term dependency. They found that race was an important determinant of length of enrollment; races other than white were more likely to be enrolled for longer periods.

The factors identified in these studies of the AFDC population very likely influence their Medicaid enrollment patterns as most of the AFDC population is automatically enrolled in Medicaid. Although the primary determinants of Medicaid length of enrollment are likely to be those factors that determine length of enrollment in the cash assistance programs, additional factors related to the need for health services will also affect Medicaid enrollment.

Table 1

Medicaid program characteristics, by State: California and Georgia, 1980-83

Characteristic	1980	1981	1982	1983
California				
Medically needy program	Y	Y	Y	Y
Unemployed parent coverage	Y	Y	Y	Y
AFDC payment level for family of four	$487	$563	$601	$601
Number of optional services	30	27	27	30
Prospective hospital reimbursement	N	N	N	Y
Average physician visit payment	$ 22	$ 23	$ 23	$ 22
Georgia				
Medically needy program	N	N	N	N
Unemployed parent coverage	N	N	N	N
AFDC payment level for family of four	$170	$193	$216	$229
Number of optional services	13	13	13	13
Prospective hospital reimbursement	N	N	N	Y
Average physician visit payment	$ 16	$ 16	$ 17	$ 17

NOTES: Y indicates present; N indicates not present. AFDC is Aid to Families with Dependent Children.

SOURCES: Health Care Financing Administration, Office of Research and Demonstrations: Data from the Medicaid Tape-to-Tape project. Health Care Financing Administration, Office of Research and Demonstrations: *Medicare and Medicaid Data Book*, 1981, 1983, 1984. Social Security Administration, Office of Family Assistance: *Characteristics of State Plans for AFDC*, 1980, 1981, 1982, 1983.

Some limited information on Medicaid enrollment patterns in elderly adults and disabled persons covered by the SSI program is available from two previous studies. Cromwell et al. (1982), in studying patterns of enrollment in Tennessee's Medicaid program, compared enrollment turnover in the AFDC program to turnover for SSI disabled enrollees. Turnover for the AFDC population was about twice that of the disabled population. In a study of Medicaid enrollees in the National Medical Care Utilization and Expenditures Survey (NMCUES), Roth, Howell, and Reeves (1985) examined patterns in turnover for the 1-year period of 1980. In that year, about one-third of AFDC enrollees were enrolled for part of the year, while only about 15 percent of SSI enrollees were enrolled for part of the year. About one-fourth of cash assistance recipients were enrolled for part of the year, while 65 percent of those who did not receive cash assistance were enrolled part of the year. This showed the short-term nature of Medicaid for medically needy enrollees. NMCUES also showed that short-term enrollees were more likely to be in poorer health and use more health services than those enrolled all year. It is important to note that NMCUES surveyed only the noninstitutionalized population and therefore could not provide information on length of enrollment for institutionalized Medicaid recipients.

From the literature cited above, we would expect to find significant differences in length of enrollment according to basis of Medicaid eligibility, maintenance assistance status, health status, age, and other demographic variables. The current study seeks to expand on this previous knowledge of Medicaid enrollment patterns.

Findings

The length of enrollment following January 1980 for the study population is shown in Table 2. In California there were 2,543,000 people enrolled in January 1980. Of these, 29.7 percent disenrolled (for any reason, including death) in less than 1 year; 16.9 percent disenrolled within 1 to 2 years; 11.9 percent disenrolled within 2 to 3 years; 7.1 percent disenrolled within 3 to 4 years; and the remaining 34.4 percent were still enrolled in December 1983 at the end of the study period. As noted earlier, the distributions presented in Table 2 do not show the exact length of Medicaid enrollment, only the continuous length of enrollment beginning January 1980.

Georgia showed a similar, but more long-term, pattern of enrollment. Of the 374,000 persons enrolled in January 1980, 19.4 percent were enrolled less than 1 year and 49.4 percent were still enrolled 4 years later.

Table 2

Persons enrolled in Medicaid in January 1980, by length of enrollment following January 1980 and by eligibility group: California and Georgia, 1980

Eligibility group	Total January 1980 enrollees in thousands	Total[1]	Length of enrollment following January 1980				
			Enrolled less than 1 year	Enrolled 1-2 years	Enrolled 2-3 years	Enrolled 3-4 years	Enrolled 4 or more years
California			Percent distribution				
Total	2,544	100.0	29.7	16.9	11.9	7.1	34.4
AFDC							
Children	1,135	100.0	35.7	19.4	12.7	7.2	25.0
Adults	543	100.0	39.9	17.7	12.7	8.5	21.2
SSI							
Disabled:							
ICF-MR	10	100.0	5.2	6.1	4.3	4.7	79.7
Other	429	100.0	14.3	11.7	9.3	6.3	58.2
Aged	427	100.0	16.9	14.8	11.2	9.2	47.8
Georgia							
Total	374	100.0	19.4	14.9	9.6	6.7	49.4
AFDC							
Children	141	100.0	25.7	21.8	12.0	7.4	33.1
Adults	53	100.0	31.3	17.4	11.3	6.4	33.7
SSI							
Disabled:							
ICF-MR	2	100.0	4.1	6.4	3.5	2.6	83.4
Other	89	100.0	10.5	7.2	5.8	5.1	70.8
Aged	89	100.0	11.3	10.7	8.8	7.4	61.7

[1]Totals may not add to 100.0 because of rounding.

NOTES: AFDC is Aid to Families with Dependent Children. SSI is Supplemental Security Income. 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.

As observed in previous studies, the AFDC population (children and adults) had markedly more short-term enrollees than the SSI disabled and aged populations in both States. In California, 39.9 percent of AFDC adults were enrolled less than 1 year in contrast to 16.9 percent of the aged. In Georgia, although overall enrollment was longer for all groups compared with California, 25.7 percent of AFDC adults were enrolled less than 1 year, compared with 11.3 percent of the aged. The group that remained enrolled the longest were disabled persons in intermediate care facilities for the mentally retarded (ICF's-MR), a small but high-cost population.

Length of enrollment for California's Medicaid population, according to whether they were classified as categorically or medically needy, is shown in Table 3. Of the 2,543,000 persons in California's Medicaid program in January 1980, 2,157,000 (85 percent) were categorically needy, and the remaining 386,000 (15 percent) were medically needy. The proportion who were medically needy ranged from 26.0 percent for the SSI aged population to 9.8 percent for the SSI disabled (derived from data in Table 3).

Differences in enrollment patterns according to whether persons were categorically or medically needy are notable. Among the AFDC enrollees, about two-thirds of the medically needy were enrolled for less than 1 year, compared with one-third of the categorically needy. Only about 5 percent of the AFDC medically needy adults and children were enrolled for all 4 years of the study period, while the corresponding proportion was about 28 percent for the categorically needy. Among SSI disabled and aged enrollees, the medically needy also experienced shorter enrollment periods than the categorically needy, although about one-quarter did remain enrolled for the full 4 years. The SSI medically needy cohort, therefore, appears to have consisted of individuals covered for a relatively short period and a group with chronic illnesses covered for a longer period, in approximately equal proportions.

Approximately 40 percent of SSI enrollees exited Medicaid over a 4-year period. Much of this was because of mortality, as illustrated in Table 4. Only Georgia data are presented because, as noted earlier, the California enrollment files do not reliably distinguish between deaths and those who leave the program for other reasons. Of the 90.5 thousand disabled enrollees in Georgia in January 1980, 9.4 thousand died during the study period. For the aged, death rates were higher (25.1 thousand enrollees died, out of the 89.3 thousand enrolled in January 1980). Small numbers of both disabled and aged enrollees left the Medicaid program for reasons other than death.

In Table 5, the composition of all enrollees in California in January 1980 is compared with the composition of the subgroup who remained enrolled for the full 4 years of the study period. Georgia data are not shown in the table; however, Georgia patterns were very similar to those of California.

In both States, there was one primary demographic difference between the full January 1980 Medicaid population and the group that remained enrolled for all 4 years. The former contained a higher proportion of children and a smaller percentage of the elderly than the latter. This difference was not because of aging over the 4-year period, as we are considering baseline age in 1980 for both groups. For example, of the full California population, 24 percent were 7 to 17

Table 3

Persons enrolled in Medicaid in January 1980, by length of enrollment following January 1980, eligibility group, and maintenance assistance status: California, 1980

Eligibility group and maintenance assistance status	Total January 1980 enrollees in thousands	Total[1]	Length of enrollment following January 1980				
			Enrolled less than 1 year	Enrolled 1-2 years	Enrolled 2-3 years	Enrolled 3-4 years	Enrolled 4 or more years
Categorically needy			Percent distribution				
AFDC							
Children	990	100.0	31.8	19.8	13.2	7.4	27.9
Adults	456	100.0	33.9	18.2	13.4	7.0	27.5
SSI							
Disabled	396	100.0	12.0	10.8	8.9	5.9	62.4
Aged	316	100.0	12.6	12.9	10.3	8.5	55.7
Medically needy							
AFDC							
Children	145	100.0	62.9	17.3	9.9	4.3	5.6
Adults	87	100.0	69.4	14.6	8.2	3.5	4.3
SSI							
Disabled	43	100.0	32.8	18.9	13.1	9.6	25.6
Aged	111	100.0	29.1	20.1	13.8	11.3	25.7

[1]Totals may not add to 100.0 because of rounding.

NOTES: AFDC is Aid to Families with Dependent Children. SSI is Supplemental Security Income.

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

years of age in 1980; of the group who remained enrolled 4 years, only 19 percent were 7 to 17 years of age in 1980. In California, the group of persons age 75 or over was only 11 percent of the full population, but was 14 percent of the 4-year cohort. Thus, a study of a 4-year, continuously enrolled population will contain proportionately more older enrollees than a cross-sectional study.

Also in Table 5, the distribution of the two populations by eligibility group and cash-assistance status is compared. It shows the net effect of the patterns discerned in Tables 2 and 4. The majority of the cross-sectional Medicaid population in 1980 was in the AFDC category, whereas the majority of the 4-year population was in the SSI category.

The proportion of medically needy persons was 15 percent for the full population and only 6 percent for the 4-year, continuously enrolled group. Additionally, the proportion of Medicaid enrollees who were crossovers, that is dually entitled to Medicare and Medicaid, was quite different: 26 percent for the full population and 39 percent for the 4-year population.

In addition to these demographic differences between the 4-year, continuously enrolled cohort of Medicaid enrollees and the cross-sectional Medicaid population, there may also be health status differences between the two groups. Long-term enrollees may remain in the program because of poor health (suggesting poorer health status for the continuously enrolled); on the other hand, short-term enrollees may be enrolled only during periods of ill health, and may therefore be a sicker group.

To investigate this issue, we compared the baseline 1980 health care utilization and expenditures for two groups: persons who were enrolled throughout 1980 but disenrolled in 1981 ("short-term enrollees") and persons enrolled for all 4 years ("long-term enrollees"). Both groups were enrolled throughout 1980 and therefore their full claims history was available for that year.

The ratio of 1980 expenditures and service use rates for selected health services for the two groups is shown in Table 6. (Detailed use and expenditure rates are provided in Table 9 in the Technical Note.) Short-term enrollee rates are divided by long-term enrollee rates. A ratio greater than 1 reflects higher use or expenditures by the short-term group and suggests that they were, on average, sicker in 1980. A ratio less than 1 shows the opposite relationship.

The results are mixed. Within the AFDC population, there do not appear to be substantial differences between long-term and short-term enrollees, as the ratios are not strikingly different from a value of 1. This was even the case in California, where 15 percent of all enrollees were medically needy during 1980. An exception was hospital care for AFDC children. In both States, short-term enrollees had ratios of 1.4 for hospital expenditures. These expenses may be because of high costs in the first year of life. The same relationship was not observed for AFDC adults.

A similar pattern for other services for children was observed in Georgia (i.e., higher expenditures for short-term enrollees), but not in California. This State difference is surprising, given the lack of a medically needy program in Georgia.

In the disabled and aged populations, ratios are often much greater than 1, with short-term enrollees experiencing much higher rates of utilization and expenditures. This results entirely from deaths among the disabled and aged. Previous studies have shown that expenses in the last months of life are far higher than those for survivors. (Lubitz and Prihoda, 1984, and McMillan et al., 1987). As also shown in Table 6, when only survivors were considered, short-term enrollees resembled long-term enrollees in expenditure patterns or were less expensive (data shown for Georgia only, because California mortality indicators were unavailable). The one exception was disabled hospital use and expenditures. In that case, ratios were identical to Georgia's AFDC child population: 1.3 for hospital days and 1.4 for hospital expenditures.

Table 4

Persons enrolled in Medicaid in January 1980, by length of enrollment following January 1980, survival status, and eligibility group: Georgia, 1980

Eligibility group/survivor status	Total January 1980 enrollees in thousands	Total percent[1]	Length of enrollment following January 1980				
			Enrolled less than 1 year	Enrolled 1-2 years	Enrolled 2-3 years	Enrolled 3-4 years	Enrolled 4 or more years
			Percent distribution				
Disabled	90.5	100.0	10.4	7.2	5.8	5.0	71.6
Survivors	81.1	100.0	8.3	4.9	4.0	2.8	79.9
Deaths	9.4	100.0	28.3	26.8	20.8	24.1	—
Aged	89.3	100.0	11.3	10.9	8.8	7.7	61.2
Survivors	64.2	100.0	4.5	4.0	4.0	2.3	85.2
Deaths	25.1	100.0	28.8	28.6	21.1	21.4	—

[1]Totals may not add to 100.0 because of rounding.

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

Table 5

Characteristics of Medicaid enrollees by length of enrollment: California, 1980

Characteristics	All January 1980 enrollees	Enrolled 4 or more years
Total (thousands)	2,544	875
	Percent distribution	
Age in 1980		
Total[1]	100	100
6 years or under	17	15
7-17 years	24	19
18-21 years	6	3
22-44 years	22	20
45-64 years	10	14
65-74 years	10	16
75 years or over	11	14
Sex		
Total	100	100
Male	38	35
Female	61	65
Eligibility group in 1980		
Total	100	100
AFDC		
Children	45	32
Adults	21	15
SSI		
Disabled	17	30
Aged	17	23
Maintenance assistance status in 1980		
Total	100	100
Categorically needy	85	94
Medically needy	15	6
Institutional status in 1980		
Total	100	100
Noninstitutionalized	96	96
Institutionalized	4	4
Crossover status in 1980		
Total	100	100
Noncrossover	74	61
Crossover	26	39

[1]Totals may not add to 100.0 because of rounding.

NOTES: AFDC is Aid to Families with Dependent Children. SSI is Supplemental Security Income.

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

In conclusion, this longitudinal analysis of a cohort of Medicaid enrollees has shown that length of enrollment is associated with enrollee demographic characteristics, deriving from the fact that the rate of disenrollment was much higher for AFDC enrollees than for SSI enrollees in both States. The most important way to control for this difference is to analyze data separately for AFDC and SSI enrollees when longitudinal studies are performed.

With these caveats in mind, we move to the analysis of longitudinal Medicaid utilization and expenditure patterns for the 4-year, continuously enrolled group.

Expenditures for the continuously enrolled

Background

Previous research has shown that, for a cohort of individuals, health care use and costs over time show a moderate level of consistency. Those who are high users in 1 year tend to be high users the next year. This consistency is countered by the statistical phenomenon known as "regression toward the mean," which refers to the fact that some extreme values in one time period are really chance occurrences for persons who are generally nearer to the average level and are likely to revert there in a subsequent time period.

Understanding these long-term utilization and expenditure patterns is important for developing and evaluating many Medicaid program policies. When interventions such as case management programs are targeted to a high-cost group, and when that group's use and expenditures decline, it is important to distinguish the impact of the program intervention from the normal and expected regression toward the mean (Welch, 1985).

Another area in which understanding long-term patterns of use and expenditures is important is in capitation rate setting. Prior use has been suggested as an adjustment to capitation rates, as a means of controlling for health status differences (Beebe, Lubitz, and Eggers, 1985). In using prior use in rate setting, attention must be given to accounting for regression toward the mean to produce unbiased estimators of future annual expenditures (Welch, 1985). With the continued interest in increasing capitation in the Medicaid program, attention may turn to exploring prior-use adjustments in Medicaid capitation rate setting.

Studies of long-term patterns for total health care reimbursements have been limited to the Medicare population. Gornick (1976) found that during an 8½-year period, 16 percent of Medicare beneficiaries continuously enrolled for supplementary medical insurance (SMI) never met their SMI deductible, and another 14.1 percent met it only once. Only 4.1 percent met it all 9 times. On the other hand, McCall and Wai (1983) found that in the Colorado Medicare population, the high-cost users (the top 25 percent of users) had twice the chance of being in the high-cost group the next year as did the average. Nonusers were also twice as likely to be in the nonuser group the next year.

Beebe (1988) also looked at longitudinal patterns of reimbursement for Medicare enrollees in an attempt to examine issues related to modifying the current method of setting Medicare capitation payments. He found that, after stratifying Medicare enrollees into groups according to levels of use in a base year, there was a tendency for reimbursement for all groups to sharply regress toward the mean in the first year after the base year, with continued, more gradual,

Table 6

Ratio of annual use and expenditures of short-term to long-term enrollees: California and Georgia, 1980

Eligibility group and State	Type of utilization		Type of service				
	Ambulatory visits	Hospital days	Ambulatory	Hospital	Drug	Long-term care	Total
Total	Ratio of use		Ratio of expenditures				
California	1.0	1.4	1.0	1.3	0.7	1.0	1.0
Georgia	1.0	1.1	1.0	1.2	0.7	0.8	0.9
AFDC children							
California	1.0	1.4	1.1	1.4	0.9	—	1.2
Georgia	1.1	1.3	1.3	1.4	1.3	—	1.3
AFDC adults							
California	0.9	0.9	0.9	0.9	0.0	—	0.9
Georgia	1.1	1.1	1.0	1.0	1.1	—	1.0
Disabled[1]							
California	1.0	2.1	1.1	2.3	0.0	1.6	1.7
Georgia (all enrollees)	1.3	2.1	1.5	2.4	1.1	1.0	1.6
Georgia (survivors only)	1.1	1.3	1.1	1.4	0.9	0.4	1.0
Aged[2]							
California	1.1	2.9	1.4	2.7	1.2	2.4	2.2
Georgia (all enrollees)	1.4	2.0	1.3	1.9	1.3	2.3	2.0
Georgia (survivors only)	1.0	1.1	1.0	0.9	0.9	0.8	0.8

[1]Crossovers excluded; enrollees in intermediate care facilities for the mentally retarded are excluded.
[2]Only crossovers are included.

NOTES: Short-term enrollees disenrolled in 1981. Long-term enrollees enrolled for 4 or more years following January 1980. 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.*

regression over the next 5 years. The correlation between reimbursements in the base year and reimbursements in subsequent years was .22 after 1 year, and was small and fairly consistent 2 to 5 years after the base year.

Other studies involving the elderly and persons enrolled in health maintenance organization (HMO's) have indicated that observed patterns depend on the particular health service examined. Approximately 33 to 45 percent of the elderly who used hospital services in 1 year used them the next year (Anderson and Knickman, 1984; McCall and Wai, 1983; Roos and Shapiro, 1981). Only 16 to 24 percent of high-level users of hospital services remained high-level in the next year (McCall and Wai, 1983; Roos and Shapiro, 1981).

The findings for ambulatory service use over time are very different. Between 80 and 90 percent of those who used ambulatory services in 1 year used ambulatory services the next year. Approximately one-half of those who were high-level users of ambulatory services remained so the next year (McCall and Wai, 1983; Mullooly and Freeborn, 1979; and Roos and Shapiro, 1981).

As previous research has concentrated on longitudinal patterns of use in the Medicare and HMO populations, we investigated whether patterns in the Medicaid population were similar. One would expect differences for several reasons. First, the demographic characteristics of a majority of Medicaid enrollees are quite different from Medicare and HMO enrollees, because Medicaid covers large numbers of women and children. Equally important are the differences in coverage of health services between the Medicare and Medicaid programs. Medicare covers all hospital care and some ambulatory care for its beneficiaries. Medicaid coverage is more comprehensive, covering almost all services, including nursing home care and prescription drugs.

Findings

Expenditure data were compiled for the 4-year, continuously enrolled group for Georgia and California. Data were analyzed separately for the following eligibility groups: AFDC adults, AFDC children, disabled crossovers, disabled noncrossovers, and aged crossovers. Several exclusions were necessary. The disabled group includes the blind but excludes residents of ICF's-MR facilities because of their unique utilization patterns. Only crossovers who were dually eligible for Medicare and Medicaid for all years of the analysis (1980-83 for Georgia and 1981-83 for California) were included. This is because changes in the expenditure patterns for persons who were dual enrollees for only part of the study period would very likely be the result of changes in insurance coverage (e.g., the disabled who became Medicare-eligible after 2 years of disability). California expenditure data for 1980 were not analyzed, as some patient payments

were included with Medicaid expenditures in the files for that year, thus biasing comparisons with subsequent years.

For each eligibility group, persons were stratified into cohorts based on their expenditure level in the base year (1980 in Georgia and 1981 in California). The expenditure level stratification groups were high (top 25 percent of users), medium (middle 50 percent of users), low (bottom 25 percent of users), and nonusers in the base year. Expenditure patterns for each of these base-year groups were examined for years following the base year, which we term year 1, year 2, and year 3.

In Table 7, the classification into high, medium, low, and nonuser expenditure groups in year 1 for those enrollees who were high-cost in the base year is shown. (The mean expenditures for the high, medium, low, and nonuser groups in the base year for each State is provided in Table 10 in the Technical Note.) In Georgia, 62 to 81 percent of the disabled and aged remained high-cost users in year 1, compared with 36 to 39 percent of the AFDC groups. This general pattern of a higher level of consistency for SSI enrollees than for the AFDC groups was characteristic of both States.

Comparing individual health services, hospital services had the lowest percentage of persons remaining high-cost in year 1—only 10 to 32 percent in Georgia and 12 to 27 percent in California. The majority of AFDC enrollees become nonusers of hospital services the next year. Prescription drug and long-term care services showed the greatest level of consistency between the base year and year 1. More than one-half of the high-cost AFDC groups and more than three-quarters of the SSI groups were in the high-expenditure cohort for drug expenditures in year 1. For long-term care, 67 to 83 percent in Georgia and 76 to 87 percent in California remained in the high-cost group in year 1.

Expenditures for the high, medium, low, and

Table 7

Level of year 1 expenditures for high base-year expenditures cohort of Medicaid continuously enrolled, by type of health service and eligibility group: Georgia and California

Type of expenditure	Year 1 following base year								
	Georgia (1981)					California (1982)			
	Total[1]	H	M	L	O	Total[1]	H	M	L	O
Total expenditures	Percent distribution					Percent distribution			
AFDC children	100	39	41	12	8	100	47	39	10	3
AFDC adults	100	36	46	15	4	100	41	44	13	2
Disabled crossover	100	72	24	4	0	100	63	32	5	0
Disabled noncrossover	100	62	32	4	1	100	59	35	5	1
Aged crossover	100	81	18	2	0	100	69	26	4	0
Hospital expenditures										
AFDC children	100	10	9	4	77	100	12	8	3	77
AFDC adults	100	20	17	5	58	100	14	12	4	70
Disabled crossover	100	29	24	1	46	100	25	24	1	50
Disabled noncrossover	100	32	24	6	37	100	27	22	6	45
Aged crossover	100	15	36	1	48	100	22	22	1	55
Ambulatory expenditures										
AFDC children	100	40	38	9	13	100	47	38	10	6
AFDC adults	100	42	42	12	5	100	44	43	11	2
Disabled crossover	100	51	38	9	2	100	50	39	10	1
Disabled noncrossover	100	58	35	5	2	100	59	36	4	1
Aged crossover	100	45	41	9	4	100	40	44	14	2
Drug expenditures										
AFDC children	100	50	34	6	10	100	56	34	5	5
AFDC adults	100	70	27	2	1	100	68	29	2	1
Disabled crossover	100	80	20	0	0	100	77	22	1	0
Disabled noncrossover	100	82	18	0	0	100	79	20	1	0
Aged crossover	100	79	21	0	0	100	76	23	1	0
Long-term care expenditures										
Disabled crossover	100	75	24	1	0	100	87	12	1	0
Disabled noncrossover	100	67	31	2	1	100	76	18	3	3
Aged crossover	100	83	17	0	0	100	86	13	1	0

[1]Totals may not add to 100 because of rounding.

NOTES: For all categories of expenditures, "disabled crossover" and "disabled noncrossover" include the blind but exclude the disabled in intermediate care facilities for the mentally retarded. AFDC is Aid to Families with Dependent Children. "H" stands for high expenditure level (top 25 percent of users). "M" stands for medium expenditure level (middle 50 percent of users). "L" stands for low expenditure level (bottom 25 percent of users). "O" stands for nonuser.

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

nonuser base-year cohorts were also examined for each year of the study. The ratio of the mean expenditure for each cohort to the mean expenditure for all enrollees in the total group in the given year is shown in Table 8. For example, the expenditure ratio for the AFDC children high-cost group in California was 3.25 in the base year. This indicates that this cohort's mean expenditure was 3.25 times the mean expenditure of all AFDC children in California in the base year. This ratio is used because it normalizes the data for inflation. The phenomenon of the regression toward the mean, discussed earlier, would be indicated by a tendency for the ratio to approach 1.00 over the study years.

For AFDC enrollees in both States, there was a sharp regression toward the mean for the first year, most pronounced among the high-cost group, with a more gradual regression during subsequent years. This pattern is graphically illustrated in Figure 1 with data on Georgia's AFDC children. The high group had 3.76 times the mean expenditure in the base year, dropping to 1.93 in year 1, to 1.77 in year 2, and to 1.70 in year 3. For the medium, low, and nonuser groups, regression was also sharpest for the first year. For example, the expenditure ratio for the nonuser group rose from zero in the base year to .49 in year 1, to .59 in year 2, and to .63 in year 3.

The sharp regression during year 1 was not observed in the disabled-crossover and aged groups however. These groups showed a constant rate of regression toward the mean over the years observed. This steady pattern of regression among the aged in Georgia is illustrated in Figure 2. The high-cost cohort's expenditure rate declined steadily from 3.70 in the base year, to 3.38 in year 1, to 3.01 in year 2, and 2.62 in year 3. In all cases, similar patterns were observed in the California population.

It is worth noting that the high group stayed well above the mean in subsequent years despite the substantial decline. In Georgia, 3 years after the base year, the high group had expenditures ranging from 1.52 (AFDC adults) to 2.63 (disabled crossovers) times the mean expenditure for the eligibility group. In California, 2 years after the base year, the high group had from 1.63 (AFDC adults) to 2.95 (aged) times the mean expenditure for their eligibility group. The nonuser and low groups stayed well below the mean for the eligibility group, with reimbursement ratios in California ranging from .19 to .61 after 2 years, and in Georgia from .21 to .73 after 3 years.

Table 8

Ratio of mean Medicaid expenditures of each cohort of Medicaid continuously enrolled to mean Medicaid expenditures of full group for base year, year 1, year 2, and year 3: California and Georgia

Eligibility group and expenditure cohort	California				Georgia				
	Number of persons	Base year (1981)	Year 1 (1982)	Year 2 (1983)	Number of persons	Base year (1980)	Year 1 (1981)	Year 2 (1982)	Year 3 (1983)
			Ratio				Ratio		
AFDC children	220,178	—	—	—	46,753	—	—	—	—
High	49,021	3.25	2.06	1.92	9,103	3.76	1.93	1.77	1.70
Medium	98,595	0.54	0.82	0.85	18,494	0.60	0.97	0.99	0.99
Low	48,971	0.14	0.55	0.61	8,824	0.15	0.71	0.71	0.73
Nonuser	23,591	0.00	0.48	0.53	10,332	0.00	0.49	0.59	0.63
AFDC adults	102,640	—	—	—	17,709	—	—	—	—
High	24,507	3.09	1.65	1.63	4,055	3.21	1.68	1.62	1.52
Medium	49,022	0.50	0.98	0.96	8,120	0.54	1.00	0.99	1.00
Low	24,509	0.11	0.51	0.56	4,053	0.08	0.56	0.58	0.67
Nonuser	4,602	0.00	0.30	0.43	1,481	0.00	0.33	0.49	0.49
Disabled crossover[1]	107,260	—	—	—	20,067	—	—	—	—
High	26,792	2.94	2.57	2.48	5,013	3.16	2.85	2.70	2.41
Medium	53,731	0.46	0.57	0.59	10,071	0.38	0.48	0.52	0.62
Low	26,737	0.13	0.28	0.34	4,983	0.09	0.19	0.27	0.35
Nonuser	0	—	—	—	0	—	—	—	—
Disabled noncrossover[1]	111,318	—	—	—	34,544	—	—	—	—
High	25,253	3.54	2.61	2.47	7,297	3.87	3.01	2.74	2.63
Medium	50,584	0.40	0.74	0.78	14,606	0.41	0.68	0.76	0.80
Low	25,219	0.07	0.27	0.30	7,293	0.05	0.26	0.33	0.34
Nonuser	10,262	0.00	0.13	0.19	5,348	0.00	0.14	0.18	0.21
Aged crossover	182,597	—	—	—	51,298	—	—	—	—
High	44,175	3.48	3.19	2.95	11,844	3.70	3.38	3.01	2.62
Medium	88,498	0.29	0.36	0.42	23,730	0.29	0.37	0.47	0.59
Low	44,096	0.07	0.20	0.29	11,827	0.06	0.16	0.29	0.39
Nonuser	5,828	0.00	0.22	0.40	3,897	0.00	0.13	0.28	0.43

[1]Includes the blind; excludes disabled in intermediate care facilities for the mentally retarded.

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

When expenditure ratios were computed for individual health services (hospital, ambulatory, prescription drug, and long-term care) either one or the other of two distinct patterns illustrated in Figures 1 and 2 occurred. (Data for each service are not presented separately in tabular form). The most persistent pattern was the rapid convergence toward the mean in year 1, with a more moderate decline in subsequent years, as illustrated in Figure 1. This pattern was most pronounced for hospital services. High-cost AFDC children showed the most dramatic change from the base year to year 1. For this group, expenditure ratios declined from 52.79 to 13.72 in California and from 36.07 to 6.23 in Georgia.

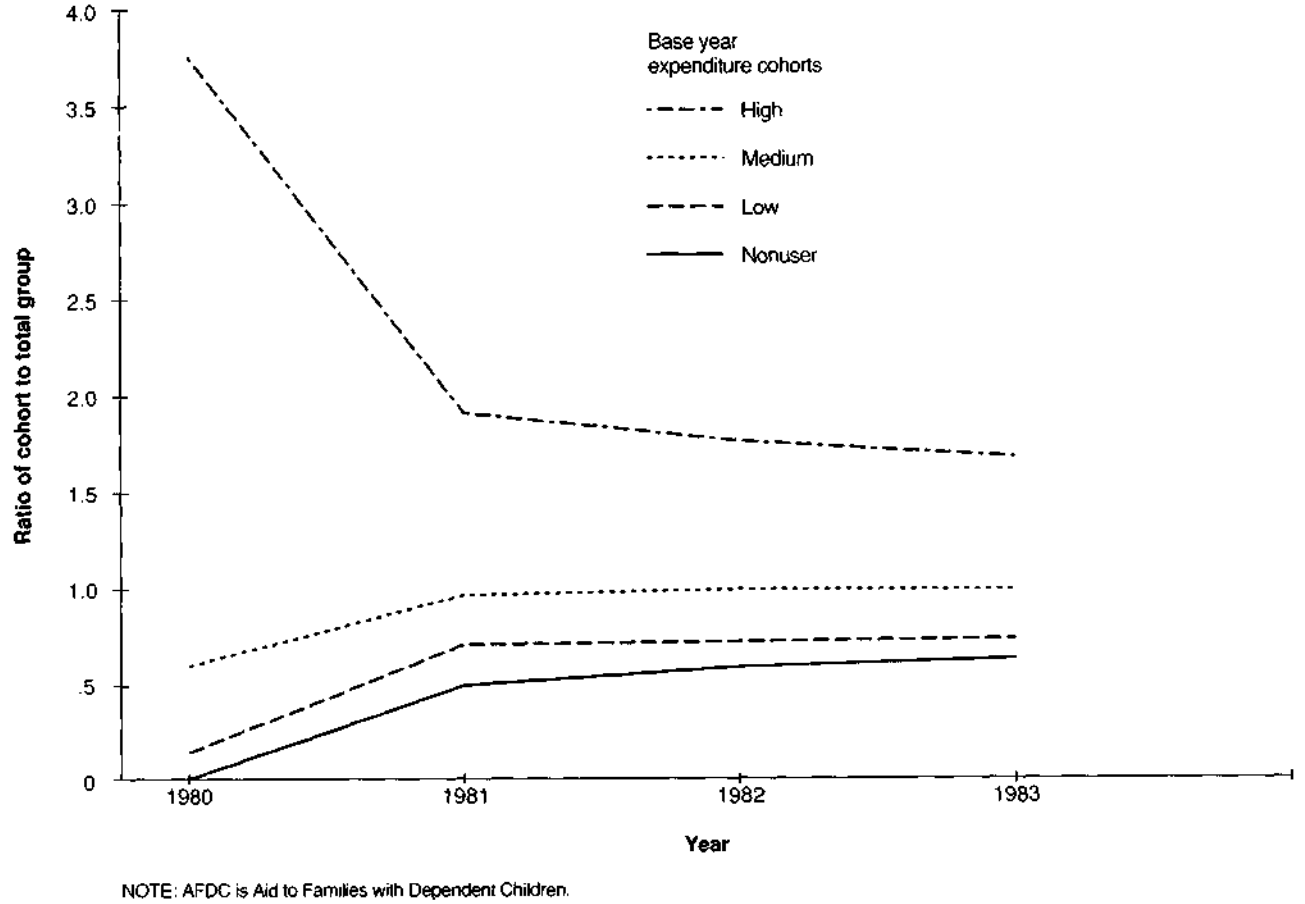
Regression toward the mean for ambulatory services differed by eligibility group. It followed the rapid convergence pattern (as in Figure 1) for the AFDC child, AFDC adult, and SSI aged groups; the pattern for the disabled groups, at the same time, was a constant rate of regression over the years of observation as in Figure 2. For example, in Georgia among the AFDC children's high group, the ratio dropped rapidly from 4.01 to 2.31 in the first year. The drop was slower, from 3.02 to 2.50 for the disabled-crossover high group.

The regression toward the mean was generally slight and constant for two types of services: prescription drugs (except for AFDC children) and long-term care services. Illustrating the gradual steady regression toward the mean for prescription drugs, the high group of disabled crossovers in Georgia declined from 2.44 in the base year to 2.27 in year 1, to 1.94 in year 2, and to 1.84 in year 3. Similarly, long-term care expenditure ratios for the high group of disabled crossovers declined from 16.02 in the base year to 14.62 in year 1, to 13.63 in year 2, and to 12.13 in year 3.

The difference between the regression pattern for hospital services and that for prescription drugs and long-term care very likely stems from the fact that hospital services were used for acute conditions, which are much less likely to be present in subsequent years, while prescription drugs and long-term care were used to a large extent by those with chronic conditions. The constant rate of regression in total expenditures for the disabled and aged-crossover groups is explained by the fact that Medicaid covers drugs and long-term care for this group and that Medicare (as their primary insurance payer) covers most of their acute and ambulatory care. The pattern of rapid convergence toward the mean observed in the other eligibility groups is probably because of the high cost

Figure 1

Ratio of cohort's mean expenditure to total group's mean expenditure for AFDC children: Georgia, 1980-83



NOTE: 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.

of hospital and ambulatory care associated with acute conditions in these groups.

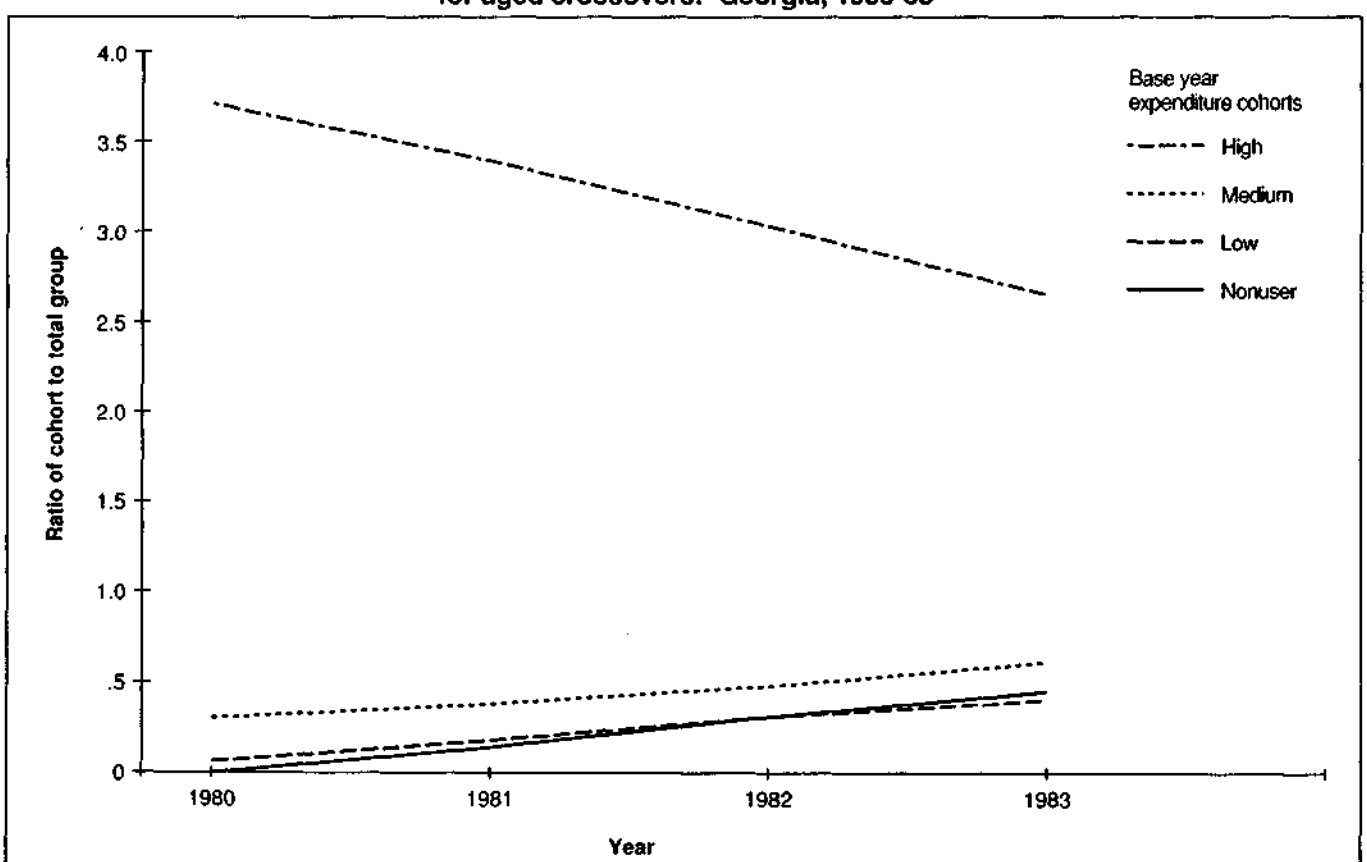
Summary and conclusions

A cohort of persons in California and Georgia, enrolled in Medicaid as of January 1980, were followed for 4 consecutive years to examine patterns in enrollment and expenditures. Despite the fact that these two States have very different Medicaid coverage and eligibility guidelines, they showed similar patterns over time in enrollment and expenditures. It should be noted, however, that patterns of enrollment and expenditures differed markedly by eligibility group.

The results confirm the observations of previous studies showing high rates of turnover in welfare and Medicaid populations.

- In each State after 4 years, less than one-half of the original cohort in this study was still enrolled.
- Of the AFDC population, only about one-fourth remained enrolled for 4 years in California and only about one-third in Georgia.
- Fifty to eighty percent of the SSI population remained enrolled after 4 years, depending on the subgroup examined.
- Medically needy enrollees in the cohort (which we could follow only in California) exited the program much faster than did the categorically needy. The medically needy AFDC population showed the most striking pattern; of those enrolled in January 1980, two out of three were no longer enrolled 1 year later and only about 5 percent were still enrolled 4 years later.
- For SSI enrollees, death (an event we could observe only in Georgia) was found to be a major reason for turnover. Among aged Medicaid enrollees, 5 to 8 percent died each year, although nearly 12 percent left Medicaid over the 4-year period while still alive. Among the disabled, the death rate was about one-half as great as for the aged, and more than 18 percent left while still alive.
- Because of these differences in turnover by eligibility group, the remaining members of the cohort in each State 4 years later differed significantly in composition from the beginning cohort. At the end of 4 years, the continuously enrolled population was more than one-half SSI enrollees; in contrast, in the full population more than one-half were in the AFDC category.

Figure 2
Ratio of cohort's mean expenditure to total group's mean expenditure for aged crossovers[1]: Georgia, 1980-83



[1] Eligible for both Medicaid and Medicare.

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

Consequently, there was a larger proportion of older enrollees in the 4-year continuously enrolled cohort as well as a larger proportion of Medicaid enrollees who were dually entitled to Medicare.

Expenditure patterns in 1980 for short-term enrollees who left Medicaid in 1981 were compared with those for enrollees who stayed on the program for 4 years.

- Among the SSI population, 1980 per capita expenses for the short-term group were much higher than for the group who remained enrolled for 4 years or more. Data for Georgia indicate that the final illnesses preceding death were very likely responsible for this higher medical care utilization and expenditure pattern.
- Among AFDC enrollees and among SSI survivors, there were no substantial differences in utilization and expenditures between the short-term and long-term enrollees except for hospital expenses. In both States, short-term AFDC children's and disabled enrollees had higher hospital expenses. Hospital expenditures for routine delivery are usually included in the AFDC adult category and would not, therefore, explain the finding for AFDC children. However, expenditures for nonroutine, high-cost neonates would be billed separately and these could explain some of the observed differences.

The findings of the first part of this study imply that, although a longitudinal cohort of Medicaid enrollees is often necessary to study certain Medicaid program issues, such samples differ substantially from cross-sectional samples of Medicaid enrollees because of turnover. In particular, it is important to analyze AFDC and SSI enrollees separately in any such studies.

The second part of this study sought to determine whether or not some of the findings relating to longitudinal patterns of health care use found among the elderly and persons enrolled in HMO's could be generalized to the Medicaid population and whether or not the various eligibility groups within Medicaid differed in their longitudinal patterns.

- The rate of consistency over time in expenditure patterns for high-cost users was lowest for hospital services and highest for prescription drugs and long-term care.
- McCall and Wai (1983) found that only 34 percent of the high-cost group in Medicare were high-cost the next year. Of the Medicaid elderly in this study, 69 percent in California and 81 percent in Georgia were high-cost the next year. The difference between the two sets of findings most likely reflects the differences in health services covered by Medicare and Medicaid for the elderly. Medicare covers most inpatient hospital and ambulatory care while Medicaid covers drugs and long-term care.
- The SSI groups were found to have a greater proportion of high-cost users in the base year who remained high-cost the next year, compared with the AFDC groups. This difference most likely reflects the greater prevalence of chronic conditions among the SSI groups and their heavier use of long-term care and drug services.
- The analysis of expenditures for the high, medium, low, and nonuser base year cohorts over time showed two distinct patterns: (1) rapid regression to mean expenditure levels in year 1, followed by a more gradual decline in later years; and (2) regression toward mean expenditure levels at a constant rate over the 4-year period.
- The first pattern of rapid regression toward the mean corresponds to findings for reimbursement under Medicare for acute care services (Beebe, 1988).
- The second pattern of a constant rate of regresssion toward the mean reflects patterns of use for persons with chronic conditions and the elderly, particularly use of drugs and long-term care services.

The difference noted between these findings and those of previous research on the Medicare elderly highlight the importance of controlling for type of service and insurance coverage when studying longitudinal patterns of health care expenditures. The findings suggest that using prior use or Medicaid cost as a proxy for health status for research or capitation rate adjustment is most promising for the disabled and aged and for prescription drug and long-term care services, as costs are most consistent from year to year for those groups and services.

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Technical note

Sources of data

The data in this article were derived from the HCFA Medicaid Tape-to-Tape data base. This data base is developed from complete enrollment, claims, and provider files, created at the State level as byproducts of the automated payment of Medicaid claims.

Five States are providing files for the data base for 1980 through 1988:

- California.
- Georgia.
- Michigan.
- New York (1980-82 only; participation in selected studies for other years).
- Tennessee (except for 1982).

Together these States account for approximately 40

percent of all Medicaid expenditures in the United States.

Although States with certified Medicaid Management Information Systems (MMIS) are required to include certain variables in their files, there are substantial differences among States in how particular items are coded and how files are organized. A major task of the Tape-to-Tape project is to achieve uniformity in the data from participating States. Guidelines have been developed to map State-specific codes into uniform codes, facilitating cross-state comparisons. There are four types of uniform files produced for each calendar year: claims files, enrollment files, provider files, and person summary files.

Uniform claims files contain one record for each Medicaid service. For example, an outpatient bill that includes one physician visit, two complete blood counts, and one other laboratory test would appear as three records—one for the visit, one for the two identical blood tests, and one for the other laboratory test. All claims records incorporate retroactive payment adjustments, although not year-end cost settlements. Interim hospital claims are merged to form one record per stay. There are approximately 200 million claims from the five States for 1 year.

Uniform enrollment files contain one record for each person who was enrolled some time during the year. This record includes demographic and eligibility group information as well as a monthly indication of enrollment.

Uniform provider files contain one record for each Medicaid provider who had any claims during the year. In addition to selected provider characteristics, records contain the number of claims and the amount paid by Medicaid to each provider.

Person summary files contain one record per person ever enrolled during the year and are created by merging yearly person-level summary data from the claims with enrollment files. These records summarize expenditures and utilization by type of service and for each Medicaid enrollee, and are used to create a set of standard output tables. These person-summary files were linked across 4 years to create the analysis files for this study.

Limitations of data

One of the primary objectives of the Tape-to-Tape project has been to use MMIS data to create a uniform research data base that is complete, consistent, and comparable for all States and years. However, because of the complexities of Medicaid and the limitations of the MMIS data, there are also limitations in the Tape-to-Tape data. Some of the more important limitations in these data are summarized here.

Often claims for persons who are dually enrolled in Medicare and Medicaid are unreliable or incomplete. This is because Medicare is often the primary payer for services to dual enrollees. Medicaid may only pay for deductible amounts, copayments, or services that are not covered by Medicare. Therefore, although the Medicaid data will accurately represent Medicaid payment amounts, total utilization and expenditures for a service may be either unavailable or understated. The records may be missing procedure codes, diagnoses, ancillary or accommodation charge amounts, or total length of stay. Claims for care covered completely by Medicare are missing from the Medicaid files. Several variables on the MMIS files are used to assist in determining whether an enrollee is dually eligible for Medicaid and Medicare. Indicators include any claim with a Medicare amount paid or information on the enrollment files indicating Medicare enrollment. It is likely that these indicators do not identify all dual enrollees and that crossovers are undercounted.

The mothers' Medicaid identification number may be used for infants during their first few months of life in some States. This can result in the assignment of some infant utilization and expenditures to the mothers' records.

Medicaid programs usually contract with outside organizations known as fiscal agents for claims processing. Often a conversion to a new Medicaid fiscal agent is accompanied by problems with data quality. Each of the Tape-to-Tape States has experienced at least one such change during the project.

Some types of Medicaid claims are not routinely included on State MMIS files. For example, early and periodic screening, diagnosis, and treatment (EPSDT) claims are maintained separately from MMIS in many States. Therefore, for consistency, they have been excluded from Tape-to-Tape files. There are generally no claims for services provided in health maintenance organizations (HMO's). In California, beginning in mid-1983, two counties (Santa Barbara and Monterey) processed their own Medicaid claims. These claims are not included in the Tape-to-Tape files. In this article, enrollees in Santa Barbara and Monterey counties and in HMO's were included in tables showing enrollment data (Tables 2-5) but were excluded from tables showing utilization and expenditure data.

It may be difficult to link individuals across time, because of changes in the assigned Medicaid identification numbers. This was especially problematic in this article, in which enrollees were linked over a 4-year time period. However, we used social security number and other demographic characteristics to unduplicate records and provide consistent data for unique persons to the maximum extent possible.

In Georgia, some enrollees were excluded from this study because their claims data could not be matched to accurate enrollment information. Approximately 45,000 persons, 11 percent of enrollees, were excluded from the analysis. A higher proportion of these persons were enrolled through AFDC and noncash provisions than for the total Georgia Medicaid population. A subsequent analysis of enrollment patterns for a later period, when a complete match between enrollment and claims records was possible,

Table 9

Use and expenditures per year for short-term and long-term enrollees: California and Georgia, 1980

Eligibility group and State	Type of utilization and enrollee				Type of service and enrollee									
	Ambulatory visits		Hospital days		Total		Ambulatory		Hospital		Drug		Long-term care	
	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term
Total	Mean use per enrollee per year				Mean expenditures per enrollee per year									
California	5.0	5.2	1.6	1.2	$1,295	$1,260	$300	$310	$417	$326	$68	$103	$456	$467
Georgia	3.5	3.6	2.0	1.8	1,063	1,176	174	182	247	214	101	150	482	587
AFDC children														
California	4.3	4.5	0.4	0.3	396	319	175	155	158	109	20	22	6	2
Georgia	2.6	2.3	0.4	0.3	258	191	97	77	88	61	16	13	0	0
AFDC adults														
California	7.6	8.4	1.2	1.3	1,059	1,142	429	474	516	545	56	68	2	1
Georgia	6.0	5.7	1.8	1.7	788	774	280	271	396	397	72	67	0	0
Disabled														
California	12.5	12.1	4.3	2.1	3,295	1,925	648	564	2,070	900	140	166	335	213
Georgia (all enrollees)	11.5	8.8	5.6	2.6	2,291	1,402	515	353	1,160	485	188	170	339	337
Georgia (survivors only)	9.4	8.8	3.4	2.6	1,382	1,401	390	353	666	485	151	170	119	337
Aged														
California	0.8	0.7	4.5	1.5	3,945	1,812	334	237	338	126	189	153	3,003	1,239
Georgia (all enrollees)	0.7	0.5	5.1	2.5	3,289	1,628	154	114	175	94	340	269	2,550	1,111
Georgia (survivors only)	0.5	0.5	2.8	2.5	1,381	1,628	120	114	89	94	247	269	878	1,111

NOTES: AFDC is Aid to Families with Dependent Children. "Short-term enrollee" is a person who disenrolled in 1981. "Long-term enrollee" is a person who was enrolled throughout 1980-83. Expenditures for some other care were included in the total but omitted from shown categories.

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

showed that the rates of disenrollment within eligibility groups were very similar in later years to those presented in this article. Therefore, the enrollment patterns shown here are not biased to a great extent by the exclusion of those enrollees, as long as comparisons are made across States within eligibility groups.

Table 10

Mean total Medicaid expenditure for base year for Medicaid continuously enrolled, by eligibility group and expenditure cohort: Georgia and California

Eligibility group	Georgia (1980)				California (1981)			
	High	Medium	Low	Nonuser	High	Medium	Low	Nonuser
AFDC children	$720	$116	$28	$0	$1,066	$178	$47	$0
AFDC adults	2,482	418	59	0	3,621	581	126	0
Disabled crossover[1]	4,253	508	116	0	3,815	603	167	0
Disabled noncrossover[1]	5,705	602	74	0	7,552	853	142	0
Aged crossover	5,173	402	83	0	6,019	498	126	0

[1]Includes blind; excludes disabled in intermediate care facilities for the mentally retarded.

NOTE: 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.

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