Medicaid recipients in intermediate care facilities for the mentally retarded

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In this study, we examined Medicaid utilization and expenditure patterns of Medicaid recipients in intermediate care facilities for the mentally retarded (ICF's/MR) in three States: California, Georgia, and Michigan. Data were obtained from uniform Medicaid data files (Tape-to-Tape project). Most recipients in ICF's/MR were nonelderly adults with severe or profound mental retardation who were in an ICF/MR for the entire year. The average annual cost of care ranged from $26,617 per recipient in Georgia to $36,128 per recipient in Michigan. The vast majority of recipients were low utilizers of other Medicaid services. Approximately one-third of the recipients were also covered by Medicare.

Introduction

From 1975 through 1985, payments for intermediate care facilities for the mentally retarded (ICF's/MR) were the fastest growing component of total Medicaid spending. Over this 10-year period, Medicaid payments for care in ICF's/MR increased from $380 million to $4.7 billion, an annual compound rate of growth (ACRG) of 28.7 percent. In comparison, total Medicaid spending increased at an annual compound rate of growth of 11.9 percent over the same 10-year period. Although it is well known that payments for long-term care have accounted for an increasing proportion of total Medicaid spending (Ruther et al., 1986), recent analyses have shown that this trend is entirely attributable to the growth of the ICF/MR program, not to the increasing demand for nursing home care among elderly Medicaid beneficiaries (Burwell, 1987). In 1985, care in ICF's/MR accounted for 12.7 percent of total Medicaid spending, and the average annual cost per recipient in ICF's/MR was $32,960.

Despite the substantial impact that the ICF/MR program has had on Medicaid over the last decade, little information is available about where ICF/MR dollars are being spent, what factors account for the relatively high costs of care in ICF's/MR, and, perhaps most importantly, what types of client outcomes are being achieved with these resources. This study of developmentally disabled persons receiving care in ICF's/MR in three States uses a new Medicaid data base developed from State Medicaid Management Information Systems to describe the characteristics of ICF/MR recipients and their Medicaid utilization and expenditure patterns in 1982.

The ICF/MR benefit was added to the Medicaid program under the 1971 Amendments to the Social Security Act, with two major objectives. The first objective was to improve the quality of care provided to mentally retarded persons in State institutions. To receive Federal matching funds for services in ICF's/MR, States were required to bring their State institutions into compliance with federally established facility and treatment standards. The second objective was to establish a new Medicaid benefit specific to the needs of mentally retarded persons. Prior to 1971, several States had been successful in securing Federal matching funds by certifying their State institutions for the mentally retarded as intermediate care facilities (ICF's) or skilled nursing facilities (SNF's). Advocacy groups were concerned that the terms and conditions for qualifying long-term care facilities as ICF's and SNF's were inappropriate to the service needs of the developmentally disabled.

The opportunity to gain Federal financial participation (FFP) for the cost of operating their public institutions was a powerful incentive to States to bring those institutions into compliance with Federal ICF/MR standards. States made substantial financial investments to increase staffing ratios and services in their public institutions, and many also made significant capital investments to upgrade physical plants to comply with ICF/MR life safety and environmental standards (Gettings and Mitchell, 1980). Most of the growth in the ICF/MR program between 1975 and 1985 is attributable to the certification of State institutions for the retarded as ICF's/MR. Most of this growth occurred from 1975 through 1980, during which time the number of ICF/MR recipients increased from 68,700 to 129,750; and expenditures increased at an average annual rate of almost 47 percent, from $380 million to $2.6 billion. Since 1980, there has been a significant moderation in both utilization and expenditures, as most States had completed their process of certifying their public institutions by 1982 (Burwell, 1986).

Although the certification of publicly operated institutions as ICF's/MR has been the primary factor in the growth of the ICF/MR program, there has also been considerable development of small-scale, privately operated ICF's/MR. From 1977 through 1982, the number of ICF/MR beds in privately operated facilities increased from 13,312 to 31,974, an increase of 140 percent (Lakin, Hill, and Bruininks, 1985). The proportion of total ICF/MR beds in privately operated facilities increased from 12 percent to 23 percent over this period. Many of these privately operated ICF's/MR have been used as community placements for persons deinstitutionalized from State institutions. Thus, during the same time that States were certifying their public institutions as ICF's/MR,

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many States were making continuing efforts to move residents of their public institutions to community placements. Therefore, even though the total number of persons receiving care in ICF's/MR has been relatively stable since 1982, the ICF/MR system has continued to evolve, as beds in small-scale privately operated ICF's/MR have replaced beds in large-scale public institutions.

Currently, the ICF/MR program has become the subject of increasing policy debate. Although the influx of Federal dollars considerably improved the living conditions for mentally retarded persons in State facilities, there are continuing concerns about the quality of care provided in State-operated facilities (U.S. Congress, 1985). There appears to be an inherent conflict of interest in the fact that States own and operate most public institutions, yet they also establish their own ICF/MR reimbursement rates, and they are responsible for monitoring their own compliance with ICF/MR facility and treatment standards. In response to these concerns, the Health Care Financing Administration (HCFA) has recently implemented a series of "look behind" surveys to examine whether ICF/MR recipients are receiving care in accordance with Federal standards. To date, approximately 15 percent of all facilities surveyed have been notified of possible termination of FFP unless the facilities are brought into compliance. In sum, there is continuing controversy regarding both the client outcomes that facilities certified as ICF's/MR are expected to achieve for residents, and whether they are, in fact, being achieved, particularly as the cost of ICF/MR care has escalated.

There has also been continuing debate over the basic structure of the ICF/MR benefit. Many advocates contend that ICF/MR services are too closely tied to a medical model of care because they are part of the Medicaid program. There have been protracted administrative actions and litigation between States and HCFA regarding which services provided in ICF's/MR are eligible for Medicaid reimbursement and which are not. Specifically, these arguments have revolved around defining services that are educational, vocational, or socially oriented and not eligible for Medicaid reimbursement, versus those that are habilitative or rehabilitative and reimbursable. Further, although there has been a gradual shift in Medicaid ICF/MR resources from large institutions to community-based facilities, initiatives have been proposed to alter Federal financing incentives to accelerate this shift by phasing down FFP for large institutions while increasing FFP for community-based facilities and services. These policy proposals have been vigorously opposed by those who feel that State-operated facilities represent the most stable component of the residential care system for developmentally disabled persons. Block grants have also been proposed as a mechanism for increasing State flexibility in financing services for Medicaid-eligible mentally retarded persons, although the wide variation in current State expenditures for care in ICF's/MR (both on a nominal and per capita basis) is a major impediment to devising a block grant formula that would be equitable to all States.

In addressing these and other policy issues regarding the financing of services for developmentally disabled persons under Medicaid, policymakers lack basic descriptive information about the ICF/MR program. The current study responds to a demand for improved information about ICF/MR services and about the persons who receive these services.

Data sources and methods

The data in this study were generated from a Medicaid data base developed from the State Medicaid Management Information Systems (MMIS's) of selected States. This data base, commonly referred to as "Tape-to-Tape," has been developed by SysteMetrics/McGraw-Hill under contract to HCFA's Office of Research. The objective of the Tape-to-Tape Project has been to develop a uniform person-based data set that can be used for a wide variety of Medicaid-related research projects. Five States—California, Georgia, Michigan, New York, and Tennessee—are participating in the Tape-to-Tape Project.

State MMIS's are administrative record systems designed primarily to facilitate the accurate and timely payment of Medicaid claims submitted by providers. The Tape-to-Tape project essentially involves a massive extraction, recoding, and reformatting of State MMIS files. The following are primary attributes of the Tape-to-Tape data set:

- All data elements are uniform across States to facilitate cross-State comparisons.
- The data files are person-based, containing demographic, eligibility, service utilization, and expenditure data for each person per calendar year.
- The data set includes every person enrolled in Medicaid for the five States participating in the project.

Although five States are participating in the Tape-to-Tape Project, only three of the States were included in the study. New York was not included because its State MMIS does not contain data on the utilization of and expenditures in publicly operated ICF's/MR. The New York Office of Mental Retardation and Developmental Disabilities maintains its own system for reimbursing publicly operated ICF's/MR, separate from the State MMIS. Data were not available for 1982 from Tennessee. Therefore, the basis for inclusion of States was their participation in the Tape-to-Tape project and the availability of ICF/MR data, rather than their representativeness with regard to the ICF/MR program.

For this study, analysis files of ICF/MR recipients were constructed from the uniform Tape-to-Tape files of each of the three study States. From the uniform claims files, we first selected all claims for ICF/MR services. We then sorted the claims by recipient identification number and created person-level utilization and expenditures files for all ICF/MR recipients. The person-level claims files were then

Table 1
Number and percent distribution of Medicaid recipients in intermediate care facilities for the mentally retarded, by age: California, Georgia, and Michigan, 1982

Age	California		Georgia		Michigan	
	Number	Percent distribution	Number	Percent distribution	Number	Percent distribution
Total	10,173	100	1,787	100	4,271	100
0-5 years	187	2	4	0	13	0
6-12 years	482	5	86	5	101	2
13-18 years	1,329	13	268	15	344	8
19-34 years	5,646	55	955	53	2,290	54
35-64 years	2,511	25	461	26	1,372	32
65 years or over	18	0	13	0	151	4

NOTE: Excludes 31 recipients in California for whom age data were not available.

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations, Medicaid Tape-to-Tape project, uniform enrollment files, 1982.

linked to Tape-to-Tape enrollment files. Lastly, we selected summary records for non-ICF/MR services used by ICF/MR recipients. Tape-to-Tape files for calendar year 1982, the most recent year available at the time of the study, were used for the analysis.[1]

There are some limitations to the data presented in this article. State MMIS's do not usually have edit checks on fields that do not directly affect the payment of a Medicaid claim. This may affect the reliability of such variables as diagnosis codes and dates of admission to an ICF/MR. Given the policy interest in examining Medicaid utilization and cost by level of disability, we used diagnosis codes provided on claims for ICF/MR services to conduct analyses by client level of retardation: mild, moderate, severe, and profound. However, it was not possible to specify the level of retardation for 40 percent of ICF/MR recipients in Michigan, 64 percent in Georgia, and 92 percent in California. In most cases, this was because the diagnosis code on the claim form was missing or because the diagnosis provided was "mental retardation—unspecified." Analyses of California ICF/MR recipients by level of retardation are therefore excluded from this article. Although level of retardation data were missing for a substantial proportion of recipients in Georgia and Michigan, we have no reason to believe that these missing data have biased the results.

In California, there were ICF/MR claims for 1,277 individuals in the Tape-to-Tape uniform claims files for whom there was no eligibility record in the uniform enrollment files. These claims, representing about 11 percent of all recipients with ICF/MR claims in California, were excluded from the analysis. In contrast, only two persons in Georgia and one person in Michigan had ICF/MR claims but no eligibility record.

The total number of persons who received at least 1 day of ICF/MR care in the three States in 1982 was 16,262. California had the largest number of persons receiving care, 10,204; Michigan had 4,271; and Georgia had 1,787. On a per capita basis, Michigan had the highest rate of ICF/MR utilization, with 46.9 recipients per 100,000 State population, followed by California, with 41.3. Georgia had the lowest utilization rate, with 31.6 recipients per 100,000. Michigan also had by far the largest number of facilities certified as ICF's/MR in 1982, with 150, but 140 of these were community-based facilities with 15 or fewer beds (Lakin, Hill, and Bruininks, 1985). With a total of 4,002 ICF/MR beds, Michigan therefore had the lowest average number of beds (27) per facility. California had 37 facilities certified as ICF's/MR and 10,374 certified beds in 1982. Most of California's ICF/MR population resided in its State hospital system of eight publicly operated facilities. Georgia had only nine ICF's/MR containing 2,493 beds in operation in 1982, eight of which were State-owned facilities.

Characteristics of recipients

The age distribution of the ICF/MR recipient population is not representative of the U.S. population as a whole. The majority of recipients in all three States (53 percent) were young adults 19-34 years of age (Table 1). In contrast, only 28 percent of the entire U.S. population was in this age group in 1982. Although 29 percent of the U.S. population was under the age of 19 in 1982, only 17 percent of the ICF/MR population in the three study States were children. The small number of developmentally disabled children in ICF's/MR reflects concerted efforts in recent years to decrease the admission of children to these facilities and to increase discharge rates for children who have been placed in an ICF/MR. Since the enactment of the Education for All Handicapped Children Act (Public Law 94-142) in 1975, there has been increased availability of special education and supportive services for handicapped children in their local communities, which has substantially facilitated State efforts to reduce institutionalization rates for this age group.

There were also very few ICF/MR recipients 65 years of age or over. Although almost 12 percent of the U.S. population was elderly in 1982, California and Georgia both had only a few elderly ICF/MR recipients; and Michigan had less than 4 percent.

[1]The Tape-to-Tape data set will eventually encompass calendar years 1980 through 1988 for all participating States.

Possible reasons for these low ICF/MR utilization rates by elderly developmentally disabled persons will be discussed later.

Males were disproportionately represented in the ICF/MR population, comprising between 57 percent and 60 percent of all recipients. This distribution probably reflects the higher incidence of mental retardation among males in the general population. The distribution of ICF/MR recipients by race in Georgia and Michigan was close to their respective State distributions. California does not maintain data on the race of Medicaid enrollees on its MMIS system.

The number and percent distribution of ICF/MR recipients in Georgia and Michigan by level of retardation for those recipients for whom retardation level was specified are shown in Table 2. The data suggest that care in ICF's/MR is primarily targeted to the severely impaired. Over 80 percent of all recipients in Georgia and Michigan for whom level of retardation data were available were either severely or profoundly retarded. To greatly simplify definitions, severely retarded persons generally have IQ's between 20 and 35 (4-5 standard deviations below the mean), and profoundly retarded persons generally have IQ's below 20 (more than 5 standard deviations below the mean). Individuals in these groups have multiple significant developmental deficits.

Younger ICF/MR recipients were more likely to be severely or profoundly retarded than older recipients. In general, the older the age cohort, the lower the percent of recipients with severe or profound mental retardation. This trend may reflect the fact that there are older recipients with mild and moderate retardation in ICF's/MR who have been institutionalized for many years, but who would not be placed in an ICF/MR today. The trend also suggests that the case mix of the ICF/MR population is becoming more severe, as older, less disabled clients are discharged or die, and only the most severely disabled younger clients are admitted.

Table 2

Number and percent distribution of Medicaid recipients in intermediate care facilities for the mentally retarded, by level of retardation: Georgia and Michigan, 1982

Level of retardation	Georgia		Michigan	
	Number	Percent distribution	Number	Percent distribution
Total	639	100	2,594	100
Mild	26	4	149	6
Moderate	93	15	288	11
Severe	176	28	589	23
Profound	344	54	1,568	60

NOTE: Excludes 1,677 recipients in Michigan and 1,148 recipients in Georgia for whom level of retardation data were not available.

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations, Medicaid Tape-to-Tape project, uniform enrollment files, 1982.

Medicaid eligibility status

One distinction between care in ICF's/MR and other long-term care services covered by Medicaid is that Medicaid is essentially the sole payer of ICF/MR services. Approximately one-half of all aged and disabled persons receiving long-term care in nursing homes certified as intermediate care facilities and skilled nursing facilities are not covered by Medicaid. They pay for their care either through private resources or through other third parties. In contrast, almost every resident of an ICF/MR is a Medicaid recipient. This is partly because in most States, under Supplemental Security Income (SSI) and Medicaid eligibility rules, the income of parents is not deemed to be available to ICF/MR residents beyond the first month of institutionalization.[2] Thus, regardless of the income status of the parents, developmentally disabled children generally become eligible for Medicaid immediately upon their first full month in an ICF/MR, even if they were not Medicaid-eligible prior to admission. SSI and Medicaid deeming rules only apply to developmentally disabled children under the age of 18, however, because parental income is no longer deemed available to SSI applicants once they reach the age of 18, regardless of whether they live with their parents or not.

Like all Medicaid recipients, those in ICF's/MR must also meet categorical eligibility requirements, that is, they must be aged, blind or disabled, or live in households receiving Aid to Families with Dependent Children. In all three States, at least 97 percent of ICF/MR recipients were categorically eligible for Medicaid under SSI disability criteria. Persons with IQ's under 59 automatically qualify as disabled under SSI categorical requirements. Persons with IQ's above 59 must demonstrate mental or physical incapacities that significantly limit their ability to be employed.

Recipients in ICF's/MR who have no source of countable income are eligible for a small SSI cash assistance payment to cover their personal needs (generally $25 per month). As shown in Table 3, most ICF/MR recipients qualify for this SSI cash assistance payment. However, a significant proportion of ICF/MR recipients do have their own sources of income, and they are therefore categorized as noncash recipients. In Georgia, 36.0 percent of recipients were noncash recipients; in California, 36.8 percent; and in Michigan, 44.8 percent. These persons are required to contribute all income in excess of the personal needs allowance to the cost of their care.

[2]In rare instances, care in ICF's/MR may be covered by an extremely comprehensive health benefit plan, but, in most cases, there is no private insurance for this type of care. There may also be a few residents in ICF's/MR who do not qualify for Medicaid benefits for reasons unrelated to categorical or financial criteria (e.g., if they are not U.S. citizens). Finally, section 209(b) States may apply more restrictive deeming criteria than are applied under SSI, which may delay Medicaid eligibility for some recipients in ICF's/MR beyond the first month of institutionalization, but none of our study States were section 209(b) States.

Table 3

Percent distribution of Medicaid recipients in intermediate care facilities for the mentally retarded, by cash assistance status: California, Georgia, and Michigan, 1982

Cash assistance status	California	Georgia	Michigan
Supplemental Security Income cash recipients	63.2	64.0	55.2
Noncash recipients	36.8	36.0	44.8

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations, Medicaid Tape-to-Tape project, uniform enrollment files, 1982.

As shown in Table 4, about one-third of all recipients in the study were Medicare crossovers, which in turn indicates that they were recipients of Social Security Disability Insurance (SSDI).[3] Mentally retarded persons can qualify for SSDI payments, even though they have never worked, under the category of "adult disabled children." Adult disabled children of retired or deceased social security beneficiaries qualify for SSDI benefits, even though they have never contributed to the Social Security program, as long as their disability began before the age of 22. Thus, ICF/MR recipients are eligible for SSDI benefits and Medicare coverage if they are the dependents or survivors of social security beneficiaries, and they remain eligible for these benefits for the remainder of their lives.

Because mentally retarded persons do not become eligible for SSDI and Medicare until their parents retire or are deceased, those recipients eligible for both Medicaid and Medicare were generally older than recipients who were eligible for only Medicaid, as also shown in Table 4. Less than 5 percent of recipients under 19 years of age were Medicare crossovers, compared with the almost two-thirds of recipients in the age group 35-64 years who received services at least partly paid for by Medicare.

Medicaid utilization and expenditure patterns

Medicaid utilization and expenditure patterns of recipients in ICF's/MR are dominated by the use of ICF/MR services. In the three study States, most recipients of ICF/MR services were in an ICF/MR for the entire year. In 1982, California recipients averaged 325 covered days of ICF/MR care; Georgia recipients averaged 335 covered days; and Michigan recipients, 318 days. In other words, ICF/MR recipients averaged about 11 months of covered care in California and Georgia and more than 10 months of coverage in Michigan.

[3]State Medicaid programs have the option of covering coinsurance and deductibles for Medicaid recipients who are also eligible for Medicare. When a claim for a Medicare coinsurance or deductible amount has been paid by Medicaid, that recipient is identified on the State MMIS as a Medicare crossover. The Tape-to-Tape files slightly underestimate the number of Medicaid recipients who are eligible for Medicare, because they cannot identify dual enrollees who did not have a Medicare claim that included a deductible or coinsurance amount paid by Medicaid.

Table 4

Proportion of Medicaid recipients in intermediate care facilities for the mentally retarded who were Medicare crossovers, by age: California, Georgia, and Michigan, 1982

Age	Proportion of crossovers
Total	.34
0-5 years	.01
6-12 years	.02
13-18 years	.04
19-34 years	.27
35-64 years	.65
65 years or over	.79

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations, Medicaid Tape-to-Tape project, uniform enrollment files, 1982.

Table 5

Percent distribution of Medicaid recipients in intermediate care facilities for the mentally retarded, by number of years since most recent admission: California and Michigan, 1982

Years since most recent admission	California	Michigan
	Percent distribution	
Total	100.0	100.0
Less than 1 year	9.2	17.5
1 year to less than 3 years	16.4	30.9
3 years to less than 12 years	45.2	25.2
12 years to less than 22 years	20.7	11.4
22 years or more	8.6	15.1

NOTE: Assumes that all admissions occurred on January 1 of reported admission year.

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations, Medicaid Tape-to-Tape project, uniform enrollment files, 1982.

Not all days of ICF/MR coverage represent actual days on which recipients were residing in an ICF/MR. Part of the coverage is to reserve a bed for residents who are on leave from ICF's/MR. Leave days may include weekends and holidays that recipients spend at home with their families, short-term hospitalizations for an acute illness episode, or, for example, days spent at an organized summer camp for developmentally disabled persons. Each State Medicaid program has its own policies on allowed payments for leave days. In California, Medicaid will pay up to 73 leave days annually per recipient for home visits or participation in an organized summer camp and up to 7 days for each acute hospitalization.

Leave patterns were similar across the three study States. The average number of leave days per recipient annually was 13, 15, and 12 in Georgia, Michigan, and California, respectively. Thus, leave days constituted between 3 percent and 5 percent of all ICF/MR paid days. The distribution of leave days was highly skewed; about 5 percent of recipients in each State had 100 or more leave days that met the requisite criteria for Medicaid payment.

Data presented in Table 5 are on the number of years during which ICF/MR recipients in California and Michigan had been residing in their current facility. These data were obtained by using ICF/MR admission dates contained on ICF/MR claims and retained on the uniform Tape-to-Tape files. Admission dates were not available for recipients in Georgia. In both States, 25-30 percent of recipients had lived in the same facility for at least 12 years. Although the data suggest that California's ICF/MR population had been continuously institutionalized for longer periods than Michigan's ICF/MR population, this may be partly attributable to the fact that there is a higher rate of transfer between ICF's/MR in Michigan. Because the data presented in Table 5 do not reflect transfers between ICF's/MR, the data underestimate total years of continuous institutionalization among the ICF/MR population.

Like all Medicaid enrollees, mentally retarded persons in ICF's/MR are eligible for other medical services covered in the State Medicaid plan. Shown in Table 6 are the average number of hospital days and physician visits for ICF/MR recipients in 1982. Hospital utilization rates were 30-38 percent higher among ICF/MR recipients in California and Georgia than among those in Michigan. On the other hand, recipients in California and Michigan were higher users of physician services than recipients in Georgia. Not surprisingly, these levels of acute care use are considerably lower than among SSI disabled recipients who were not in ICF's/MR, also shown in Table 6.

We believe three factors largely account for these low utilization levels of acute care services among the ICF/MR population. First, many ICF's/MR offer medically oriented services to residents within the ICF/MR itself. For example, the costs of routine medical care, specialized therapies, and other ancillary services are often included within the ICF/MR reimbursement rate. Second, ICF/MR recipients who are still covered under their parents' health benefit plans may have other third-party coverage for acute care services, because Medicaid is the payer of last resort when recipients have alternate health insurance coverage. However, the extent of such coverage cannot be estimated from the Tape-to-Tape data set. Third, a higher proportion of ICF/MR recipients than of the non-ICF/MR disabled population are also eligible for Medicare, which would reduce Medicaid utilization rates of services also covered by Medicare.

Expenditure patterns

Care in ICF's/MR is a costly Medicaid benefit. As shown in Table 7, the average annual Medicaid payment per recipient in 1982 ranged from a low of $26,617 in Georgia to a high of $36,128 in Michigan. ICF/MR expenditures per recipient were $26,943 in California. The national average in 1982 was $26,415. Variation in average ICF/MR costs per recipient reflects two factors: differences in days-of-care per recipient and differences in cost per day. There was greater variation in the average Medicaid payment per day across the three States than in the average number of ICF/MR days used. ICF/MR payments per day varied 43 percent, from a high of $113.65 in Michigan to a low of $79.40 in Georgia. In contrast, average days of care per recipient varied less than 10 percent across the three States.

The cost of ICF/MR care varied by age and level of disability. In California and Georgia, the cost per day of care for children under 6 years of age was higher than for any other age group. In Michigan, these children were the least expensive group. In Georgia and Michigan, where level of retardation data were available, average annual costs for profoundly retarded clients were about 30 percent higher than for mildly retarded clients. In this case, differences in average annual costs were entirely attributable to differences in utilization, not to differences in average daily cost. A day of care in ICF's/MR for profoundly retarded clients cost no more or less than for mildly retarded clients. Across the three States, higher ICF/MR costs per recipient in Michigan held up across all age groups and disability levels.

Shown in Table 8 are data on total Medicaid expenditures for recipients in ICF's/MR. In all three

Table 6

Average annual utilization of hospital and physician services for Medicaid recipients in intermediate care facilities for the mentally retarded (ICF/MR) and Supplemental Security Income (SSI) disabled: California, Georgia, and Michigan, 1982

	California		Georgia		Michigan	
Services	ICF/MR recipients	All SSI disabled	ICF/MR recipients	All SSI disabled	ICF/MR recipients	All SSI disabled
Hospital days	1.3	2.6	1.1	4.1	0.9	3.6
Physician visits	4.5	5.5	0.5	3.7	2.6	9.3

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations, Medicaid Tape-to-Tape project, uniform enrollment files, 1982.

Table 7

Average annual Medicaid costs, days of care, and Medicaid payment per day of care for recipients in intermediate care facilities for the mentally retarded (ICF/MR): California, Georgia, and Michigan, 1982

State	Average annual Medicaid cost per recipient	Average annual days of care per recipient	Average Medicaid payment per day of ICF/MR care
California	$26,943	325	$82.63
Georgia	26,617	335	79.40
Michigan	36,128	318	113.65

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations, Medicaid Tape-to-Tape project, uniform enrollment files, 1982.

Table 8

Average annual Medicaid costs per recipient in intermediate care facilities for the mentally retarded (ICF/MR), by type of service: California, Georgia, and Michigan, 1982

Type of service	California	Georgia	Michigan
Total Medicaid	$28,019	$27,028	$36,606
ICF/MR care	26,943	26,617	36,128
Hospital inpatient	621	176	201
SNF or ICF[1] care	92	183	148
Hospital outpatient	22	2	7
Physician services	122	10	34
Clinic services	3	1	1
Drugs	78	29	70
Dental	19	2	2
Other services	119	8	15

[1]Skilled nursing facility or intermediate care facility.

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations, Medicaid Tape-to-Tape project, uniform enrollment files, 1982.

Table 9

Average annual Medicaid expenditures for acute care services per recipient in intermediate care facilities for the mentally retarded, by age group: California, Georgia, and Michigan, 1982

Age	California	Georgia	Michigan
0-5 years	$7,871	$1,028	$2,227
6–12 years	2,057	336	894
13-18 years	2,002	359	525
19-34 years	683	215	340
35-64 years	407	154	205
65 years or over	324	154	205

NOTE: Excludes expenditures for care in skilled nursing facilities or intermediate care facilities.

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations, Medicaid Tape-to-Tape project, uniform enrollment files, 1982.

States, the cost of ICF/MR care alone accounted for at least 96 percent of total Medicaid costs for recipients in ICF's/MR. Although use of other Medicaid services among recipients was in general low, utilization and expenditures for acute care services varied significantly by age group. Younger recipients, particularly those under 6 years of age, were relatively high users of acute care (Table 9), particularly in California. Costs for acute care services declined with each successive age cohort. In all three States, about 2 percent of ICF/MR recipients accounted for over one-half of all expenditures for acute care services. These data suggest that although ICF/MR recipients as a whole do not use many other Medicaid-covered services, there is a small percent of recipients who are high utilizers of acute care services in addition to their use of ICF/MR care, and that these high utilizers tend to be children.

Recipients who were Medicare crossovers also had lower expenditures for acute care than recipients who were only eligible for Medicaid, as shown in Table 10. Lower expenditures for crossover recipients are confounded by age differences because, as previously

Table 10

Average annual Medicaid expenditures for acute care among recipients in intermediate care facilities for the mentally retarded, by Medicare crossover status: California, Georgia, and Michigan, 1982

Status	California	Georgia	Michigan
	Average acute care costs		
Medicare crossovers	$214	$148	$84
Medicaid coverage only	1,319	295	355

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations, Medicaid Tape-to-Tape project, uniform enrollment files, 1982.

Table 11

Medicaid spend-down liabilities for recipients in intermediate care facilities for the mentally retarded: California and Michigan, 1982

State	Spend-down liability		Total 1982 liability amounts in millions	Average liability per spend-downer
	Number	Percent		
California	3,714	36.4	$10.1	$2,728
Michigan	1,995	46.7	5.2	2,542

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations, Medicaid Tape-to-Tape project, uniform enrollment files, 1982.

discussed, Medicare crossovers tended to be older, whereas younger recipients had the highest acute care costs. However, even within age groups, Medicare coverage substantially reduced Medicaid payments for non-ICF/MR services. Conversely, higher acute care costs for younger ICF/MR recipients were not attributable to lack of Medicare coverage.

Recipient contributions

As previously discussed, ICF/MR recipients are required to contribute any income in excess of the personal needs allowance to the cost of their care. These contributions are called Medicaid spend-down liabilities. Spend-down liability amounts were available from two of the three Tape-to-Tape States (California and Michigan) and are presented in Table 11. Eighty percent of recipients in California and 70 percent in Michigan who had a spend-down liability were Medicare crossovers, indicating that their primary source of income was probably SSDI benefits. This conclusion is further supported by the fact that the average annual liability amount per recipient was about equal to the difference between the annual personal needs allowance of $300 and the average annual SSDI payment made to adult disabled children in 1982 (Social Security Administration, 1983). The remaining 20-30 percent of recipients with a spend-down liability presumably had income from sources other than SSDI, such as trust funds or supported work programs.

Table 12

Number and percent distribution of Medicaid recipients in intermediate care facilities for the mentally retarded, by movement status: California, Georgia, and Michigan, 1982

Movement status	California		Georgia		Michigan	
	Number	Percent distribution	Number	Percent distribution	Number	Percent distribution
Total	10,204	100.0	1,787	100.0	4,271	100.0
Stayer	7,646	74.9	1,433	80.2	3,073	72.0
Admission	669	6.6	100	5.6	221	5.2
Discharge	833	8.2	161	9.0	567	13.3
Admission-discharge	238	2.3	23	1.3	153	3.6
Discharge-admission	352	3.4	28	1.6	104	2.4
Other	466	4.6	42	2.3	153	3.6

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations, Medicaid Tape-to-Tape project, uniform enrollment files, 1982.

Table 13

Resident movement of Medicaid recipients in intermediate care facilities for the mentally retarded, by age: California, Georgia, and Michigan, 1982

Age	Total recipients	Percent stayers	Net admissions (+) or discharges (−)	Percent change during 1982
Total	16,231	78.0	−561	−3.8
0-5 years	204	37.9	+27	+22.0
6-12 years	669	64.5	0	0.0
13-18 years	1,941	72.5	−29	−1.7
19-34 years	8,891	80.9	−348	−4.2
35-64 years	4,344	79.1	−178	−4.4
65 years or over	182	67.4	−33	−19.9

NOTE: Excludes 31 recipients in California for whom age data were not available.

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations, Medicaid Tape-to-Tape Project, uniform enrollment files, 1982.

Although these spend-down liability amounts are significant, they represented only a small percent of total ICF/MR costs. Client contributions to the cost of their care represented only about 3 percent of total payments to ICF/MR providers in both States. The remaining 97 percent was paid by Medicaid.

Resident movement

One of the major attributes of the Tape-to-Tape data set is its potential for longitudinal analysis. By tracking the sequence of Medicaid claims for individual enrollees over time, one can construct retrospective histories of utilization and cost for various Medicaid cohorts. In this study, such an analytical approach was used to describe resident movement in and out of the ICF/MR system. Using dates of service contained on ICF/MR claims, criteria were established to divide the ICF/MR population into six "movement" categories. The specific criteria employed are presented in the Technical Note at the end of the article. The six categories were as follows:

Stayers—Persons who were in an ICF/MR for all of 1982.

Admissions—Persons admitted to an ICF/MR in 1982 and who were still in an ICF/MR at the end of the year.

Discharges—Persons who were discharged during 1982 and not readmitted.

Admissions-discharges—Persons who were first admitted, then discharged (even if they were again readmitted).

Discharges-admissions—Persons who were discharged and then readmitted.

Others—Persons who did not meet the criteria for any of the above categories.

As shown in Table 12, 70 to 80 percent of recipients in all three States were in an ICF/MR for the entire year of 1982. Only 17 to 25 percent of recipients were admitted to or discharged from an ICF/MR (or both) during the year.[4] Michigan had the lowest proportion of admissions and the highest proportion of discharges. California had the highest rate of admissions and the lowest rate of discharges. Georgia's ICF/MR population was the least dynamic in terms of resident turnover: over 80 percent of all ICF/MR residents were persons who stayed in an ICF/MR for the entire year.

The highest turnover rate occurred among recipients under 6 years of age. As shown in Table 13, only 38 percent of the 204 recipients in this age group were in an ICF/MR for the entire year. However, as also shown in Table 13, this age cohort was the only group in which there was a net increase in recipients. From January to December of 1982, the number of recipients under 6 years of age increased from 123 to 150, a net increase of 27. This increase was primarily

[4]Note that persons who transferred between ICF's/MR did not necessarily qualify as movers, because the criteria were used to describe movement in and out of certified ICF's/MR.

attributable to California, which accounted for 25 of 27 net admissions.

Although recipients under 6 years of age represent only 1 percent of the total ICF/MR population, this finding is of interest because it suggests a possible reversal of previous trends. Through the 1970's, the most dramatic reductions in the ICF/MR population occurred among children (Lakin, Hill, and Bruininks, 1985). The findings of this study suggest that the number of children in ICF's/MR may now be on the increase. Because the increases reported in this study may have been attributable to the development of new ICF's/MR specifically for young children, not to real increases in the number of persons of this age in residential care, we discussed this finding with the California Department of Developmental Services. California reported that no new specialized ICF's/MR for children in this age group opened in 1982, and felt that our reported increase in the number of recipients under 6 years of age was accurate (California Department of Developmental Services, 1986).

Transition in and out of ICF's/MR was also associated with level of retardation. Among those recipients in Michigan and Georgia for whom level of retardation data were available, only 53 percent of mildly and moderately retarded clients were in an ICF/MR for the entire year, compared with 63 percent of severely retarded clients and 73 percent of profoundly retarded clients.

In addition to having the greatest movement in and out of its ICF/MR system, Michigan also had the greatest rate of transfer within its ICF/MR system. Almost 10 percent of all recipients in Michigan received care from more than one ICF/MR provider, compared with 3.6 percent in Georgia and 1.4 percent in California. This is partly explained by the fact that Michigan had by far the largest number of facilities certified as ICF's/MR in 1982 (150) compared with 37 in California and only 9 in Georgia. Michigan was one of the few States to develop small-scale ICF's/MR in addition to converting their large State-owned institutions to ICF's/MR. Of the 150 ICF's/MR that Michigan had in operation in 1982, 140 had 15 beds or less. The higher transfer rate in Michigan reflects this State's commitment to move recipients out of large-scale public ICF's/MR into small-scale community-based ICF's/MR.

Medicaid expenditures by movement status

Persons in ICF's/MR for the entire year accounted for 84 percent of all ICF/MR days and 83 percent of total expenditures for ICF/MR care, but movers were also relatively high users of this type of care. The average ICF/MR cost for stayers was $33,547. Persons receiving ICF/MR care for less than the entire year still averaged 208 days of care per recipient and cost an average of $19,962 per recipient.

As shown in Table 14, non-ICF/MR Medicaid expenditures were considerably higher for movers than stayers. Of particular interest is the relatively high use of SNF care among both admissions and discharges in all three States. For example, persons discharged from ICF's/MR in Georgia averaged 39 days of SNF care in addition to their 188 days of ICF/MR care. These data suggest that there is a considerable amount of transition between SNF's and ICF's/MR in all three States, and that a substantial proportion of discharges are not from ICF's/MR to community settings, but the transfer of recipients to SNF levels of care. These discharge patterns may partly explain the low levels of ICF/MR use among persons 65 years of age and over.

Hospital utilization was highest among those recipients with repeated ICF/MR admissions and discharges. These data further suggest substantial movement between ICF's/MR and acute hospitals, particularly in California. As previously discussed, there was a small minority of persons in California with extremely high expenditures for acute hospital care over and above their expenditures for ICF/MR services.

Table 14

Number of recipients and average annual ICF/MR and other Medicaid costs for stayers and movers, by type of service: California, Georgia, and Michigan, 1982

State and movement status	Number of recipients	Type of service			
		ICF/MR[1] care	Hospital inpatient	SNF or ICF[2] care	Other services
California					
Stayers	7,646	$29,815	$179	$0	$479
Movers	2,588	17,820	1,913	360	880
Georgia					
Stayers	1,433	28,897	91	0	86
Movers	354	17,390	524	923	230
Michigan					
Stayers	3,073	41,373	92	0	233
Movers	1,198	22,673	480	526	414

[1] Intermediate care facilities for the mentally retarded.
[2] Skilled nursing facilities or intermediate care facilities.

SOURCE: Health Care Financing Administration, Office of Research and Demonstrations, Medicaid Tape-to-Tape project, uniform enrollment files, 1982.

Also shown in Table 14 are the different utilization patterns across the three States. Care in ICF's/MR in Michigan was clearly more costly than that in Georgia or California. However, recipients in California had higher costs for other Medicaid services, particularly hospital care. From this pattern, one might hypothesize that the higher costs of ICF/MR care in Michigan may have an effect on reducing utilization of acute hospital services among recipients. However, this hypothesis is not supported by the case of Georgia, where costs for non-ICF/MR services were similar to those of recipients in Michigan.

Discussion

The potential of using State MMIS data to describe Medicaid utilization and expenditure patterns of developmentally disabled persons in facilities certified as ICF's/MR is demonstrated in this study. MMIS eligibility and claims files were used to construct person-based files of all users of ICF/MR care in California, Georgia, and Michigan in calendar year 1982.

Care in ICF's/MR is primarily used by developmentally disabled persons over 18 years of age and under 65 with severe or profound mental retardation. Because of the increased availability of local education programs and community services, ICF/MR placement rates for developmentally disabled children are much lower now than in the past. It also appears that care in ICF's/MR is not the preferred care option for elderly developmentally disabled persons. The data presented in this study suggest that many elderly ICF/MR recipients may be transferred to skilled nursing facilities. Because ICF/MR care is required to include active treatment for developmental disabilities, States may not consider elderly clients appropriate for active treatment.

The ICF/MR population is relatively stable. Eighty-four percent of all paid ICF/MR days were used by persons who were in an ICF/MR from January 1 through December 31, 1982. The average length of stay for all recipients was 321 days. However, between 20 and 30 percent of all users of ICF/MR care in the three States were in an ICF/MR for less than the entire year. These persons tended to be younger and less disabled than recipients who were institutionalized for the entire year. In all three States, there was a net decrease in recipients during 1982. Overall, there was a higher rate of transition in and out of ICF's/MR and of transfers between ICF's/MR in Michigan than in either California or Georgia.

The average cost of ICF/MR care per recipient was $26,943 in California, $26,617 in Georgia, and $36,128 in Michigan. Differences in ICF/MR costs across the three States were primarily attributable to differences in ICF/MR reimbursement rates, not to differences in utilization per recipient. No evidence emerged that higher ICF/MR costs per day in Michigan were attributable to differences in the characteristics of the ICF/MR population. Our conclusion is that the higher cost of care in Michigan is attributable either to differences in the level of services provided in ICF's/MR (intensity) or to unit cost differences for the same level of service. During the time period under study, Michigan was in a transitional period as residents were moved out of large-scale ICF's/MR into community-based ICF's/MR. Part of the high cost of care in Michigan may result from the fact that the fixed costs of operating the State-owned institutions were being spread over fewer and fewer clients, because the institutions remained open at the same time that community-based facilities were increased significantly in number.

Compared with other disabled Medicaid recipients, recipients in ICF's/MR were relatively low utilizers of all Medicaid services except ICF/MR care. These low utilization levels may be related to the fact that most recipients are in ICF's/MR for most of the time, and they may receive both preventive and remedial medical care under the rubric of the ICF/MR daily rate. Additionally, the fact that at least 30-45 percent of all recipients in our study were also eligible for Medicare effectively reduced Medicaid costs for non-ICF/MR services. Given that the cost of care in ICF's/MR alone accounted for over 96 percent of total Medicaid expenditures for persons who receive ICF/MR services suggests that future analyses should focus on the cost-effectiveness of services provided within ICF's/MR and on whether differences in ICF/MR reimbursement rates across States and facilities can be associated with different client outcomes.

Our analyses did identify a subgroup of ICF/MR recipients who were very high users of acute Medicaid services. For example, there were about 200 ICF/MR users in California who averaged almost $30,000 in acute care services beyond the costs of their ICF/MR care. Many of these high users were developmentally disabled children under 6 years of age. This was also the only age group in which the number of recipients appears to be increasing. These findings suggest that developmentally disabled children under 6 years of age are a high-user population warranting further study.

A number of avenues for further research on ICF/MR recipients with the Tape-to-Tape data set are possible. ICF/MR utilization and expenditure patterns could be examined across various types of facilities certified as ICF's/MR (e.g., large versus small, publicly operated versus privately operated). More detailed analysis of resident movement in and out of ICF's/MR could also be conducted, for example, by focusing on pre-admission utilization patterns and/or post-discharge patterns. Multiple years of Tape-to-Tape files could be linked together to describe movement patterns over longer time periods. Links with Medicare claims files could also be made to examine total public health costs for persons receiving care in ICF's/MR.

A limitation of the Tape-to-Tape data set is the limited amount of client characteristics data maintained on State MMIS's. Data maintained on

MMIS's are generally limited to information used in the eligibility determination process: age, sex, categorical status, income, etc. More detailed information concerning the specific developmental, functional, and behavioral characteristics of developmentally disabled persons receiving care in ICF's/MR would be useful in explaining variations in Medicaid use and costs. For example, the California Department of Developmental Services maintains automated data files of over 70,000 persons receiving State-funded services called the Client Developmental Evaluation Record. These files provide a rich data source of client characteristics information that could be linked with the Tape-to-Tape data set at the person level. These types of linked files could be used to develop new methods of financing services to the developmentally disabled that more closely tie Medicaid payment rates to the specific needs and characteristics of individual clients.

Exploration of the above issues was beyond the scope of the present inquiry. Future research in this area, using the Tape-to-Tape data set in conjunction with other data sources, is needed to add to our understanding of the ICF/MR benefit.

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Technical note

Criteria for establishing mover groups

The following four data elements on the Tape-to-Tape uniform files for ICF/MR recipients were used as criteria for dividing all users of ICF/MR care in 1982 in the three study States into mover groups.

- The first date of service for ICF/MR care in 1982.
- The last date of service for ICF/MR care in 1982.
- The total number of ICF/MR days for which claims were paid.
- The total number of leave days used by a recipient during the year.

Using these four data elements, criteria were developed for six mover groups in the following manner:

Stayers—The first date of service was on or before January 4, 1982; the last date of service was on or after December 21, 1982; and there were no more than 14 missing days between the first and last date of service. Missing days equalled the difference between the total number of calendar days between the first and last date of service and the sum of ICF/MR days of care plus leave days. The reason the dates January 4 and December 21 were used instead of January 1 and December 31 is that it was assumed that some recipients would be on leave during the holiday season; and although the Tape-to-Tape files include the total number of leave days used by a recipient, the exact dates on which leave days were taken are not on the files.

Admissions—The first date of service was after January 4, 1982; the last date of service was on or after December 21, 1982; and the total number of missing days between the first date of service and the last date of service was not greater than 14.

Discharges—The first date of service was on or before January 4, 1982; the last date of service was prior to December 21, 1982; and the number of missing days of care between the first and last dates of service was not greater than 14.

Admissions-discharges—The first date of service was after January 4, 1982; and the last date of service was prior to December 21, 1982; or the person met the criteria as an admission except that there were more than 30 missing days between the first date of service and the last date of service. (Persons in this latter group would really be admissions-discharges-admissions but were included in the admissions-discharges group.)

Discharges-admissions—The first date of service was on or before January 4, 1982; and the number of missing days of care between the first and last dates of service was greater than 30.

Others—Persons who did not meet the criteria for any of the foregoing categories. In all cases, these were persons who had between 15 and 30 missing days of care between the first and last dates of service.

The primary element of arbitrariness in the classification of mover groups was in the development of decision rules about missing days of care between the first and last dates of ICF/MR care. Missing days could either be days on which a person remained in an ICF/MR, but for some reason claims for those days were not paid, or a temporary discharge from an ICF/MR, followed by a readmission. (Remember that leave days are not missing days.) Persons in ICF's/MR may have noncovered days because of temporary lapses in eligibility, State spend-down procedures, temporary absences from the facility that do not meet the requisite criteria for leave days, and so on. On the other hand, missing days between the first and last dates of service for ICF/MR care could also signify a real but temporary discharge from the

facility. This can occur, for example, if an attempt at community placement of a recipient has been made that was unsuccessful for one reason or another, and the recipient then had to be readmitted.

Consequently, decision rules were made that if a recipient had less than 15 missing days of ICF/MR care between the first and last date of service it was assumed that a discharge-readmission had not occurred and that the missing days were simply uncovered days within the ICF/MR. If there were more than 30 missing days of care between the first and last date of service, it was assumed that a discharge and readmission had occurred. If the number of missing days of care was between 15 and 30 days, persons were placed into the "Other" category, unless the recipient also met the criteria for an admission-discharge.

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