POLICY ANALYSIS SERIES

ISSUES RELATED TO WELSCH v. LEVINE / NO. 15

AN UPDATE TO POLICY ANALYSIS SERIES NO. 4:

COST FUNCTION ANALYSIS OF MINNESOTA INTERMEDIATE CARE FACILITIES FOR MENTALLY RETARDED (ICF-MR) PER DIEMS: 1980

I. INTRODUCTION

In September, 1981, the Developmental Disabilities Program published a study of Minnesota's community-based ICF-MR per diem costs (*Policy Analysis Paper No. 4*, 1981). That study was based upon 1979 data and attempted to identify some of the factors which influence the cost of community-based residential services for people with mental retardation and other developmental disabilities. The current study uses data from calendar year 1980 and is an update to the earlier cost function analysis. A third cost study of ICF-MR per diem rates using 1981 data is forthcoming.

Cuts in federal programs and state budget difficulties make such analyses imperative. More and more, cost is becoming a central issue in both the provision of existing programs and the development of new services. Identifying factors which influence the cost of programs will enable policy makers and service providers to plan more effectively and use resources more efficiently; it will also enable them to assess more accurately the relative merits of alternative models of service delivery.

The importance of identifying the cost implications of community-based services for developmentally disabled people is underscored by several factors. Among these are: (1) the *Welsch v. Noot* Consent Decree (1980) mandate to further reduce the number of mentally retarded people living in state institutions; (2) the continuing increase in the number of community-based ICF-MRs; (3) the "double-funding" dilemma of maintaining both a state hospital system and a community-based system of services; and (4) the emergence of alternative, cost-efficient models of residential care such as specialized adult foster care, semi-independent living services (SILS), and family subsidy and support programs.

II. ICF-MRs IN MINNESOTA

Intermediate Care Facilities-Mental Retardation (ICF-MR) are licensed under Department of Public Welfare (DPW) Rule 34 standards. They are also licensed by the Department of Health as supervised living facilities (SLFs) to provide food, care, and lodging on a 24-hour basis.

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ICF-MRs are supported primarily by the federal Medicaid (Title XIX) program and are reimbursed under DPW Rule 52.

Since the early 1960s, Minnesota has gradually increased the capacity of its community-based residential care system. Twenty years ago there were approximately 100 people living in Minnesota's five group homes. As of September, 1982, there were 306 ICF-MR facilities in the state with a total licensed capacity of 4,830.

While the number of community-based ICF-MRs has steadily increased during the past several years, the number of mentally retarded people residing in state hospitals has been declining. Table 1 and Figure 1 illustrate this gradual shift in emphasis within Minnesota's system of residential care--decreasing bed capacity within state hospitals; increasing capacity of community-based ICF-MR facilities. Figure 1 also shows an increase in Minnesota's overall ICF-MR certified bed capacity--from approximately 6,000 in 1975 to 7,500 in 1982--despite the recent closing of two state hospitals. Today, more than 1 out of 3 (35.7%) ICF-MR certified beds is located in a state hospital. Seven years ago, institutions accounted for over three-fourths (76.2%) of the ICF-MR certified bed capacity in the state.

Table 1
ICF-MR Certified Bed Capacity Of Minnesota Public and Community-Based Residential Care Facilities: 1975 through 1982

YEAR	STATE HOSPITALS		COMMUNITY ICF-MRS		TOTAL ICF-MR CERTIFIED LICENSED CAPACITY
	Licensed Capacity	Percent of Total	Licensed Capacity	Percent of Total	
1975	4,499	76.2	1,409	23.8	5,908
1976	3,717	62.3	2,252	37.7	5,969
1977	3,540	55.9	2,792	44.1	6,332
1978	3,523	49.6	3,583	50.4	7.106
1979	3,543	49.4	3,624	50.6	7,167
1980	3,079	42.8	4,117	57.2	7,196
1981	3,056	40.4	4,507	59.6	7,563
1982 (Mar)	2,679	36.5	4,659	63.5	7,338
1982 (Sep)	2,679	35.7	4,828	64.3	7,507

SOURCES: Division of Health Systems, 1975 through 1982; DPW Rule 52 cost reports, 1980 and 1981; Social Services Division, 1975 through 1981; Department of Public Welfare, 1977 and 1981.

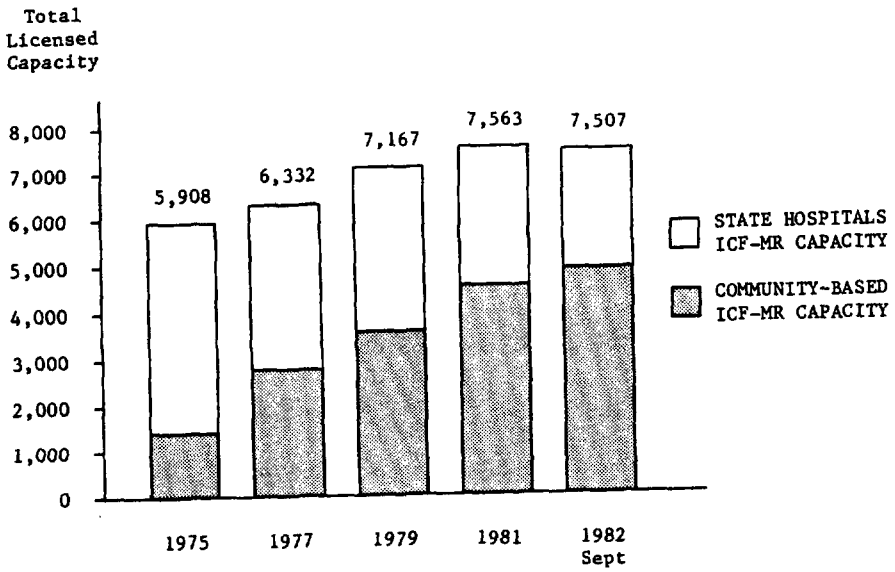

Figure 1. Changes in Minnesota's Public and Community-Based ICF-MR Certified Bed Capacity: 1975 through 1982

Over one-third (34.1%) of the approximately 246 community facilitities operating during 1980 were licensed to serve six or fewer residents. An additional 72 facilities (29.3%) were licensed to serve seven to twelve people. Over one-third (N = 90; 36.6%) of the facilities operating in 1980 had 13 or more residents.

Most people living in community ICF-MRs reside in larger facilities. While one-third of the ICF-MR facilities in Minnesota in 1980 were small, six-person homes, they accounted for only 11.9% of the state's total community ICF-MR capacity. Conversely, the ten largest facilities represented only 4.1% of the total number of facilities in 1980, but accounted for nearly 1 out of every 4 community ICF-MR beds. Table 2 and Figure 2 show the distribution of ICF-MRs operating in 1980 by size categories and licensed capacity.

Table 2
Number and Licensed Capacity of Minnesota ICF-MRs
by Size Categories: 1980

SIZE OF FACILITY	FACILITIES		LICENSED CAPACITY	
	Number	Percent	Total	Percent
6 or fewer residents	84	34.1	503	11.9
7 to 12 residents	72	29.3	696	16.5
13 to 16 residents	50	20.3	741	17.5
17 to 32 residents	8	3.3	207	4.9
33 to 64 residents	22	8.9	1,047	24.7
65 to 171 residents	10	4.1	1,037	24.5
TOTAL	246	100.0	4,231	100.0

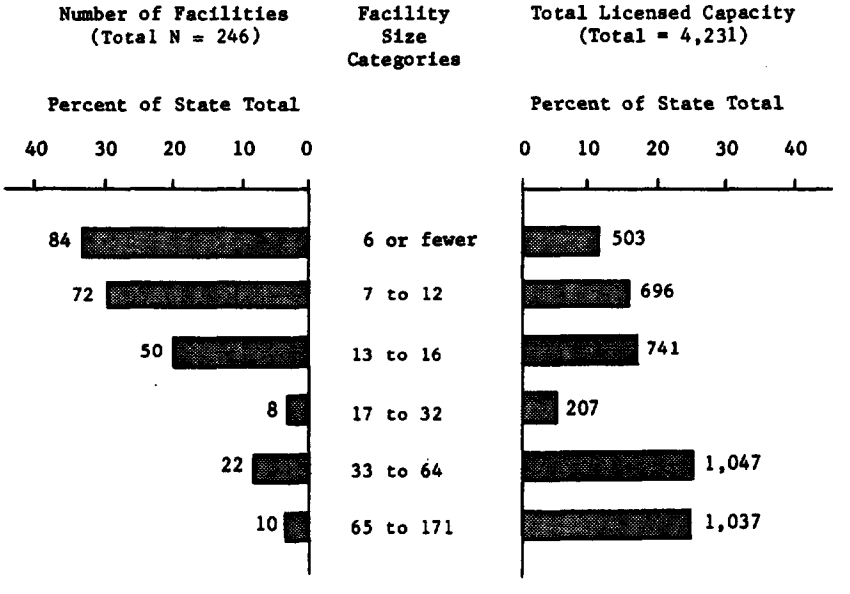

Figure 2. Distribution of Minnesota ICF-MR Facilities by Size Categories, Number and Total Bed Capacity: 1980

Various studies have suggested that the costs of residential care are greatly influenced by resident characteristics; that staff-resident ratios are highly correlated with resident dependency levels; and that personnel costs account for a major share of total operating expenses (Piasecki, Pittinger, & Rutman, 1978; Wieck & Bruininks, 1980; *Policy Analysis Paper No. 4*, 1981). A 20% random sample of cost reports for community ICF-MR facilities operating during 1981 indicated that a major portion (71.2%) of the total operating expenses were related to personnel costs--personnel expenses for direct care services accounted for approximately 47.0% of total operating costs. Figure 3 illustrates the cost of community ICF-MR operations according to six general cost categories: personnel, transportation, utilities, property, supplies, and administration.

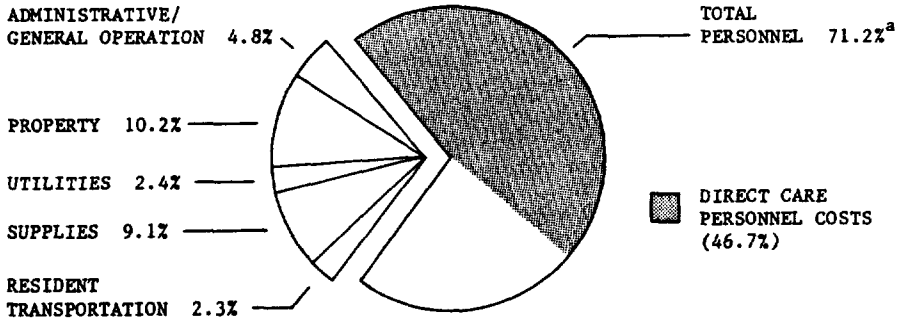

Figure 3. ICF-MR Operating Expenses by Cost Categories: Calendar Year 1981 (20 percent random sample of cost reports; N = 51, Total N = 255)

[a]**Total Personnel costs include wages, salaries, purchased services and employee benefits for administrative, food services, maintenance, consultant and professional services, and direct care of residents.**

III. METHODOLOGY

The data for this study come from two primary sources: Department of Public Welfare Rule 52 cost reports on file in the Long-Term Care Rate Division; and the data files of the Quality Assurance and Review Program within the Minnesota Department of Health.

DPW Rule 52 establishes the standards for determining reimbursement (per diem) rates for providers of ICF-MR certified residential services. Providers must submit a cost report each year. The per diem rate for each facility is based upon actual, allowable expenses incurred during the preceding year plus any allowable known cost changes which will occur during the upcoming year. Effective July 20, 1981, per diem rate increases have been limited to no more than 10% per year. In response to state budget difficulties, the Legislature ordered a 4% reduction in payments to vendors of Medicaid services after January 1, 1983.

The Quality Assurance and Review (QAR) program is a federally mandated program which annually surveys facilities which are reimbursed under the federal Medicaid program. QAR surveys report on resident dependency levels, potential for restoration, and treatment programs. They also indicate the appropriateness of current placements and the potential for movement into less restrictive living arrangements.

This analysis of per diem rates includes 230 of the 246 community ICF-MR facilities operating during 1980. Sixteen facilities were excluded from this analysis because complete QAR data for those facilities were not available.

The statistical methodology employed in this study is similar to the previous cost study (*Policy Analysis Paper No. 4*, 1981). Both analyses are a replication of the cost function analysis component of a national study on the costs of residential care (Wieck & Bruininks, 1980). That report contains a thorough review of the literature on cost studies and a discussion of the "theory" which underlies this study's treatment of cost-related variables.

This study is not definitive. Statistical techniques cannot "prove" cause-effect relationships. They can, however, help policy makers to estimate and/or predict cause-effect relationships with greater reliability, hence, to make better decisions about allocating scarce resources.

The current study attempts to identify several factors and their probable impact upon ICF-MR per diem rates (cost). One important caveat: cost data derived from DPW files may reflect the system of reimbursement rather than the total cost of operation. That is, not all costs of operation are reimbursable under Rule 52; some "costs" of operation do not show up as dollar expenses; and ICF-MR facilities receive funds outside of the Medicaid reimbursement system, e.g., contributions from residents and/or their families.

For the purposes of this study, cost factors were defined according to three broad categories: location, organizational structure, and resident characteristics. The study examines a number of variables and their impact upon cost using two statistical techniques: (1) analysis of variance and (2) multiple regression.

IV. ANALYSIS OF VARIANCE

The first objective of this study is to test hypotheses about relationships between selected variables, such as facility size or resident characteristics, and per diem rates (cost). Through a comparison of mean values,[1] one-way analysis of variance attempts to determine to

[1] "Mean values" here refers to "average" per diem rates of, for instance, group homes serving six people compared to average rates for other-size facilities.

what extent facility per diem rates differ from one another; and then whether or not those differences are "significant" enough statistically to allow certain assumptions about cost-influencing variables. The hypotheses and results of these analyses are summarized below.

A. Locational Factors

H_{0_1}: There are no differences in the per diem rates for community ICF-MRs between Minnesota's 13 economic development regions. (1)

According to the one-way analysis of variance test, there were significant differences ($p < .01$) in the per diem rates of facilities located in the various regions of the state. Facilities operating in the seven-county Minneapolis-St. Paul region had the highest mean per diem rate ($49.60). The lowest average per diems were found in regions Six E ($30.80), Two ($36.00), One ($36.10), and Seven W ($36.50). The analysis of variance and table of means and standard deviations are presented in Tables 3 and 4. This finding is similar to the earlier study which also reported that the highest mean per diem was found in Region Eleven; the lowest in Region Six.

Table 3
Summary Analysis of Variance of Minnesota ICF-MR Per Diem Rates by Region: 1980

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	*F* Score
Between groups	12	7,194	600	4.48[a]
Within groups	217	29,033	134	
TOTAL	229	36,227		

[a] $p < .01$.

Table 4
ICF-MR Mean Per Diems by Region: 1980

Region	Mean	Standard Deviation	Number of Facilities
One	$36.10	10.60	8
Two	$36.00	4.20	3
Three (Duluth)	$40.60	8.30	27
Four (Moorhead)	$39.00	8.50	24
Five	$43.60	4.70	3
Six E	$30.80	5.10	10
Six W	$48.00	6.10	3
Seven E	$47.30	13.50	3
Seven W (St. Cloud)	$36.50	9.80	14
Eight	$47.00	14.10	12
Nine (Mankato)	$45.60	8.40	13
Ten (Rochester)	$47.20	16.70	24
Eleven (Mpls.-St. Paul)	$49.60	12.50	86

Pooled standard deviation = 11.60.

H_{o2}: There is no relationship between per diem rates of facilities and their location in an urban or nonurban area. (2)

Facility per diems were also examined by urban and nonurban location. An urban area, according to the Census Bureau (1982), ". . . comprises an incorporated place and densely settled surrounding area that together have a minimum population of 50,000." There are seven urban areas in Minnesota: Duluth, Moorhead, East Grand Forks, LaCrescent, Rochester, St. Cloud, and the Minneapolis-St. Paul metropolitan area.

The national study of group home per diems (Wieck & Bruininks, 1980) indicated that there were no significant differences between per diems of metropolitan (SMSA) facilities and per diem rates of

facilities which were located outside of a metropolitan area. The earlier study of Minnesota facilities using 1979 data indicated, however, that facilities in the Minneapolis-St. Paul area were operating at higher rates. The current study uses a more detailed definition of metropolitan location and indicates that, again, there were significant differences ($p < .01$) between facilities located in urban areas and those established outside of urban settings. The average per diem of facilities in urban areas ($48.30) was 17% higher than the average per diem of ICF-MRs in nonurban areas ($41.20). Part of these cost differences may be attributable to differences in the cost of living between urban and nonurban areas. This analysis did not make any adjustments to account for these possible differences. Tables 5 and 6 present the summary of analysis of variance test and the table of means and standard deviations.

Table 5
Summary Analysis of Variance of Minnesota ICF-MR Per Diem Rates by Urban/Nonurban Location: 1980

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	*F* Score
Between groups	1	2,831	2,831	19.33[a]
Within groups	228	33,396	146	
TOTAL	229	36,227		

[a] $p < .01$.

Table 6
ICF-MR Mean Per Diems by Urban/Nonurban Location: 1980

Location	Mean	Standard Deviation	Number of Facilities
Urban	$48.30	12.8	104
Nonurban	$41.20	11.5	126

Pooled standard deviation = 12.1.

B. Organizational Factors

Eight organizational factors were examined in this study for their probable impact upon per diem rates: (1) facility size, (2) licensed capacity, (3) occupancy rate, (4) staff-resident ratio,

(5) profit/nonprofit status, (6) system affiliation, (7) type of license, and (8) years of operation.

H_{O3}: There is no relationship between per diem rates of residential services and facility size. (3)

For the purposes of this study, "size" is distinct from "licensed capacity" and refers to the actual number of residents present in the facility--although because Minnesota ICF-MRs typically operate very close to capacity, the difference between size and capacity is usually minimal.

Facilities were grouped into six size categories: (1) 6 or fewer residents, (2) 7 to 12 residents, (3) 13 to 16 residents, (4) 17 to 31 residents, (5) 33 to 64 residents, and (6) 65 or more residents.

There were significant differences ($p < .01$) in the per diem rates according to these size categories. The highest per diem rates were associated with ICF-MRs serving 6 or fewer residents (typically newer facilities) and larger ICF-MRs which served more than 16 people. The lowest average per diem was found in the very largest facilities (typically older facilities). Tables 7 and 8 present the summary analysis of variance and the table of means and standard deviations.

Table 7
Summary Analysis of Variance of Minnesota ICF-MR Per Diem Rates by Size Categories: 1980

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	*F* Score
Between groups	5	3,043	609	4.33[a]
Within groups	224	33,184	148	
TOTAL	229	36,227		

[a] $p < .01$.

Table 8
ICF-MR Mean Per Diems by Size Categories: 1980

Size Category	Mean	Standard Deviation	Number of Facilities
6 or fewer residents	$47.50	9.6	77
7 to 12 residents	$42.60	12.3	73
13 to 16 residents	$39.40	9.2	43
17 to 32 residents	$48.00	17.9	9
33 to 64 residents	$49.70	20.2	22
65 or more residents	$37.70	10.8	6

Pooled standard deviation = 12.2.

H_{0_4}: There is no relationship between per diem rates of residential services and licensed capacity. (4)

ICF-MRs in Minnesota typically operate at or near licensed capacity (approximately 98%). The results of a one-way analysis of variance were very similar to the previous analysis of size categories. There were significant differences ($p < .01$) in the per diem rates according to groupings of facilities by licensed capacity. Again, the trend was toward higher per diem rates in small facilities, decreasing per diem rates in midsize facilities, and then increasing rates as facility licensed capacity increased. Tables 9 and 10 present the summary of the analysis of variance test and the table of means and standard deviations.

Table 9
Summary Analysis of Variance of Minnesota ICF-MR Per Diems by Licensed Capacity: 1980

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	*F* Score
Between groups	5	2,820	564	3.78[a]
Within groups	224	33,407	149	
TOTAL	229	36,227		

[a] $p < .01$.

Table 10
ICF-MR Mean Per Diems by Licensed Capacity: 1980

Licensed Capacity	Mean	Standard Deviation	Number of Facilities
6 or fewer residents	$47.50	9.6	77
7 to 12 residents	$42.10	11.8	71
13 to 16 residents	$40.40	10.4	45
17 to 32 residents	$46.30	18.3	8
33 to 64 residents	$50.30	20.4	22
65 or more residents	$39.30	10.8	7

Pooled standard deviation = 12.2.

H_{05}: There is no relationship between per diem rates of residential services and occupancy rate. (5)

A one-way analysis of variance test did not reveal any significant differences among facility per diem rates when facilities were compared by occupancy rate, although the average per diem rate for the 12 facilities which reported occupancy rates of 90% or less was more than 13% higher ($50.10) than the average rate for the remaining 218 facilities ($44.11). Statewide, community ICF-MRs operated at 98% of their licensed capacity during 1980. The lowest occupancy rate was 75%; the highest was 100%.

H_{06}: There is no relationship between facility per diem rate and the direct care staff-resident ratio. (6)

The staff-resident ratio is calculated by dividing the number of direct care staff (full-time equivalent) by the number of residents.

Previous studies have indicated that per diem rates (cost) are greatly influenced by personnel costs. The number and type of staff are greatly influenced in turn by several factors which make it hard to identify cause-effect relationships with precision. Some of those factors are resident characteristics and functioning levels, types of services provided, and regulatory standards for staffing patterns.

In this study, facilities were grouped according to five categories based upon staff-resident ratios: (1) less than 0.30; (2) 0.30 to 0.49; (3) 0.50 to 0.69; (4) 0.70 to 0.99; and (5) greater than 1.00. The analysis indicated that there were significant differences ($p < .01$) among facilities when compared by staff-resident ratios. Predictably, the lowest per diems were associated with facilities which had the lowest ratios. These ICF-MRs also tended to be both larger and older than facilities with higher staff-resident ratios. Tables 11 and 12 summarize the results of the one-way analysis of variance test.

Table 11
Summary Analysis of Variance of Minnesota ICF-MR Per Diems by Staff-Resident Ratio: 1980

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	*F* Score
Between groups	4	17,210.0	4,302.5	50.90[a]
Within groups	225	19,017.1	84.5	
TOTAL	229	36,227.1		

[a] $p < .01$.

Table 12
Mean Per Diems of ICF-MRs by Staff-Resident Ratio: 1980

Staff-Resident Ratio	Mean	Standard Deviation	Number of Facilities
Less than .30	$30.67	4.22	14
.30 to .49	$37.79	7.61	69
.50 to .69	$43.57	7.07	90
.70 to .99	$52.57	13.60	37
Greater than .99	$65.65	14.04	20

Pooled standard deviation = 9.19.

H_{O7}: There is no relationship between per diem rates of residential services and profit/nonprofit status. (7)

A one-way analysis of variance test did not reveal any significant differences in per diem rates when facilities were compared according to profit/nonprofit status. The average per diem rate for proprietary facilities ($44.00) was only slightly lower than the mean per diem rate for nonprofit homes ($44.90). Tables 13 and 14 summarize the results of the one-way analysis of variance test and table of means and standard deviations.

Table 13
Summary of Analysis of Variance of Minnesota ICF-MR Per Diems by Profit/Nonprofit Status: 1980

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	*F* Score
Between groups	1	38	38	0.24
Within groups	228	36,189	159	
TOTAL	229	36,227		

Table 14
Mean Per Diems of Minnesota ICF-MRs by Profit/Nonprofit Status: 1980

Type	Mean	Standards Deviation	Number of Facilities
Profit	$44.00	11.9	124
Nonprofit	$44.90	13.6	106

Pooled standard deviation = 12.6.

H_{0_8}: There is no relationship between per diem rates of residential services and system affiliation. (8)

For the purposes of this study, a facility was identified as a member of a system if the organization which owned the home also owned at least one other ICF-MR facility in Minnesota. A facility which was owned by an organization with other nursing or boarding homes, or out-of-state facilities was not identified as being a member of a system. During 1980, the number of beds within individual systems ranged from a low of 12 to over 460. Over two-thirds (68.7%) of the 230 facilities were members of a system in 1980.

No significant differences ($p < .01$) were found between facilities which were members of a system and those which were not--significant differences were, however, indicated within the $.05 < p < .10$ range. The average per diem for a nonsystem facility was $42.10, compared to $45.50 for facilities affiliated with a parent organization. Tables 15 and 16 present a summary of the results of the one-way analysis and table of means and standard deviations. The results are similar to those reported in the previous cost study and corroborate the findings of Wieck and Bruininks' national study (1980) which also reported higher per diems for facilities which were members of a system.

Table 15
Summary of Analysis of Variance of Minnesota ICF-MR Per Diems by System Membership: 1980

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	*F* Score
Between groups	1	575	575	3.68
Within groups	228	35,652	156	
TOTAL	229	36,227		

Table 16
Mean Per Diems of ICF-MRs by System Membership: 1980

Type of Membership	Mean	Standard Deviation	Number of Facilities
System member	$45.50	12.1	158
Not member of system	$42.10	13.3	72

Pooled standard deviation = 12.5.

H_{0_9}: There is no relationship between per diem rates of residential services and type of license (Class A and Class B). (9)

ICF-MRs in Minnesota are licensed as either Class A or Class B facilities depending upon the mobility and self-preservation skills of the residents (i.e., their ability to egress from the building during an emergency). Class B facilities are for people who do not possess self-preservation skills. A Class B license may require certain structural accommodations and/or staffing patterns.

The one-way analysis of variance test indicated significant differences ($p < .01$) in the per diem rates of Class B facilities when compared to per diems for ICF-MRs licensed as Class A facilities. The average per diem rate for the 26 Class B facilities ($58.23) was 36% higher than the average per diem of the 204 Class A facilities ($42.66). Class B facilities were larger (average licensed capacity = 35.7) than Class A facilities (average = 14.2). They also had a higher staff-resident ratio (average = .91) than facilities holding Class A licenses (average = .56). QAR data suggest that some of the Class B facilities are serving residents with higher dependency levels. The summary of the analysis of variance and the table of means and standard deviations are shown in Tables 17 and 18.

Table 17
Summary of Analysis of Variance of Minnesota ICF-MR Per Diems by Type of License: 1980

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	*F* Score
Between groups	1	5,586	5,586	41.56[a]
Within groups	228	30,641	134	
TOTAL	229	36,227		

[a] $p < .01$.

Table 18
Mean Per Diems of ICF-MRs by Type of Facility: 1980

Type of License	Mean	Standard Deviation	Number of Facilities
Class A license	$42.66	10.6	204
Class B license	$58.23	17.6	26

Pooled standard deviation = 11.6.

H_{010}: There is no relationship between per diem rates of residential services and years of operation. (10)

Cost studies indicate that it is not uncommon for recently-opened facilities to experience disproportionately high costs as a result of start-up expenses (Piasecki et al., 1978).

Years of operation was calculated by subtracting the year and month in which the facility was first licensed by the Department of Public Welfare from the year and month of the facility's 1980 fiscal year end. The years of operation were categorized into five groups: (1) less than 1.0 year; (2) 1.0 to 3.0 years; (3) 3.1 to 5.0 years; (4) 5.1 to 8.0 years; and (5) longer than 8.0 years.

The one-way analysis of variance revealed significant differences ($p < .01$) among the groups. Higher per diems were associated with more recently established homes; lower per diems with older facilities. Most new ICF-MR homes in Minnesota are smaller facilities. In 1980, the average number of years of operation for a six-bed facility was 3.7 years. A facility licensed to serve more than 32 residents had been in operation for more than 7.8 years on the average. Increased financing and construction costs in recent years may contribute to the higher operating expenses of newer facilities. Tables 19 and 20 summarize the results of the analysis of variance test and present the table of means and standard deviations.

Table 19
Summary Analysis of Variance of Minnesota ICF-MR Per Diems by Years of Operation: 1980

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	*F* Score
Between groups	4	3,871	968	6.73[a]
Within groups	225	32,356	144	
TOTAL	229	36,227		

[a] $p < .01$.

Table 20
Mean Per Diems of ICF-MRs by Years of Operation: 1980

Number of Years	Mean	Standard Deviation	Number of Facilities
Less than 1.0 year	$52.10	13.1	13
1.0 to 3.0 years	$49.20	12.9	45
3.1 to 5.0 years	$46.00	11.6	74
5.1 to 8.0 years	$39.90	12.2	77
Longer than 8.0 years	$40.30	9.3	21

Pooled standard deviation = 12.0.

C. Resident Factors

Six variables related to resident characteristics or functioning level were compared against per diem rates: (1) average age of residents; (2) percentage of residents who are severely or profoundly mentally retarded; (3) percentage of residents who are completely fed; (4) percentage of residents with behavior problems, (5) percentage of residents who are not toilet trained; and (6) percentage of residents who are nonambulatory. The level of resident dependency level suggests varying levels of direct care services and increased staffing ratios; hence, increased costs. According to the QAR data, 12 facilities (all Class B) accounted for nearly all of the residents who were reported to have higher levels of dependency in the areas of feeding and ambulation.

H_{011}: There is no relationship in the per diem rates of residential services and the age of residents. (11)

A one-way analysis of variance test was run on facilities categorized by the average age of their residents. Five age groups were defined: (1) less than 16 years; (2) 16 to 25 years; (3) 26 to 35 years; (4) 36 to 45 years; and (5) greater than 45 years of age. Significant differences ($p < .01$) were revealed by the analysis. Like the previous study, an inverse relationship between age and per diem rate was evident. Facilities serving children had the highest per diem rates (63.00); facilities whose residents averaged more than 45 years of age had the lowest per diems (38.00). The results of the one-way analysis and the table of means and standard deviations are shown in Tables 21 and 22.

Table 21
Summary of Analysis of Variance of Minnesota ICF-MR Per Diems by Average Age of Residents: 1980

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	*F* Score
Between groups	4	8,040	2,010	16.04[a]
Within groups	225	28,187	125	
TOTAL	229	36,227		

[a] $p < .01$.

Table 22
Mean Per Diems of Minnesota ICF-MRs by Average Age of Residents: 1980

Average Age	Mean	Standard Deviation	Number of Facilities
Less than 16 years	$63.00	14.4	11
16 to 25 years	$49.90	13.9	52
26 to 35 years	$44.70	11.6	68
36 to 45 years	$39.40	7.9	73
Greater than 45 years	$38.80	10.4	26

Pooled standard deviation = 11.2.

H_{012}: There is no relationship between per diem rates of residential services and the proportion of residents who are severely or profoundly mentally retarded. (12)

The proportion of residents who were classified as severely or profoundly mentally retarded was calculated for each facility using QAR data. Significant differences ($p < .01$) were indicated by the results of the one-way analysis of variance test. The 31 facilities which reported that 75% to 100% of their residents were severely or profoundly retarded had the highest per diems. Tables 23 and 24 present the analysis of variance summary and table of means and standard deviations.

Table 23
Summary of Analysis of Variance of Minnesota ICF-MR Per Diems by Proportion of Residents Severely or Profoundly Mentally Retarded: 1980

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	*F* Score
Between groups	6	3,141	523	3.53[a]
Within groups	223	33,086	148	
TOTAL	229	36,227		

[a] $p < .01$.

Table 24
Mean Per Diems of ICF-MRs by Proportion of Residents Severely or Profoundly Mentally Retarded: 1980

Proportion	Mean	Standard Deviation	Number of Facilities
Less than 6 percent	$43.30	11.3	59
6 to 9 percent	$42.30	6.6	10
10 to 19 percent	$45.50	17.3	17
20 to 39 percent	$41.70	9.7	46
40 to 49 percent	$43.20	10.3	31
50 to 74 percent	$43.00	12.8	36
75 to 100 percent	$53.50	15.6	31

Pooled standard deviation = 12.2.

H_{013}: There is no relationship between per diem rates of residential services and the proportion of residents who must be completely fed. (13)

Resident dependency data were again calculated from Department of Health records. Higher dependency levels suggest greater staffing ratios. Facilities were categorized according to the proportion of

residents who must be completely fed. Most facilities (N = 219; 95%) reported that 5% or fewer of their residents required complete feeding. The results of the one-way analysis indicated significant differences ($p < .01$). Facilities with higher dependency levels had higher per diem rates. The results of the analysis and the table of means and standard deviations are reported in Tables 25 and 26.

Table 25
Summary of Analysis of Variance of Minnesota ICF-MR Per Diems by Proportion of Residents Completely Fed: 1980

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	*F* Score
Between groups	3	8,896	2,965	24.52[a]
Within groups	226	27,331	121	
TOTAL	229	36,227		

[a] $p < .01$.

Table 26
Mean Per Diems of ICF-MRs by Proportion of Residents Completely Fed: 1980

Proportion	Mean	Standard Deviation	Number of Facilities
Less than 6 percent	$43.20	11.0	219
6 to 19 percent	$50.70	12.1	4
20 to 39 percent	$82.80	13.1	3
More than 39 percent	$76.10	10.6	4

Pooled standard deviation = 11.0.

H_{O14}: There is no relationship between per diem rates of residential services and the proportion of residents who have severe behavior problems. (14)

Facilities were classified into five groups according to the proportion of residents who were reported in the QAR survey as having severe behavior problems.[1] Significant differences ($p < .01$) were indicated by the one-way analysis of variance test. Facilities reporting that more than 35% of the residents had severe behavior problems had the highest per diems. Tables 27 and 28 summarize the results of the one-way analysis of variance.

Table 27
Summary of Analysis of Variance of Minnesota ICF-MR Per Diems by Proportion of Residents with Severe Behavior Problems: 1980

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	*F* Score
Between groups	4	5,302	1,325	9.64[a]
Within groups	225	30,925	137	
TOTAL	229	36,227		

[a] $p < .01$.

Table 28
Mean Per Diems of Minnesota ICF-MRs by Proportion of Residents with Severe Behavior Problems: 1980

Proportion	Mean	Standard Deviation	Number of Facilities
Less than 6 percent	$43.70	9.6	59
6 to 19 percent	$41.30	11.7	68
20 to 34 percent	$42.10	11.6	61
35 to 49 percent	$49.80	13.0	18
More than 49 percent	$56.90	15.5	24

Pooled standard deviation = 11.7.

[1] Severe behavior problems were defined as ". . . disturbs others/runs away, aggressive verbally, threatens, steals, destructive; assaultive/self-injurious behaviors."

H_{O15}: There is no relationship between per diem rates of residential services and the proportion of residents who are not toilet trained. (15)

Facilities were categorized according to the proportion of residents who were not toilet trained. Over 95% (N = 220) of the facilities reported in the QAR survey that 2% or fewer of their residents were not toilet trained. The remaining ten facilities, while still reporting low proportions of residents who were not toilet trained, had higher per diem rates. The results of the one-way analysis which indicated significant differences ($p < .01$), are reported in Tables 29 and 30.

Table 29
Summary of Analysis of Variance of Minnesota ICF-MR Per Diems by Proportion of Residents Not Toilet Trained: 1980

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	*F* Score
Between groups	3	2,047	682	4.51[a]
Within groups	226	34,180	151	
TOTAL	229	36,227		

[a] $p < .01$.

Table 30
Mean Per Diems of Minnesota ICF-MRs by Proportion of Residents Not Toilet Trained: 1980

Proportion	Mean	Standard Deviation	Number of Facilities
Less than 3 percent	$43.90	11.9	220
3 to 5 percent	$56.20	23.7	5
6 to 7 percent	$79.70	0.0	1
More than 8 percent	$48.30	18.9	4

Pooled standard deviation = 12.3.

H_{016}: There is no relationship between per diem rates of residential services and the proportion of residents who are nonambulatory. (16)

QAR data were used to group facilities according to the proportion of residents who were nonambulatory: (1) less than 10%; (2) 10% to 19%; (3) 20% to 39%; and (4) more than 39%. Again, nearly 95% (N = 214; 93%) of the facilities reported low proportions of nonambulatory residents. The results of the one-way analysis test indicated significant differences ($p < .01$) and are reported in Tables 31 and 32.

Table 31
Summary of Analysis of Variance of Minnesota ICF-MR Per Diems by Proportion of Residents Who Are Nonambulatory: 1980

Source of Variance	Degrees of Freedom	Sum of Squares	Mean Squares	*F* Score
Between groups	3	8,497	2,832	23.08[a]
Within groups	226	27,730	123	
TOTAL	229	36,227		

[a] $p < .01$.

Table 32
Mean Per Diems of Minnesota ICF-MRs by Proportion of Residents Who Are Nonambulatory: 1980

Proportion	Mean	Standard Deviation	Number of Facilities
Less than 10 percent	$43.00	10.9	214
10 to 19 percent	$51.10	16.1	4
20 to 39 percent	$50.90	10.8	4
More than 39 percent	$75.50	14.2	8

Pooled standard deviation = 11.1.

V. COST-FUNCTION ANALYSIS

The first portion of this study involved the use of a statistical technique called one-way analysis of variance which defined groups of facilities according to selected variables, and compared mean per diems of groups based only upon those single factors. Cost factors, however, are often interrelated; and two or more variables acting together may influence the cost of residential care services.

The second objective of this study will be to develop an explanation of cost relationships using a cost-function approach. A cost-function is the testing of statistical relationships between inputs (independent variables such as facility location or staff-resident ratios) and cost (the dependent variable) using multiple regression techniques. Multiple regression makes it possible to evaluate the influence specific variables may have upon cost while at the same time accounting for the possible impact of several other variables.

The dependent variable in this analysis was per diem rate. Twenty independent variables were utilized as predictors of cost:

1. Region;
2. Urban/Nonurban Location;
3. Profit/Nonprofit Status;
4. Membership in a System;
5. Total Licensed Bed Capacity of the System;
6. Management Compensation--"top management" compensation as a proportion of total operating expenses;
7. Current Ratio--the ratio defined by dividing a facility's current assets by its current liabilities;
8. Number of Direct Care Staff--full-time equivalent;
9. Interest Expense on Working Capital Loans--defined as a proportion of total operating expenses;
10. Fixed Cost Ratio--fixed costs such as administration, property, and earnings allowance as a proportion of total operating expenses;
11. Consultant Contract Expenses--resident-related consultant contracts and in-service training for staff;
12. Facility Size--number of residents;
13. Occupancy Rate;
14. Staff-Resident Ratio;
15. Years of Operation;
16. Average Age of Residents;
17. Percentage of Residents Severely or Profoundly Retarded;
18. Percentage of Residents with Behavior Problems;
19. Percentage of Residents Not Toilet Trained;
20. Class A or Class B Licensure.

Three variables from the one-way analysis of variance were omitted because of their high degree of correlation with other variables. The

factors which were not included in this portion of the analysis were: licensed capacity (very similar to size) and percentage of residents completely fed or nonambulatory (which were correlated with other dependency variables).

Several variables were added to the regression equation because they are related to cost. While these variables may not appear as significant in a one-way analysis, taken together they may help explain variations in per diem rates. For instance, a low current ratio may indicate a need to borrow money (hence, interest expenses) in order to finance current obligations. A high fixed cost ratio may suggest an inability to contain or reduce certain expenditures (e.g., property and plant) in the short-run.

The regression analysis indicated that nine of the twenty variables were statistically significant predictors of per diem cost. Eight variables were significant at the $p < .01$ level: proprietary status, system capacity, number of direct care staff (full-time equivalent), size (inversely related), staff-resident ratio, years of operation (inversely related), age of residents (inversely related), and resident behavior problems. The cost variable "region" was significant at the $p < .10$ level. The overall regression equation accounted for 77.4% of the variance in per diem.

In a second analysis, facilities were divided into two groups: (1) facilities serving 12 or fewer residents and (2) facilities serving more than 12 residents. A regression analysis was then performed separately on each of these groups.

The regression equation for facilities serving 12 or fewer residents indicated that the twenty variables accounted for 69.4% of the variance in per diems. Eight variables were statistically significant predictors of per diem. Five variables were significant at the $p < .01$ level: proprietary status, system capacity, years of operation, resident age, and resident behavior problems. Region and severe/profound retardation were significant at the $p < .05$ level. Staff-resident ratio was significant at the $p < .10$ level.

In the regression analysis for facilities serving more than 12 people (ranging from 13 to 171 residents), the equation accounted for 89.1% of the variation in per diems. Eight of the twenty variables were statistically significant. System capacity, staff-resident ratio, years of operation, and behavior problems were significant at the $p < .01$ level. Consultant contracts were significant at the $p < .02$ level. Occupancy rate was significant at the $p < .05$ level, and direct care staff (full-time equivalent) and Class A/Class B licensure were significant at the $p < .10$ level.

Table 33 summarizes the significant variables identified by these regression analyses and their relationship (correlation) with per diem rates.

Table 33
Summary of Regression Results: Significant Variables

Regression Analysis	Significant Variable	*p* Level	Relationship to Per Diem
Overall: N = 230, R^2 = 77.4	Region	.10	positive
	Proprietary status	.01	positive
	System capacity	.01	positive
	Direct care staff (FTE)	.01	positive
	Size	.01	inverse
	Staff-resident ratio	.01	positive
	Years of operation	.01	inverse
	Age of residents	.01	inverse
	Behavior problems	.01	positive
Facility Size (12 or fewer residents): N = 150, R^2 = 69.4	Region	.05	positive
	Proprietary status	.01	positive
	System capacity	.01	positive
	Staff-resident ratio	.10	positive
	Years of operation	.01	inverse
	Age of residents	.01	inverse
	Behavior problems	.01	positive
	Level of retardation	.05	positive
Facility Size (13 or more residents): N = 80, R^2 = 89.1	System capacity	.01	positive
	Direct care staff (FTE)	.10	positive
	Consultant contracts	.02	positive
	Occupancy rate	.05	positive
	Staff-resident ratio	.01	positive
	Years of operation	.01	inverse
	Behavior problems	.01	positive
	Class A/B licensure	.10	positive

FTE = Full-Time Equivalent.

VI. SUMMARY OF FINDINGS

The one-way analysis of variance test revealed the following results when per diem rates were examined according to several facility and resident characteristics:

A. Region

There were significant differences ($p < .01$) in the per diems of ICF-MRs located in Minnesota's 13 economic development regions. The highest mean per diem rates were found in the Minneapolis-St. Paul metropolitan region ($49.60); the lowest rates were found in regions Six E ($30.80), Two ($36.00), One ($36.10), and Seven W ($36.50).

B. Urban/Nonurban Location

According to the Census Bureau, there are seven major "urban" areas in Minnesota: Duluth, Moorhead, East Grand Forks, LaCrescent, Rochester, St. Cloud, and Minneapolis-St. Paul. Facilities operating in those seven areas had per diems ($48.30) which were 17% higher than the average per diem rate ($41.20) for facilities operating in nonurban areas.

C. Size

Like the earlier study, a U-shaped relationship between size and per diem costs was found. There was a significant difference ($p < .01$) in per diems by size categories. The highest per diem rates were associated with ICF-MRs serving six or fewer residents (typically newer facilities) and larger ICF-MRs which served more than 16 people. The lowest mean per diem was associated with the group of facilities (N = 6) which served 65 or more residents.

The relatively higher per diems of smaller ICF-MRs may be attributable, in part, to facility age. Most new developments are smaller facilities; hence, higher construction, remodeling, and financing expenses. The average number of years of operation for six-person ICF-MRs in 1980 was 3.7 years compared to more than 8.0 years for facilities serving 33 to 64 people, and 7.2 years for facilities with more than 65 residents.

D. Licensed Capacity

Since ICF-MRs typically operate at or near licensed capacity (98% occupancy), the results of the one-way analysis of variance were similar to the results when categorized by size (number of residents). Higher per diems were associated with smaller facilities, decreasing per diems for seven- to sixteen-person facilities, and then increasing per diem rates as facility licensed capacities increased.

E. Occupancy Rate

The one-way analysis did not reveal any significant differences when groups of facilities were compared by occupancy rate, primarily because in Minnesota ICF-MRs operate at similar rates of resident occupancy--98%, on the average.

F. Staff-Resident Ratio

Significant differences ($p < .01$) were indicated when facilities were compared by categories of staff-resident ratios. Facilities with the lowest staff-resident ratios (less than .30) had the lowest mean per diem ($30.67). As staff-resident ratios increased, mean per diems increased. The highest mean per diem ($65.65) was reported for facilities with staff-resident ratios of 1.00 or more.

G. Proprietary Status

The analysis did not reveal any significant differences when facilities were compared by profit/nonprofit status. The mean per diem for profit facilities ($44.00) was slightly lower than the mean per diem rate for nonprofit facilities ($44.90).

H. Membership in a System

No significant differences ($p < .01$) were found when comparing per diem rates of facilities which were members of a system and those which were not affiliated with a system (significant differences were indicated at the $.05 < p < .10$ level, however). The average per diem for nonsystem facilities was $42.10; the average system ICF-MR per diem was $45.50. Over two-thirds of the 230 facilities in this study were members of a system. The number of beds within individual systems ranged from a low of 12 to over 460 in 1980.

I. Class A/Class B Licensure

The mean per diem rate ($58.23) for the 26 Class B facilities in this study was 36% higher than the mean per diem rate ($42.66) for the 204 Class A facilities. The difference was statistically significant ($p < .01$). Class B facilities were larger (mean = 35.7 beds) than Class A facilities (mean = 14.2 beds); and their staff-resident ratios were higher (mean = .91 compared to .56 for Class A ICF-MRs).

J. Years of Operation

The one-way analysis of variance indicated significant differences ($p < .01$) among facility per diem rates when compared by years of operation. Facilities operating for less than one year had the highest per diem rates (mean = $52.10). As the number of years of operation increased, mean per diem rates decreased. For 1980, an inverse relationship existed between facility size and years of operation: the smallest ICF-MRs averaged 3.7 years of operation; the largest 7.2 to 8.0 years of operation.

K. Age of Residents

Statistically significant differences ($p < .01$) were evident when facility per diem rates were compared according to categories defined by average age of residents. Like the previous study, facilities serving children and teenagers (less than 16 years) operated with the highest mean per diem ($63.00). As the average age of residents increased, the mean per diem decreased. The lowest mean per diem was reported for facilities whose residents averaged more than 45 years of age ($38.80).

L. Proportion of Residents Severely or Profoundly Mentally Retarded

The one-way analysis indicated significant differences ($p < .01$) when facility per diems were compared according to the proportion of residents classified as severely or profoundly retarded. The highest mean per diem ($53.50) was associated with the 31 facilities which reported that more than 75% of their residents were severely or profoundly retarded. The lowest mean per diem ($41.70) was for

facilities in which 20% to 39% of their residents were classified severely or profoundly mentally retarded. Facilities reporting a proportion less than 6% had a mean per diem of $43.30.

M. Resident Dependency Levels

Although most facilities reported low proportions of residents who were not toilet trained, who had to be completely fed, or who were nonambulatory, there was a positive and direct relationship between dependency level and per diem. ICF-MRs which serve higher proportions of residents who must be completely fed, are nonambulatory, are not toilet trained, or have severe behavior problems operated at higher per diem rates. The differences in mean per diem rates of facilities compared by these variables were statistically significant ($p < .01$).

Mean per diem rates by proportion of residents not toilet trained ranged from $43.90 (2% or less) to $79.70 (6% to 7%). By proportion of residents who are completely fed, the range was from $43.20 (less than 6%) to $82.80 (20% to 39%). The highest mean per diem rate according to proportion of nonambulatory residents was $75.50 (40% or more); the lowest was $43.00 (9% or less). Facilities reporting the lowest proportion of residents with severe behavior problems (less than 6%) operated with a mean per diem rate of $43.70. The lowest rate was $41.30 (6% to 19%); the highest mean per diem was $56.90 (50% or more).

N. Multiple Factors

Twenty variables were considered simultaneously (multiple regression), rather than individually, to estimate their impact upon ICF-MR per diem rates. Nine variables were identified as statistically significant predictors of ICF-MR costs: (1) region, (2) proprietary status, (3) system capacity, (4) number of direct care staff, (5) size (inversely related), (6) staff-resident ratio, (7) years of operation (inversely related), (8) age of residents (inversely related), and (9) resident behavior problems.

A regression analysis using the same twenty variables for facilities with 12 or fewer residents suggested eight statistically significant cost predictors: region, proprietary status, system capacity, staff-resident ratio, behavior problems, years of operation, resident age, and level of retardation. The regression equation for facilities serving more than 12 people yielded eight statistically significant variables: system capacity, direct care staff (full-time equivalent), consultant contracts, occupancy rate, staff-resident ratio, years of operation, behavior problems, and Class A/Class B licensure.

VII. POLICY ISSUES

The data presented in this study are not definitive but statistical presentations of information derived from ICF-MR cost reports and Health Department records. The data are presented here to help define problems, clarify trends, and outline some basic issues regarding community residential care services. Although cost remains a major consideration as both the state and federal governments struggle with substantial budget deficits, it is not the only consideration. Normalization, appropriateness of services, and the movement of developmentally disabled people into less restrictive living environments must also remain high priorities.

A. The Role of ICF-MRs

This study focused upon ICF-MR residential services. While other states chose to maintain ICF-MR certification for medically oriented services, Minnesota became one of the first states to proactively develop smaller, community-based ICF-MRs as an alternative to institutional care. Consequently, the number of community ICF-MR certified beds in Minnesota has increased substantially since the mid-1970s. Programmatic and fiscal circumstances now dictate that further expansion of the system should occur only after a thoughtful analysis of the need for more ICF-MR capacity, a review of the role of ICF-MR services, and an examination of alternative care models. These analyses should consider several factors:

B. Long-Term Financial Implications

Like state institutions, ICF-MR facilities represent major capital investments. The nature and extent of those property-related investments are reflected in DPW Rule 52 reimbursement standards. Substantial amounts of federal, state, and county resources are tied to the construction and maintenance of physical structures. The long-term implications of those types of financial commitments need to be explored fully.

C. Meeting Individuals' Needs

Overreliance on construction of facilities or the maintenance of an already existing service may inadvertantly direct public resources to meet the needs of a system (bricks and mortar) rather than the needs of people. To be responsive to an ever-changing profile of clients, the service system itself must adapt and be capable of change. ICF-MR facilities should be viewed as one type of service within a broader array of programs and services available to people with developmental disabilities. Those services should remain flexible and promote, wherever possible, movement into more independent (usually less costly) settings. To achieve those ends, funding mechanisms should accommodate people; not programs.

D. Meeting Demands for Service

Much of the demand for community placements could be met by existing ICF-MRs if appropriate alternative services for many current ICF-MR residents were developed and adequately funded. For many people, ICF-MR services may be the most appropriate service model; for others, those levels of service may represent only one step in a process of growth and change. QAR data suggest that as many as 200 people now living in group homes are ready to move into semi-independent living settings; other estimates indicate that, with varying levels of supervision, as many as 1,000 people could be placed into foster care or SILS programs (Copeland & Iversen, 1981).

E. Size of Community Facilities

Size of facilities remains an issue. The current study indicates that the smallest facilities are not the least costly. Several mitigating factors should be considered, however. Most of the smallest ICF-MRs are relatively new facilities. Inflation and the recent increases in the costs of construction and financing may account for much of those cost differences. Additionally, people now being placed into community facilities are more likely to have lower levels of functioning and/or physical handicaps than people placed several years ago in older facilities. Higher resident dependency levels suggest higher staff-resident ratios; hence, increased costs. Finally, the literature suggests that when all factors are considered, the psychosocial and developmental needs of individual residents are more likely to be met in small, homelike residential programs, rather than in larger facilities.

F. Larger Community Facilities

The appropriateness of larger community ICF-MRs also needs to be addressed. In 1980, the ten largest facilities accounted for nearly one-quarter of the total community ICF-MR bed capacity. Some facilities exceed the size of state hospital programs. In 1980, nearly half (49%) of the people in community-based ICF-MRs lived in "group homes" with more than 32 residents.

G. Less Costly Alternatives

Community ICF-MR programs are not cheap. In fact, the costs of a community placement for a former state hospital resident may approach those of the state hospital system--when costs of day programming and support services are included. This is most true for children. Residential and day programs for children are relatively more expensive than adult programs. Consideration should be given to developing in-home support services and expanding family subsidies. Not only are these programs more cost-efficient, but they may help to forestall or alleviate the need for placements into costly institutional and ICF-MR settings.

H. Meeting Policy Objectives and Quality Services

Budget deficits and demands for cost containment have resulted in caps on reimbursement rates and, more recently, reductions in payments to providers. Moving people into SILS and developing appropriate alternative services such as adult foster care may result in more dynamic cost savings. Many alternative care models are both compatible with cost considerations and consistent with policy statements which promote normalization and least restrictive living environments.

I. Support Services

The further development of ICF-MR programs, as well as other community-based residential care programs, cannot proceed without also considering the availability and appropriateness of community support services. There are two major areas of concern: (1) the availability of day programs and (2) adequate case management services.

J. Adequate and Appropriate Day Programs

The ultimate success of residential care services is highly dependent upon the availability of appropriate day programs--programs committed and geared toward client growth and development in self-help skills, academics, vocational skills, and meaningful employment. Current opportunities are limited. Data indicate that many potential clients are waiting to participate in developmental achievement center programs. At the same time, current DAC participants are ready to move into sheltered workshops but are unable to make those transitions because there are no vacancies (*Policy Analysis Paper No. 8*, 1982). Future development of community residential programs must be closely tied to the availability of quality day programs which are capable of meeting the individual needs of residents.

K. Decentralized Services and Quality Control

The success of community programs is also dependent upon an adequate supply of case management services. In a system of care which is becoming more and more decentralized, it is imperative to have in place and operating a workable case management system (i.e., reasonable caseloads) which can help ensure that appropriate programs and services are available, that necessary services are provided, and that quality of programs is maintained. Few places in Minnesota have adequate case management services.

L. ICF-MR Services in Minnesota

The community-based ICF-MR has been and is an important component of Minnesota's system of care for developmentally disabled people. Program and budgetary circumstances, however, will require policy makers to reassess the role of the ICF-MR model and to thoughtfully

plan its further development. Those analyses cannot take place without also considering other aspects of the community-based care system: day programming, appropriate funding mechanisms, adequate monitoring systems, and the development of less costly alternative services. The end result should be an even more dynamic system (array) of services which is responsive to the individual needs of developmentally disabled people in Minnesota.

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APPENDIX

Minnesota Economic Development Regions