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New Admissions and Readmissions  
to a National Sample of  
Public Residential Facilities

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Abstract

Despite concerted efforts to reduce dramatically the number of admissions to public residential facilities for mentally retarded people, total admissions have continued to number about 10,000 per year. This study reports on the characteristics of a national probability sample of new admissions and readmissions to public residential facilities. Also reported are prior residential placements of admitted residents and reasons for admission.

New Admissions and Readmissions to a National  
Sample of Public Residential Facilities

During the past decade the concept and policy of deinstitutionalization has guided the provision of residential services for mentally retarded people. As a social policy deinstitutionalization has been broadly defined as having three interrelated aspects: 1) prevention of initial admissions to state institutions, 2) release of present state institution residents; and 3) improving on present physical and social environments in state institutions (NASPRFMR, 1974). Today deinstitutionalization is firmly established within the residential services system as a predominant philosophy, a functioning process, and a factually demonstrable social reality (Bachrach, 1981). Since 1967 the total population of public residential facilities for mentally retarded people in the United States has decreased from 194,650 to 125,799 in fiscal year 1981 (Lakin, Krantz, Bruininks, Clumpner & Hill, 1982; Scheerenberger, Note 1).

The dramatic reductions in the total population of public residential facilities in the past 15 years has been brought about by more releases and fewer new admissions to institutions. The number of discharges per 100 new admissions rose from an average of 61 in the three year period from 1963-1965 to an average of 283 in the period from 1977-1980 (Krantz, Bruininks & Clumpner, Note 2; Lakin, Note 3).

Although there has been a steady decline in the number of new admissions to public residential facilities since 1965, there has also been an increase in the number of readmissions (Krantz, Bruininks & Clumpner, Note 2; Lakin,

Lakin, Note 3; Scheerenberger, Note 1, Note 4, Note 5). In 1964 the ratio of annual total readmissions to the average daily population of public residential facilities was 1:113.6. In 1969 this same ratio was 1:65.4 (Lakin, Note 3); in 1977, 1:27.0; and in 1980, 1:25.6 (Krantz, Bruininks & Clumpner, Note 2, Note 6). Clearly, readmission of previously deinstitutionalized people presents a serious challenge to the total residential services system. It reflects on the ability of public facility personnel to prepare people for community life, the ability of social service personnel to make appropriate placement decisions, and the ability of community facility and agency personnel to adapt their programs to the specialized needs of former residents of public facilities.

Basic data have been collected since 1904 on new admissions and readmissions to public institutions in the United States (Lakin et al., 1982). While these reports have provided a statistical picture of the extent of resident movement into public institutions, they have provided only limited information on the characteristics of admissions. Basic data on the level of retardation and ages of new admissions and readmissions have been collected by the Bureau of the Census and the National Institute of Mental Health from 1922 to 1955 (Lakin et al., 1982), and by Scheerenberger (Note 1, Note 4, Note 5) most recently. Scheerenberger (Note 1, Note 4, Note 5) has also reported the previous placements of new admissions to state institutions for mentally retarded people. However, there have been no recent national studies collecting extensive data on individual new admissions and readmissions.

The purpose of this study was to collect personal and functional data on a national probability sample of public facility new admissions and readmissions that would permit 1) a description of general demographic and behavioral characteristics, 2) a comparison of new admission, readmission,

and current resident characteristics, and 3) an analysis of factors related to new admission and readmission from different types of residential settings.

### Method

#### Facility Sample

In 1977 a listing of all 263 government-operated (public) residential facilities for mentally retarded persons was obtained from the periodically revised directory maintained by the National Association of Superintendents of Public Residential Facilities for the Mentally Retarded. These facilities all fit this study's operational definition of a Public Residential Facility: "a state-sponsored and administered facility which offers comprehensive programming for mentally retarded persons on a 24-hour, 7-days-a-week basis." Basic data on the size, location, administration, staffing and residents of these facilities were collected by Scheerenberger (Note 4).

Seventy-eight facilities were selected for the present study through controlled sampling that was stratified by facility size and region. After selection, six facilities declined to participate in the study, but substitutions were made for three, leaving 75 facilities in the sample (Note 7).

#### New Admission and Readmission Samples

To ensure comparability of sample members across facilities standard operational definitions were developed. The operational definition of new admission was "a mentally retarded person admitted to a sample facility from July 1, 1977, through August 31, 1978, who had never previously been a resident of this particular facility." The operational definition of

readmission was "a mentally retarded person admitted to a sample facility from July 1, 1977, through August 31, 1978, who had been a resident of the same facility at another time prior to the most recent admission." Based on the most recent reports on the number of new admissions and readmissions to public residential facilities (Krantz, Bruininks & Clumpner, Note 6; Scheerenberger, Note 4), it was determined that to obtain an adequate sampling ratio of 1:25, approximately 220 new admissions and 210 readmissions should be randomly selected from sample facilities.

At each sample facility, a full listing was made of all residents meeting the operational definitions of "new admission" and "readmission." Each of these was then assigned a unique serial number. Experienced interviewers from the Survey Research Center of the University of Michigan then randomly sampled a total of 220 new admissions and 210 readmissions by means of random numbers provided by the Sampling Section of the Center. Extensive data were gathered on 211 of the 220 originally designated new admissions (95.9%) and 192 of the 210 originally designated readmissions (91.4%). Sample weighting for resident non-participation and for disproportionate sampling among facilities created a weighted (i.e., minimally biased) sample of 286 new admissions and 244 readmissions.

#### Data Collection

Demographic information about the sample members, including date of birth, date of admission, previous placement, and degree of retardation was obtained from each individual's records. Other more extensive data were collected through interviews with individual care providers nominated as "the staff member most directly involved with (the sample member's) day-to-day care." These interview data covered topics such as program plans,

day programs, leisure time activities, family and social contact, specialized services, characteristics of the residential environment, and physical, health, and behavioral characteristics of each resident.

### Results

#### Characteristics of Admissions

During the period covered by this study, 59.8% of new admissions and 64.3% of readmissions were males; 40.2% of new admissions and 37.5% of readmissions were females. The distribution of age and level of retardation of new admissions and readmissions is shown in Table 1. As indicated in Table 1 49.6% of the new admissions and 45.5% of the readmissions were of school age (5-21 years). Fifty-nine percent of new admissions and 48.4% of the readmissions in this study were severely or profoundly mentally retarded; 19.6% of new admissions and 26.6% of readmissions were mildly or borderline retarded. There was a clear relationship between age of new admissions and level of retardation. Younger admissions tended to be more severely retarded ( $\chi^2=24.14$ ,  $df=9$ ,  $p=.004$ ). No such relationship was found among readmissions.

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Insert Table 1 about here  
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At least one secondary handicap such as epilepsy, blindness, deafness or cerebral palsy was reported for 44.1% of the new admission sample and 49.6% of the readmissions sample. Among members of both samples there

was a general tendency for the number of impairments/disorders to increase with the severity of retardation (gamma for new admissions = .315,  $p < .001$ ; gamma for readmissions = .169,  $p < .05$ ).

Most new admissions (85.0%) and readmissions (88.5%) were reported to be ambulatory. Only 62.3% of new admissions and 71.9% of readmissions were reported by their primary caretaker to be able to speak 10 intelligible words. Primary caretakers also reported that only 70.3% of new admissions and 78.0% of readmissions were independent toilet users, defined as, "uses toilet independently with few reminders, including removing and replacing clothing with less than one accident per month." Detailed data on physical, behavioral, and health characteristics are reported elsewhere (Hill, Bruininks & Lakin, in press).

Table 2 summarizes data on maladaptive behavior within the new admission and readmission samples. Behaviors that injured other people and unusual or disruptive behaviors were cited most often for both samples. Sixty-nine percent of each admission group exhibited at least one category of maladaptive behavior; compared with only 47.3% of a national sample of 964 community facility residents and 59.7% of 997 sampled public facility residents in a concurrent study (Hill & Bruininks, in press). In the present sample 5.9% of new admissions and 10.2% of readmissions exhibited five or more types of maladaptive behavior, compared with 2.5% of sampled community facility residents and 4.1% of sampled public facility residents in the concurrent study of maladaptive behavior reported by Hill & Bruininks (in press).

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Insert Table 2 about here

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Prior Placement

Table 3 presents the placements prior to institutionalization of the new admission and readmission samples. It is notable that 44.8% of the new admissions and 30.7% of the readmissions to the sampled public residential facilities were in fact transfers from other public-operated residential or correctional facilities. Thirty-seven percent of the new admissions and 33.2% of the readmissions came directly from their natural/adoptive homes. These relative proportions were somewhat age related. Only 26.9% of new

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Insert Table 3 about here  
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admissions 21 or younger were transfers from other state facilities, compared with 67.5% of those 22 and older. Over 50% of new admissions in the age range 0-21 came directly from a natural or adoptive family versus 17% of new admissions 22 years and older. Approximately half (48.6%) of the 5-21 year old readmissions came from their family residence as compared with one-fifth (20.5%) of the adult readmissions. It was further noted that of those new admissions entering the sampled public facilities directly from a natural or adoptive home, 20.0% had previously lived in an out-of-home placement.

Reason for Placement

Table 4 reports the primary reason cited in each new admission and readmission's records for the institutional placement. Reasons for admission are listed for three general types of prior residential placement: natural/adoptive home, community placements (e.g., family care, community residential

facilities, boarding homes, nursing homes, semi-independent living), and public residential placements (transfers).

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Insert Table 4 about here  
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Several features stand out in this table. First, concern for the "best program" seemed to be greater for new admissions than for readmissions, whereas unmanageable behavior was a far more frequent reason for readmission than for initial admission. Second, deteriorating capability to serve the resident was a common reason for PRF placement from either the natural home or a community facility, but it was not a common reason for any placement from a PRF. Need for specialized care because of physiological impairment was frequently the primary reason for placement from a CRF to a PRF. Third, PRFs were more likely than the others not to record the reasons for transfers from one to another, and PRFs had a larger number of "other" reasons for resident releases. The largest category under "other" was "administrative transfers." PRFs had more of these than either CRFs or natural homes. The reputation of PRFs as impersonal stewards of mentally retarded citizens is supported by their reliance on such a category, as well as their frequent failure to note any reason whatsoever for a resident's transfer.

#### Discussion

The data on new admissions in this study represent a period from July 1977 to August 1978. Recent trends are revealed by comparing these data to

those collected by Scheerenberger for fiscal years 1976-1977 and 1978-1979 (Scheerenberger, Note 4, Note 5). For example, new admissions from other state treatment and correctional facilities declined steadily from 50.8% in fiscal year 1976-1977 to 44.7% in the 1977-1978 fiscal year to 34.2% in the 1978-1979 fiscal years. There was concurrent growth in the proportion of new admissions to public residential facilities who came from unsuccessful prior community placements. This is not wholly unexpected considering the recent community placement of persons who not long ago were believed to be candidates for life long institutionalization.

Over the same period (1977-1979) new admissions from natural and adoptive homes remained a stable proportion of the total population of PRF new admissions (39.5%, 37.1%, 41.0% for the same fiscal years). Despite the notion that one of the most important ideals of deinstitutionalization is the avoidance of a first admission to institutional settings (NASPRFMR, 1974), between the concept and the process there remains a serious gap.

The records of public facility new admissions from non-institutional settings indicate that institutional placements are justified most often with references to specialized programs appropriate to severe physiological or behavioral needs of the new residents. The future avoidance of institution placements will likely depend on the availability of such programs in non-public facilities.

On the other hand, one must be disturbed by the large numbers of new admissions to public facilities who do not need highly specialized care. Well over half of the new admissions of this sample had no secondary handicaps. Fewer than one-half demonstrated behavior that involved the injury of self or others or the purposeful damaging of property. For such individuals

the goal of avoiding unnecessary first admissions to public residential facilities is clearly reasonable but unrealized.

Although the new admission sample members tended to be younger than either current public or non-public facilities residents (cf. Hill, Bruininks & Lakin, in press), their adaptive behavior performance fell between those of the other two groups. For example, 70.3% of new admissions were independent toilet users compared with 61.7% of current public facilities residents and 82.0% of current non-public facility residents. The same findings are evident in the areas of physical impairments, ambulation and communication (cf. Hill, Bruininks & Lakin, in press).

Because the functional level of current residents has been decreasing steadily despite the new admission of relatively competent residents, it is clear that many newly admitted residents are later selected for discharge. Thus, it appears that there is initial rejection of the marginal client by the community, placement of this client in a public facility and subsequent discharge from the public facility in to a community facility. This scenario attributes a transitional function to PRFs, systemic and personal preparation for the placement of marginal clients into community residential settings.

In terms of adaptive behavior and physical characteristics, the sample of readmissions to public facilities was found to resemble the current residents of community facilities more closely than the current public facility resident population (Hill, Bruininks & Lakin, in press). Direct comparison between community facility residents and PRF readmissions show the following: 60.1 versus 64.3% males, 34.6% versus 35.7% ages 0-20, 33.9% versus 26.6% borderline/mildly retarded, and 37.5% versus 48.4% severely/profoundly retarded.

In terms of maladaptive/inappropriate types of behavior the differences between successful community facility residents and PRF readmissions were highly significant. The following comparisons of the number of community facility residents and PRF readmissions who exhibited categories of maladaptive/inappropriate behavior show the extent of the differences: injurious to other people, 16.3% versus 38.5%; self-injurious, 11.1% versus 21.3%; purposely damages property, 11.1% versus 23.4%; unusual or disruptive behavior beyond what can be ignored by staff, 28.8% versus 41.0%; breaks rules, refuses routine, 19.1% versus 33.2%; successfully refused to go to day program at least once in a previous month, 2.5% versus 13.8%; ran away within prior six months, 1.3% versus 8.2%; broke a law within previous year 1.5% versus 7.4%. Clearly, behavior problems have a strong relationship to readmission to public residential care (cf. also, Landesman-Dwyer, 1981).

The contrasts between readmissions and new admissions are especially impressive because these groups were defined institutionally rather than generically. A readmission was an individual who previously had been a resident of the same facility to which he/she had been recently admitted. A person returning to institutional living, but not returning to an institution where he/she had previously lived was not a readmission under present operational definitions. Similarly, new admissions were persons who had never previously been residents of sampled facilities. However, persons previously institutionalized were considered new admissions when returned to a facility where they had never previously been a resident (31% of the present sample). Therefore, the tendency toward similarity between readmissions and new admissions has been maximized by the large proportions of both samples that generally

represented the same circumstances (transfer from one public facility to another).

These results suggest that despite the criticism of public residential facilities by many proponents of deinstitutionalization, the facilities perform at least three functions in the provision of residential services for developmentally disabled children and adults. First, they provide a permanent place for very low-functioning clients. However, the justifiability of this function is constantly being challenged as ever more people for whom life-long institutionalization was once believed necessary are successfully moved into community-based living arrangements. Second, the PRF provides a stable alternative when home or community placements deteriorate. Third, the PRF is emerging as a transitional facility, a stable back-up for more integrative alternatives. The temporariness of PRF placement for high ability clients is made apparent by the downward trend in PRF resident ability levels despite the above-average ability of new admissions and readmissions. Thus, while one might question why society continues to house large numbers of capable citizens in large, isolated public facilities, it would appear that these facilities will need to be maintained until community alternatives achieve comparable permanence and responsiveness to temporary resident needs.

## Reference Notes

1. Scheerenberger, R.C. Public residential services for the mentally retarded, 1981. Minneapolis: University of Minnesota, Department of Psychoeducational Studies, 1982.
2. Krantz, G.C., Bruininks, R.H., & Clumpner, J.L. Mentally retarded people in state-operated residential facilities: Year ending June 30, 1980. Minneapolis: University of Minnesota, Department of Psychoeducational Studies, 1982.
3. Lakin, K.C. Demographic studies of residential facilities for mentally retarded people: An historical review of methodologies and findings. Minneapolis: University of Minnesota, Department of Psychoeducational Studies, 1979.
4. Scheerenberger, R.C. Public residential services for the mentally retarded, 1977. Minneapolis: University of Minnesota, Department of Psychoeducational Studies, 1978.
5. Scheerenberger, R.C. Public residential services for the mentally retarded, 1979. Minneapolis: University of Minnesota, Department of Psychoeducational Studies, 1979.
6. Krantz, G.C., Bruininks, R.H., & Clumpner, J.L. Mentally retarded people in state-operated residential facilities: Year ending June 30, 1978. Minneapolis: University of Minnesota, Department of Psychoeducational Studies, 1978.
7. Hauber, R.A., Bruininks, R.H., Wieck, C.A., Sigford, B.B., & Hill, B.K. 1978-1979 in-depth survey of public and community residential facilities for mentally retarded people: Methods and procedures. Minneapolis: University of Minnesota, Department of Psychoeducational Studies, 1981.

## References

- Bachrach, L. L. A conceptual approach to deinstitutionalization of the mentally retarded: A perspective from the experience of the mentally ill. In R.H. Bruininks, C.E. Myers, B.B. Sigford, & K.C. Lakin (Eds.), Deinstitutionalization and community adjustment of mentally retarded people. Washington, D.C.: American Association on Mental Deficiency, 1981.
- Hill, B.K., & Bruininks, R.H. Maladaptive behavior of mentally retarded people in residential facilities. American Journal of Mental Deficiency, in press.
- Hill, B.K., Bruininks, R.H., & Lakin, K.C. Physical and behavioral characteristics and maladaptive behavior of mentally retarded people in residential facilities. Journal of Health and Social Work, in press.
- Lakin, K.C., Krantz, G.C., Bruininks, R.H., Clumpner, J.L., & Hill, B.K. One hundred years of data on populations of public residential facilities for mentally retarded people. American Journal of Mental Deficiency, 1982, 87 (1), 1-8.
- Landesman-Dwyer, S., & Sulzbacher, F.M. Residential placement and adaptation of severely and profoundly retarded individuals. In R.H. Bruininks, C.E. Myers, B.B. Sigford, & K.C. Lakin (Eds.), Deinstitutionalization and community adjustment of mentally retarded people. Washington, D.C.: American Association on Mental Deficiency, 1981.
- (NASPRFMR) National Association of Superintendents of Public Residential Facilities for the Mentally Retarded. Contemporary issues in residential programming. Washington, D.C.: President's Committee on Mental Retardation, 1974.



Footnotes

1. This research was partially supported by a grant (54-P-71173-5-04) from the Administration on Developmental Disabilities, U.S. Department of Health and Human Services and a grant (18-P-98078/5-01) from the Health Care Financing Administration, U.S. Department of Health and Human Services.
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Table 1  
 Percent of New Admissions and Readmissions to Public Residential Facilities (PRFs)  
 by Age and Level of Retardation

Level of Retardation	Age of New Admissions <sup>a</sup>				Age of Readmissions <sup>b</sup>			
	% 0-4 (N=18)	% 5-21 (N=142)	%22-39 (N=92)	%40-63 (N=34)	%0-4 (N=2)	% 5-21 (N=111)	%22-39 (N=99)	%40-63 (N=32)
Mild/Border	0	19.0	19.6	32.4	0	26.1	29.3	21.9
Moderate	11.1	19.7	27.2	20.6	0	24.3	29.3	15.6
Severe	22.2	30.3	25.0	38.2	0	27.0	16.2	31.3
Profound	<u>66.7</u>	<u>31.0</u>	<u>28.3</u>	<u>8.8</u>	<u>100</u>	<u>22.5</u>	<u>25.3</u>	<u>31.3</u>
Total	100%	100%	100%	100%	100%	100%	100%	100%

<sup>a</sup> $\chi^2(9) = 24.14, p = <.004$

<sup>b</sup> $\chi^2(9) = 12.84, p = <.17$

Table 2

Percent of New Admissions and Readmissions Exhibiting Maladaptive Behavior

<u>Type of Maladaptive Behavior</u>	<u>New Admissions</u>	<u>Readmissions</u>
Injures self	22.0%	21.3%
Injures others	42.0%	38.5%
Damages property	19.2%	23.4%
Unusual or disruptive behavior	37.8%	41.0%
Breaks rules, refuses routine	32.4%	33.2%
Refuses to attend day programs	20.9%	25.8%
Has purposely run away from facility	11.5%	13.5%
Has broken the law within one year	3.1%	7.4%

NOTE: New admissions and readmissions did not differ significantly on any category.

Table 3  
 Prior Placement of New Admissions by Age at Admission

Prior Placement	Age of New Admission <sup>a</sup>					Age at Readmission <sup>b</sup>				
	% 0-4 (N=18)	% 5-21 (N=142)	% 22-39 (N=92)	% 40-63 (N=34)	% Total	% 0-4 (N=2)	% 5-21 (N=111)	% 22-39 (N=99)	% 40-63 (N=32)	% Total (N=244)
Foster/Family care	16.7	8.5	1.1	2.9	5.9	0.0	3.6	3.0	12.5	4.5
CRF (1-15)	0.0	.7	1.1	5.9	1.4	100.0	7.2	12.1	12.5	10.7
CRF (16+)	0.0	6.3	2.2	0.0	3.8	0.0	4.5	5.1	0.0	4.1
Semi-independent/Independent living	0.0	0.0	1.1	0.0	.3	0.0	1.8	1.0	0.0	1.2
Natural/Adoptive home	77.8	49.3	15.2	23.5	37.1	0.0	48.6	22.2	15.6	33.2
Boarding home	0.0	0.0	2.2	0.0	.7	0.0	0.0	2.0	6.3	1.6
Nursing home	0.0	1.4	3.3	5.9	2.4	0.0	2.7	11.1	9.4	7.0
PRF/Correctional facility	0.0	30.3	70.7	58.8	44.8	0.0	27.9	33.3	34.4	30.7
Hospital, other medical	5.6	1.4	1.1	0.0	1.4	0.0	2.7	3.0	3.1	2.9
Other	0.0	2.1	2.2	2.9	2.1	0.0	.9	5.1	6.3	3.3
No information in records	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	.8

<sup>a</sup>  $\chi^2(2)$  for natural home vs. PRF at age 5 or more = 39.69,  $p < .001$

<sup>b</sup>  $\chi^2(2)$  for natural home vs. PRF at age 5 or more = 10.46,  $p < .01$

Table 4

Reasons Given in Individual Records for New Admission and Readmission  
to Public Facilities (PRFs)  
(Table entries are percentage of column totals)

Reason for PRF Placement	Prior Residence					
	Home <sup>a</sup>		Community Facility <sup>b</sup>		PRF <sup>c</sup>	
	New % Total (N=42)	Re % Total (N=80)	New % Total (N=106)	Re % Total (N=69)	New % Total (N=127)	Re % Total (N=68)
Specialized, best, most appropriate program	23.8%	8.8%	21.7%	13.0%	25.2%	19.1%
Insufficient or deteriorating capability to care for resident (includes abuse and neglect)	11.9	30.0	24.5	10.1	3.1	7.4
Unmanageable/intolerable behavior	21.4	26.3	17.0	31.9	13.4	25.0
Proximity to family only reason given	19.0	17.5	12.3	1.4	11.8	5.9
Severity/complexity of physiological impairment requiring specialized care	9.5	8.8	11.3	13.0	6.3	5.9
Other	12.1	7.4	12.3	20.5	33.7	27.9
No reason on record	2.3	1.2	.9	10.1	16.5	8.8

<sup>a</sup>Home;  $\chi^2(6)=9.40, p < .10$

<sup>b</sup>Crf;  $\chi^2(6)=26.06, p < .001$

<sup>c</sup>Prf;  $\chi^2(6)=9.67, p < .10$

All new admissions;  $\chi^2(12)=49.57, p < .001$

All readmissions;  $\chi^2(12)=45.56, p < .001$