

Survey of Adult Day Care in the United States

National and Regional Findings

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Before attempting to understand how a relatively new treatment modality such as adult day care (ADC) works, it is useful to understand what it is. To this end, this article describes the structural characteristics of ADC centers and the characteristics of ADC users in the United States and across the four U.S. census regions. A 1986 national census survey of 1,347 ADC centers yielded 974 usable responses (72.3%). Findings indicated that there is great variability in characteristics of ADC across the country. In general, ADC's are well-staffed, well-linked to other agencies, and well-equipped. However, demand and enrollment appeared low. A need for improved oversight and staff in-service training was indicated for a substantial proportion of centers. These and other findings provide the most detailed and comprehensive national and regional descriptions of ADC available to date.

This article describes the findings of a national survey concerning structural and population characteristics of adult day care centers (ADC's) in the United States and across the four U.S. census regions. This national survey used the Adult Day Care Assessment Procedure (ADCAP), a 24-page questionnaire which obtained detailed informa-

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tion about the structure, client population, and process of ADC (Conrad et al., 1987). The findings provide a comprehensive profile of ADC which can help policy makers, clinicians, and researchers to understand ADC programs and plan new directions for program implementation and future research. When applicable, findings are compared to the *Standards for Adult Daycare* (National Institute on Adult Daycare, 1984) in order to assess the extent to which the ADC programs meet national standards.

Background

Adult day care (ADC) is a community-based group program that is designed to meet the needs of functionally impaired adults through an individual plan of care. It is a comprehensive program that provides a variety of health, social, and related support services to groups of adult clients in a protective setting during any part of a day, but for less than 24 hours (The National Institute on Adult Daycare, 1984). It is increasingly being viewed as a promising long-term care option because it provides regular and reliable respite to informal caregivers. It may also foster their continued workforce participation (Winfield, 1987), while providing care for clients in a less restrictive setting than an institution. Finally, ADC provides important peer group support and social interaction—benefits not associated with other types of care such as home care.

The number of ADC programs has expanded dramatically from eighteen centers in 1974 (Weissert, 1977) to 1,347 in 1986, as estimated by the national survey reported here. Given the demographic trends of increased survival of the very old and the increased workforce participation of females who customarily have performed a caregiving role in the past, this growth can only be expected to accelerate in the future (Hughes, 1986).

Despite the increased proliferation of ADC programs nationally, there are gaps in our knowledge concerning this new mode of care. To date, most surveys have been deficient for several reasons. First, they were limited to specific states or cities, and thus lacked geographic generalizability (Arling and Romaniuk, 1982; Barresi and McConnell, 1984; Dilworth-Anderson and Hildreth, 1982; Weissert, 1977). Second, they focused on a specific sub-group of users, or a particular set

of services (Mace and Rabins, 1984) or service patterns (Zaki and Zaki, 1983). Third, survey information was collected on staff and/or administrators, with few surveys collecting participant-level information. Fourth, sample sizes have generally been small. All of these limitations have prevented researchers and policy makers from developing a comprehensive national picture of ADC that would enable a clear understanding of variability among programs in terms of physical resources, staffing patterns, and client populations. Overall, these surveys indicate that ADC is a generic term that applies to a large variety of programs ranging from social and recreational programs to those which are heavily medical in their emphasis. Costs of day care have been found to vary substantially, depending upon the objectives, funding, participants, and types of staff assembled. Completed surveys have also found that ADC is characterized by complex and fragmented programs and policies, and that it encompasses a wide variety of models.

Two recent national surveys of ADC were similar in scope and purpose to the present study. Mace and Rabins (1984) investigated 346 ADC centers that served at least some clients with dementia. However, the study sample was limited to the subset of ADC clients who suffered from dementia. Second, the National Institute on Adult Daycare (NIAD) of the National Council on the Aging, Inc. conducted a national survey of its membership (Von Behren, 1986). Although the NIAD survey obtained information about stated objectives and funding not obtained in the ADCAP survey, it did not obtain detailed information on space and facilities, quality of the environment, transportation, organizational linkages, policies and procedures (such as staff training, meeting times, etc.), detailed client and staff information, or data about program processes and philosophy.

Methods

Modeled after the Multiphasic Environmental Assessment Procedure (Moos and Lemke, 1984), the ADCAP is a 24-page questionnaire which obtained detailed information about the structure, client population, and process of ADC (Conrad et al., 1987). Although structure can include all program resources that are used to attain program goals

(Conrad and Miller, 1987), this article is confined to a description of physical, staff, and organizational resources, as well as the client population served by the ADC center. Physical resources include the quantity and quality of materials and space. Staff resources include client/staff ratios and numbers of staff, volunteers, and students. Organizational resources include auspices, procedures, and systems which the program uses to accomplish its goals. Population refers to major characteristics of ADC clients, such as age, functional status, and attendance.

The Adult Day Care Assessment Procedure (ADCAP) was mailed in April of 1986 to the entire population of ADC's listed in the updated directory of ADC's compiled by NIAD (Robins, 1985). This national "census" approach was used to provide the most comprehensive, in-depth portrait possible of ADC in the United States. Of 1,347 eligible centers, 974, or 72.3%, provided usable responses, a very high response rate for a dense, 24-page mailed questionnaire. The questionnaire was directed to the on-site director of each center who was assumed to have the most complete, direct, and intimate knowledge of the program.

The national data are further broken down by the four U.S. Census Regions: Northeast, Midwest, South, and West (U.S. Bureau of the Census, 1987). Urban centers are those located in Standard Metropolitan Statistical Areas (SMSA's). Variance in response rate by region was significant at $p < .01$, a level we have defined as marginal or suggestive in this study (see "Analysis" section). The Northeast had the highest rate at 286/368, or 77.7%; the Midwest rate was 287/384, or 74.7%; the West's was 141/201, or 70.3%; and the South's was the lowest at 259/393, or 65.9%. Seventy-eight percent of the responding centers were located in urban settings, the percentage of respondents from urban centers (72.7%) was not significantly different from rural (71.6%). Therefore, we present the following results with the caveat that some findings may reflect a possible response bias by region. The scope of the study did not allow the collection of more data to examine a potential bias. The likelihood of a bias influencing the results is lessened by the stringent significance level reported for the analyses and the high response rates throughout the four regions. Therefore, although these findings do not represent all centers, they do represent a clear majority of ADC providers across the U.S.

regions (60.6% to 78.6%). The NIAD standards state that ADC centers should have an advisory committee. Nationally, about 59% of centers reported having an advisory committee. Centers in the West were most likely to use advisory committees, which may indicate a greater degree of expert and/or community involvement in ADC. Clearly, there is substantial regional variability in ownership, licensure, and oversight.

The ADCAP survey indicated that the variation among regions was not statistically significant in terms of structural characteristics like square feet of floor space ($\bar{X} = 3,800$ sq. ft.), rooms for clients ($\bar{X} = 3.6$), offices ($\bar{X} = 2.5$), bathrooms ($\bar{X} = 2.9$), number of toilets ($\bar{X} = 4.4$), availability of storage space for clients (77%), furniture appropriate for the disabled (91.4%), presence of rest areas (89.6%), and entry without stairs (97.4%). However, there was variation in the availability of reading aids (Table 2). The Midwest had the highest percentage (81.3%) and the West had the lowest (68.7%). The availability of handrails in the halls also differed, with the Northeast having the highest percentage (64.1%) and the South the lowest (36.6%).

Staff training. The NIAD standards state that ADC centers must have formal orientation, staff development, and regular in-service training programs. Our survey (Table 2) found that 79% of respondents reported having an in-service training program with the West having the highest percentage (87%) and the Midwest the lowest (71%). Seventy-four percent of ADC's reported having a handbook for staff. Of those with in-service training programs, 27% reported that the program consisted of orientation and regular formal training sessions, while another 42% had supplemented those sessions with special programs. A chi-square test revealed significant regional variation, with the South having the highest percentage of centers with regular formal training.

Eighty percent of ADC centers offering formal training indicated that the training took place at least once a month. In summary, of 912 centers that responded, 480—or 53%—reported having regular formal training. This corresponds well with the 58% that reported having staff training "once a month." Therefore, it seems clear that slightly over half the centers met the NIAD standard for regular in-service training.

Hours, attendance, and enrollment. A significant amount of regional variation in the average hours centers were open was found

TABLE 2
Staff Training

	U.S.	Northeast	Midwest	South	West
Training Program	(N) (912)	(264)	(271)	(248)	(129)
	% 78.5	79.2	70.5	82.3	86.8**
Having Handbook for Staff	(N) (917)	(269)	(270)	(244)	(134)
	% 73.8	72.9	71.9	77.9	72.4
Type of Inservice	(N) (709)	(211)	(189)	(200)	(109)
Informal Only	% 5.6	3.3	4.8	7.5	8.3**
Orientation Only	% 1.0	1.9	1.6	0	0
Orient. and Informal	% 24.4	29.4	29.6	16.0	21.1
Orient. and reg. fml	% 27.4	28.0	29.6	23.0	30.3
Orient. and reg. formal and special prgrams	% 41.6	37.4	34.4	53.5	40.4
How Often Formal Training	(N) (669)	(202)	(173)	(185)	(109)
Only when needed	% 20.3	25.2	20.8	16.8	16.5
Once a month	% 32.3	26.7	37.0	38.9	23.9
Twice a month	% 40.8	41.1	34.7	40.5	50.5
Once a week	% 6.6	6.9	7.5	3.8	9.2
How Often Are Meetings Held?	(N) (813)	(250)	(219)	(217)	(127)
When needed	% 7.9	6.4	10.5	10.6	1.6*
Once a month	% 9.5	8.8	9.1	11.1	8.7
Twice a month	% 40.0	36.4	37.9	46.5	39.4
Once a week	% 42.7	48.4	42.5	31.8	50.4

*p < .01; **p < .000625.

(Table 3). The Midwest had the greatest number of hours per weekday ($\bar{X} = 8.3$), while the rest had about equal hours ($\bar{X} = 7.4$ to 7.7). The Midwest also had about a half-hour more formal programming ($\bar{X} = 6.0$ to about 5.6), but was significantly lower than the other regions in attendance, enrollment, and capacity. These findings indicate that Midwestern centers tended to be smaller than those in the other regions. In all regions, ADC centers tended to over-enroll clients, but still fell short of capacity by about 4 clients (total daily capacity minus total daily attendance). The South had a significantly different attendance pattern insofar as clients averaged 3.7 visits per week versus 3.1 to 3.2 for the other regions. Nationally, 29% of centers had a waiting list. The South had the highest percentage of centers with waiting lists and the Midwest the lowest.

Client characteristics. The average age of clients in ADC was about 72 (SD = 11.0) with clients in the South being slightly younger.

Analysis. The major analysis concerns the presentation of a descriptive profile of ADC's across the U.S. This profile is refined somewhat by the presentation of the results by census region. The regional analyses tested the null hypothesis that there were no regional differences in ADC programs using analyses of variance. Since these were not independent tests, it was necessary to choose an experiment-wise significance level. The Bonferroni method was chosen to determine the appropriate level. It employs the principle of dividing an overall p-value into as many (usually equal) parts as there are hypotheses, and then setting the per hypothesis significance criterion accordingly (Cohen and Cohen, 1983). The method assumes that all variables are equally "dependent." Therefore, it results in a significance level that is too stringent, since the levels of dependence/independence vary. In this study $p = .05/80 = .000625$, a level which is probably too stringent, but is reported and indicated with three asterisks. We also report $p < .001$ with two asterisks since we believe these findings to be valid. One asterisk denotes $p < .01$ for findings not considered significant in this study, but which warrant further investigation in future studies.

Given the conservative significance level and the general belief that there is a great deal of variation in the characteristics of ADC's across the country, we did not expect to observe many statistically significant differences among the regions. Where regional differences were observed, we believe these differences exist. Although the principal purpose of this article is to describe ADC, we do offer some plausible explanations for regional differences which can be explored in future studies.

Results

Organizational and structural characteristics of ADC centers. Table 1 presents variables describing the setting, auspices, and organizational characteristics of ADC centers. Nationally, about 78% of the centers were located in urban settings. Regional variations in urban/rural composition were marginally significant. Table 1 shows that the Midwest had the highest percentage of centers in rural settings (22.5%), followed by the Northeast and the South, while the West had the lowest (14.4%). Presumably, this is because the distances involved

TABLE 1
Organizational and Structural Characteristics

	U.S.	Northeast	Midwest	South	West
Urban	(N) (924) % 78.1	(255) 80.1	(284) 77.5	(246) 72.0	(139) 85.6*
Rural	(N) (255) % 21.9	(66) 19.9	(77) 22.5	(74) 18.0	(25) 14.4
Private for Profit	(N) (917) % 9.9	(266) 14.3	(273) 9.2	(247) 7.7	(131) 6.9***
Private not for profit	(N) (865) % 70.2	(266) 62.4	(273) 76.9	(247) 66.4	(131) 79.4
Public	(N) (198) % 19.8	(23.3) 23.3	(13.9) 13.9	(25.9) 25.9	(13.7) 13.7
Incorporated	(N) (872) % 74.5	(258) 69.4	(252) 79.0	(237) 71.7	(125) 81.6*
Freestanding	(N) (930) % 17.6	(272) 12.5	(273) 13.2	(249) 23.3	(136) 26.5*
Licensed	(N) (891) % 57.6	(258) 60.4	(261) 31.1	(242) 79.3	(127) 65.4**
With Advisory Committees	(N) (916) % 58.6	(266) 51.5	(272) 56.3	(246) 60.2	(132) 75.0**
Years in Operation	(N) (865) X 7.5 SD 5.9	(255) 7.3 5.6	(258) 7.6 7.8	(221) 8.1 4.3	(131) 6.6 3.5
Reading Aids Available	(N) (920) % 74.8	(268) 74.3	(274) 81.0	(242) 71.9	(136) 68.4*
Handrails in Halls	(N) (888) % 50.5	(265) 64.2	(265) 54.7	(235) 36.2	(123) 39.0**

* $p < .01$; ** $p < .000625$.

in western rural areas are so great as to preclude the implementation of ADC programs in most rural settings. However, the Midwest and Northeast areas are more compact and populous, so that ADC is a more viable option.

Nationally, the majority of centers (70%) were private not-for-profit, 20% public, and 10% were private for-profit. Ownership status varied regionally, with the Midwest and West having a higher percentage of private non-profit centers but a low percentage of public centers. The Northeast and South, however, had more centers under public auspices and fewer private non-profit centers. The Northeast had the highest proportion of private for-profit centers while the West had the lowest. About 57% of centers nationally were licensed. The Midwest had a much lower proportion of licensed centers (31.3%) than the other

TABLE 3
Hours, Attendance, Enrollment, Waiting List, and Age

	U.S.		Northeast		Midwest		South		West	
Average Hours	(N)	(923)	(272)	(274)	(246)	(131)				
Open Weekdays	X	7.8	7.5	8.3	7.7	7.4*				
	SD	2.5	2.1	2.7	2.4	2.9				
Hours of Formal Prog. Wkdays	(N)	(922)	(271)	(274)	(246)	(131)				
	X	5.1	5.1	5.4	4.9	4.9*				
	SD	2.2	2.0	2.2	2.2	2.4				
Daily Attendance Weekdays	(N)	(925)	(273)	(274)	(247)	(131)				
	X	19.5	20.1	15.6	22.3	20.2*				
	SD	17.5	15.8	15.7	20.6	16.8				
Daily Enrollment	(N)	(925)	(273)	(274)	(247)	(131)				
	X	24.4	26.4	19.5	26.8	26.1*				
	SD	23.4	23.2	22.7	23.6	23.9				
Daily Capacity	(N)	(925)	(273)	(274)	(247)	(131)				
	X	23.9	24.9	19.7	27.0	24.4*				
	SD	17.3	17.4	16.1	18.4	14.2				
Number of visits per week	(N)	(807)	(243)	(237)	(215)	(112)				
	X	3.3	3.2	3.1	3.7	3.3*				
	SD	1.0	1.0	1.0	1.0	1.1				
Centers Having Waiting List	(N)	(876)	(257)	(255)	(239)	(125)				
	%	29.1	29.6	14.9	42.7	31.2*				
Number per Waiting List	(N)	(232)	(68)	(35)	(91)	(38)				
	X	14.8	12.5	13.1	16.7	15.7				
	SD	18.1	13.9	12.1	21.1	21.2				
Number of Clients Left in Last 3 Months	(N)	(820)	(245)	(241)	(215)	(119)				
	X	6.3	6.9	5.6	6.3	6.9				
	SD	6.3	5.3	6.1	7.1	6.8				
Average Age	(N)	(865)	(262)	(245)	(234)	(124)				
	X	72.2	73.5	73.6	67.8	74.8				
	SD	11.0	8.3	9.0	14.9	8.5				

*p < .000625.

Average total enrollment was 39.7 clients, with 68% female. The average of administrators' estimates regarding clients' living situation indicates that 20% of clients lived alone in the community, 29% lived with children, 20% with a spouse and 13% with other relatives or friends. An additional 7% lived alone in a congregate setting, 20%

TABLE 4
Activities of Daily Living and Instrumental Activities of Daily Living^a

Activities of Daily Living	(N)	% Who do this Without Help	% Who Do This With Some Help	% Unable To Do This
Take care of Own Appearance	(849)	54.3	32.2	12.9
Eat Meals	(883)	78.7	18.3	2.8
Dress and Undress	(852)	59.0	31.0	10.2
Walk	(878)	70.1	22.2	7.3
Get In and Out of Bed	(826)	74.1	19.8	5.6
Take a Bath or Shower	(808)	50.8	37.8	10.5
Get to the Bathroom on Time	(874)	69.2	24.6	6.1
Make needs Understood	(875)	72.0	19.7	8.1
Handle their Own Money	(837)	30.7	27.6	41.0
Use the Telephone	(846)	50.7	26.3	22.8
Go Shopping	(824)	24.2	37.1	37.4

a. Percentages do not sum to exactly 100% because of rounding error, minor errors by respondents, or a few cases of missing values per variable.

lived alone, and 7% lived in an institutional setting. The average monthly income of clients was estimated as \$557 (N = 559, SD = 610). An average of 47% were eligible for Medicaid, with the Midwest having the lowest mean proportion at 40% (p = .001).

The functional status of the client population taken as a group was assessed with two scales. The Activities of Daily Living (ADL) scale, obtained the administrators' estimates of the percentages of clients able to perform each of eight activities on a three-point scale: without help, with some help, and completely unable. Three Instrumental Activities of Daily Living (IADL) were also assessed using the same response categories. The ADCAP ADL and IADL scales had alpha

reliabilities of .91 and .89, respectively. Results indicated that, on average, the administrators rated their clients as slightly dependent on total average ADL and as moderately dependent in IADL. There were no significant regional variations in ADL or IADL functioning.

The NIAD standard for the appropriate target population reads, "Adults with physical, emotional, or mental impairment who require assistance and supervision." The survey found (Table 4) that for any particular ADL category, a majority of the population was unimpaired. The ADL categories with the highest mean proportions of the population needing help were in bathing (49%), caring for their appearance (45%), and dressing (41%). Regarding IADLs, a majority of the population needed help handling their own money ($\bar{X} = 69\%$), and shopping ($\bar{X} = 75\%$). Regarding two of the more severe ADL impairments, a mean of 31% of the population needed help to get to the bathroom on time, and 21% needed help eating their meals.

From these data, it is not possible to determine the proportion of the population needing help in one or more IADL. However, the overall mean of administrators' estimates indicates that 51.7% of clients would be in a nursing home, hospital, or other institution if they were not receiving ADC. Furthermore, on average, administrators reported that 40.2% of clients were confused or disoriented, and that 20.6% suffered from Alzheimer's disease. They also reported that upon discharge from ADC, a mean of 31.3% of clients went to nursing homes, 7.3% went to hospitals, and 12.2% had died. Thus, a substantial proportion of the clients served by ADC were impaired and in need of daily help.

Staffing. Table 5 reveals no significant regional variations in client/staff ratios. However, the variation within regions was very high, indicating great variability in ADC and the lack of standardization across the country in this important program characteristic. This variability may reflect the presence of different models of ADC. For example, we would expect medical model centers to have a low client/staff ratio while social model centers would have a high ratio. Future analyses of this data set are planned to investigate ADC models further.

Table 5 also indicates that the smaller Midwest centers had, on average, somewhat fewer core staff (i.e., regular salaried, as opposed to consulting), total staff, and total staff hours spent in contact with clients. These results are consistent with our finding that centers in the

TABLE 5
Staffing

	U.S.		Northeast		Midwest		South		West	
Total Clients	(N)	(768)	(235)	(211)	(211)	(211)	(111)	(111)	(111)	(111)
per core Staff Member	X	10.1	10.6	9.9	10.2	9.5	10.2	9.2	9.5	9.5
	SD	7.8	7.5	7.4	7.5	6.4	7.5	7.4	7.5	6.4
Total Clients per Staff Member (Consultants included)	(N)	(760)	(234)	(206)	(209)	(111)	(209)	(111)	(111)	(111)
	X	8.8	9.1	8.7	8.8	8.4	8.8	8.8	8.4	8.4
	SD	6.5	5.7	6.0	6.0	5.5	6.0	5.7	5.5	5.5
Attending Clients per core Staff Member	(N)	(769)	(238)	(215)	(202)	(114)	(202)	(114)	(114)	(114)
	X	6.4	6.5	5.9	6.8	6.8	6.8	6.8	6.8	6.8
	SD	6.4	7.1	5.2	6.3	6.3	6.3	6.3	6.3	7.2
Attending Clients per Staff Member (Consultants included)	(N)	(747)	(233)	(206)	(206)	(111)	(206)	(111)	(111)	(111)
	X	5.7	5.7	5.2	6.1	6.2	6.1	6.1	6.2	6.2
	SD	5.5	5.6	4.2	6.0	6.3	6.0	6.0	6.3	6.3
Average Attending/Total Contact FTEE	(N)	(745)	(228)	(213)	(196)	(108)	(196)	(108)	(108)	(108)
	X	8.3	8.5	7.7	8.5	8.5	8.5	8.5	8.5	8.5
	SD	7.5	8.4	6.9	7.3	7.3	7.3	7.3	7.3	7.3
Total Core staff	(N)	(850)	(254)	(244)	(230)	(122)	(230)	(122)	(122)	(122)
	X	4.1	4.2	3.8	4.3	4.1	4.3	4.1	4.1	4.1
	SD	2.0	2.0	2.1	2.1	1.8	2.1	1.8	1.8	1.8
Total Staff (Consultants included)	(N)	(848)	(253)	(243)	(230)	(122)	(230)	(122)	(122)	(122)
	X	4.6	4.8	4.3	4.8	4.6	4.8	4.6	4.6	4.6
	SD	2.3	2.3	2.3	2.4	2.2	2.4	2.2	2.2	2.2
Total Contact FTEE	(N)	(816)	(243)	(233)	(223)	(117)	(223)	(117)	(117)	(117)
	X	4.6	4.8	4.3	4.8	4.6	4.8	4.6	4.6	4.6
	SD	1.7	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.6

Midwest tended to be smaller in numbers of clients and staff than those in other regions.

NIAD standards state that the participant to staff ratio should be a minimum of eight to one. The national average ratio of attending clients to staff was 6.4 to 1. Eighty-one percent of the 782 centers responding had a client/staff ratio of 8 to 1 or lower. In addition to the number of core staff, we obtained an estimate of the number of hours per week each staff member spent in contact with clients. We divided the total number of contact hours by 37.5 to obtain an estimate of "contact FTE" or the number of full-time equivalent direct contact staff. The national mean ratio of attending clients to contact staff FTE was 8.3 to 1. Sixty-six percent of the 759 respondents had a ratio below

8 to 1. These statistics indicate that, in general, the ADC centers conformed to the national standard for client/staff ratio.

Volunteers and students. We found no significant regional variation in the number of volunteer hours per week ($\bar{X} = 31.9$), the percentage having volunteers ($\bar{X} = 89.5\%$), the number of volunteers per week ($\bar{X} = 6.2$), the percentage having students involved ($\bar{X} = 63.0\%$), the number of students per center ($\bar{X} = 2.3$), and the number of student hours per week ($\bar{X} = 13.0$). However, a great deal of variation was observed within regions in these characteristics. Overall, the use of volunteers and students across the country was substantial, accounting for more than one full time position per center.

Transportation arrangements. Table 6 reveals that a majority of ADC clients (55%) spent less than 30 minutes in travel one way. Ninety percent spent an hour or less, which is the NIAD standard. Expected regional differences were observed in travel time with the South and West having lower percentages of clients who spent less than 30 minutes one way and a correspondingly higher percentage spending 30 minutes to one hour.

Centers, on average, owned about three client transport vehicles, 1.7 of which had a lift for wheelchairs. Each center's vehicles accommodated 3.5 wheelchairs, on average. The regional variation in the number of vehicles reflects the repeated finding that Midwestern centers tended to be somewhat smaller. The way in which transportation was provided varies by region, with clients having more responsibility for providing their own transportation in the Midwest ($\bar{X} = 36.8\%$) and West ($\bar{X} = 35\%$) and less responsibility in the Northeast ($\bar{X} = 24.7\%$) and South ($\bar{X} = 27.4\%$).

Linkages. To examine the kinds of linkages that ADC's have with other organizations, four questions were asked concerning 16 organizations. The questions were: (1) Does your center receive client referral from . . . ? (2) Does your center refer clients to . . . ? (3) Does your center share the same location with . . . ? (4) Does your center plan and coordinate services with . . . ? The organizations were: (1) government agencies on aging, (2) local health department, (3) local social council, (4) local parks and recreation, (5) visiting nurses/home health, (6) nursing homes, (7) Veterans Administration, (8) housing authorities, (9) hospitals, (10) senior centers, (11) nutrition sites, (12)

TABLE 6
Transportation Arrangements

	U.S.	Northeast	Midwest	South	West
<i>Travel Time</i>					
Less Than	(N) (878)	(258)	(258)	(235)	(127)
30 Minutes	% 55.1	59.3	60.7	44.4	54.9**
30 minutes to 1 Hour	(N) (876)	(258)	(256)	(235)	(127)
1 Hour to 1 1/2 Hours	% 35.3	34.2	31.2	39.7	38.0
More than 1 1/2 Hours	(N) (877)	(258)	(257)	(235)	(122)
	% 5.3	4.5	4.7	6.7	5.9
	(N) (878)	(259)	(257)	(235)	(127)
	% 1.2	.5	.7	3.3	.1**
<i>Number and Type of Vehicles</i>					
Number of Vehicles	(N) (810)	(243)	(229)	(223)	(115)
	X 3.2	3.6	2.5	3.5	3.7*
	SD 3.5	2.6	2.6	4.7	4.0
<i>Number of Vehicles with Lift</i>	(N) (800)	(235)	(232)	(217)	(116)
	X 1.7	2.0	1.4	1.7	1.8
	SD 2.6	2.7	1.6	3.7	1.5
<i>Number of Wheelchairs</i>	(N) (800)	(259)	(219)	(214)	(114)
	X 3.6	3.6	3.3	4.2	3.2
	SD 5.5	4.3	4.1	8.1	3.2
<i>% Clients Responsible for Own Transportation</i>	(N) (899)	(265)	(267)	(240)	(127)
	X% 30.1	23.7	36.6	27.3	34.8**
	SD 32.0	27.7	35.1	31.3	32.5

*p < .001; **p < .000625.

chore housekeeping, (13) child day care, (14) human services agencies, (15) special disability groups, and (16) hospice.

The three types of organizations from which the centers received referrals most commonly were: hospitals (83.7%), visiting nurses/home health (80.8%), and human service agencies (78.6%). The three to which the centers most commonly referred clients were: visiting nurses/home health (76.0%), human service agencies (75.3%), and nursing homes (67.2%). The centers most commonly shared locations with nutrition sites (17.0%), nursing homes (16.7%), and senior centers (13.6%). Notably, another 8.9% shared a common location with child care. The centers most commonly planned and coordinated services with: government agencies on aging (55.8%) human services (53.3%), and visiting nurses/home health (51.6%). Thus, it appears that the ADC's were commonly and comprehensively

linked with visiting nurses/home health, with many clients receiving home health before, during, and after the stay in ADC. Additionally, a common path appeared to lead from the hospital to ADC, and then to the nursing home. Over half of the centers nationwide shared a location with at least one other type of service provider. Co-location occurred most often in the Midwest and least often in the South. Correspondingly, the Midwest centers appeared to have the fewest agencies from which and to which they referred clients, indicating that co-location may correspond with a lessened need for referrals to and from outside agencies. The average ADC center received referrals from 7.3 different types of agency. Once again, the regions differed significantly, with the Midwest being lowest ($\bar{X} = 6.7$) and the West highest ($\bar{X} = 8.0$). On average, centers referred clients to 7.6 types of agencies. Significant regional differences showed the Midwest having the fewest ($\bar{X} = 6.7$) and the West the most ($\bar{X} = 8.3$). The average ADC center planned services with 5.1 types of agencies. Once again the regions differed: the Midwest with the fewest ($\bar{X} = 4.5$) and the Northeast with the most ($\bar{X} = 5.9$). The average ADC center reported 21.1 of the 64 types of linkages surveyed.

Discussion

As context for the discussion of survey findings, Table 7 presents some basic demographic, health care, income, and federal funding indicators by census region. An examination of Table 7 provides some suggestive information to explain regional variations in ADC. The Northeast is the most dense region, has the highest percentage 65 and older, has the highest personal income per capita, and has the highest Medicaid payments per capita by far. All of these factors are plausible contributors to explaining why the Northeast had the highest supply of ADC's per 100,000 elderly, the second highest percentage in rural settings, the highest proportions of both public and private for-profit centers (the lowest private not-for-profit), and the greatest provision of transportation for clients.

The Midwest had the highest percentage of centers in rural settings, the highest percentage of private not-for-profit centers, the lowest proportion of licensed ADC's, the least in-service training, the longest

TABLE 7
Demographics, Health Care,
Income, and Federal Funding, by Census Region^a

	Northeast	Midwest	South	West
Population ^a (%)	50,017,000 (20.8%)	59,313,000 (24.6%)	82,988,000 (34.4%)	48,760,000 (20.2%)
Sq. Mi. Land (%)	162,745 (4.6%)	752,093 (21.2%)	873,005 (24.7%)	1,741,446 (49.5%)
Density ^a (no. of persons per sq. mi. of land)	307	78	95	28
Percent 65 and over ^a ADC's per 100,000 elderly	13.4%	12.5%	11.9%	10.6%
Nursing home beds per 100,000 elderly ^b	5.56	5.19	3.94	3.90
Personal income per capita ^b	\$16,675	\$14,326	\$13,128	\$15,510
Medicaid payments per capita ^b	\$2,184	\$1,331	\$983	\$1,244

a. U.S. Bureau of the Census, 1986.

b. U.S. Bureau of the Census, 1987.

hours, the lowest enrollment and number of staff, the lowest percentage of centers with waiting lists, the lowest proportion of clients eligible for Medicaid, the least provision of transportation, and the fewest linkages. The smaller size of the Midwest centers is probably due, in part, to the fact that many are rural, and rural centers tend to be smaller and less well linked. The Midwest has the highest number of nursing home beds per 100,000 elderly by far. This probably indicates that the Midwest ADC's have the most competition for appropriate clients among the regions.

The South appeared to have the highest unmet demand with the highest number of client visits per week and the highest percentage of ADC's with waiting lists. Clearly, the South had a low number of ADC's per 100,000 elderly, i.e., about equal to the West, while being over three times as dense. Part of the reason could be financial, since the South has the lowest personal income per capita and the lowest Medicaid rate. Another plausible explanation for the difference in demand between the Midwest and the South is climate. The harsh Midwest winters tend to discourage enrollment in ADC during that

season. Since the South has relatively mild winters, enrollment in ADC is probably more constant year round.

At first, it seems counterintuitive that the West was the most rural, but had the lowest percentage of ADC's located in rural areas. Although hospital care is generally as available in rural areas as in urban areas (Reczynski et al., 1987) there are several reasons to expect that ADC would be relatively less available to the elderly in rural areas. ADC centers require a population base within reasonable daily travel distance (e.g., 50-mile radius). Sparse population in rural areas makes ADC a less viable alternative because of the limited catchment area. Also, 17.6% of rural elderly live in poverty, compared to 10.9 percent of the urban elderly (Reczynski et al., 1987). Since ADC is not federally supported by Medicare or, in many states, by Medicaid, it was not expected to be as readily available to the poor. Therefore, these problems of access and greater poverty in rural areas could be expected to result in an lower ratio of ADC's per 100,000 elderly in the West.

These findings confirm prior beliefs that ADC is characterized by complex and fragmented programs and policies, and that it encompasses a wide variety of models. The analyses indicate that substantial regional variation existed in ownership, licensure, and oversight, the numbers of clients and staff of centers, demand, hours open, age of clients, and travel arrangements. Regional differences existed in spite of the great intraregional variation, as indicated by standard deviations. These findings indicate that the provision of ADC varies greatly from center to center. Additionally, the regional variations are an indication among the states and communities in regulation, funding, demography, and geography. These findings demonstrate a need for explanatory studies to be done at the county level, if we are to understand the factors involved in the implementation of different types of ADC.

In regard to NIAD standards that could be examined using these data, 93% reported that transportation time was less than one hour; 59% had an advisory committee; 53% to 58% reported having regular, formal staff training; and over 80% reported a client to staff ratio below 8 to 1. The average client/staff ratio was about 6 to 1, with little regional variation. In addition, volunteers and students played an important role in ADC, contributing about 45 hours of service per

week—or more than one full-time staff member. These findings indicate that ADC programs conformed well to NIAD transportation time and staffing standards, but about 40% were lacking advisory committees and regular, formal, staff training programs. Improved oversight and staff in-service training are therefore needed for a substantial proportion of ADC centers across the country.

On average, ADC centers appear to be well-staffed, well-linked to other agencies, and well-equipped. However, they also appear to be somewhat under-subscribed and under-utilized. That they are under-subscribed is seen in that only 29% of the centers had waiting lists. With no one on a waiting list, it is likely that few of the remaining 71% were able to operate steadily at full capacity. Additionally, although centers tended to slightly over-enroll each day, their daily attendance will fall about four clients short of daily capacity. Given the rapid proliferation of ADC, the low demand and attendance are unexpected and counterintuitive. These findings may indicate that, while there is knowledge and enthusiasm on the part of providers, there is also a lack of awareness by potential clients, health care professionals, and home caregivers of the role that ADC may play in the spectrum of long-term care. Therefore, it may take a while for new ADC providers to become fully subscribed.

Ours is not the first study to observe under-utilization. Montgomery and Borgatta (1989), in a study of the effects of alternative support strategies on family caregiving, found that families who are caring for elderly people in the community are fiercely independent and difficult to reach and serve. Demand also may be somewhat lower than supply because ADC is not adequately supported by third-party payors, and a large proportion of the appropriate target population cannot afford it. Instead, these potential clients may go untreated until their conditions warrant in-home care, nursing home placement, or hospitalization.

Implications

To remain viable in the current fiscal environment, many centers will need to market their services more effectively and over-enroll on a daily basis to adjust for expected absenteeism. Simultaneously, ADC providers must seek improved private and public funding for the type

of ADC that will delay, prevent, or substitute for more expensive and restrictive alternatives.

The administrator reports and the functional status estimates indicated that many of the ADC clients were moderately impaired in ADL and many would be candidates for in-home care and nursing home placement. These clients would certainly be appropriate for the type of ADC which would be funded under the four House bills currently in preparation for the next Congress, three of which require two ADL impairments while the fourth requires complete impairment in one ADL.

Although prior research has indicated that ADC has been a supplement rather than a substitute (Harder, Gornick, and Burt, 1986), it is logical to us that ADC can serve some clients who would otherwise receive in-home and nursing home care. To attract these clients, ADC providers must become more effective in explaining the benefits of ADC relative to other long term care. The benefits include residence in the community, socialization with others outside the home on a regular basis, good preventive or rehabilitative health care, and respite for the informal caregivers. Increased private funding can result from improved education and marketing to formal and informal caregivers. Increased public funding can result from understanding how ADC can effectively serve the frail and disabled while preventing employment disruptions for informal caregivers in the workforce.

To facilitate the development of ADC, researchers must continue to work to understand the factors affecting its utilization. Additionally, providers and researchers must work together to develop and test models of ADC that are cost-effective, so that the poor and needy elderly may be efficiently supported by third-party payors.

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The Effects of Help Patterns on the Mental Health of Spouse Caregivers

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Investigated were the patterns of task assistance and social support received by 315 people who were the primary caregivers to spouses suffering from Alzheimer's Disease. Despite the fact that spouse caregivers themselves are old and frail, they continue to provide the bulk of care required by their impaired partner. When help is forthcoming from any source, it is minimal. Contrary to the hypothesis that back-up sources of support or confidants should buffer the primary caregiver from negative mental health effects, there was no relationship between existence of either task support or social support and mental health.

Countless research studies conducted during the past several decades support the facts that older people and their children maintain strong, functional, and interdependent relationships, which include physical contact, emotional ties, and service exchanges (Brody, 1981; Shanas, 1979). Older people are also active in exchange networks with friends and relatives (Arling, 1976). Furthermore, research consistently indicates that when the health of older adults is compromised, it is their adult children who become the predominant service and health care providers (Cantor, 1983; Shanas, 1979; Sussman, 1965). When children are involved, it is generally due to geographic distance or to their own ill health, rather than to outright rejection of aging parents (Johnson, 1983). However, the majority of these research studies have focused almost exclusive attention on widowed older adults (e.g., Brody, 1981; George and Gwyther, 1986; Lopata, 1973; Noelker and

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