Financial aspects of adult day care: National survey results

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Using data from a national survey of adult day care centers, it was found that a typical center had revenues of approximately $140,000 and expenses that were slightly higher. Most of the revenue was from Federal sources, with Medicaid being the largest single source. The median cost per participant day was $29.50, over one-half of which was attributable to labor expenses. To the extent that adult day care programs can better utilize their capacity, considerable savings could be made in cost per participant day.

Introduction

Current and complete financial information is crucial to making informed decisions about the expansion of adult day care. Although several focused studies have been undertaken, the last comprehensive examination of the financial aspects of adult day care was conducted in the mid-1970s (Weissert, 1976).

This article updates existing information on both revenues and expenses of the growing adult day care industry. Two questions guided the data collection and analyses: How are adult day care centers in the United States currently funded? What are the major operating expenses of adult day care centers? In the Results section of this article, we present a financial profile of the adult day care industry, describe the key components of unit costs, and discuss the possible effects of capacity utilization on the survey findings.

Previous research

A limited number of studies have been published since 1970 that address the financial aspects of adult day care; these include work by Weissert (1975, 1976, 1978); Weiler, Kim, and Pickard (1976); Weiler and Rathbone-McCuan (1978); Weissert et al. (1980); Hannan and O'Donnell (1984); Mace and Rabins (1984); Von Behren (1986); and Conrad et al. (1987).

Revenue sources

Previous research shows that funding for adult day care comes from a variety of public and private sources. At the Federal and State levels, funds are available from Medicaid, Social Services Block Grants, and Older Americans Act monies. Medicare does not reimburse for day care per se; instead, reimbursement is for specific rehabilitative therapies and is often funneled through a certified Medicare outpatient affiliate. Other sources of financing include private fees and donations, local government monies, and foundations. Weissert (1975, 1976), in his study of 10 day care centers, found that centers affiliated with general hospitals or social service agencies were less likely to qualify for the service-specific funding associated with Medicare, but they did receive Medicaid, Social Services Block Grant, and title III funding from the Older Americans Act of 1965 (Public Law 89-73).

A national survey of adult day care centers conducted by the National Institute of Adult Daycare (NIAD) found that Medicaid provided the largest source of funds for the industry, and participant fees were the second major source (Von Behren, 1986). On the other hand, Conrad et al. (1987) found private fees to be the largest single source of funding (25 percent), followed by Medicaid (14 percent) and title XX (12 percent).

Costs

Weissert (1975, 1976) found the mean cost per participant day to be $25.09, the daily cost ranged from $11.26 to $61.56, although most centers fell within a fairly narrow range close to the median of $21.32. In a later study, Weissert et al. (1980) found costs among a historically cost-based reimbursement group of primarily health-oriented centers to be $52 per day. In a national survey of day care centers serving clients with Alzheimer's disease, Mace and Rabins (1984) found that the mean cost per participant day was $21.32, with a range of $0 to $55.00 per day. The NIAD national survey found an annual average center budget was $137,085, and the average per diem cost was $31, with a median of $20 (Von Behren, 1986). When inkind contributions were excluded from these calculations, the average cost dropped to $27 per participant day.

Increased operating costs have been found to be associated with service intensity. Weissert (1975, 1976) found that Model I (nursing and therapeutically oriented) centers were generally more costly than social interaction-oriented centers. Weissert also found that per diem costs were higher in Model I than in Model II (social interaction-oriented) centers, an average of $20 and $40, respectively. The highest per diem health service was nursing care, and the highest per diem support service was participant supervision. Hannan and O'Donnell (1984), in a study of 15 New York State centers, found that direct cost per hour increased as the level of ancillary services increased. Among Hannan and O'Donnell's three categories of centers (support, mixed, and ancillary), in which the support category closely mirrors Weissert's Model I and the ancillary closely mirrors Model II, ancillary centers were found to be the most costly. Hannan and O'Donnell reported that medical and therapeutic care were the most expensive services. Mace

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and Rabins (1984) found higher costs to be associated with the provision of professional services.

The composition of a center's staff also affects costs of day care. Weissert (1978) found nursing homes and adult day care centers to be quite similar in terms of total staff numbers in relation to participant populations, but day care centers employed more expensive, skilled personnel and a larger number of administrators. This was true probably because, with smaller censuses, day care centers allocated some excess skilled staff time to tasks that could be delegated to aides in a larger organization. Therefore, a larger proportion of the overall day care center staff was skilled.

In terms of specific services, transportation was also a high-cost service in Weissert's (1975, 1976) sample centers, and Mace and Rabins (1984) found that centers that owned or leased a bus tended to report higher costs.

Net income

Mace and Rabins (1984) reported that 48 percent of the centers studied reported that they were breaking even and that centers that had been in operation for less than 6 years were less likely to be breaking even.

Methodology

Study sample

An adult day care program was the unit of analysis in this study. By means of a national randomized sampling design, programs were chosen from among adult day care centers that had been in operation for at least 1 year as of July 1, 1985, and were located in standard metropolitan statistical areas (SMSAs) with a 1980 population of 80,000 or more. The selection of centers was completed in two steps.

First, a systematic sample of 200 centers was drawn from a list of facilities identified in the National Directory of Adult Day Care Centers (Department of Health and Human Services, 1980). To ensure a representative selection of centers and to account for the availability of substitute services in a community, the list was ordered by three population-size strata (populations over 1 million, populations between 250,000 and 1 million, and populations from 80,000 to less than 250,000) and by the ratio of nursing home beds to elderly population. SMSAs with no centers in 1980 were attached to the ordered list of SMSAs that had centers to assure equal probability of their selection. From this list, a simple random subsample of 28 centers was selected as the first-step sample.

Next, to allow for inclusion of centers established since the directory was produced in 1980, the directory listings were updated within the selected SMSAs. Investigators identified new centers through a telephone search that involved calls to all known centers, Area Agencies on Aging, State and local officials, and others likely to be familiar with the day care centers operating within a given SMSA. Newly identified centers were assigned appropriate probabilities for selection, and an additional 35 were drawn into the sample. The two-step sampling methodology resulted in the selection of 63 centers for study. Sixty of these agreed to participate, representing a response rate of 95.2 percent among identified centers.

Although results reported here are limited to center-level data, a random sample of participant records was also drawn. Participants whose records were drawn who were present on site visit days were interviewed, as were their caregivers. More detailed results of participant and caregiver analysis are reported elsewhere (Weissert et al., 1991).

Because selection probabilities differed among sample members in this design, a numerical weighting factor, which accounted for this disproportionality and other common deficiencies dealt with in survey practice (e.g., nonresponse), was computed for each center and its participants and caregivers. These weights were subsequently used in all analyses.

Data collection

Survey data were collected between July 1, 1985, and September 30, 1986. Initial financial data were gathered during the first collection phase in which 12 sites (which themselves constituted a random subsample) were contacted by telephone. Following the telephone contact, teams of two persons visited each site for 2 days. The teams collected center data and attempted to gather financial data for up to 5 years of the center's operations. These efforts to collect detailed financial data revealed the following four problems:

- Most sites could furnish only data concerning their most recent fiscal year.
- A number of sites did not have audited financial data.
- Data consistency among sites, and within a site over time, varied considerably as a result of differential funding source requirements, recordkeeping procedures, and center modifications.
- Only a few sites could furnish full-accrual data.

Because of these problems, data collection procedures were adjusted for the remaining 48 sites. Data collection forms were mailed in advance to the sample centers. These mailings were followed by 1-day one-person site visits and subsequent telephone calls to assist center personnel in completing the forms. Returned forms were checked for reliability and completeness, and followup questions were sent to sites for clarification or modification. After the forms were again returned to the research team, they were checked for completeness and reliability a second time. Finally, where necessary, telephone followup helped to complete the data set.

Data analysis

Given the diversity of accounting and reporting procedures among the sites, we implemented a two-step process to make the data comparable. First, because reported data represented a center's latest fiscal year, data covered a 36-month period: January 1983 to December 1986. Thus, month-by-month adjustments, using the Consumer Price Index detailed report and the Employment Cost Index, were made to bring the data into conformity with the fiscal year beginning July 1, 1985. Data for the nine sites whose reported fiscal year began after July 1, 1985, were adjusted backward,

and the sites whose reported fiscal year began before July 1 were adjusted forward so that their fiscal year began July 1, 1985.

Second, for each site that reported an inkind revenue or an inkind expense, we checked to ensure that their reported inkind revenues equaled their reported inkind expenses. If inkind revenues and expenses did not match, they were adjusted to reflect full-accrual accounting procedures.

In addition to an overall analysis, we analyzed data by two models of adult day care. In previous research, Weissert (1976, 1977) has shown that centers could be grouped analytically into two models that reflected differences in center operations, such as case mix, staffing, revenue sources, and expenses. From the present survey data, Weissert et al. (1989) were able to show that the industry has expanded and that centers can now be grouped into three auspice models, data for two of these are reported here.

The first, Auspice Model I centers are, by definition, affiliated with a nursing home or rehabilitation hospital. They typically serve a physically dependent, older white population, most of whom do not suffer a mental disorder. Services provided include nursing therapies, therapeutic diets, and other health and social services provided by a complement of staff approaching one staff member for every two participants.

Auspice Model II centers, on the other hand, are affiliated with a general hospital or social service or housing agency. They serve a predominately unmarried, female, frequently racial minority population, most of whom are under 85 years of age, typically not dependent or only minimally dependent in activities of daily living, but more than 40 percent of whom may be suffering a mental disorder. Services they receive include case management, nutrition education, professional counseling, transportation to and from the center, and frequently health assessment. (For a more complete discussion of the models see Weissert et al., 1989.)

Despite the extensive efforts previously discussed, complete revenue, expense, and staffing data were available for only 31 sites. Thus, care should be taken in generalizing outside of the sample. However, the sites for which complete fiscal data were available did not differ significantly from the remainder of the sample in terms of average daily census; percent of participants dependent, 65 years of age or over, or receiving Medicaid funding; or provision of a transportation service. They were, however, significantly ($p < 0.05$) more likely to employ a licensed practical or registered nurse. In addition, they were significantly more likely to be located in the West (where centers tend not to be licensed but tend to be certified) and were less likely to be located in the Northeast.

Results are reported in three sections: industry revenues, expenses, and profits; unit revenues and costs; and capacity-adjusted costs per participant day. The first section provides an overview of the industry as a whole, and the second section focuses on revenues and costs per participant day. The third section, capacity adjustments, presents an exploratory analysis concerning efficient operations. Medians instead of means are reported because of sample size and, in some cases, skewed data.

Industry revenues, expenses, and profits

Median revenues

Median annual revenue of the sites reporting full fiscal data was $143,660. One-fourth of the sites had revenues below $103,346, while another one-fourth had revenues above $179,391. Auspice Model I sites ($61,958) had a lower median revenue than Auspice Model II sites ($123,278), as well as a wider distribution of reported revenues.

Revenue sources

More than one-half of all centers reported the receipt of revenue from self-pay per diem, private non per diem funds, and Medicaid. Other common sources of revenue were inkind contributions, Older Americans Act funds, fund raising, and Social Services Block Grant monies, as well as monies from foundations (Table 1).

Although more than one-half of all centers received Medicaid funds, only a small percent of centers (2.4 percent) reported receipt of Medicare funds (Table 1).

About one-half of reported revenues (47.5 percent) were from Federal agencies, and more than one-fourth were from nongovernmental sources (Table 2). Medicaid was the largest single source of funds, accounting for more than one-fourth of all the revenues received by the industry. The second highest percent of funding came from private (non per diem) sources (16.6 percent), which included monetary and nonmonetary bequests and donations from participants, participants' families, and private citizens. These sources were followed by self–pay (per diem), which constituted 15.6 percent of all revenues. The remaining major funding sources included Older Americans Act monies (10.5 percent); Social Services Block Grant (7.8 percent); and inkind contributions (5.2 percent).

Sources of revenue varied significantly between the two auspice models. Auspice Model I centers received just under one-half of their revenues from private (non per diem) sources, with self-pay (per diem) accounting for the second largest proportion (15.6 percent) and Medicaid accounting for almost as much (12.4 percent). In contrast, Auspice Model II centers received their largest proportion of funding from Medicaid (33.5 percent), with self-pay (per diem), Older Americans Act, and Social Services Block Grant funds providing their next largest amount of funding (Table 2).

In general, service–related reimbursement (i.e., Medicaid, Medicare, private non per diem and self-pay) accounted for just over 60 percent of total revenues, whereas the remainder was generally from grants, subsidies, foundations, and fundraising. However, almost 80 percent of the industry revenues for Auspice Model I centers came from nonservice reimbursement; whereas for Auspice Model II centers, only about 50 percent came from such sources.

Table 1

Percent of adult day care centers receiving funds, by source and model of care

Source	All sites	Model I	Model II
		Percent receiving funds	
Federal			
Total	87.1	80.4	89.8
Medicaid	55.9	38.8	63.0
Older American Act	39.6	33.5	42.2
Social Services Block Grant	20.7	8.2	25.9
Medicare	2.4	8.2	0.0
Other	9.7	0.0	13.7
Nongovernment			
Total	87.9	91.8	86.3
Private (non per diem)	52.0	24.5	63.5
Inkind, other	46.9	55.6	34.9
United Way	15.7	8.2	18.8
Private, religious	4.7	0.0	6.6
Outside foundation	4.7	8.2	3.2
Fundraising	26.3	11.7	32.3
Own foundation	18.1	0.0	25.6
Sponsor	2.3	0.0	3.2
Self-pay (per diem)			
Total	58.3	67.4	54.6
Non-Federal Government			
Total	32.8	26.0	35.6
Other, public	20.7	17.9	21.9
State monies	9.7	0.0	13.7
Local monies	4.8	0.0	6.8

NOTE: Data based on a total of 32 sample sites: 9 were Auspice Model I centers, and 23 were Auspice Model II centers.

SOURCE: Zelman, W.M., The University of North Carolina at Chapel Hill, Elston, J.M., and Weissert, W.G., The University of Michigan in Ann Arbor.

Table 2

Percent distribution of industry revenues for adult day care centers by model of care, according to source

Source	All sites	Model I	Model II
		Percent of total funds received	
Total	100	100	100
Federal			
Total	47.5	22.8	59.1
Medicaid	26.8	12.4	33.5
Older American Act	10.5	3.6	13.7
Social Services Block Grant	7.8	1.9	10.6
Medicare	1.5	4.9	0.0
Other	0.9	0.0	1.3
Nongovernment			
Total	27.4	51.2	16.6
Private (non per diem)	16.6	44.8	3.6
Inkind, other	5.2	3.9	5.8
United Way	2.4	0.1	3.5
Private, religious	1.7	0.0	2.4
Outside foundation	1.1	2.4	0.6
Fundraising	0.2	0.0	0.3
Own foundation	0.1	0.0	0.2
Sponsor	0.1	0.0	0.2
Self-pay (per diem)			
Total	15.6	15.6	15.6
Non-Federal Government			
Total	9.4	10.4	8.9
Other, public	4.8	4.4	5.0
State	4.0	6.0	3.1
Local	0.6	0.0	0.8

NOTE: Data based a total of 32 sample sites: 9 were Auspice Model I centers, and 23 were Auspice Model II centers.

SOURCE: Zelman, W.M., The University of North Carolina at Chapel Hill, Elston, J.M., and Weissert, W.G., The University of Michigan in Ann Arbor.

Table 3

Percent distribution of industry expenditures for adult day care centers and percent of line item inkind, by cost category

Cost category	Percent distribution	Percent line item inkind
Total	100.0	11.9
Total direct	95.2	7.4
Labor	54.4	2.4
Transportation	12.2	5.2
Facility	10.5	29.6
Food	7.5	20.3
Administration	5.1	3.9
Other	5.5	5.2
Allocated	4.8	—

SOURCE: Zelman, W.M., The University of North Carolina at Chapel Hill, Elston, J.M., and Weissert, W.G., The University of Michigan in Ann Arbor.

Expense categories

Day care costs can be divided into two general categories: direct costs, which include operational expenses for personnel, equipment and supplies, and facilities used in providing services; and indirect costs, which include overhead. Inkind contributions, such as volunteer services, donated supplies, and loaned equipment or facilities, may be classified as either direct or indirect costs.

Table 3 provides an industry profile showing how centers spent their funds. Direct labor accounted for slightly more than one-half of total operating expenses (54.4 percent) and was the largest expense category for centers. The second most expensive item was transportation (12.2 percent), followed by facility expenses (10.5 percent), food costs (7.5 percent), and administrative costs (5.1 percent). Other expenses (which in aggregate accounted for less than 6 percent of the total expenses) included such items as utilities and programming and development costs. Of the total reported expenses, 93 percent were actual expenses, whereas 7 percent were inkind.

Net income

Table 4 shows median net income figures for our sample centers. The median net income for all sites was a loss of $1,815, with Auspice Model I sites showing a median net income of $10,735 and Auspice Model II sites showing a median net loss of $3,171. The median profit margin was a loss of 1.24 percent. When allocated (indirect) costs are excluded, the median profit margin (called "product margin") is 6.12 percent. Examination of these data on a cash basis yields similar results. This indicates that day care centers may have little latitude in making major operating changes or responding to exigencies in their environment.

Unit revenues and costs

Revenues

Table 5 shows median and quartile revenues per participant day by revenue source and auspice model. The median for all sites was $28.82, with the medians for Auspice Model I and Auspice Model II centers being nearly equal. However, wide variation exists around these numbers, especially for Auspice Model I sites.

Costs

The previous expense analysis provides a financial profile of the adult day care industry as a whole, but it does not address the costs of serving adult day care participants at the center level. This section focuses on the unit costs of day care, or the cost per participant per day. The following five major cost items were examined:

- Total cost per participant day.
- Direct labor costs per participant day.
- Transportation costs per participant day.
- Facility costs per participant day.
- Food costs per participant day.

Combined costs for labor, transportation, facility, and food accounted for approximately three–fourths of a center's total expenses. Costs per participant day were derived by dividing the reported annual cost by the reported number of annual participant days.

Other cost and revenue determinants, such as payment methods, program age, case mix, urbanity, input prices, and licensure, will be explored in regression analyses reported separately.

Total cost per participant day

Table 6 shows median expense by cost category and by auspice model. The median total cost per participant day was $29.50. Although wide variation existed around the

Table 4

Profit and product margin determined with and without inkind revenues and expenses for adult day care centers, by model of care

Item	All sites	Model I	Model II
		Net income and profit margin using accrual basis of accounting	
Median total revenue	$143,660	$100,908	$145,700
Median total expenses	145,774	101,660	148,268
Median net income	–1,815	10,735	–3,171
Median profit margin percent	–1.24	9.55	–2.95
		Net income and profit margin using cash basis of accounting	
Median total revenue	$135,025	$86,355	$141,869
Median total expenses	131,681	99,425	141,205
Median net income	–1,815	10,735	–3,171
Median profit margin percent	–1.24	9.58	–2.95
		Net income and product margin using accrual basis of accounting	
Median total revenue	$143,660	$100,908	$145,700
Median total expenses	133,999	101,660	141,205
Median net income	9,345	10,735	8,604
Median product margin percent	6.12	9.55	5.52
		Net income and product margin using cash basis of accounting	
Median total revenue	$135,025	$86,355	$141,869
Median total expenses	122,384	99,425	132,419
Median net income	9,435	10,735	8,604
Median product margin percent	6.64	9.98	6.40

NOTE: Profit margin percent equals (total revenue –total expenses)/total revenue. Product margin percent equals (total revenue –direct expenses)/total revenue. Cash basis figures exclude inkind expenses and revenues, and accrual includes them.

SOURCE: Zelman, W.M., The University of North Carolina at Chapel Hill, Elston, J.M., and Weissert, W.G., The University of Michigan in Ann Arbor.

Table 5

Median and quartile revenues per participant day, for adult day care centers, by source and model of care

Source	All sites	Model I	Model II	All sites	Model I	Model II	All sites	Model I	Model II
	Median amount received			Bottom quartile			Top quartile		
Total	$28.82	$29.21	$28.42	$25.56	$24.16	$21.99	$34.61	$59.19	$31.89
Federal									
Total	$17.62	$13.87	$20.95	$13.12	$12.82	$13.30	$25.79	$22.06	$28.26
Medicaid	15.11	13.87	16.21	10.06	7.69	9.87	23.53	18.10	25.82
Older American Act	2.61	7.88	2.56	2.12	7.88	2.04	8.96	7.88	9.48
Social Services Block Grant	9.87	12.82	8.96	7.45	12.82	5.93	13.32	12.82	17.73
Medicare	21.59	21.59	—	21.59	21.59	—	21.59	21.59	—
Other	0.70	—	0.70	0.56	—	0.56	2.67	—	2.67
Nongovernment									
Total	$3.51	$14.26	$2.14	$0.45	$1.96	$0.31	$12.59	$33.53	$6.70
Private (non per diem)	0.37	39.27	0.30	0.14	8.94	0.12	1.82	180.96	0.55
Inkind, other	3.20	3.94	3.12	1.08	1.08	0.80	4.31	10.34	4.03
United Way	3.49	0.50	4.74	1.26	0.50	2.38	6.73	0.50	7.09
Private, religious	2.06	—	2.06	0.09	—	0.09	13.49	—	13.49
Outside foundation	10.33	14.72	5.94	5.94	14.72	5.94	14.72	14.72	5.94
Fundraising	0.15	0.14	0.22	0.14	0.14	0.13	0.32	0.14	0.33
Own foundation	0.16	—	0.16	0.08	—	0.05	0.17	—	0.17
Sponsor	1.65	—	1.65	1.65	—	1.65	1.65	—	1.65
Self pay (per diem)									
Total	$5.12	$10.30	$3.33	$1.00	$4.91	$0.34	$12.41	$24.86	$10.87
Non-Federal Government									
Total	$8.42	$12.94	$5.05	$4.07	$7.96	$3.70	$11.63	$19.14	$9.81
Other, public	7.21	10.45	5.05	4.16	7.96	3.98	10.48	12.94	9.00
State	8.89	19.14	5.04	1.20	19.14	1.20	19.14	19.14	8.89
Local	2.80	—	2.80	2.21	—	2.21	3.39	—	3.39

NOTES: Data based on a total of 29 sites: 8 were Auspice Model I centers, and 21 were Auspice Model II centers. Each figure includes only sites that reported revenues >$0.00. Total represents the median total revenues per participant day over all included sites, not the sume of the component categories.

SOURCE: Zelman, W.M., The University of North Carolina at Chapel Hill, Elston, J.M., and Weissert, W.G., The University of Michigan in Ann Arbor.

Table 6

Median expense for adult day care centers, by cost category and model of care

Cost category	All sites	Model I	Model II
Total cost			
Median	$29.50	$31.20	$29.20
25th	23.40	26.40	18.60
75th	36.10	71.00	35.10
Labor			
Median	14.60	22.80	14.20
25th	10.30	11.60	8.90
75th	22.80	51.10	18.30
Transportation			
Median	3.30	4.00	3.10
25th	1.90	0.50	1.90
75th	4.50	6.90	4.20
Facility			
Median	2.70	5.20	2.60
25th	1.20	1.90	1.20
75th	4.70	9.40	3.20
Food			
Median	2.40	2.50	1.80
25th	0.80	2.40	0.50
75th	2.80	5.20	2.70
Allocated			
Median	0.00	0.00	0.00
25th	0.00	0.00	0.00
75th	2.70	0.70	3.60
Administrative			
Median	1.00	0.00	1.20
25th	0.50	0.00	0.60
75th	1.60	1.00	2.20

NOTE: Components do not sum to total median costs because reported component costs are medians.

SOURCE: Zelman, W.M., The University of North Carolina at Chapel Hill, Elston, J.M., and Weissert, W.G., The University of Michigan in Ann Arbor.

median, one–half of the sites had a cost between $23.40 and $36.10. There was little difference in the cost per participant day between Auspice Model I and Auspice Model II centers. When inkind expenses are not included, the median total cost drops from $29.50 to $25.20 per participant day.

Direct labor costs

The major component of the daily participant cost was direct labor, approximately four times the next largest cost component, transportation. In these analyses, direct labor was defined as labor provided either by center staff or through contractual services that did not overlap with transportation, food, facilities, or administrative costs. For example, direct labor included physical therapy or physicians' services but excluded labor purchased in conjunction with meals and transportation services.

Most staff members were paid employees. The services of a physician or therapist tended to be provided by a consultant agreement, but inkind staffing was usually for fiscal manager or bookkeeping services.

The median direct labor cost was $14.60 per participant day. Centers at the 75th percentile had a direct labor cost of $22.80, whereas those at the 25th percentile had a cost of $10.30. Labor costs varied significantly between Auspice Model I and Auspice Model II centers. Auspice Model I centers had a median direct labor cost per participant day of $22.80, approximately 60 percent higher than the $14.20 median cost for Auspice Model II centers. This difference results at least partially from the significantly higher average staff-to-participant ratio found among Auspice Model I centers. (These figures should be interpreted with care because of the large variation around the medians, especially among Auspice Model I sites.)

Transportation costs

Transportation was the second largest component of cost per participant day. Transportation costs are those incurred in providing transportation services either to and from the center or for field trips, medical appointments, and errands. They include costs such as vehicle maintenance, labor, and gas. Most of the centers that offered transportation provided it themselves (68 percent), but some provided it through contract (18.7 percent), and others provided some transportation services and purchased the rest (13.1 percent).

For all sites reporting fiscal data, the median transportation cost per participant day was $3.30 (Table 6). One-half of the centers incurred transportation costs between $1.90 and $4.50. When only those sites that provided a transportation service (27 of 29) were included in the analysis, the median cost rose to $3.85 per participant day. Transportation costs per participant did not differ significantly between the two models.

Facility costs

Facility costs were the third largest component of cost per participant day. These costs included rent or mortgage, any regular payments that covered the cost of occupying primary center space, housekeeping and general facility maintenance, major repairs or renovations, and labor directly related to these expenses.

The median facility cost per participant day across all sites was $2.70 (Table 6). One-fourth had a facility cost of less than $1.20, whereas another one-fourth had a cost greater than $4.70. Approximately one-third of the facility costs were inkind contributions. When inkind costs are excluded, the median facility costs were $1.80 across all sites. Auspice Model I centers had a median cost per participant day almost twice that of Auspice Model II centers ($5.20 versus $2.60). Because the square footage per participant did not differ significantly between the two Auspice Models, it is likely that the difference in cost reflects a difference in cost per square foot.

Food costs

Food costs were the fourth largest category of expenditures. These costs, incurred in providing meals and snacks, included food items, consumables, labor, and associated nonlabor costs. Among the sample centers, 38.1 percent prepared meals onsite, 39.1 percent bought meals from a vendor, and 22.8 percent prepared some and purchased the rest.

The median food cost was $2.40 per participant day, although for one-fourth of the centers the cost was less than $0.80, and another one-fourth had a cost above $2.80. Differences in number and kinds of meals served among centers partially account for this wide discrepancy. For example, some centers offered breakfast and/or dinner in addition to a noon meal, and others offered the noon meal only. As with facility costs, a large proportion of the food costs (almost one-half) were inkind.

Median food costs per participant day, like median costs for labor and facilities, were significantly higher for Auspice Model I than for Auspice Model II centers. This difference was probably because Model I Centers were more likely to offer additional meal services.

Other costs

The remaining categories shown in Table 6 are administrative and allocated costs. Administrative costs include general administrative supplies; printing and copying; postage; and legal, accounting, and auditing services, as well as labor costs associated with fiscal managers, bookkeepers, secretaries, or other office personnel. Administrative costs added a median of $1 per participant day.

Allocated costs are those that are not incurred directly by the day care center's operations, but instead are overhead expenses allocated to the center by its parent organization, for example, management related expenses. The median allocated cost was $1.00, but for those sites that reported some allocated costs, the median allocated cost per participant day was $3.22.

Capacity-adjusted costs per participant day

A major problem with cost per participant day is that it fails to correct the inefficiencies associated with volume. Efficiency is a major concern in determining the unit cost of adult day care because so many of the costs associated with these centers are fixed. Fixed costs do not vary in total with volume but decline exponentially on a per unit basis as volume increases; thus, cost per participant day may be high, not because the numerator (costs) is high but because the denominator (participant days) is low. Such a situation occurs when centers provide fewer participant days of service than they have the capacity to provide.

After being asked how many participants the center was licensed to serve, each center director was asked: "In your opinion, what is the total number of participants able to be served in the present location with current staffing levels?" Responses to this question (reported capacity) from the 22 responding centers (for which complete fiscal data were also available) and their reported average daily census were used to build an index of the percent of service capacity at which the center was operating.

Using this index, annual participant days at each site were adjusted to equal 100 percent of the reported capacity. Similarly, variable costs for food and transportation were adjusted to reflect volume differences. The variable food cost per participant day was calculated by dividing relevant annual food cost (raw food, consumables, and contracted expenses) by annual participant days. Likewise, the variable transportation cost was calculated by dividing relevant annual transportation costs (gas, maintenance, and contracted transportation expenses) by annual participant days. Remaining costs were assumed to be fixed and, thus, not expected to increase with an increase in participant days.

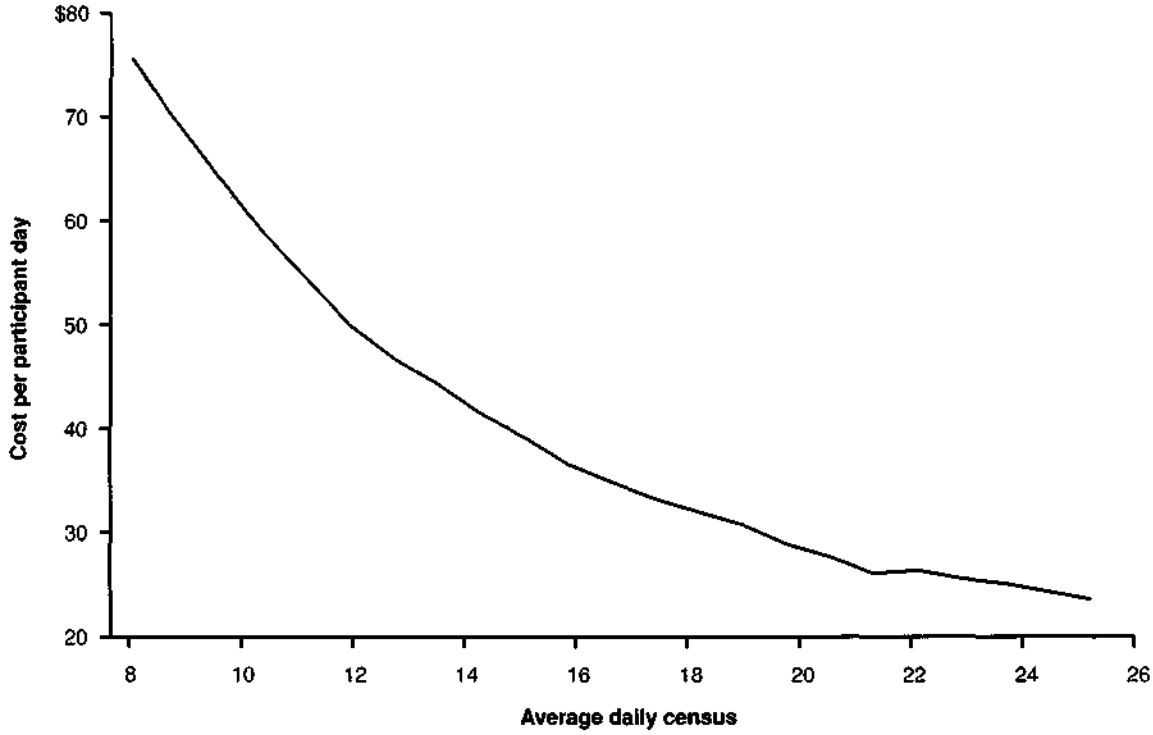
Centers were operating at a median percent capacity of 80 percent, with Auspice Model I centers operating at a median of 67 percent and the Auspice Model II centers operating at a median of 80 percent of capacity. Before adjustment, the median total cost per participant day was $30.80 for the responding centers. When adjusted to full capacity, however, this cost fell to $23.50; a drop of 20 percent. Before adjustment, Auspice Model I and Auspice Model II sites had a median cost per participant day of $26.40 and $32.00, respectively. After adjustment, Auspice Model I sites dropped 29 percent to $20.70, and Auspice Model II sites dropped 18 percent to $24.60 per participant day.

Even if excess demand existed (as measured by the presence of a waiting list), the centers were not usually operating at perceived full capacity. In their report on adult day care in Massachusetts, Vogel and Palmer (1983) found a similar phenomenon. They attributed extra capacity to variable absenteeism; that is, staffing was based on capacity even though on many occasions not all participants showed up. This also may be the case among sample centers in this survey.

Thus, two rival hypotheses exist: Day care centers are working at full capacity, and any slack results from reserving space for variable absenteeism; or day care

Figure 1

Effects of utilization of adult day care centers on cost per participant day



SOURCE: Zelman, W.M., The University of North Carolina at Chapel Hill, Elston, J.M., and Weissert, W.G., The University of Michigan in Ann Arbor.

centers are operating below capacity because of inefficiencies. Data to test these hypotheses are beyond the scope of this study. However, to the extent that centers are not fully utilized (i.e., the latter hypothesis is true), it is important to know what the effects of more efficient operations are on cost per participant day. Thus a model was developed to illustrate the economies of scale that might be reached at various levels of capacity utilization. The model is based on assumptions that closely mirror the data found at the 22 participating sites that supplied capacity information. With this model, we found cost per participant day decreased from $44.35, when operations were at 50 percent of capacity, to $23.48, when average daily census rose to reported full capacity (Figure 1).

Note that under the assumptions made here, the average dollar savings to be gained with each unit of increase in average daily census decreases at a declining rate as utilization increases. Thus, the lower the current utilization of operating capacity to begin with, the greater the potential savings to be gained in unit costs for equal gains in utilization. For instance, as average daily census changes from 13 to 14, average cost decreases from $44.35 to $41.37 or $2.98. However, as average daily census changes from 25 to 26, average cost decreases from $24.32 and $23.48, or only $0.83. The cost behavior characteristics shown here are typical of social service and health service centers, each of which tend to have a high proportion of fixed costs.

Because most per diem fees are based on an average cost estimate, one way in which adult day care centers with excess capacity can maximize their net income is by instituting efficiencies based on increased utilization. Whereas reimbursement is based on average cost, each unit of volume increases cost at a lower rate—marginal cost. Thus, if reimbursement per participant day is greater than marginal cost, a profit will be made on each unit of increase in participant days. Exactly how much will depend on the exact amount paid by the reimbursement agency.

Conclusions

The findings presented in this article are intended to update current knowledge of the funding and costs of adult day care in the United States. The three sets of findings included: revenues, expenses, and profits; unit revenues and costs; and the possible effects of capacity adjustments. The aggregate analyses provide an overview of the industry as a whole.

Using median data, a profile of a typical site can be constructed as having revenues of approximately $140,000 and expenses that are slightly higher. Most of the revenues come from Federal sources, with Medicaid being the largest single source. Auspice Model I centers, many of which are associated with nursing homes and have religious affiliations, are considerably more reliant on nongovernmental funding than are Model II centers, of which a higher proportion are Medicaid certified.

Adult day care is a labor-intensive industry, with labor accounting for more than 50 percent of the costs. Labor, transportation, facility, and food costs together account for the bulk of the industry's expenses. Labor costs

constitute a higher proportion of total costs for Model I sites than for Model II sites, perhaps reflecting the more intense services provided to a population that is more frail and physically dependent.

Over all sites, about 10 percent of expenses were inkind, although in general Model I sites reported only a negligible amount of inkind expenses. Finally, although there was a slightly negative median bottom line across all sites, the Model I sites were operating with a product margin of 6 percent.

Most centers operate in affiliation with a larger organization, often using what would have been unused space, idle equipment, and underutilized staff. Additional costs to the parent organization associated with running the center, therefore, are marginal.

The second set of findings focused on the cost per participant day of adult day care centers. The median cost was $29.50, with little difference found between Auspice Model I and Auspice Model II centers.

Although we anticipated finding significant cost differences between the two auspice models, no difference in total cost per participant day was found. Significant differences were found, however, between cost structures of the models. This may reflect prevailing reimbursement practices that have the effect of capping total revenues, regardless of provider costs. The effect of this cap is that centers with high costs in one cost center, such as physical space in nursing homes or rehabilitation hospitals, must adjust their direct spending on other centers to remain under the revenue ceiling.

It is interesting to compare the $29.50 median costs per participant day found here with Weissert's 1975 figure of $21.32 (Weissert, 1975). According to these figures, median costs have risen only 40 percent in 11 years, compared with general inflation of 100 percent.

A potential explanation for the minimal increase in the cost of day care may be that centers often are paid on a flat-rate basis by many of their funding sources, with no consideration for either costs incurred or inflation. Additional support for this hypothesis is provided by the substantially higher costs ($52) found among centers paid by a historical cost-reimbursement method (Weissert et al., 1980). This suggests that, although day care centers find it difficult to operate without net losses under their current payment methods, these methods appear to be effective at holding down costs.

Remembering that the cost per participant day reflects an average of 6 hours of care per day, or an average hourly cost of approximately $5, adult day care seems to be a bargain. Unfortunately, data collected in this study do not allow us to examine the possible effects of this relative cutback in funds on the centers or their participants.

In the final section, we investigated the potential to realize unit cost savings with increases it utilization of capacity. Although this analysis provides initial support for the presence of underused capacity, further exploration is warranted. Two points, however, can be suggested from the information presented in that section: To the extent that adult day care centers are operating below capacity, their per participant day costs may be unnecessarily high; and to the extent that an adult day care center's reimbursable cost is above its marginal cost, each additional participant day represents revenue in excess of expenses.

However, one important concern with increased efficiency may be its potential to cause reduced levels of participant satisfaction. Findings from the satisfaction portion of our survey indicate that there may be tradeoffs involved between operating at maximum capacity and achieving highest levels of satisfaction with the center's milieu (Weissert et al., 1991).

Finally, a note of caution is warranted with respect to cost findings. The factors noted in the methodology section, particularly response rate and self-reported, unaudited data, suggest that care should be exercised in applying these findings beyond the sites included in this analysis.

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