Medicare Expenditures for Residents in Assisted Living: Data from a National Study

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Objective. To provide preliminary data on Medicare expenditures for assisted living facility (ALF) residents and to investigate whether ALF characteristics were related to Medicare expenditures for ALF residents.

Data Sources/Study Setting. Data from the National Study of Assisted Living for the Frail Elderly conducted in 1998–1999. This analysis was restricted to the 40 percent of ALFs in that sample that adhered to the assisted living (AL) philosophy by offering more than minimal levels of services and privacy. This study involved the approximately 1,200 residents who remained in an ALF from baseline to follow-up data collection. Six months of postbaseline Medicare claims were acquired for 545 of these residents, who did not differ significantly from the larger sample.

Data Collection. Baseline individual and facility data were collected in personal interviews with residents and a combination of personal and telephone interviews with facility staff. Medicare claims data were acquired from the Centers for Medicare and Medicaid Services.

Study Design. Cross-sectional analyses using logistic and ordinary least squares regression techniques were used to determine the relationships among individual and facility characteristics and Medicare utilization and expenditures.

Principal Findings. On an annualized basis, AL residents incurred Medicare costs of approximately $4,800. Just less than 15 percent of AL residents accounted for over 75 percent of total Medicare costs. Both the likelihood of utilizing Medicare-covered services and the intensity of service use were largely unaffected by the characteristics of the ALF in which residents lived. Utilization was largely a function of individual characteristics. The only exception to this general finding was that those individuals who utilized services and resided in smaller ALFs had significantly lower average expenditures than did individuals in larger ALFs.

Conclusions. These preliminary data imply that both the level and distribution of Medicare expenditures among ALF residents were similar to those among the general community-dwelling Medicare beneficiary population. No significant relationships were observed between ALF characteristics and Medicare expenditures, except the effect of facility size. This result may imply that how the AL industry eventually defines itself in terms of services and amenities, other than size, may have little impact on Medicare expenditures for ALF residents. However, this is a single, initial study, so caution must be exercised when considering the implications of these results.

Key Words. Long-term care, assisted living, medicare utilization, medicare expenditures

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When one peruses Medicare expenditure data, one of the clearest distinctions between recipients is between those beneficiaries living in the community and those living in skilled or long-term care facilities. In 1996, Medicare per capita claims paid averaged $4,465 for beneficiaries in the community and $10,766 for those in facilities (Murray and Eppig 1999). However, while the living arrangements in facilities are fairly straightforward and limited in their variation, the living arrangements of those in "the community" exhibit considerable variation. Community-dwelling beneficiaries range from those living completely independently in their own homes to those living in supportive housing and receiving around-the-clock care from family or employed caregivers.

This research focuses on Medicare expenditures for one group of community dwellers, residents in assisted living facilities (ALFs). In the last decade, assisted living (AL) was the fastest growing type of housing with supportive services for the elderly (American Seniors Housing Association 1998). The popularity of AL is easily understandable. It meets important consumer preferences for a mixture of services, privacy, and autonomy (Jenkens 1997; Kane, Baker, and Veazie 1998). Unlike many other forms of housing with supportive services, AL is paid for almost exclusively by private funds, although more states are now beginning to allow Medicaid payments for personal care for individuals in AL (Mollica and Snow 1996; Mollica 2002).

The Assisted Living Quality Coalition, composed of providers and consumer groups, offers one of the more generally accepted definitions of AL:

> A congregate residential setting that provides or coordinates personal services, 24-hour supervision, and assistance (scheduled and unscheduled), activities, and health related services; designed to minimize the need to move; . . . to accom-

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> modate residents' changing needs and preferences; . . . to maximize residents' dignity, autonomy, privacy, independence, and safety; and . . . to encourage family and community involvement (p. 65).

Using a definition of AL consistent with that above, but slightly more restrictive (see Methods section), a late 1990s study estimated that 11,459 ALFs operated nationwide, with over 611,000 beds filled by over 521,000 residents. In these facilities, the most common monthly charge was approximately $1,600 a month (Hawes et al. 2003).

While we now know the cost of AL, we know very little about the types and levels of medical expenditures by AL residents. More specifically, we lack information on expenditures by public payers such as Medicare for those elderly in AL. In addition, we lack research that provides any insight into what ALF characteristics might affect residents' use of Medicare services. Recent research indicates that the presence of a full-time Registered Nurse (RN) in an AL facility significantly reduced residents' likelihood of transfer to a nursing home (Phillips et al. 2003). Possibly this or other ALF characteristics may affect residents' use of Medicare services as well. To investigate these issues, the research questions on which information is currently lacking that this research addresses are: Question (I), "What are the Medicare expenditures for residents in AL?" Question (II), "What individual and facility characteristics drive differences in Medicare expenditures for AL residents?"

A secondary focus, within Question (I), is: "How do Medicare expenditures for individuals in AL compare with Medicare expenditures for the population of community-dwelling Medicare beneficiaries?" Unfortunately, the comparability of health and functional status between AL residents and community-dwelling beneficiaries in general cannot be assured, so the illustrative comparisons provided here should be considered preliminary and suggestive.

METHODS

Defining AL

ALFs with 11 or more beds operating in the United States in the Spring and Summer of 1998 were the study's target population. An eligible ALF had to be a facility that advertised as or called itself an ALF, primarily served the elderly, and had 11 or more beds, or a facility that did not necessarily call itself an ALF but had 11 or more beds, served the elderly, and provided (or arranged) meals, 24-hour staff, housekeeping, and assistance

with at least two activities of daily living (which could include assistance with medications).

The initial sample for telephone interviews with the facility administrators used this definition of an ALF. Based on the initial telephone survey results, additional exclusion criteria were applied to determine which facilities would be included in a more elaborate on-site data collection that involved personal interviews with staff, families, and residents. Facilities excluded from the on-site data collection included those that offered minimal privacy (i.e., any rooms or apartments housing three or more unrelated persons), those that offered minimal services (i.e., not offering assistance with at least two of three activities—medications, bathing, and dressing), and those that offered both low nursing services (i.e., no RN on staff and no willingness to provide even temporary nursing care) and low privacy (i.e., fewer than 80 percent of the resident accommodations were private). These facilities were excluded because they resembled traditional "board and care" homes more than ALFs. The lack of services or privacy indicated that these facilities did not operate within the parameters of what most consumers and industry representatives recognize as the "philosophy of assisted living" (Assisted Living Quality Coalition 1998).

Approximately 40 percent of the 1,517 ALFs included in the original telephone survey were eligible for the on-site data collection. A sample of 438 of these facilities was drawn, and the on-site data collection was completed in 293 facilities (67 percent). The data were then re-weighted to adjust for facility nonresponse. These sampled ALFs exhibited moderate or high privacy, a distinction based on the percentage of private accommodations, or moderate or high services, a distinction based on the presence of a full-time RN on staff. More detailed discussions of the results of the telephone survey, the sampling strategy, and sample frame construction appear elsewhere (Hawes, Rose, and Phillips 1999; Iannacchione et al. 1999; Hawes et al. 2003).

Sampling and Data Collection

A stratified, three-stage sampling design was used. First-stage units were counties or county-clusters. Second-stage sampling units were ALFs, and residents of the ALFs constituted the third stage. Virtually all residents were eligible for Medicare. Only 4.3 percent (SE = 1.5 percent) were under age 65 and many of those under age 65 qualified for Medicare services because of their disabilities. Baseline on-site data collection in the ALFs took place during the fall of 1998

and involved interviews with 1,581 residents residing in 293 ALFs. On average, six residents were randomly selected in each facility. All data were weighted to reflect the characteristics of the national population of facilities and residents.

Follow-up contact indicated that 1,202 of the respondents remained in the ALF approximately 7 months after baseline. Only data on those who remained in their ALF from baseline to follow-up were used for this analysis. The research issues addressed here deal with Medicare costs for residents while they were in AL. Information on transitions from AL to other settings is available elsewhere (Phillips et al. 2003).

Of the 1,202 residents who had not departed their baseline ALF, Medicare claims data were obtained for 545 residents. During the data collection, residents were asked to display their Medicare card and allow the interviewer to copy the number. The major source of sample attrition was nonresponse. In over 50 percent of the cases, participants were either unwilling or unable to provide their Medicare card to the interviewer.

Medicare numbers for sample members were submitted to the Centers for Medicare and Medicaid Services (CMS) to obtain Medicare claims data. Medicare claims data for the period from the date of the baseline assessment to 6 months after the assessment were processed. This is the time period during which we are certain of each resident's location. A database was then created that contained Medicare claims information, resident characteristics, and facility characteristics.

Because of the moderate response rate (46 percent), the data were analyzed to determine whether the residents for whom we had Medicare information were representative of the national population of residents. Only one of 17 comparisons (prior hospitalization) indicated a significant difference when the subsample with Medicare data was compared with the total sample.

Analysis Variables

The dependent variables included different types of Medicare expenditures. Three dependent variables were constructed: acute/postacute expenditures, outpatient expenditures, and total Medicare expenditures. Acute/postacute expenditures consisted of the sum of home health, skilled nursing facility, and inpatient expenditures. Outpatient expenditures consisted of the sums paid for outpatient and physician/supplier claims, while total expenditures consisted of the sum of the acute/postacute and outpatient expenditures. All of these variables were based on the dollar amounts actually paid by the Medicare program for services. Our interest was in Medicare's real cost of care for this

population, not in provider charges or in the maximum allowable Medicare reimbursement. All expenditures were aggregated by type of service for the 6 months following a resident's baseline interview.

Acute/postacute and outpatient expenditures were both investigated using logistic regression and ordinary least squares regression (OLS), following the analytic strategy suggested in the two-part utilization model (Duan et al. 1983, 1984). In the logistic regressions, dependent variables were dichotomies reflecting the presence or absence of claims for each type of expenditure. In the OLS analyses, the dependent variables were the log of the total amount paid for each type of expenditure for those participants who had Medicare expenditures. Total expenditures were not investigated in the multivariate analyses because they were simply the sum of inpatient and outpatient claims.

Independent variables for both the logistic regression models and OLS models were fundamentally the same. Some of the independent variables were unique to the environment under investigation (e.g., monthly price for the ALF). Other variables used in the final models were largely consistent with those found in other analyses of Medicare and health care utilization by the elderly (Asch et al. 2000; Levinsky et al. 2001; Chan et al. 2002; Guralnik et al. 2002; Hubbert and Hays 2002; Henton et al. 2002; Reuben et al. 2002). The independent variables, although not presented in this fashion, also draw from all three dimensions of Andersen's behavioral model of utilization—need (e.g., individual function, medical history), enabling resources (e.g., facility price and location), and predisposing characteristics (e.g., individual age and gender) (Andersen 1995; Andersen and Davidson 2001).

Independent variables used in the modeling included three classes of variables reflecting individual and facility characteristics at baseline: individual characteristics, an individual's utilization history, and the characteristics of the ALF in which the resident resided. Individual characteristics included in our models were: age, cognitive status (no or mild impairment versus moderate or severe impairment), whether the resident received assistance with activities of daily living (ADLs), the presence of urinary continence, length of stay in the ALF, marital status, and gender. Two items reflected residents' past health service utilization. These indicated whether the resident reported a hospitalization or an ER visit in the 12 months prior to the baseline interview.

ALF characteristics included the average monthly price for the ALF (above versus below median), ownership (for-profit versus other), size (number of beds), facility occupancy, whether the ALF was on a multilevel campus, moderate or high service, moderate or high privacy, and location (metropolitan area versus nonmetropolitan area).

The location variable was constructed using the Rural–Urban Continuum Codes, which categorize counties by total population and proximity to a metropolitan area. A detailed explanation of this measure can be found on the worldwide web at the U.S. Department of Agriculture site (http://www.ers.usda.gov/Briefing/Rurality/RuralurbCon/). High service was defined as having a full-time RN on staff, and a high privacy facility was defined as one having greater than 80 percent private accommodations.

Statistical Analysis

Descriptive statistics were estimated for the Medicare utilization indicators and resident characteristics. As indicated, both logistic regression and OLS models were developed. In the modeling, a single category was sometimes added to nominal or ordinal variables to represent missing data for that variable. This was carried out to maintain sample size and assure a well-specified model. These parameters are not reported. All results were produced using software that provides appropriate variance estimates for data collected using multistage sampling designs (Shah, Barnwell, and Bieler, 1996).

RESULTS

As the results are presented, it is important for the reader to remain cognizant of the nature of our sample of ALFs. The sample does not include all types of facilities that call themselves, or are known as, ALFs. Our sample includes those facilities that we believe embody two of the fundamental principles of ALF operation: providing more than minimal privacy and having the services available to meet a range of resident scheduled and unscheduled needs.

Table 1 displays descriptive statistics for ALF residents who remained in their ALF between baseline and follow-up and for whom Medicare data were available. The descriptive statistics include both individual and facility characteristics. Additionally, this table provides information on how the subpopulation with Medicare claims data differed from ALF residents present in the ALF at both baseline and follow-up.

As one expects in such settings, the residents described in Table 1 were, on average, widowed females over 80 years of age. As a group in housing with supportive services, however, they functioned at a relatively high level. Fewer than 20 percent needed ADL assistance, only one-third had any urinary incontinence, and less than one-fifth exhibited significant cognitive impairment. According to baseline interview data, roughly one-quarter had an ER visit in the 12 months prior to baseline data collection, and 38 percent had an over-

Table 1: ALF Resident Characteristics at Baseline ($N = 66{,}092$; $n = 545$)

	Mean or Percent (SE)
Individual characteristics	
Age (mean)	83.74 (0.52)
Female	76.19% (3.13)
Marital status	
Married	12.89% (1.70)
Widowed	69.22% (2.17)
Divorced/separated	7.66% (1.01)
Single/never married	10.22% (1.53)
ADL status	
No assistance	82.29% (3.34)
Some assistance	17.71% (3.34)
Cognitive impairment	
None or mild	81.63% (3.51)
Moderate	8.31% (1.36)
Severe	10.06% (2.96)
Incontinent of urine	
Daily	11.89% (2.52)
More than 2 × weekly, but not daily	4.83% (1.12)
1 × or 2 × per week	16.00% (2.14)
Never	67.29% (2.98)
Length of stay in facility (mean years)	2.60 (0.27)
ER visit in last year	24.98% (2.68)
Hospital stay in last year	37.98% (2.72)*
Facility characteristics	
Multilevel campus	64.43% (4.45)
High privacy	66.18% (4.52)
High service	65.36 % (3.70)
Average percent occupancy	81% (2.0)
Average price	$1,757 (81)
Average facility size (# of beds)	73.10 (5.31)
Metropolitan location	81.96% (4.77)

*Indicates subpopulation and full population are significantly different in this characteristic at $\alpha = .01$ The percentage of residents without Medicare claims data hospitalized overnight in the 12 months prior to baseline was 27.60% (3.18).

AFL, assisted living facility; ADL, activity of daily living; *N*, population estimate; *n*, sample size.

night hospital stay in the same period. It was only in the prevalence of an overnight hospital stay (i.e., one of 17 characteristics) that those ALF residents for whom we could retrieve claims data differed significantly from those for whom we could not retrieve that data.

Table 2 provides descriptive statistics regarding average Medicare expenditures for this population. The average expenditures for inpatient, home health, and hospice care in our sample during the 6 months under investi-

gations were $1,507, while the average Medicare expenditures for outpatient and physician/supplier care were $883. On an annualized basis, the average Medicare expenditure for an ALF resident was $4,782. The Medicare Current Beneficiary Survey component dealing with community-dwelling Medicare beneficiaries indicated that the average Medicare expenditure per beneficiary for 1999 was $4,701 (http://www.cms.gov/mcbs/PubHHC99.asp [accessed July 27, 2004]). The CMS reports that the average per beneficiary expenditure for those who lived throughout the entire year of 1999 was $4,755 (HCFA 2001). Both of these figures are similar to those for our sample of community-dwellers residing in ALFs.

Of course, not all potential beneficiaries use Medicare services. Table 2 also indicates what proportion of ALF residents used Medicare services. Twenty-two percent used in-patient, home health, or hospice services (mostly inpatient services), while 84 percent used outpatient or physician services. The Medicare expenditures associated with these events also appear in Table 2. The annualized Medicare expenditure for acute/postacute services was $13,626 for those 22 percent of the ALF population who used those services. For the 84 percent who used outpatient services, the annualized average expenditure was $2,158. For those who received any Medicare-covered care, the average annualized Medicare expenditure was $5,822.

Table 3 displays odds-ratios for logistic regressions predicting the likelihood that an AL resident would use Medicare-covered services. Independent variables are divided into three classes: individual characteristics, utilization his-

Table 2: Medicare Expenditures for ALF residents, 1998 ($N = 66{,}092$; $n = 545$)

	Acute/Postacute	*Outpatient*	*Total*
All residents			
6 month mean (SE)	$1,507 ($237)	$883 ($99)	$2,391 ($286)
6 month median	$0	$289	$300
6 month range	$51,729	$14,004	$58,390
Annualized mean	$3,014	$1,764	$4,782
Percent of residents with claims (SE)	22.12% (2.02%)	84.42% (2.47%)	84.62% (2.46%)
Those residents utilizing services			
Average number of claims (SE)	2.24 (0.18)	14.71 (0.80)	15.26 (0.82)
6 month mean (SE)	$6,813 ($853)	$1,079 ($111)	$2,911 ($320)
6 month median	$3,874	$427	$491
Annualized mean	$13,626	$2,158	$5,822

ALF, assisted living facility; *N*, population estimate; *n*, sample size.

tory, and ALF characteristics. As the results in Table 3 indicate, individual characteristics were the only variables that had a significant impact on the likelihood of an AL resident using Medicare-reimbursed services. Only age, the need for ADL assistance, and urinary incontinence had a statistically significant impact. None of the facility characteristics included in the model proved significant.

Table 4 displays parameters in the OLS models for the different types of claims. These results also lend little support to the hypothesis that ALF characteristics had a significant relationship with Medicare expenditures. Individual characteristics were most important in determining the level of expenditure for individuals with Medicare expenditures. Less cognitively impaired individuals had less expensive hospital stays. Less functionally impaired individuals had physician and outpatient costs that were lower than the costs for individuals who needed more ADL assistance. Also, those residents who had resided in the ALF for 6 months to a year had higher expenses than other residents using Medicare-covered hospital, hospice, or home health services. This may imply that both those individuals just entering an ALF and those who have a relatively longer length of stay are in the best health. However, none of the other parameters for length of stay are significant in any of the other models, so one should exercise considerable care in considering the meaning of the significance of this single parameter.

Of all the parameters estimated for variables representing facility characteristics in Tables 3 and 4 (i.e., 40), four were significant at the .05 level. The three parameters for organizational variables that seem worthy of notice are the findings for ALF size. These results imply that individuals from ALFs of smaller size, when they incurred expenses, had lower Medicare expenditures than ALF residents residing in larger ALFs.

DISCUSSION

The answer to the question, "What are the Medicare expenditures for residents in assisted living?" seems to be that the annual Medicare expenditures for elderly beneficiaries in AL average approximately $4,800. For only those beneficiaries using services, the annual average is approximately $5,800. These Medicare expenditure levels are similar to the expenditures for all Medicare beneficiaries living in the community. For example, the average Medicare program payment for aged beneficiaries served in calendar year 1999 was $5,635, approximately $200 below our annualized estimate in Table 2 (http://www.cms.hhs.gov/review/supp—accessed December 23, 2003).

Table 3: Logistic Regressions Investigating Factors Affecting Use of Different Types of Medicare Services by ALF Residents during a 6-Month Period, 1998–1999 ($N = 65{,}016$; $n = 536$)

Type of Claim	*Acute/Postacute* $R^2_{Logistic} = 0.11$* *Odds Ratio (95% CI)*	*Outpatient* $R^2_{Logistic} = 0.08$ *Odds Ratio (95% CI)*
Individual characteristics		
Age < 80	0.96 (0.50, 1.84)	**0.53 (0.29, 0.95)***
Female	1.19 (0.60, 2.38)	1.66 (0.96, 2.85)
Cognitive deficit		
Mild	2.66 (0.53, 13.41)	0.61 (0.07, 5.24)
Moderate	3.51 (0.69, 17.79)	1.21 (0.10, 14.97)
Severe	—	—
Marital status		
Married	1.71 (0.43, 6.76)	1.10 (0.32, 3.81)
Divorced/separated	1.20 (0.49, 2.97)	0.85 (0.38, 1.89)
Widowed	1.99 (0.39, 10.17)	1.38 (0.49, 3.93)
Single	—	—
No ADL help needed	**0.40 (0.20, 0.79)****	1.86 (0.90, 3.87)
Urinary incontinence > 2 times in last week	**2.00 (1.03, 3.87)****	**2.42 (1.01, 5.81)***
Length of stay		
0–6 month	0.69 (0.29, 1.64)	1.06 (0.58, 1.93)
6 months–1 year	0.80 (0.41, 1.54)	1.57 (0.59, 4.18)
Greater than 1 year	—	—
Utilization history based on survey data		
Hospital stay in last 12 months	1.13 (0.69, 1.87)	0.72 (0.38, 1.36)
ER visit in last 12 months	0.89 (0.39, 1.99)	1.13 (0.56, 2.26)
ALF characteristics		
For-profit ownership	1.30 (0.77, 2.20)	1.12 (0.64, 1.94)
Size (# of beds)		
11–25	0.59 (0.26, 1.35)	1.01 (0.37, 2.73)
26–50	1.10 (0.59, 2.04)	0.85 (0.41, 1.75)
51–100	0.86 (0.39, 1.91)	0.49 (0.21, 1.12)
> 100	—	—
Occupancy 0–91.7%	1.25 (0.75, 2.09)	1.46 (0.87, 2.45)
Multilevel campus	0.63 (0.33, 1.18)	0.66 (0.31,1.38)
Lower service	0.76 (0.37, 1.56)	0.99 (0.56, 1.77)
Lower privacy	0.76 (0.36, 1.59)	1.53 (0.64, 3.64)
Price < $1,695 per month	0.89 (0.55, 1.42)	0.62 (0.35, 1.09)
Metropolitan location	0.94 (0.40, 2.18)	0.77 (0.32, 1.83)

*p-value < .05;

**p-value < .01.

*See Shah, Barnwell and Bieler (1996) for definition of R^2_{Logistic}.

ALF, assisted living facility; ADL, activity of daily living; N, population estimate; n, sample size.

Table 4: OLS Models Investigating Factors Affecting Medicare Expenditures for ALF Residents during a 6-Month Period, 1998–1999

Type of Claim	*Acute/Postacute (log) N = 14,254; n = 119; R^2 = .40 Parameter (SE)*	*Outpatient (log) N = 53,518; n = 439; R^2 = .15 Parameter (SE)*
Individual characteristics		
Age 0–79 years	− 0.23 (0.28)	− 0.03 (0.17)
Female	− 0.15 (0.30)	0.01 (0.15)
Cognition		
None or mild	− **1.75 (0.51)*****	1.01 (0.53)
Moderate	− **1.08 (0.49)***	0.86 (0.49)
Severe	—	—
Marital		
Married	− 0.04 (0.32)	0.19 (0.28)
Divorced/separated	0.44 (0.33)	0.01 (0.19)
Widowed	− 0.42 (0.37)	0.63 (0.43)
Single	—	—
No ADL help needed	− 0.07 (0.32)	− **0.78 (0.29)****
Urinary incontinence >2 times in last week	− 0.11 (0.29)	0.04 (0.23)
Length of stay		
0–6 month	− 0.25 (0.28)	0.31 (0.24)
6 months–1 year	**0.98 (0.30)****	0.36 (0.29)
>1 year	—	—
Utilization history based on survey data		
Hospital stay in last 12 months	0.38 (0.25)	0.29 (0.19)
ER visit in last 12 months	− 0.22 (0.22)	− 0.02 (0.23)
ALF characteristics		
For-profit ownership	0.07 (0.29)	0.20 (0.16)
Size (# of beds)		
11–25	− **0.98 (0.32)****	− **0.69 (0.27)***
26–50	− 0.48 (0.30)	− 0.20 (0.27)
51–100	− **0.68 (0.31)***	− 0.30 (0.25)
>100	—	—
Occupancy 0–91.7%	− **0.52 (0.22)***	− 0.06 (0.15)
Multilevel campus	− 0.07 (0.28)	0.05 (0.23)
Low service	− 0.37 (0.27)	− 0.09 (0.22)
Low privacy	0.11 (0.23)	− 0.41 (0.23)
Price <$1,695 per month	− 0.01 (0.22)	− 0.06 (0.16)
Metropolitan location	0.39 (0.41)	0.41 (0.27)

**p*-value <.05;

***p*-value <.01;

****p*-value <.001.

ALF, assisted living facility; ADL, activity of daily living; OLS, ordinary least squares regression; *N*, population estimate; *n*, sample size.

In addition, the distribution of expenditures for AL sample was very similar to that found in the general Medicare beneficiary population. In 1997, the 15 percent of beneficiaries who incurred annual Medicare costs of $10,000 or greater received over 75 percent of total Medicare expenditures (Health Care Financing Administration 2000). Among AL residents, in 6 months of data, 14.8 percent of the residents had Medicare claims that totaled $5,000 or more. Total Medicare expenditures for those residents represented 78 percent of Medicare expenditures for the sample. Just over 7 percent of residents had Medicare expenditures of $10,000 during the 6-month observation period. Fifty-seven percent of total Medicare expenditures for the sample went to provide care for them.

From this research, the answer to the question, "What factors drive Medicare expenditures among AL residents?" seems to be that the presence of Medicare expenditures and the intensity of service use are most heavily influenced by individual characteristics. Only the number of beds in the facility had a significant relationship with the expenditures for those utilizing Medicare services. These results imply that residents in smaller ALFs were no more or less likely to use Medicare services, but, among those using services, care costs were lower.

In smaller facilities, staff may be unable to prevent episodes of illness. However, they may know their residents better than staff in larger facilities know their residents. This may allow staff in smaller facilities to identify changes that reflect the onset of an illness more quickly than staff in larger facilities. By noting the onset of conditions earlier, they may reduce the overall cost of treating an illness. It is important to remember that often the onset of illness in the elderly is heralded by observable symptoms such as confusion, incontinence, or functional decline. These are symptoms easily recognized even by AL staff, almost all of whom lack formal medical training.

States may have some interest in fostering certain types of ALFs, or certain types of services in ALFs, for the purposes of controlling or redistributing health care costs. The federal government may have an abiding interest in the AL industry's effects on health care costs. Previous research indicates that ALF characteristics play a significant role in reducing residents' likelihood of nursing home admission (Phillips et al. 2003). However, for the purposes of ambulatory, acute, and postacute care costs, it seems that facility characteristics, other than facility size, may be relatively unimportant.

Long-term care costs are another issue entirely. Whether AL can serve as a less expensive substitute for nursing home care is an important policy issue. We know that AL prices are invariably cheaper than nursing home care. Therefore, the important question for policymakers must be, "Can living in an

ALF provide some individuals with the same benefits they would receive while living in a nursing home?" The answer to this question ultimately rests on an issue unaddressed by this study: "Do individuals with similar needs have similar outcomes (e.g., functional, cognitive, or emotional) in AL and in nursing homes?" All that our research indicates is that AL does not currently seem to be caring for individuals whose costs of care differs greatly from costs for those living elsewhere in the community.

However, even within its limited sphere of emphasis on Medicare expenditures, this study is not without its limitations. Although it uses a national sample, this sample is limited to ALFs providing specific levels of services and privacy. These facilities were operating at a specific time in the history of a dynamic industry, and the AL industry was growing and changing as it grew, as was its clientele. Our research also focused on a limited number of structural characteristics of ALFs. Other studies focusing on care processes or more finely-grained structural measures may lead to different results. Finally, we were unable to make direct comparisons of Medicare expenditures among our sample and comparable community-dwelling elderly. However, these preliminary data may provide guidance for future studies, and these studies should help clarify the relationships explored here.

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