
Trends in Nursing Home Expenses, 1987 and 1996

Jeffrey A. Rhoades, Ph.D., and John P. Sommers, Ph.D.

This article presents data about expenses and sources of payment for nursing homes for 1987 and 1996. A central finding is that the role of Medicare in financing nursing home care has greatly expanded. Medicare payments represent 2 and 19 percent of the total for 1987 and 1996, respectively. As Medicare's role increased, there was an accompanying decline in the proportion of expenses paid out of pocket. In 1987, 45 percent was paid out of pocket versus 30 percent in 1996. Those nursing home residents using Medicare most heavily as a source of payment tended to exhibit very short stays (33 days on average), zero limitations in activities of daily living (ADLs), and no mental conditions.

INTRODUCTION

The dramatic growth in the number of Americans age 75 or over, the desire to minimize the duration of expensive inpatient hospital stays, and policy developments since 1987 have raised the importance of nursing home trends. While the trend in long-term care (LTC) is toward expansion of non-institutional (community-based) care for persons with functional limitations, a subset of individuals continues to need 24-hour skilled supervision in an institutional setting. The cost of this care is substantial, and growing. A better understanding of trends in nursing home expenses and the changing role of

Medicare can contribute to a better understanding of the provision of LTC and the nursing home marketplace.

DATA SOURCES

The estimates presented are drawn from the 1996 Medical Expenditure Panel Survey (MEPS) (Potter, 1998) Nursing Home Component (NHC) and the 1987 National Medical Expenditure Survey (Edwards and Edwards, 1989) Institutional Population Component (IPC). The NHC and IPC are nationally representative surveys, sponsored by the Agency for Healthcare Research and Quality. The surveys collected detailed information on: (1) nursing homes and their characteristics, (2) residents and their characteristics, and (3) uses of and expenses for nursing home care by these residents. The estimates presented are derived from information provided by facility administrators and designated staff in sampled nursing homes, or by data abstraction by interviewers (Edwards and Edwards, 1989; Potter, 1998).

The 1987 IPC consists of a random sample of 711 nursing homes and 4,563 residents while the 1996 NHC consists of a random sample of 815 nursing homes and 5,899 residents. Samples were selected using a two-stage stratified probability design, with facility selection in the first stage and nursing home residents in the second stage.

Other data sources available for analysis included the 1999 National Nursing Home Survey (NNHS) from the National Center for Health Statistics, the 1999 Medicare

Jeffrey A. Rhoades and John P. Sommers are with the Agency for Healthcare Research and Quality. The views expressed in this article are those of the authors and do not necessarily reflect the views of the Agency for Healthcare Research and Quality or the Centers for Medicare & Medicaid Services (CMS).

Current Beneficiary Survey (MCBS), and the 2001 National Health Expenditures (NHE) from CMS.

The NNHS collects data on facilities, expenditures, current residents, and discharges. How nursing homes are defined in the NNHS and NHC are very similar. This is revealed by the estimates for: number of nursing homes (17,000 versus 16,840); beds (1.82 versus 1.76 million); current residents (1.61 versus 1.56 million); and occupancy rate (88.3 versus 88.8 percent), 1997 NNHS and 1996 MEPS NHC, respectively. The NNHS obtains data on total charges (but not payment information) for the previous month's care and up to two sources of payment. In contrast, the IPC and NHC collect amounts billed, amounts paid, and up to 10 different sources of payment for the entire reference year. Also, the IPC and NHC collect income and assets data (poverty status and home ownership), and data for those admitted to a nursing home during the year (a particularly significant group when considering Medicare expenditures) while the NNHS does not (Gabrel, 2000; Rhoades and Krauss, 1999; and Spector, Potter, and De La Mare, 2000).

While the 1997 (and more recent) MCBS mirror the NHC regarding data collection instruments, the MCBS is a person-based sample rather than a facility-based sample (the NNHS, IPC, and NHC all have facility-based samples). As a result, the MCBS nursing home sample is too small to answer many analytical questions, particularly for subpopulations. In any given year the number of sampled Medicare beneficiaries in the MCBS residing in nursing homes is less than one-sixth that of the NHC. Also, because the MCBS is based on a sample of Medicare beneficiaries, nursing home residents not covered by Medicare, e.g., almost all individuals under age 65, are excluded from the sample,

unlike the NHC (Spector, Potter, and De La Mare, 2000). The analytical power of the MCBS is limited with respect to the nursing home population. In addition, important portions of the nursing home population are excluded from the MCBS sample.

The NHE represents health care spending in the aggregate rather than at the person level, as do the IPC and NHC. Person-level analysis is not possible using the NHE. Also, the NHE definition of a freestanding nursing home is broader when compared with the NHC and NNHS. A freestanding nursing home is defined as a facility providing inpatient nursing and rehabilitative services or residential and personal care services to individuals needing such care. All revenues and receipts of a qualifying facility are included in the NHE expenditure estimates. Thus, the NHE and NHC estimates differ in several ways. The NHE includes non-patient revenues and Medicaid payments to intermediate care facilities for the mentally retarded, and excludes expenditures for hospital-based nursing homes (Centers for Medicare & Medicaid Services, 2003; Levit et al., 1997).

While the NNHS, MCBS, and NHE all provide more recent expenditure data, the IPC and NHC are unparalleled in their level of detail, and ability to link nursing home care use and payments to specific survey respondents. Both the IPC and NHC allow analysts to examine how individual characteristics are associated with nursing home care use and expenses (Cohen et al., 1996/1997). The IPC and NHC provide details of nursing home residents and sources of payment that complement available administrative data. Moreover, the NHC provides a valuable benchmark of the nursing home market prior to the Balanced Budget Act of 1997 that mandated conversion from a cost-based reimbursement system to a prospective payment

system (PPS) for Medicare skilled nursing facilities (SNFs). The 3-year phase-in period started July 1, 1998 (Levit et al., 2000).

DEFINITIONS

Nursing Homes

A nursing home was defined as having at least three beds, being either certified by Medicare or Medicaid or licensed by a government agency as a nursing home, and providing 24-hour skilled nursing care.

Freestanding nursing homes consisted of nursing homes with only nursing home beds. Nursing homes with multiple levels of care included continuing care retirement communities, and retirement centers that had independent living and/or personal care units in addition to nursing home beds. Hospital-based nursing homes were nursing homes that were part of a hospital or were a hospital-based Medicare SNF.

Residents

Residents were persons who resided in a nursing home during either 1987 or 1996. Residents were selected in the second stage of sample selection. This selection consisted of a sample of residents as of January 1, 1987 or 1996, and a rolling sample of persons admitted during the reference year (Edwards and Edwards, 1989; Potter, 1998).

Expenses

Expenses for nursing home care are defined as payments received by the facility for both basic services (room and board) and ancillary services (special supplies and services). Total annual expenses are the sum of expenses, during the reference year, of individuals who resided in a nursing home for at least 1 day during 1987

or 1996. Out-of-pocket expenses are expenses covered by payments made by nursing home residents or their families. Expenses are not adjusted for inflation.

Annual expenses per resident are derived by dividing total annual nursing home expenses by the total number of nursing home residents. For example, annual expenses per resident of \$22,561 in 1996 were derived (using non-rounded values) by dividing the approximately \$70 billion in total annual expenses by the approximately 3.1 million residents for 1996. The MEPS national estimate of expenses for services in nursing homes in 1996 was \$70 versus \$80 billion (Levit et al., 1997). The NHE figure includes approximately \$5 billion in non-patient revenues, and \$9 billion in Medicaid payments to intermediate care facilities for the mentally retarded. These are excluded from the NHC estimate for nursing home expenses. Additionally, the NHE excludes \$9 billion spent for nursing home care provided in hospital-based facilities (such expenses are included in the NHC estimate). Thus, the NHE estimate most comparable to the NHC estimate would be about \$75 billion, or \$5 billion more than the NHC estimate (Centers for Medicare & Medicaid Services, 2003; Rhoades and Sommers, 2000).

Mean expenses per day were derived by dividing total annual expenses by the total number of resident days. For example, the mean expense per day of \$118 in 1996 was derived by dividing the approximately \$70 billion in total annual expenses by approximately 592 million resident days.

Poverty Status

Poverty status was defined as the ratio of family income to the Federal poverty level (FPL), which varied by family size and age of the head of the family. The categories were: (1) persons in families with income

less than 100 percent of the FPL, (2) persons in families with income from 100-199 percent of the FPL, (3) persons in families with income from 200-399 percent of the FPL, and (4) persons in families with income of 400 percent of the FPL.

Functional Status

Functional disability was measured by whether residents received help with activities of daily living (ADLs)—bathing, dressing, walking, transferring, eating, and toileting. When it was reported that an ADL did not occur (e.g., the resident was unable to perform the ADL or was comatose), residents were classified as receiving assistance with the activity. Additionally, in order to be classified as independent in toileting, residents who used wheelchairs had to be able to transfer independently and those who did not use wheelchairs had to be independently mobile.

Mental Health Status

Dementia was defined as including Alzheimer's disease and other dementias. Other mental disorders included at least one of the following: anxiety disorder, depression, manic depression, and schizophrenia.

FINDINGS

Total annual expenses for nursing homes increased from \$28 billion in 1987 to \$70 billion in 1996, a 150-percent increase. Annual expenses per resident increased from \$13,866 in 1987 to \$22,561 in 1996, representing a 63-percent increase. Mean expenses per day increased from \$56 in 1987 to \$118 in 1996, representing a 111-percent increase. The increase from \$56 to \$118 represents an average annual increase of 8.6 percent. Annual price infla-

tion accounts for 6.4 percentage points of the increase. The 2.2 percentage point difference in the rate of increase of mean expenses per day (8.6 percent) from the inflation rate (6.4 percent) over the same period may reflect, in part, an increase in the intensity and concentration of nursing home services delivered. This is supported by the observation that while the number of residents increased by 53.7 percent, from 2.0 million in 1987 to 3.1 million in 1996 (and concurrently the population age 65 or over increased 13.7 percent), the average length of stay (LOS) declined by 23.0 percent (from 248 to 191 days). At the same time, the number of hospital-based nursing home beds increased by 85.5 percent, daily expenses in hospital-based nursing homes were \$212. Concurrently the number of nursing home beds in freestanding nursing homes increased 8.0 percent, and 1996 mean expenses per day in freestanding nursing homes were \$111.

The major sources of payment for total annual nursing home expenses shifted from 1987 to 1996. Medicare payments represented the greatest change between the 2 years, going from 2 percent of total payments in 1987 to 19 percent in 1996. The share of total expenses paid by Medicaid was 49 percent in 1987 and 44 percent in 1996. Out of pocket fell from 45 percent in 1987 to 30 percent in 1996 (Table 1).

Facility Characteristics

Facility Type

The greatest increase in mean expenses per day has been for hospital-based nursing homes. In 1987, mean expenses per day for hospital-based nursing homes were \$83. In 1996 such expenses reached \$212 (Figure 1). This represents a 155-percent increase for hospital-based nursing homes, compared with a 106-percent increase for

Table 1
Percent Distribution of Expenses, by Nursing Home Type: United States, 1987 and 1996

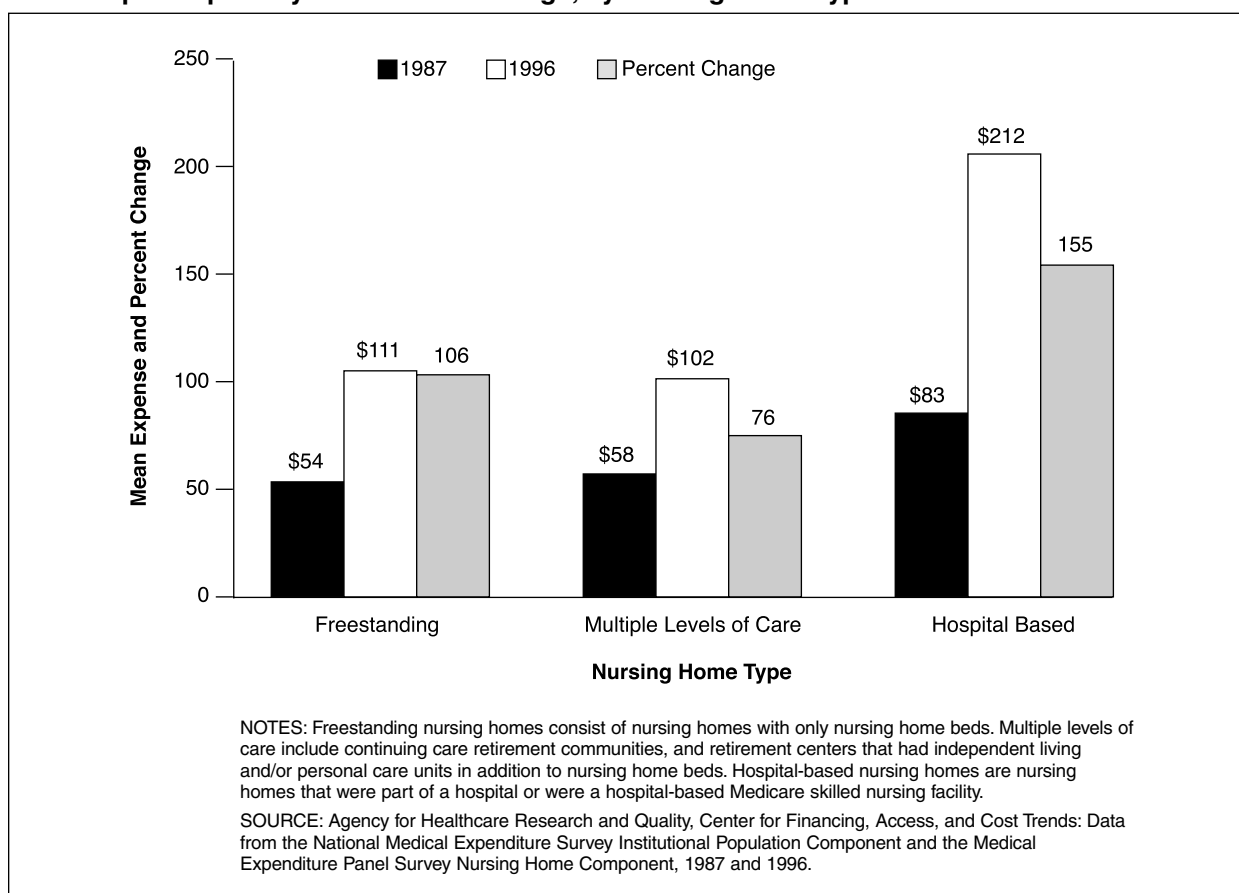
Type	Source of Payment ¹					
	Medicaid		Medicare		Out of Pocket	
	1987	1996	1987	1996	1987	1996
	Percent					
Total	49	44	2	19	45	30
Freestanding Facility	50	50	2	15	45	31
Multiple Levels of Care	29	38	1	11	60	47
Hospital Based	59	19	6	44	28	17

¹ Percentages do not add to 100 percent, other sources of payment include private insurance, Department of Veterans Affairs, and health maintenance organizations.

SOURCE: Agency for Healthcare Research and Quality, Center for Financing, Access, and Cost Trends: Data from the National Medical Expenditure Survey Institutional Population Component and the Medical Expenditure Panel Survey Nursing Home Component, 1987 and 1996.

Figure 1

Mean Expense per Day and Percent Change, by Nursing Home Type: United States 1987 and 1996



freestanding nursing homes and a 76-percent increase for nursing homes with multiple levels of care.

The proportion of total annual nursing home expenses paid by the major public sources of payment for hospital-based nursing homes has changed significantly

between the 2 years as well. There was an increase in the proportion of total annual expenses paid for by Medicare (from 6 to 44 percent) (Table 1).

The availability and access to Medicare-covered and hospital-based SNFs, has become increasingly important given the

greater role Medicare played in the nursing home market from 1987 to 1996. Additionally, the Medicare hospital PPS provided an incentive to discharge patients from hospitals as quickly as possible, resulting in increased movement from hospital to SNFs (Bishop and Dubay, 1991; Lewin-VHI, Inc., 1995; Shaughnessy and Kramer, 1989).

Certification Status

Nearly all nursing homes had some form of certification in both 1987 and 1996. A nursing home can receive certification from both the Medicare and Medicaid Programs (dually certified) or from either one separately. However, the distribution of nursing homes among the different types of certification changed drastically between 1987 and 1996. In 1987, only 28 percent (3,910 of 14,050) of nursing homes were dually certified compared with 73 percent (12,320 of 16,840) in 1996. Also, in 1987, 49 percent (6,950 of 14,050) were Medicaid-only certified, while just 17 percent (2,870 of 16,840) of all nursing homes were certified as such in 1996 (Rhoades, 1998). Over a period of 10 years, there has been a nearly tenfold increase in the proportion of total nursing facility beds serving Medicare-reimbursed patients (Mor, Banaszak-Holl, and Zinn, 1995-1996).

There are several possible reasons for the observed shift in certification between 1987 and 1996. The Medicare Catastrophic Coverage Act (MCCA) of 1988 (later repealed) altered eligibility and coverage for SNF care. The new SNF eligibility criteria allowed for a substantial increase in Medicare coverage of nursing home care. Nursing homes had a strong incentive to convert their Medicaid patients to Medicare status, because Medicare reimbursement levels tend to be higher than Medicaid levels. Additionally, patients, who might other-

wise be private pay, had powerful incentives to obtain Medicare eligibility because it would lower their out-of-pocket expenses (Laliberte et al., 1997; Liu and Kenny, 1993).

Other factors contributed to Medicare's increased role in financing nursing home care beyond the MCCA period:

- The 1988 clarification of the definition of skilled care under the Medicare SNF benefit may have resulted in more covered services and fewer payment denials by fiscal intermediaries (Liu and Kenny, 1993; and Moon, 1996).
- The Omnibus Budget Reconciliation Act of 1987 mandated assessments of residents and required that SNFs provide services to maintain the "...highest practicable level of physical, mental, and psychosocial well-being..." for residents. The mandated Resident Assessment System may have helped facilities to better document Medicare SNF eligibility and to increase the number of resident days for which they received Medicare reimbursement.
- The Omnibus Budget Reconciliation Act of 1987 also equalized staffing requirements, as well as other quality standards for Medicare- and Medicaid-certified facilities alike. This eliminated the incentive to remain a Medicaid-only nursing facility because the same conditions of participation applied to both programs. This may have provided a catalyst for bringing more Medicare SNFs into the market.
- Nursing homes, having geared up to provide Medicare services to a larger proportion of residents because of the MCCA, may have had an incentive to continue providing those services even after its repeal (Moon, 1996).
- These data may reflect what has been described as an increase in the number of individuals requiring subacute and post-acute treatment settings in response to hospitals' continuing efforts

Table 2
Expenses and Percent Change, by Resident Characteristics: United States, 1987 and 1996

Characteristic	Mean Annual Expense Per Resident			Mean Expense Per Day		
	1987	1996	Percent Change	1987	1996	Percent Change
Age						
0-64 Years	15,577	23,576	51	61	123	102
65-69 Years	14,253	20,116	41	60	127	112
70-74 Years	11,500	20,953	82	53	125	136
75-79 Years	12,886	20,360	58	55	134	144
80-84 Years	13,009	21,757	67	54	120	122
85-89 Years	14,607	23,374	60	56	112	100
90 Years or Over	14,647	25,765	76	55	108	96
In Nursing Home on January 1						
Died by December 31	9,070	17,517	93	55	109	98
In Institution All Year	19,755	36,368	84	54	101	87
Discharged During the Year	7,238	12,558	74	51	133	161
Admitted During the Year						
Died by December 31	3,580	9,457	164	66	204	209
In Institution on December 31	10,212	23,005	125	61	155	154
Discharged During the Year	3,872	8,569	121	80	257	221
Poverty Status (FPL)						
< 100 Percent	13,967	24,060	72	56	103	84
100-199 Percent	13,929	23,378	68	56	116	107
200-399 Percent	13,391	21,629	62	54	134	148
400 Percent or More	14,040	18,310	30	55	149	171
Number of ADLs Limitation¹						
0	11,664	13,170	13	46	141	207
1	13,638	22,190	63	49	99	102
3	14,876	22,046	48	52	103	98
4	13,863	24,156	74	55	117	113
5	13,395	21,407	60	56	125	123
6	14,288	25,053	75	62	121	95

¹ Receiving personal assistance with one or more of the following: dressing, bathing, eating, transferring, walking, and toileting.

NOTE: FPL is Federal poverty level.

SOURCE: Agency for Healthcare Research and Quality, Center for Financing, Access, and Cost Trends: Data from the National Medical Expenditure Survey Institutional Population Component and the Medical Expenditure Panel Survey Nursing Home Component, 1987 and 1996.

to reduce LOS (Helbing and Cornelius, 1992; Liu, Taghavi, and Cornelius, 1992; Laliberte et al., 1997; and Moon, 1996). The result increased Medicare SNF spending and may have had more to do with a change in the locus of acute care services than with the provision of long-term nursing home care (Feder and Lambrew, 1996).

Residents Characteristics

Age

In 1996, annual nursing home expenses, tended to increase with increasing age (age 0-64 being an exception), while the

mean expense per nursing home day tended to decrease (Table 2). Higher annual expenses coupled with lower daily expenses for older residents indicates that nursing home stays were longer for such residents. The average LOS ranged from 158 days for those age 65-69 years to 239 days for those age 90 or over. Nursing home care was possibly of a more custodial nature as the age of the nursing home resident increased (Rhoades and Sommers, 2000). Persons of advanced age have been shown to be at higher risk for entering a nursing home on a permanent basis than their younger counterparts (Coughlin, McBride, and Liu, 1990).

Table 3
Percent Distribution of Expenses, by Resident Characteristics: United States, 1987 and 1996

Character	Source of Payment ¹					
	Medicaid		Medicare		Out of Pocket	
	1987	1996	1987	1996	1987	1996
	Percent					
Age						
0-64 Years	67	63	1	9	22	15
65-69 Years	61	44	3	28	29	16
70-74 Years	48	43	2	23	44	25
75-79 Years	49	34	2	30	45	27
80-84 Years	44	42	3	22	51	30
85-89 Years	43	44	2	14	52	37
90 Years or Over	47	45	1	14	49	39
In Nursing Home On January 1						
Died by December 31	49	49	2	11	44	36
In Institution All Year	53	58	1	5	43	33
Discharged During the Year	35	24	4	21	48	34
Admitted During the Year						
Died by December 31	22	8	15	55	53	25
In Institution on December 31	35	24	4	38	55	26
Discharged During the Year	7	5	24	63	46	14
Poverty Status (FPL)						
< 100 Percent	48	67	2	10	45	19
100-199 Percent	50	48	2	18	44	28
200-399 Percent	50	27	2	24	44	38
400 Percent or More	47	5	2	32	48	54
Number of ADLs Limiation²						
0	44	29	1	26	44	22
1	48	49	1	7	46	35
3	50	48	1	13	46	34
4	51	43	2	25	42	27
5	46	37	3	25	48	33
6	51	48	2	17	42	30

¹ Percentages do not add to 100 percent, other sources of payment include private insurance, Department of Veterans Affairs, and health maintenance organizations.

² Receiving personal assistance with one or more of the following: dressing, bathing, eating, transferring, walking, and toileting.

NOTE: FPL is Federal poverty level.

SOURCE: Agency for Healthcare Research and Quality, Center for Financing, Access and Cost Trends: Data from the National Medical Expenditure Survey Institutional Population Component and the Medical Expenditure Panel Survey Nursing Home Component, 1987 and 1996.

In 1996, the general trend was for individuals (and their families) to pay a greater proportion of the nursing home bill as the resident's age increased. For example, those age 65-69 paid 16 percent of their total annual nursing home expenses out of pocket. In that same year those age 90 or over paid 39 percent of their total annual nursing home expenses out of pocket. Medicare exhibited the opposite trend, as age increased the proportion of expenses paid for by Medicare declined, going from 28 percent (age 65-69) to 14 percent (age 90 or over). The age group 65-69 experienced shorter stays, but higher expense

per day, possibly indicating the utilization of nursing home care services of a greater intensity (Table 3).

Marital Status

In both 1987 and 1996, residents who were married had lower annual expenses (\$11,326 and \$19,771, 1987 versus 1996) per resident than unmarried residents (\$14,457 and \$23,420, 1987 versus 1996). In 1996, married residents had higher mean expenses per day than unmarried residents. Married residents also had a greater increase in the mean expense per day

between the 2 years (136 percent for married versus 107 percent for unmarried) (Figure 2). The combination of lower annual expenses per resident and higher mean expenses per day indicates that married residents tended to have shorter LOSs than unmarried residents, and possibly received care of a greater intensity. In both years, but particularly in 1996, married residents relied more on Medicare than unmarried residents (Figure 3).

Previous research has found that being married when admitted to a nursing home is associated with a higher probability for shorter stays (Gillen et al., 1996; Keeler, Kane, and Solomon, 1981; Liu and Manton, 1983). Conversely, the unmarried have a higher-than-average risk of entering a nursing home on a permanent basis when compared with married residents (Coughlin, McBride, and Liu, 1990).

Institutional Status

Previous research has shown that long- and short-stay patients are significantly different in health status, sociodemographic characteristics, and use and expense patterns (Kemper, Spillman, and Murtaugh, 1991; Spence and Wiener, 1990; Wayne et al., 1991). Average annual expenses in 1987 and 1996, annual out-of-pocket expenses, mean expenses per day, and the share of expenses paid by various third-party sources vary across subgroups defined by their institutional and vital status.

For both 1987 and 1996, those that resided in nursing homes for the longest period of time, those in the nursing home all year, or admitted during the year and not discharged during the year, had the highest annual expenses per resident. Annual expenses for an individual residing in a nursing home all year totaled \$36,368 in 1996. Those with the lowest annual expenses per resident were individuals

admitted during the year who died or were discharged during the year. These same groups had the highest mean expenses per day. For example, those admitted and discharged from the nursing home in 1996 had a mean expense per day of \$257 (representing a 221-percent increase from 1987) while having a low annual expense per resident of \$8,569 (Table 2)—average LOS of 33 days. This observed relationship is consistent with such residents receiving nursing home services of a greater intensity. This is supported by the fact that such residents relied most heavily on Medicare as a source of payment. In 1996, for those admitted to a nursing home who died or were discharged during the year, 55 and 63 percent of their nursing home expenses were paid for by Medicare, respectively (Table 3). Nursing home residents whose care is reimbursed by Medicare are more likely to be recovering from acute illness, trauma, or surgery, requiring a greater intensity of service than chronic LTC residents (Shaughnessy and Kramer, 1989).

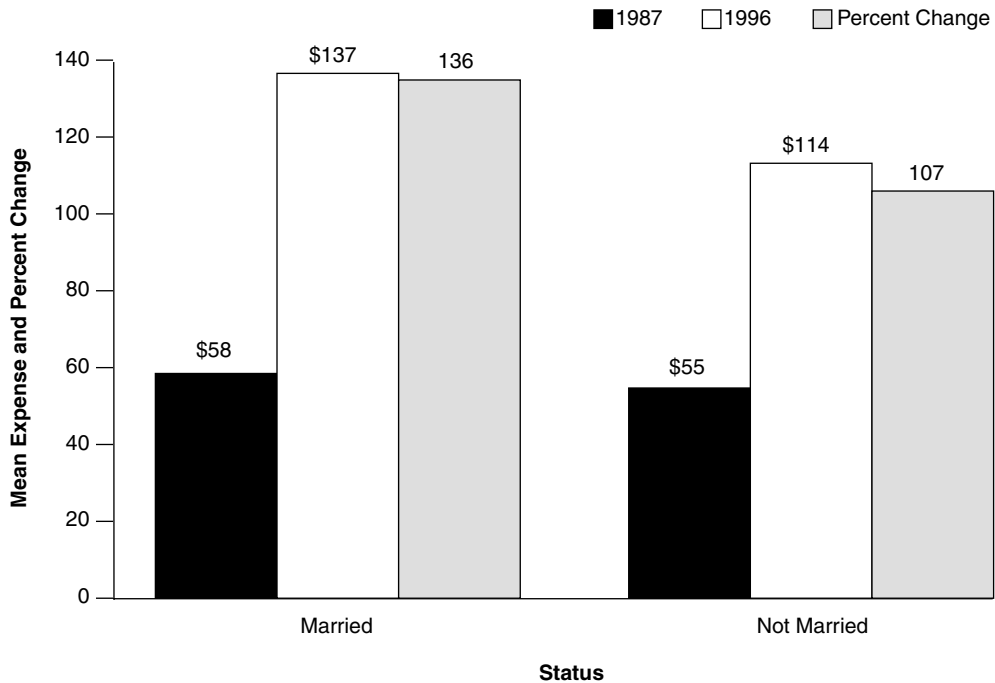
Federal Poverty Level Status

In 1996, mean expenses per day increased with annual income, from \$103 per day in the lowest income group to \$149 in the highest income group. The highest income group also experienced the greatest increase in mean expense per day between the 2 years, 171 percent. Annual expenses exhibited just the opposite pattern, decreasing from \$24,060 for the lowest income group to \$18,310 for the highest income group (Table 2). This indicates that those with lower incomes have a greater risk of longer nursing home stays (Coughlin, McBride, and Liu, 1990).

Medicaid paid 67 percent of 1996 nursing home expenses for the lowest income group, compared with just 5 percent for nursing home residents with incomes four

Figure 2

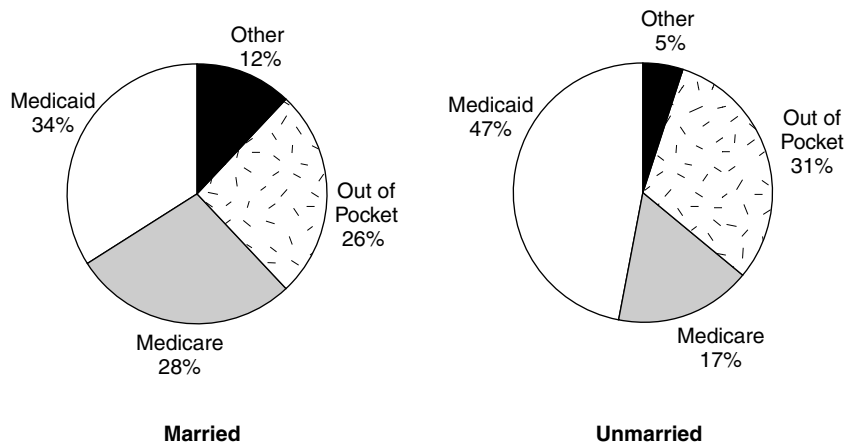
Mean Expense per Day and Percent Change, for Nursing Home Residents, by Marital Status: 1987 and 1996



SOURCE: Agency for Healthcare Research and Quality, Center for Financing, Access, and Cost Trends: Data from the National Medical Expenditure Survey Institutional Population Component and the Medical Expenditure Panel Survey Nursing Home Component, 1987 and 1996.

Figure 3

Distribution of Expenses for Nursing Home Residents, by Marital Status: 1996

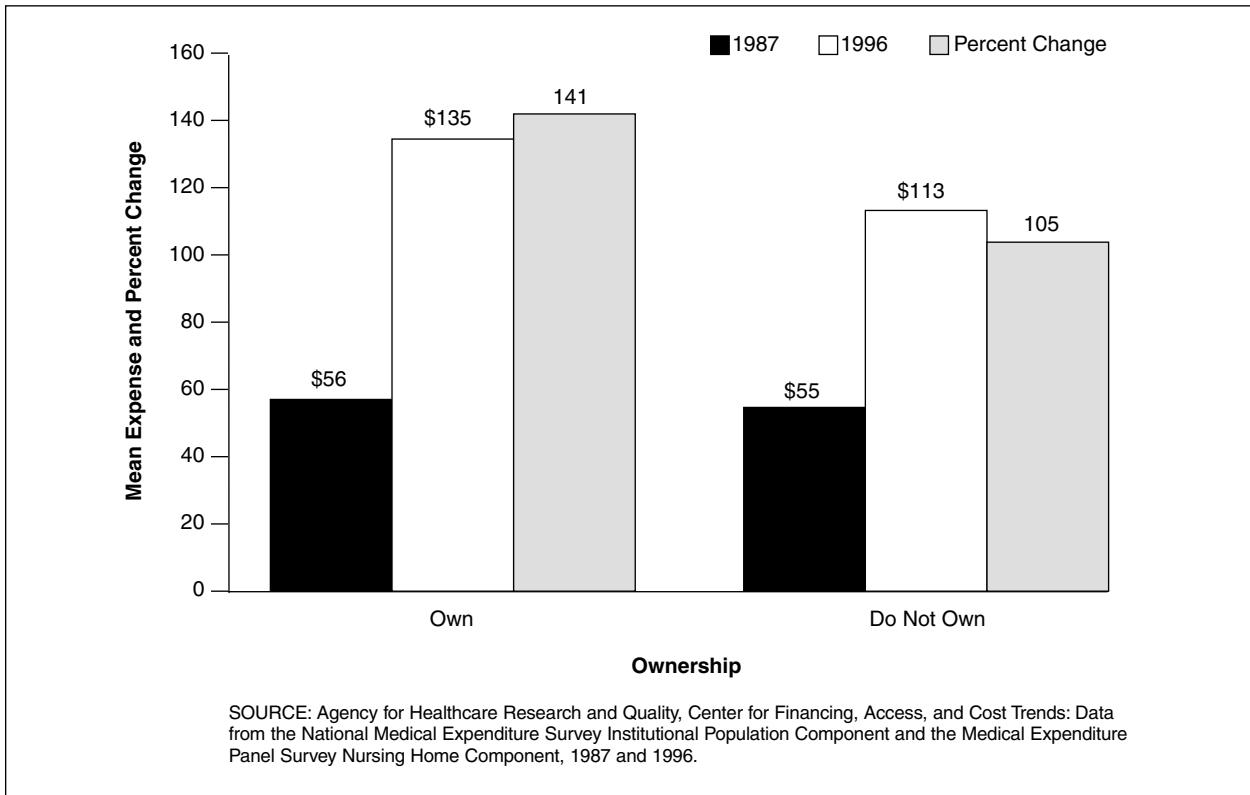


NOTE: Other sources of payment include private insurance, Department of Veterans Affairs, and health maintenance organizations.

SOURCE: Agency for Healthcare Research and Quality, Center for Financing, Access, and Cost Trends: Data from the National Medical Expenditure Survey Institutional Population Component and the Medical Expenditure Panel Survey Nursing Home Component, 1987 and 1996.

Figure 4

Mean Expense per Day and Percent Change for Nursing Home Residents, by Homeownership: 1987 Versus 1996



times or more of the FPL. Those in the lowest income group they or their families paid for 19 percent of nursing home expenses out of pocket in 1996; this 19 percent represents a drop from 45 percent in 1987. For nursing home residents with an income four times or more of the FPL, their out-of-pocket expenses went from 48 to 54 percent of total expenses between the 2 years (Table 3).

Residents with the highest income relied the most heavily on Medicare as a source of payment (32 percent in 1996), indicating that they may have received the most concentrated nursing home services. Nursing home residents having care reimbursed by Medicare are the most likely to be recovering from conditions that require a greater intensity of service (Shaughnessy and Kramer, 1989).

Home Ownership

In both 1987 and 1996, residents who did not own a home had higher annual nursing home expenses (\$14,568 and \$24,673, 1987 versus 1996) per resident than residents who did own a home (\$13,002 and \$18,096, 1987 versus 1996). At the same time non-homeowners had a lower mean expense per day in 1996 (Figure 4). Non-homeowners tended to have longer LOSs than homeowners (264 versus 231 days in 1987, and 218 versus 134 days in 1996, respectively) and possibly received care more custodial in nature. This relationship appears to be more pronounced in 1996 than in 1987. Non-homeowners are more than twice as likely to have a permanent stay (a stay of 1 year or more) as compared with homeowners (Coughlin, McBride, and Liu, 1990).

Sources of payment varied by homeownership status. For example, in 1996, homeowners paid a greater proportion of their expenses through Medicare (29 versus 15 percent) and out of pocket (35 versus 29 percent) and relied less on Medicaid (25 versus 51 percent) than residents who did not own a home (Figure 5). There was also an increase in the proportion of total expenses paid for by Medicare for homeowners, 2 versus 29 percent between the 2 years.

ADL Limitations

In both 1987 and 1996, there was a general trend upward in mean expenses per day as the number of ADL limitations increased, with the exception of zero ADLs. In 1996, zero ADLs had a daily expenditure of \$141, the highest of any category (Table 2). In 1996, residents with no ADLs tended to rely more heavily on Medicare as a source of payment and less on Medicaid and out-of-pocket expenses when compared with residents with ADL limitations (Table 3). This population was also more likely than the functionally disabled population to reside in hospital-based nursing homes as opposed to other types of nursing homes (data available from authors) indicating the utilization of a greater intensity of services. Such residents also exhibited the greatest increase in the mean expense per day between the 2 years, 207 percent (Table 2). Residents with the most ADL limitations had the greatest total annual expenses in both 1987 and 1996. Individuals severely impaired have been shown to have the greatest risk of permanent admission (Coughlin, McBride, and Liu, 1990).

Mental Conditions

Those with no mental conditions had the lowest annual nursing home expenses per resident, for both years (\$12,193 and \$18,951, 1987 and 1996, respectively). In 1996 this same group had the highest mean expenses per day (\$129) and the greatest increase in mean expense per day from 1987 to 1996, 135 percent (Figure 6). The observed relationship is consistent with such residents receiving nursing home services of a greater intensity. This is supported by the fact that those with no mental conditions relied the most heavily on Medicare as a source of payment. In 1996, Medicare paid a greater portion (29 percent) of annual nursing home expenses per resident for those with no mental conditions when compared with residents with dementia (10 percent) (Figure 7). Reimbursement by Medicare is indicative of nursing home residents that are more likely (than patients whose care is reimbursed by other sources of payment) to be recovering from conditions requiring a greater intensity of services, i.e., acute illness, trauma, or surgery (Shaughnessy and Kramer, 1989). Higher annual nursing home expenses are associated with those having dementia or mental disorders. Such individuals are more likely to be long-stay residents (Coughlin, McBride, and Liu, 1990; and Keeler, Kane, and Solomon, 1981).

DISCUSSION

A central finding is that the role of Medicare in financing nursing home care has greatly expanded from 1987 to 1996. Medicare payments represent 2 and 19 percent of the total for 1987 and 1996, respectively. The greater role of Medicare

Figure 5
Distribution of Expenses for Nursing Home Residents, by Homeowner Status: 1996

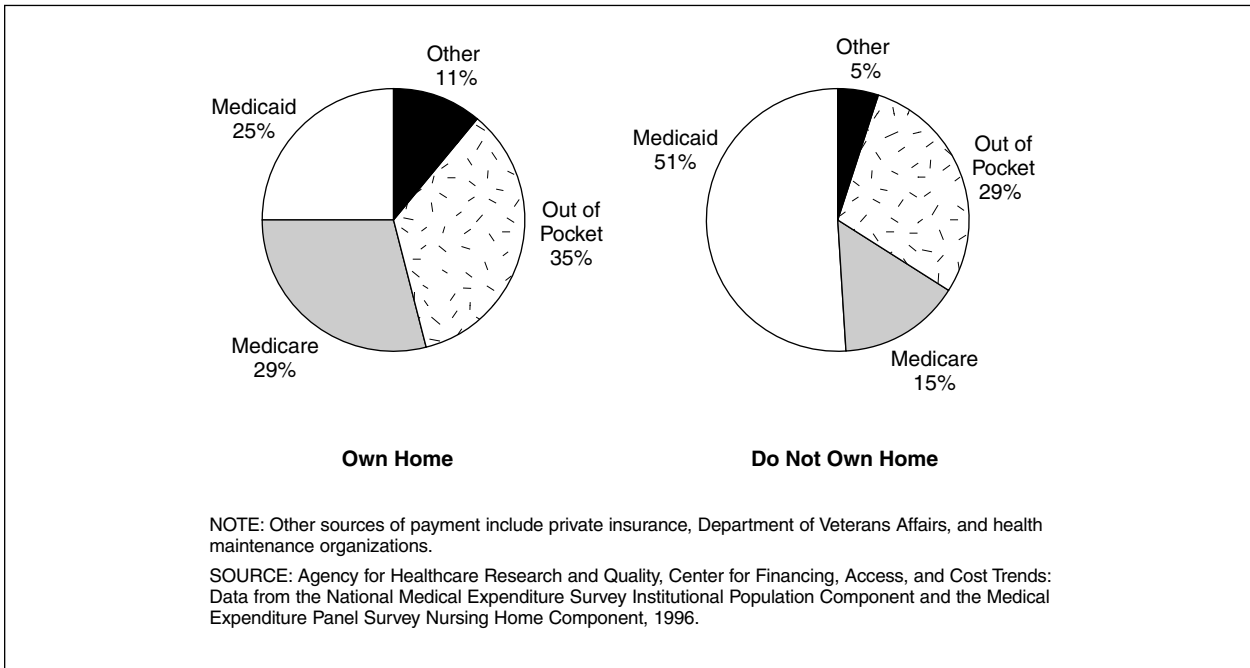


Figure 6
Mean Expense per Day and Percent Change for Nursing Home Residents, by Mental Conditions: 1987 Versus 1996

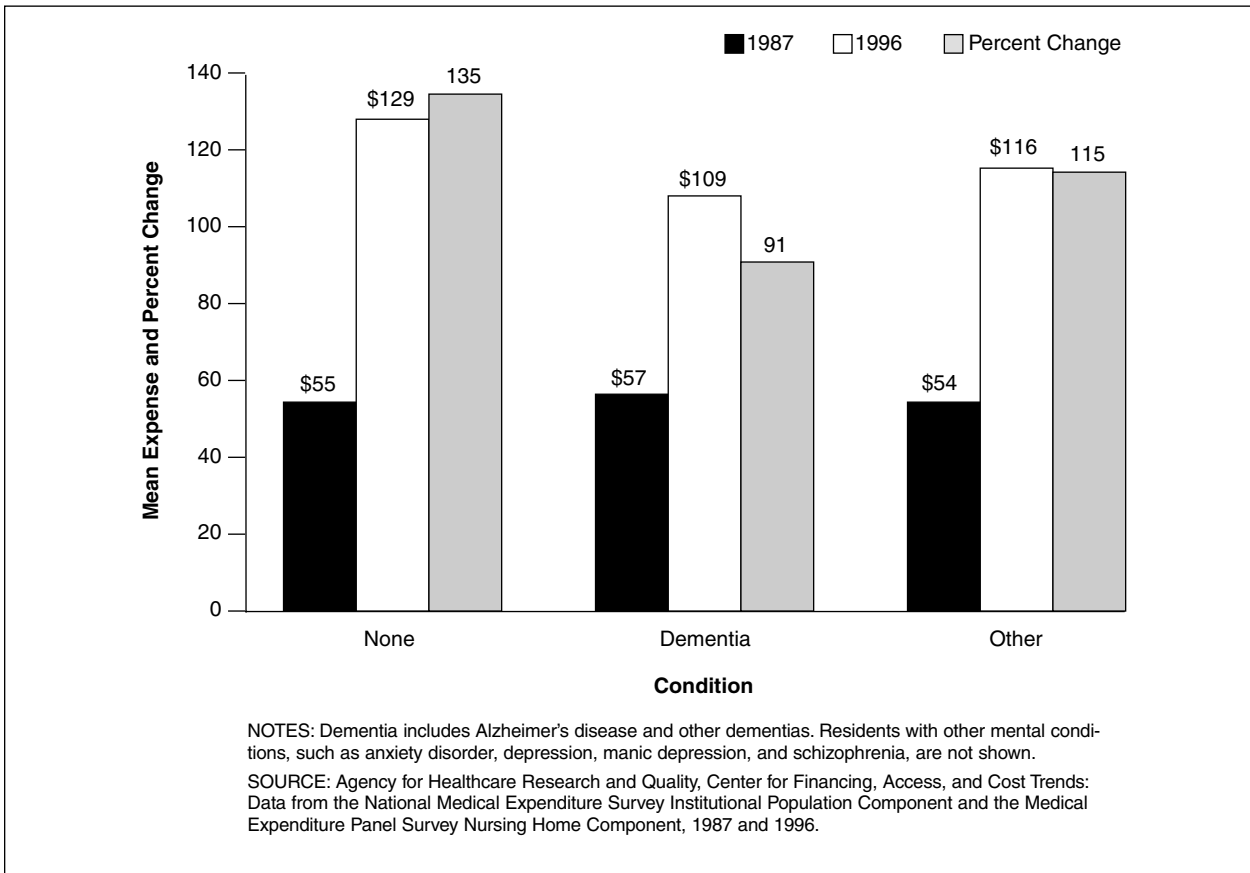
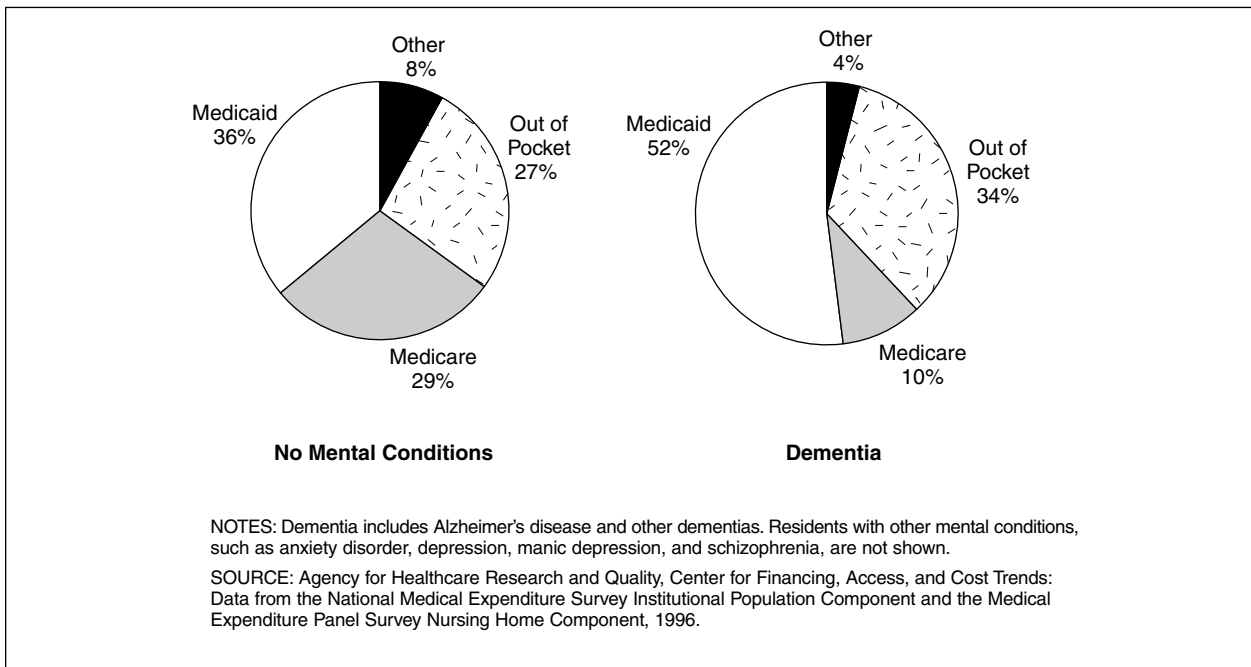


Figure 7
Distribution of Expenses for Nursing Home Residents, by Mental Conditions: 1996



is a reflection of the changing nursing home market: a significant growth in the number of hospital-based nursing homes; and a large increase in the number of nursing homes that are Medicare certified. As Medicare's role increased there was an accompanying decline in the proportion of expenses paid for out of pocket. In 1987, 45 percent was paid out of pocket versus 30 percent in 1996.

Nursing home residents relying the most heavily on Medicare as a source of payment tended to exhibit characteristics not typically thought of as belonging to individuals residing in nursing homes. Such individuals had very short stays (33 days on average), zero ADLs, and no mental conditions—characteristics typical of persons transitioning from a hospital stay back to a community residence or in need of short-term rehabilitation. The distinction between short- and long-stay residents appears to have widened between 1987 and 1996. The later being much more likely to

suffer from ADL limitations and/or mental impairments and to rely more heavily on Medicaid as opposed to Medicare as a source of payment.

The high rate of growth of Medicare as a source of payment for nursing home expenses was the impetus behind the implementation of a PPS for nursing homes. The first implementation of PPS took place July 1, 1998, with a phase-in period of 3 years (Levit et al., 2000).

ACKNOWLEDGMENTS

The authors would like to thank Joel Cohen, Steve Cohen, Doris Lefkowitz, and three anonymous reviewers for helpful comments, and Zhengyi Fang for exceptional computational assistance.

REFERENCES

Bishop, C., and Dubay, L.: Medicare Patient Access to Post-Hospital Skilled Nursing Facility Care. *Inquiry* 28(4):345-356, Winter 1991.

- Centers for Medicare & Medicaid Services: National Health Accounts: Definitions, Sources, and Methods Used in the NHE 2001. Internet address: <http://www.cms.gov/statistics/nhe/definitions-sources-methods/>. National Health Expenditures Tables: Internet address: <http://www.cms.gov/statistics/nhe/historical>. (Accessed 2003.)
- Cohen, J., Monheit, A., Beauregard, K., et al.: The Medical Expenditure Panel Survey: A National Health Information Resource. *Inquiry* 33(4):373-389, Winter 1996/1997.
- Coughlin, T., McBride, T., and Liu, K.: Determinants of Transitory and Permanent Nursing Home Admissions. *Medical Care* 28(7): 616-631, July 1990.
- Edwards, W., and Edwards, B.: Questionnaires and Data Collection Methods for the Institutional Population Component. National Medical Expenditure Survey Methods 1. National Center for Health Services Research and Health Care Technology Assessment. Public Health Service. DHHS Pub. No. (PHS) 89-3440. Rockville, MD. 1989.
- Feder, J., and Lambrew, J.: Why Medicare Matters to People Who Need Long-Term Care. *Health Care Financing Review* 18(2):99-112, Winter 1996.
- Gabrel, C.: An Overview of Nursing Home Facilities: Data from the 1997 National Nursing Home Survey. Advance Data Number 311. National Center for Health Statistics. Rockville, MD. March 1, 2000.
- Gillen, P., Spore, D., Mor, V., and Freiberger, W.: Functional and Residential Status Transitions Among Nursing Home Residents. *Journal of Gerontology*: 51A(1):M29-M36, 1996.
- Helbing, C., and Cornelius, E.: Skilled Nursing Facilities. *Health Care Financing Review Statistical Supplement, 1992*. Baltimore, MD. October 1993.
- Kemper, P., Spillman, B., and Murtaugh, C.: A Lifetime Perspective on Proposals for Financing Nursing Home Care. *Inquiry* 28(4):333-344, Winter 1991.
- Keeler, E., Kane, R., and Solomon, D.: Short- and Long-Term Residents of Nursing Homes. *Medical Care* 19(3):363-370, March 1981.
- Laliberte, L., Mor, V., Berg, K., et al.: Impact of the Medicare Catastrophic Coverage Act on Nursing Homes. *The Milbank Quarterly* 75(2):203-233, 1997.
- Levit, K., Lazenby, H., Braden, B., et al.: National Health Expenditures, 1996. *Health Care Financing Review* 19(1):161-200, Fall 1997.
- Levit, K., Cowan, C., Lazenby, H., et al.: Health Spending in 1998: Signals of Change. *Health Affairs* 19(1):124-132, January/February 2000.
- Lewin-VHI, Inc.: Subacute Care: Policy Synthesis and Market Area Analysis. 1995. Internet address: <http://aspe.hhs.gov/daltcp/reports/absacute.htm> (Accessed 2003.)
- Liu, K., and Kenny, G.: Impact of the Catastrophic Coverage Act and New Coverage Guidelines on Medicare Skilled Nursing Facility Use. *Inquiry* 30(1):41-53, Spring 1993.
- Liu, K., and Manton, K.: The Length of Stay Pattern of Nursing Home Admissions. *Medical Care* 21(12):1211-1222, December 1983.
- Liu, K., Taghavi, L., and Cornelius, E.: Changes in Medicaid Nursing Home Beds and Residents. *Health Care Financing Review, Statistical Supplement, 1992*. U.S. Government Printing Office. Washington, DC. October 1993.
- Moon, M.: Medicare Now and in the Future (2nd edition). The Urban Institute Press. Washington DC. 1996.
- Mor, V., Banaszak-Holl, J., and Zinn, J.: The Trend Toward Specialization in Nursing Care Facilities. *Generations* 19(4):24-29, Winter 1995-1996.
- Omnibus Budget Reconciliation Act of 1987 (OBRA-87), Public Law 100-203.
- Potter, D.: Design and Methods of the 1996 Medical Expenditure Panel Survey Nursing Home Component. MEPS Methodology Report No. 3. AHCPR Pub. No. 98-0041. Agency for Health Care Policy and Research. Rockville, MD. 1998.
- Rhoades, J.: Nursing Homes B Structure and Selected Characteristics, 1987 and 1996. *Statistical Bulletin* 79(2):2-9, 1998.
- Rhoades, J., and Krauss, N.: Nursing Home Trends, 1987 and 1996. MEPS Chartbook No. 3. AHCPR Pub. No. 99-0032. Agency for Health Care Policy and Research. Rockville, MD. 1999.
- Rhoades, J., and Sommers, J.: Expenses and Sources of Payment for Nursing Home Residents, 1996. MEPS Research Findings No. 13. AHRQ Pub. No. 01-0010. Agency for Healthcare Research and Quality. Rockville, MD. 2000.
- Shaughnessy, P., and Kramer, A.: The Increased Needs of Patients in Nursing Homes and Patients Receiving Home Health Care. *The New England Journal of Medicine* 322(1):21-27, 1989.

Spector, W., Potter, D., and De La Mare, J.: Future Directions for Residential Long-Term Care Health Services Research. AHRQ Pub. No. 01-0007. Agency for Healthcare Research and Quality. Rockville, MD. 2000.

Spence, D., and Wiener, J.: Nursing Home Length of Stay Patterns: Results from the 1985 National Nursing Home Survey. *The Gerontologist* 30(1):16-20, 1990.

Wayne, S., Rhyen, R., Thompson, R., and Davis, M.: Sampling Issues in Nursing Home Research. *Journal of the American Geriatrics Society* 39(3):308-311, 1991.

Reprints Requests: Jeffrey Rhoades, Ph.D., Agency for Healthcare Research and Quality, Center for Financing, Access and Cost Trends, Room 5212, 540 Gather Road, Rockville, MD 20850. E-mail: jrhoades@ahrq.gov