

Expenditures for the Medical Care of Elderly People Living in the Community in 1980

MARY GRACE KOVAR

National Center for Health Statistics.

U. S. Department of Health and Human Services

MUCH OF THE DEBATE ON THE COST OF medical care in the United States, and in particular the concern about the increase in public expenditures for medical care, focuses on the amount of money spent on medical care of elderly people. There are two major reasons for the focus on the elderly: (1) the proportion of the money that is spent for the care of elderly people is large relative to their proportion of the population, and (2) a large proportion of the money spent on the care of the elderly is public money.

According to the 1980 Census, 11.3 percent of the United States population was aged 65 or older (U.S. Bureau of the Census 1982a). According to the Health Care Financing Administration (HCFA), 29.6 percent of all expenditures for medical care in 1980 were for people aged 65 or older (U.S. Senate 1983). The average expenditure that year for each person under age 65 was \$710 in contrast with \$2,507 for each person aged 65 or older (Hodgson and Kopstein 1984). The preliminary estimate from the Health Care Financing Administration for 1981 is that 32.6 percent of all expenditures but 51.7 percent of the public expenditures were for the elderly (U.S. Senate 1983).

In addition, expenditures for the elderly have been rising rapidly.

In 1977, \$1,785 was spent for each person aged 65 or older; in 1980 it was \$2,507, and the 1984 per capita expenditure was expected to be \$4,202 (Health Care Financing Administration 1984; Hodgson and Kopstein 1984).

Thus, the evidence is that medical care expenditures for the elderly are high, that a large proportion is from public money, and that expenditures for the elderly continue to increase.

This evidence is from averages based on aggregate data. It provides essential information about the elderly as a group but provides no information about the variation among elderly people. Such aggregate data from the Medicare program expenditures and the National Health Accounts, supplemented with testimony about individual elderly people who have been deprived of necessities, has provided the base for much of the policy discussions about financing medical care for the elderly. There has been relatively little information about the distribution of expenditures within the elderly population, about the number and characteristics of elderly people who have large expenditures for medical care, or on differences in the proportion of income that is spent on medical care.

The purpose of this article is to provide some of that information about elderly people who are living in the community.

Methodology

The data are from the 1980 National Medical Care Utilization and Expenditure Survey (NMCUES) based on a national probability sample of the civilian noninstitutionalized population residing in the United States. There were 7,244 reporting units (defined as related persons living together in a housing unit) in the sample. The response rate was 91.1 percent of the eligible reporting units. Data collection consisted of initial interviews during February through April 1980 and four follow-up interviews at approximately 3-month intervals. In most reporting units one person responded for the entire family (Bonham 1983).

Residents of nursing homes were excluded from the survey along with all expenditures for services for them regardless of whether the service was actually provided in the nursing home or included in the nursing home charges. For example, no data on expenditures for an episode of care in a short-stay hospital for a nursing home resident were obtained.

Out-of-pocket expenditures for health insurance premiums (including Part B of Medicare) and all expenditures for over-the-counter drugs are also excluded from this analysis. They are often family, not individual, expenditures. A health insurance policy may cover several members of a family and the over-the-counter drug may be used by any family member regardless of the person for whom it was purchased. It is difficult to attribute these expenditures to a specific family member in families of more than one person.

All other expenditures for health care are included in the estimates.

All estimates are based on data that have been weighted to U.S. Bureau of the Census estimates of the civilian noninstitutionalized population on July 1, 1980. All sampling errors have been estimated using techniques that take the complex sample design into account.

Details of the statistical methodology are given in an appendix to the article.

Results

Three Groups of Elderly People

There is a small proportion of the elderly population, about 5 percent of the people aged 65 or older, who reside in nursing homes or other long-term care institutions. Expenditures for their care are high and account for a share of the health care dollar that is disproportionate to their proportion of the elderly population. Further, a large proportion of the bill for this care is paid through the resources of the patients or their families. There are many important issues about alternative forms of long-term care and alternative means of paying for the care of people in nursing homes, but they are beyond the scope of this article.

The other 95 percent of the people who have had a 65th birthday do not live in nursing homes. They live in the community at a greater or lesser risk of illness and high expenditures for medical care. The results presented here pertain to these people.

The focus of the article is on the elderly population who lived in the community throughout 1980. Such people who do not die and who are not institutionalized at all during any given year constitute the vast majority of the elderly people in the United States. The potential impact on them must be taken into account when possible

policies for reducing the public burden of financing medical care for the elderly are considered.

However, there were also elderly people who were living in the community at the beginning of 1980, but who were institutionalized for part of the year or who died during the year. Charges for their care while they were still in the community were much higher than the charges for people who were in the community throughout the year. It is useful to begin with the people who were in the community for only part of the year to emphasize the wide variation among elderly people in the expenditures for their care.

People Who Died or Were Institutionalized

A large part of the expenditures for the medical care of noninstitutionalized elderly people were for people who were only in the community for part of the year. The estimate from the NMCUES is that 5 percent of the people who were aged 65 or older and living in the community at the beginning of 1980 were institutionalized for part of the year or died during the year. However, they accounted for 22 percent of the total expenditures for the noninstitutionalized elderly even though they were in the community, on the average, for only half the year (table 1).

The per capita expenditures for the care of the elderly people who left the community through death or institutionalization were extremely high. They contributed \$9.1 billion in expenditures during 1980 for an average of about \$7,000 per person. If the expenditures were annual, that is if the same rate of spending that they had while in the community were maintained over the full year, the average would have been about \$13,000.

The high average was due to extremely high expenditures for some of these people (table 1). Only 40 percent of the elderly people who were in the community for part of the year had expenditures of \$5,000 or more, yet they accounted for 88 percent of all expenditures for this group. Three-quarters of them were hospitalized while they were still in the community; those who were hospitalized accounted for almost all of the expenditures.

People in the Community All Year

Total Charges. The vast majority (23 million) of the elderly people who were living in the community at the beginning of 1980 remained there throughout the year.

TABLE 1
 People 65 Years of Age and Over and Expenditures for Them According to Whether They Remained in the Community
 throughout the Entire Year, by Level of Expenditures and Whether Hospitalized: United States, 1980

Level of expenditures and whether hospitalized	Estimated number of elderly living in community			Estimated expenditures of elderly living in community		
	All people	All year	Part of year	All expenditures	All year	Part of year
Total	24,018	22,784	1,234	\$42,110	In millions \$33,020	\$9,090
EXPENDITURES						
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Under \$100	22.6	23.4	9.3	0.4	0.5	0.0
\$100-\$199	12.7	13.1	6.0	1.1	1.3	0.1
\$200-\$499	24.9	25.8	8.1	4.7	5.9	0.4
\$500-\$999	13.6	14.1	3.9	5.4	6.8	0.4
\$1,000-\$2,999	12.3	11.7	23.2	13.2	15.1	6.4
\$3,000-\$4,999	4.8	4.6	9.4	10.5	12.1	4.8
\$5,000 or more	9.1	7.4	40.2	64.8	58.4	88.0
HOSPITALIZED						
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
No	76.9	79.8	24.3	15.5	19.5	0.9
Yes	23.1	20.2	75.7	84.5	80.5	99.1

Among this group also, relatively few people accounted for a large proportion of the expenditures. Only 7 percent had charges of \$5,000 or more, yet they accounted for 58 percent of the \$33 billion spent for the medical care of this group (table 1). The one-fifth who were hospitalized during the year accounted for four-fifths of the charges.

Overall, medical care expenditures for the elderly people who lived in the community throughout 1980 were relatively low. The average expenditure was \$1,327 due to a few people having very high expenditures. The median expenditure for the year was \$329—less than \$30 per month (table 2). Almost two-thirds of these elderly people (62 percent) had expenditures of under \$500; three-quarters (76 percent) had expenditures under \$1,000 (Kovar 1983).

There were no statistically significant differences in average expenditures for medical care among categories of elderly people by age, race, sex, geographic region or residence, family income, or poverty level (tables 2 and 3).

There were significant differences by health status (table 4). Elderly people who were reported to be in poor health or unable to perform their usual activities at the beginning of 1980 had significantly higher expenditures for health care during the year than those reported to be in excellent health or those not limited in activity.

High expenditures were almost always associated with hospitalization. The mean expenditure for people who were hospitalized in 1980 was \$5,164 in contrast with \$354 for those who were not hospitalized. The median was \$3,495 in contrast with \$228 (table 4). Nine out of ten (94 percent) of the people who were hospitalized had expenditures of \$1,000 or more; a third (37 percent) had expenditures of \$5,000 or more. In contrast, only 6 percent of the people who were not hospitalized at all during 1980 had expenditures of \$1,000 or more during the year; virtually none had expenditures of \$5,000 or more.

About two-thirds of the total expenditures for the hospitalized elderly were hospital expenditures, but the high expenditures for people who were hospitalized were not entirely due to high charges for hospitalization (table 5). Their nonhospital expenditures were also much higher than those for people who were not hospitalized because they received more ambulatory care. The elderly who were hospitalized made, on the average, 12.1 visits to doctors' offices, clinics, hospital outpatient departments, and emergency rooms in 1980. The elderly

TABLE 2
Health Care Expenditures for People 65 Years of Age and Over Living in the Community for the Entire Year, by Selected Demographic Characteristics: United States, 1980

Characteristic	Estimated number of elderly (thousands)	Number in sample	Mean expenditure	Standard error	Median expenditure
Total	22,784	1,774	\$1,327	\$ 83.3	\$329
AGE					
65-74 years	14,908	1,150	1,193	79.0	310
75-84 years	6,648	525	1,649	162.7	359
85 years and over	1,228	99	1,210	196.1	373
SEX					
Male	9,173	735	1,381	121.7	293
Female	13,611	1,039	1,291	100.9	352
RACE					
White	20,528	1,622	1,344	80.2	339
All other	2,256	152	1,170	292.0	235
Black	1,948	130	1,123	276.8	229
REGION					
Northeast	4,440	356	1,398	229.8	295
North Central	5,563	440	1,297	157.4	294
South	7,704	600	1,267	135.6	345
West	5,078	378	1,389	163.4	376
RESIDENCE					
Inside SMSA	14,819	1,155	1,346	95.3	340
In central city	7,063	550	1,346	138.7	342
Outside central city	7,756	605	1,346	108.8	339
Outside SMSA	7,965	619	1,292	157.4	314

TABLE 3
 Health Care Expenditures for People 65 Years of Age and Over Living in the Community for the Entire Year, by Selected Economic Characteristics: United States, 1980

Characteristic	Estimated number of elderly (thousands)	Number in sample	Mean expenditure	Standard error	Median expenditure
Total	22,784	1,774	\$1,327	\$ 83.3	\$329
FAMILY INCOME IN 1980					
Under \$5,000	4,511	338	1,186	140.3	299
\$5,000-\$6,999	2,678	208	1,367	275.9	344
\$7,000-\$9,999	3,539	276	1,653	271.9	291
\$10,000-\$14,999	4,763	374	1,223	126.1	352
\$15,000-\$24,999	4,262	342	1,348	126.0	328
\$25,000 or more	3,031	236	1,254	173.7	364
POVERTY STATUS IN 1980					
Below poverty level	3,384	253	1,072	140.9	281
100-149 percent	3,759	292	1,515	215.8	340
150-199 percent	3,373	265	1,408	261.2	329
200-299 percent	5,352	417	1,355	146.0	339
300 percent or more	6,917	547	1,288	116.2	346

TABLE 4
 Health Care Expenditures for People 65 Years of Age and Over Living in the Community for the Entire Year, by Selected Health Characteristics: United States, 1980

Characteristic	Estimated number of elderly (thousands)	Number in sample	Mean expenditure	Standard error	Median expenditure
Total	22,784	1,774	\$1,327	\$ 83.3	\$ 329
PERCEIVED HEALTH STATUS					
Excellent	5,927	455	880	85.8	200
Good	8,512	668	1,147	105.5	329
Fair	5,697	443	1,550	167.5	359
Poor	2,648	203	2,424	287.3	647
LIMITATION OF ACTIVITY					
Not limited	13,729	1,066	918	76.1	251
Some limitation	1,586	124	1,470	237.6	432
Cannot perform usual activity	7,469	584	2,048	187.4	488
HOSPITALIZED					
No	18,178	1,437	354	14.8	228
Yes	4,606	435	5,164	278.3	3,495

TABLE 5
 Selected Measures of Health Care Expenditures for People 65 Years of Age and Over Living in the Community for the Entire Year, by Whether They Were Hospitalized: United States, 1980

Expenditure measures and hospitalization	All elderly		Elderly with specified expenditures	
	Mean	Median	Mean	Median
Total expenditures				
All elderly	\$1,327	\$ 329	\$1,449	\$ 375
Not hospitalized	354	228	396	265
Hospitalized	5,164	3,495	5,164	3,495
Hospital expenditures				
All elderly	716	0	782	0
Not hospitalized	NA	NA	NA	NA
Hospitalized	3,541	2,224	3,541	2,224
Nonhospital expenditures				
All elderly	611	307	667	352
Not hospitalized	354	228	396	265
Hospitalized	1,624	1,139	1,624	1,139
Out-of-pocket expenditures				
All elderly	293	156	319	181
Not hospitalized	202	127	226	149
Hospitalized	650	403	650	403

TABLE 5—Continued

Expenditure measures and hospitalization	All elderly		Elderly with specified expenditures	
	Mean	Median	Mean	Median
Hospital as percentage of total expenditures				
All elderly	14.0%	0.0%	14.0%	0.0%
Not hospitalized	NA	NA	NA	NA
Hospitalized	63.4	66.5	63.4	66.5
Out-of-pocket as percentage of total expenditures				
All elderly	56.7	59.4	56.7	59.4
Not hospitalized	67.5	78.0	67.5	78.0
Hospitalized	18.4	11.3	18.4	11.3
Out-of-pocket as percentage of 1980 family income*				
All elderly	4.2	1.4	4.6	1.6
Not hospitalized	3.2	1.1	3.6	1.4
Hospitalized	7.8	3.4	7.8	3.4

* Calculated only for people with family incomes greater than zero.

who were not hospitalized made, on the average, only 4.9 such visits during the year.

Out-of-pocket Charges. Medicare, private health insurance, and other third-party payers helped alleviate the burden on the individual. The average out-of-pocket charge of \$293 for the medical care of an elderly person was much lower than the average total charge. Half of the elderly people who were in the community throughout 1980 had out-of-pocket charges of under \$156 (table 5).

Again, relatively few people accounted for a large portion of the charges. Only 12 percent of the elderly people had out-of-pocket charges of \$500 or more; they accounted for 57 percent of the out-of-pocket charges.

The contrast between total and out-of-pocket charges was particularly noticeable for people who were hospitalized. While the average total charge was less than twice the out-of-pocket charge for people who were not hospitalized (\$354 vs. \$202), it was about eight times as much for those who were hospitalized (\$5,164 vs. \$650).

Thus, for many elderly people, a significant portion of the charges for their health care were out-of-pocket charges. For the average elderly person, 57 percent of the total charges were out-of-pocket charges. However, there was a vast difference between people who were hospitalized and those who were not. On the average, a relatively low proportion (18 percent) of the total charges for people who were hospitalized were out-of-pocket in contrast with two-thirds (68 percent) of the total charges for people who were not hospitalized (figure 1).

That does not mean that elderly people who were hospitalized had lower out-of-pocket charges than people who were not hospitalized; they did not. The average out-of-pocket charge (in dollars) for elderly people who were hospitalized was about three times that for people who were not hospitalized. As noted, people who are hospitalized receive more ambulatory medical care (and more prescription drugs) than those who are not.

Out-of-pocket Charges as a Proportion of Family Income. Despite the average elderly person having a high proportion of the total medical care expenditures as out-of-pocket charges, charges for their medical care were not a heavy financial burden for most of the elderly people in the community. On the average, out-of-pocket charges for the medical care of an elderly person were 4 percent of the family income that was reported for 1980 (table 5).

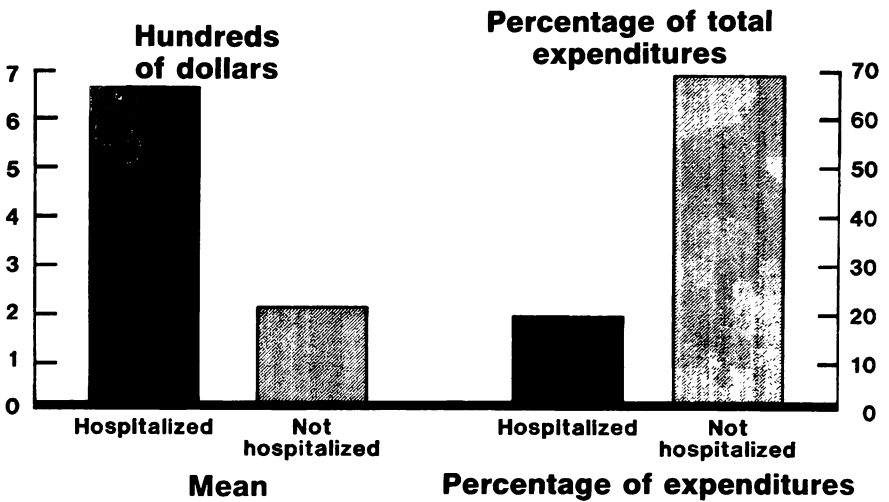


FIG. 1. Out-of-pocket expenditures for health care of elderly people in the community all year.

Source: National Center for Health Statistics, National Medical Care Utilization and Expenditure Survey, 1980.

However, out-of-pocket charges took a higher proportion of the family income of the people who were hospitalized (figure 2).

In addition, for elderly people in some groups, the low-income and black elderly (they are not mutually exclusive), out-of-pocket charges for medical care were sometimes a financial burden.

Although there was little variation in out-of-pocket charges among population subgroups just as there was little variation in total expenditures, poor people in the community had less money available to pay for those charges.

On the average, out-of-pocket charges were about 12 percent of the family income if the elderly person was in a family below the poverty level (Kovar 1983). In these poor families, about one-fifth of the elderly people (19 percent) had out-of-pocket charges that were 10 percent or more of the family income that was reported for 1980. Out-of-pocket charges were about 9 percent of the family income for black people, about 5 percent of whom had out-of-pocket charges that were 10 percent or more of the family's money income in 1980.

Families. Out-of-pocket charges could also be an excessive burden if there were other family members in the household, such as another elderly person, with significant out-of-pocket charges. To investigate whether multiple elderly family members increase the proportion of

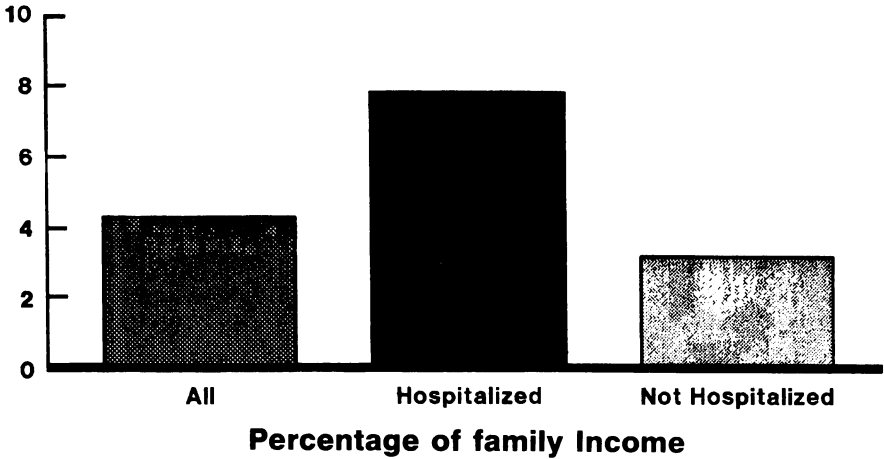


FIG. 2. Out-of-pocket expenditures for health care of elderly people in the community all year.
 Source: National Center for Health Statistics, National Medical Care Utilization and Expenditure Survey, 1980.

the family's income that is spent on medical care, it is necessary to change the unit of analysis from individuals to families.

There were an estimated 16.8 million families in the United States in 1980 that had one or more members who were elderly and had no family members who were not living in the community throughout 1980. On the average, their out-of-pocket charges for medical care were 7 percent of their family income in 1980 (table 6).

Some of these families had members under age 65 as well as elderly people. The majority of these families (3.5 million) consisted of two people only. On the average, their out-of-pocket charges for medical care were 11 percent of their family income.

The remaining 11.3 million families consisted entirely of people 65 years of age or older. The majority of these, 7.3 million, were one-person families. On the average, their out-of-pocket charges for medical care were 6 percent of the family income in 1980. In the 3.9 million families consisting of two elderly people, the proportion of the income spent on medical care was 5 percent.

Families of two elderly people did not spend a larger proportion of their income on medical care than families of one elderly person. It was the families of two people, one of whom was elderly and one younger, who spent a larger proportion of their income on medical care.

TABLE 6
Out-of-pocket Charges as Percentage of 1980 Family Income by Whether There
Were Elderly People in the Family and Family Size: United States, 1980

	Estimated number of families (thousands)	Percentage of family income
All families		
No elderly members	57,353	4.4%
With elderly members	16,798	6.9
Elderly and young	5,511	8.8
Two persons	3,502	11.4
Three or more persons	2,208	4.4
Elderly only	11,287	5.9
One person	7,340	6.3
Two persons	3,898	5.1
Three or more persons	49	*

Includes families with no change due to birth, death, or institutionalization and with incomes greater than zero.

* Number too small to be reliable.

Comparisons with Other Data

Aggregate Data

The estimates from the National Medical Care Utilization and Expenditure Survey, the NMCUES, do not and should not agree with the HCFA aggregate estimates. The NMCUES was designed to include only the civilian noninstitutionalized population. Exclusion of the military does not affect estimates for the elderly; exclusion of the institutionalized does.

Residents of nursing homes along with all of their associated expenditures—physician care, acute hospital care, and drugs—were excluded from the survey. As a result, the NMCUES estimate of total expenditures for the elderly of \$42 billion, is only two-thirds the estimate of \$65 billion from the aggregate data (Hodgson and Kopstein 1984). Hodgson and Kopstein estimated that about \$17 billion was spent for nursing home care of the elderly that year. The remaining difference is probably due primarily to expenditures for acute-care hospitalization of nursing home residents.

Anderson and Thorne (1984) have concluded that the estimates of out-of-pocket expenditures by households and expenditures paid by private insurance from the NMCUES are in close agreement with the estimates from the National Health Accounts.

Although expenditures for over-the-counter drugs and out-of-pocket expenditures for health insurance premiums are excluded from the analysis in this article, they are included in the NMCUES data and were used for the Anderson and Thorne comparison.

The HCFA data show that the high expenditures for hospital care and nursing home care and the relatively high proportion of the elderly who receive inpatient care make the average expenditures for elderly people very high. In 1977 when \$43 billion was spent for the personal health care of 24 million people aged 65 and older, 68 percent was spent on hospital and nursing home care (Health Care Financing Administration 1984). The preliminary estimates from the Health Care Financing Administration for 1981 were that 23 percent of all expenditures for the elderly was spent on nursing home care and 44 percent was spent on hospital care that year (U.S. Senate 1983). All of these estimates from the Health Care Financing Administration include care for people who died during the year.

The NMCUES estimates confirm the high expenditures for the hospitalization of the elderly. They also show the contrast between the high expenditures for elderly people who are hospitalized and the relatively low expenditures for those who are not.

According to Medicare data (figure 3), only 6 percent of the Medicare enrollees had expenditures of \$5,000 or more in 1980, yet they accounted for 61 percent of all program reimbursements.

One reason for the concentration of high expenditures for very few people is that a very large proportion of all expenditures for the elderly are for people in their last year of life. That has been the case for at least 20 years (Lubitz and Prihoda 1983; Helbing 1983; Gibbs and Newman 1982; Scotto and Chiazzè 1976; Piro and Lutins 1973; Timmer and Kovar 1971). Lubitz and Prihoda demonstrated that the 1.3 million Medicare enrollees in their last year of life accounted for only 5.2 percent of all enrollees but 28.2 percent of the program reimbursements. Helbing showed that the 1.3 million aged Medicare enrollees who died in 1979 represented 4.9 percent of the aged enrollees, but they accounted for 21 percent of the benefits distributed.

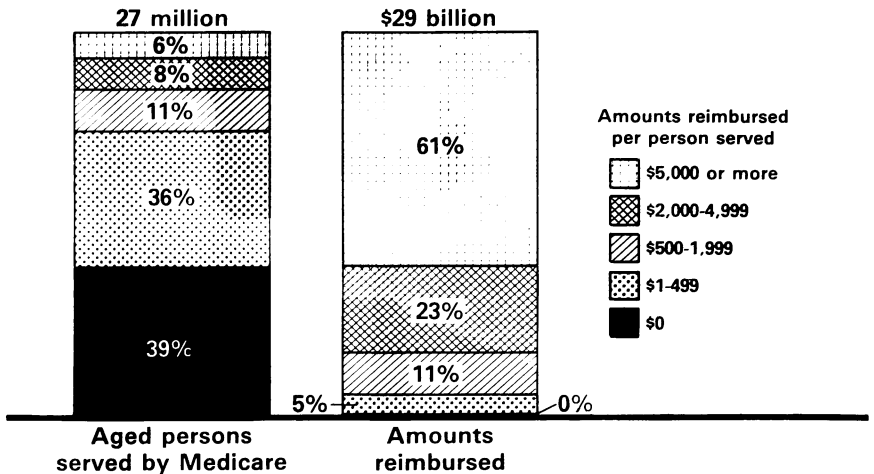


FIG. 3. Medicare recipients and amounts reimbursed, 1980.
 Source: Health Care Financing Administration.

The NMCUES estimate is that 5 percent of the people who were aged 65 or older and living in the community at the beginning of 1980 died or were institutionalized during the year. They accounted for 22 percent of the total expenditures for the noninstitutionalized elderly even though they—like the Medicare enrollees in the Helbing study—were in the community, on the average, for only half the year. Thus, the survey data reinforce and confirm the program data.

In addition, even when only those elderly people who remained in the community for the entire year are considered, relatively few elderly people accounted for large proportions of the expenditures (figure 4). The NMCUES data show that only 7 percent of them had expenditures of \$5,000 or more; that small percentage of the elderly people accounted for 58 percent of the money spent for the care of elderly people in the community throughout the year.

The inclusion of costs for elderly people in nursing homes, where a large proportion of the bill is paid out-of-pocket, in the HCFA estimates makes the per capita out-of-pocket expenditure much higher than the estimate from the NMCUES. The Office of Financial and Actuarial Analysis estimate is that approximately half of the nursing home expenditures were out-of-pocket in both 1977 and 1984 (Health Care Financing Administration 1984). Out-of-pocket expenditures for nursing home care were about 41 percent of all out-of-pocket expenditures

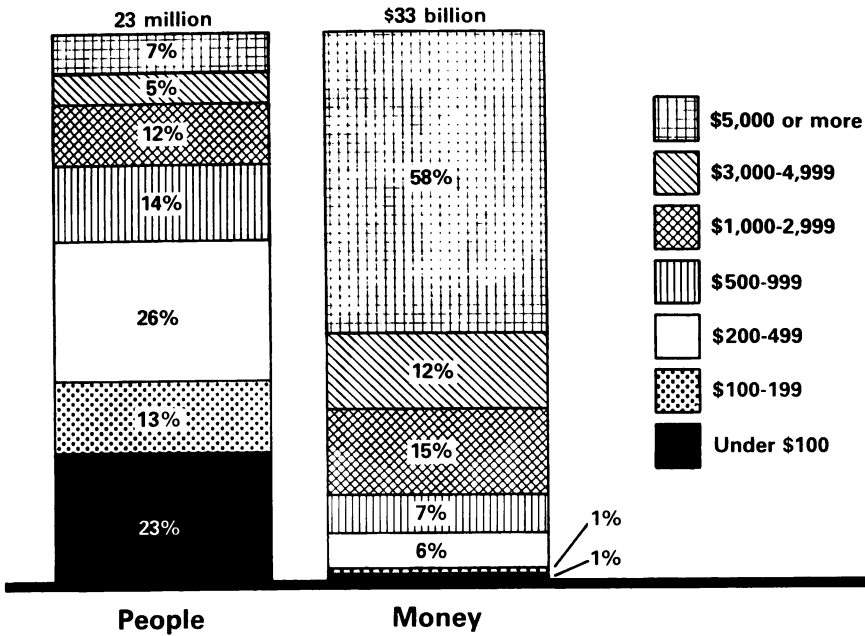


FIG. 4. Total charges for elderly people in the community throughout 1980.
 Source: National Medical Care Utilization and Expenditure Survey.

in both years even though nursing home residents constituted only about 5 percent of the total elderly population.

The estimate from the National Nursing Home Survey is that there were 1.1 million residents of nursing homes in 1977 (Van Nostrand et al. 1979). Thus, the estimated 1.1 million residents of nursing homes in 1977 paid \$5,264 million out-of-pocket or \$4,675 per resident. The remaining 22.3 million people aged 65 and older who were not residents of nursing homes paid \$7,442 million out-of-pocket or \$334 per person.

Good estimates of the number of elderly people in nursing homes are not available for years after 1977. There is no evidence, however, that the proportion has changed from about 5 percent (U.S. Bureau of the Census 1984b), and the proportion of the out-of-pocket expenditures that were spent on nursing homes has remained at about 41 percent. Therefore, an assumption that the 1977 percentages are applicable to the 1980 data seems reasonable.

The estimate from the NMCUES used in this article was that \$293 was spent out-of-pocket per elderly person living in the community throughout 1980. That does not include out-of-pocket expenditures for health insurance premiums and over-the-counter drugs. Including expenditures for over-the-counter drugs would not have a large impact on the estimate. The estimated average out-of-pocket charge for over-the-counter drugs from the NMCUES is \$23 per elderly person with an observed tendency for lower expenditures by people in lower income groups. (Internal evidence suggests that the estimates for over-the-counter drugs may be low, which is why they were not used for this article.) Including out-of-pocket payments for health insurance premiums would raise the estimate more. For example, the individual who paid the basic premiums for Medicare Part B throughout 1980 would have paid \$110 (Social Security Administration 1980). Adding both costs would raise the average out-of-pocket payment for an elderly person living in the community throughout 1980 to \$426.

If the estimate of \$334 per person in 1977 is inflated by the change in the medical services component of the Consumer Price Index, the estimate for 1980 would be \$443. Given the approximations required and the differences in methodology, the two estimates appear to be reasonably close. It must be noted, however, that out-of-pocket expenditures for health insurance premiums are not uniform across income groups. Elderly people in families with low incomes or below the poverty level are much more likely to have Medicaid coverage, for which they do not pay, than elderly people with more income (Cafferata 1984; Schlenger and Corder 1984). They are also less likely to have private health insurance coverage. The NMCUES data on nonprescribed medicines also show a tendency for higher out-of-pocket expenditures at higher income levels. Thus, the proportion of the family income of the low-income elderly that is spent on medical care would be relatively unaffected by the inclusion of out-of-pocket premiums and nonprescribed medicines.

Pre-Medicare Data

There have been major changes since Medicare and Medicaid were implemented, changes that make comparisons with pre-Medicare data difficult. The growth of the nursing home population, the increase

in the proportion of elderly people who live alone, the increase in the proportion who are very old, the escalation in medical care prices, and the introduction of new technology are among the changes that affect comparability. In addition, changes in the methods of obtaining data affect comparability.

Nevertheless, it is important to try to understand how the situation of elderly people now compares with the situation before Medicare was available.

Data from a pre-Medicare population-based survey of the aged show that in 1962, 43 percent of the married couples, 50 percent of the nonmarried men, and 46 percent of the nonmarried women spent more than 10 percent of their income on medical care (Epstein and Murray 1967). Those estimates are in sharp contrast with the NMCUES estimate of 7.6 percent in 1980.

However, in 1962 as in 1980, the proportion of the family's income that was spent on medical care was much higher if someone was hospitalized. In 1962 "the relative numbers receiving short-stay hospital care whose medical outlays absorbed more than 25 percent of their income were 3 to 4 times as large as for those who received no hospital care" (Epstein and Murray 1967).

It is a sobering reminder of the pre-Medicare times to read that if an elderly person was hospitalized, 30 percent of the married couples and 47 percent of the unmarried women spent 25 percent or more of their income on medical care. Even if no one was hospitalized, 8 percent of couples and 15 percent of unmarried women spent a quarter of their income on medical care in 1962. The NMCUES estimate for 1980 was 3 percent.

Summary

The widespread knowledge of the high average expenditures and of the public role in paying for inpatient care have led to a perception in some peoples' minds that all elderly people are using a great deal of expensive medical care and that most of their care is publicly financed.

At the same time, individual cases of hardship, and the announcement that elderly people are spending as large a proportion of their income on their medical care out of pocket as they were before they were covered by Medicare (U.S. House of Representatives 1985), have led

to a perception that many, if not most, elderly people are spending a large portion of their income on medical care and must forgo needed care because medical care consumes so much of their income.

There is a basis for both perceptions, but the perceptions that the majority of the elderly are affected at any given point in time are incorrect.

The average amount spent on the medical care of people aged 65 and over is higher than the average spent for people under age 65. In 1980 it was three-and-a-half times as much (Hodgson and Kopstein 1984). A large proportion of the expenditures for the elderly is from public funds. The estimate for 1984 was that two-thirds of the expenditures for the personal health care of the elderly would be from public funds; one-half would be from Medicare (Health Care Financing Administration 1984).

The amount of money that elderly people must spend out-of-pocket or must cover by paying premiums is higher than it was prior to the implementation of Medicare. The price of medical care has risen rapidly, especially since the mid 1970s. The Consumer Price Index for all medical care in 1980 was 120 percent higher than it had been in 1970 (U.S. Bureau of the Census 1983).

However, elderly people differ from one another just as much as people in any other age group. The perceptions that the averages apply to all elderly people result from using aggregate data on total personal health care expenditures rather than data on individuals which reveal the enormous variation among elderly people, from concentrating on the expenditures rather than people, and from failing to take into account other changes that have occurred since Medicare and Medicaid were implemented.

Despite the differences in the estimated total expenditures for the elderly, the data from the NMCUES reinforce the findings from Medicare studies that a very large part of the money is spent on very few people. They also reveal, however, that the majority of the elderly people in the United States do not have enormously high expenditures for medical care in a given year. Further, although a large portion of the expenditures are from public funds, the average elderly person is paying for over half of his or her medical care out-of-pocket. The NMCUES data also suggest that the average noninstitutionalized elderly person is not spending a very high proportion of his or her income on medical care services. Finally, when the NMCUES data are compared

with data from earlier surveys, they suggest that the average *noninstitutionalized* elderly person is spending a lower proportion of the family's income on medical care than before Medicare was implemented.

The NMCUES data show that expenditures for health care varied with health status rather than with socioeconomic or demographic characteristics of elderly people. People who were institutionalized during the year or who died, people who were hospitalized, and, in general, people whose health was poor were the ones whose expenditures were high. Elderly people are more likely than younger ones to be in poor health, to be hospitalized, or to die (Rice and Estes 1984). The high cost of caring for the sick and the dying has been documented many times and for many years; it is not simply a result of the availability of public funds to pay for care or using high technology to try to save lives (Scitovsky 1984). Because the elderly are more likely than younger people to need care, their average expenditures are high. However, the majority of the elderly people in 1980 did not die and they were not institutionalized. They lived in the community throughout 1980, were not hospitalized, and did not have high expenditures for health care in 1980.

For the average elderly person, over one-half the bill for medical care in 1980 was paid out-of-pocket. If the person was not hospitalized, about two-thirds of the charges were out-of-pocket charges. The expenditure data show that over half of the expenditures are paid from public funds, which appears to be in conflict but is not. The public programs are doing what they were designed to do; they are paying the high charges for inpatient care. But the majority of the elderly do not have inpatient care in any given year and do not receive many benefits from the public programs. Even the people who are hospitalized pay for a large part of their ambulatory care out-of-pocket.

The estimate from the NMCUES of the proportion of family income (4 percent) that is spent on medical care is lower than the estimate of 13 percent from the House Select Committee on Aging (U.S. House of Representatives 1985) because of differences in data sources and in inclusions.

The House estimate is based on the HCFA aggregate data and includes costs for elderly people in nursing homes where a large proportion of the bill is paid out-of-pocket. The Office of Financial and Actuarial Analysis (Health Care Financing Administration 1984) estimate is that approximately one-half of the nursing home expenditures

were out-of-pocket in both 1977 and 1984. Thus, it includes the estimated 1.1 million residents of nursing homes in 1977 who paid \$5,264 million out-of-pocket, or \$4,675 per resident. The remaining 22.3 million people aged 65 and older who were not residents of nursing homes paid \$7,442 million out-of-pocket, or \$334 per person. If that amount is divided by \$5,853 (the mean income of the civilian noninstitutionalized elderly person in 1977), the proportion of income elderly people in the community spent on health care in 1977 was 5.7 percent—an estimate that is much closer to the estimate in this article and would be closer still if out-of-pocket charges for over-the-counter drugs and for health insurance premiums had been included in this analysis.

Perhaps more important, the NMCUES data do not support the claim that elderly people are spending as high a proportion of their income on medical care as they were before Medicare was implemented. When they are compared with data from a pre-Medicare survey, the differences between 1962 and 1980 are clear.

Nursing homes as we know them today did not exist in the early 1960s. The HCFA estimates of out-of-pocket expenditures for medical care do reflect the experience of the elderly in the community at that time. The estimates for 1962 from the survey also show that the elderly were likely to spend a large proportion of their income on medical care. However, nursing homes are a factor in the 1980s and the distinction between nursing home residents and people in the community is critical.

On the average, elderly people who lived in the community throughout 1980 spent about \$293 out-of-pocket on medical care despite the increase in the amount of money spent out-of-pocket that has been documented in the aggregate data. This estimate excludes the small amount spent on over-the-counter drugs and the larger amount spent on health insurance premiums. However, Rosenblum (1985) has shown that even when premium payments for Medicare Part B are included, the per capita out-of-pocket health care expense for the elderly increased only from \$334 in 1966 to \$385 in 1978, when measured in constant dollars.

The cost of medical care has risen, resulting in the larger amount of money spent on medical care. At the same time, the income of the average elderly person has risen. In 1980 the per capita income when the householder was aged 65 or older was \$7,243 compared to

\$7,720 for householders of all ages (U.S. Bureau of the Census 1982b). The proportion below the poverty level was one-half what it had been; 15.7 percent of the elderly people were living below the poverty level in 1980 (U.S. Bureau of the Census 1982c) in contrast with 28.5 percent in 1966 and 35.2 percent in 1959 (U.S. Bureau of the Census 1984a).

It can also be argued that these estimates of the income do not include noncash benefits such as subsidized housing or lower charges for transportation that, if included, would raise the amount of actual money available and lower the percentage spent on medical care. On the other hand, out-of-pocket expenditures must be paid in money, not through noncash benefits.

Finally, there is little evidence from the NMCUES data that many elderly people have delayed or forgone medical care because they felt they could not pay for it. Eighty-eight percent of the elderly people living in the community had a regular source of care. Only 5 percent had an illness during the year that they would have liked to have seen a doctor or other medical person about but did not.

Discussion

Controlling the rising public expenditures for the medical care of the elderly has become a subject of national debate. For a while it was believed that the Medicare Hospital Insurance Trust Fund would be depleted early in the 1990s unless alternatives to the present system were found. More recent estimates have relieved that particular concern, but the efforts to control expenditures for the medical care of the elderly continue. Since the largest public expenditure is for hospital care, the effort first focused on controlling hospital expenditures. Diagnosis-related groups for prospective payment were introduced and Medicare began paying for hospice care outside of hospitals late in 1983. More recently, Medicare payments for ambulatory physician care have been frozen.

Much of the data used for the policy discussions has been aggregate data of the expenditures that are then used to compute averages. There has been little data about people. Such information is needed so that the impact of restructuring programs on people and their budgets can be considered along with the impact on the national budget.

The evidence seems to be that, although average expenditures for elderly people are high, a large part of the high expenditure is due to the relatively large portion of elderly people who receive inpatient care and the high cost of that care. Efforts to reduce expenditures for the care of elderly people will have to continue to focus on reducing expenditures for inpatient care because that is where a large part of the money, especially the public money, is spent. Those expenditures are the largest part of the national budget for medical care.

Reducing expenditures for inpatient care is also important to the elderly themselves because elderly people who are hospitalized have higher out-of-pocket charges and spend a higher proportion of their income on health care than those who are not hospitalized.

However, the higher expenditures for people who are hospitalized are not merely for hospital care; their expenditures for nonhospital care are also higher. They receive more ambulatory care and services than people who are not hospitalized, especially in the two months prior to and immediately after the hospitalization (Bryant and Biggar 1985). Reducing their out-of-pocket hospital expenditures could help them even though they would still be subject to higher out-of-pocket charges than people who are not hospitalized.

Reducing expenditures for hospital care *would not necessarily* help the individual who is hospitalized. If, for example, expenditures were reduced by shifting services to ambulatory settings without changing the reimbursement rates, or if public expenditures were reduced by increasing deductibles, the elderly person who is hospitalized would spend even more out-of-pocket. One possibility might be to restructure Medicare to place more emphasis on the total amount spent for care rather than where the care is received.

The majority of the elderly people do not receive inpatient care during a given year although most have some ambulatory care. Their expenditures are relatively low and they pay for much of their health care and services out-of-pocket. Decreasing benefits for ambulatory medical care and other noninpatient care and services would save relatively little public money but would affect large numbers of people. Further, if ambulatory care does indeed help to avoid inpatient care through preventive care and earlier detection of problems before they become acute, cutting benefits for ambulatory care could be counter-productive in reducing expenditures.

Although the average elderly person is not spending a large proportion of his or her income on health care, there are some groups of elderly people who are. In addition to those who are hospitalized, people in poor health, with low incomes, or in two-person families where one is elderly and one is less than age 65 seem to be at high risk.

It is no surprise that low-income people spend a larger proportion of their income on medical care than people in families with higher incomes. That has been documented before. It is consistent with earlier work that showed lower-income people devote a larger proportion of their income to health care (Anderson, Lim, and Anderson 1976).

Despite the increase in the average income and the decrease in the proportion of elderly people living below the poverty level, there are elderly people who spend a high proportion of their income on medical care. The amount of money spent on the medical care of an elderly person living in the community is relatively constant for all income levels. Therefore, the proportion is higher at lower-income levels. Programs designed to help pay for the medical care of poor people do help; out-of-pocket charges are lower than total charges, but they do not fully compensate for the lack of money.

People, regardless of age, who are in families with low incomes must spend a higher proportion of that income on medical care if they need it than people in families with higher incomes. People who need medical care use more care and have higher expenditures.

The NMCUES data support all other studies in showing that sick people use more medical care than people who are not sick. People in poor health have higher expenditures than those in good health. Revising public programs to incorporate a measure of need for care would help everyone—not just the elderly.

It was somewhat of a surprise to find that the families spending a high proportion of their income on care were not the families of two elderly people in the household but the two-person families with only one elderly person. There are several possible explanations. One possibility is that the older person has retired and given up or lost private coverage. Because he (or she) is Medicare-eligible, they may not have thought about the need for private coverage for the person who is not yet age 65. If that is the case, people approaching age 65 need to be alerted to the need to maintain private coverage for the member of the family who is not yet eligible for Medicare. Another possibility

is that the younger person is staying home to care for an elderly person instead of working. That would reduce the family's income and increase the proportion spent on medical care. More investigation is needed, however, to confirm the finding and discover the cause.

Some of the claims of advocates for the elderly, such as the statement that elderly people are spending as large a proportion of their income out-of-pocket as they were before Medicare was implemented do not seem to be supported, at least for those elderly people who are living in the community. When the NMCUES data were compared with data from a pre-Medicare survey, the differences were striking.

One source of the difference lies in the use of aggregate data and the failure to recognize that in the days before Medicare there were few institutions designed to care for elderly people. Nursing homes as we know them today did not exist. Elderly people were more likely to die at earlier ages. Those who survived were cared for at home, or they went into a poorhouse, or, at times, into a mental hospital.

A second difference lies in the failure of the survey data to identify one other group of people who may be spending a large proportion of family resources on the medical care of an elderly person. They are the people who are paying for the care of an elderly family member who resides in a nursing home. These community residents who are paying for the care of someone who is not a member of the household may be the ones at greatest risk of becoming impoverished because of medical care expenditures.

The situation was certainly better in 1980 for most elderly people and for those needing hospital care than it was before Medicare. Using averages as if they applied to all elderly people alike conceals the differing needs of elderly people and could lead to bad public policy.

There is evidence, however, that the current situation is no better for elderly people and their families if the need is for continuing long-term care. Although most elderly people do not need such care at any given point in time, many will need it at some time, and Medicare was not designed for such an eventuality.

Data from two Massachusetts studies led to the conclusion that "if one spouse in a married household is placed in a nursing home, both the institutionalized person and the spouse run a joint risk of impoverishment at alarming rates" (U.S. House of Representatives 1985). The conclusion was based on estimates that approximately 25 to 37

percent of the households would become impoverished within 13 weeks of one spouse being placed in a nursing home.

The needs for individual elderly people, the enormous range at any given point in time, and the high probability of the need for long-term care at some time must be taken into account when designing programs for older people.

The estimates from the NMCUES reflect a moment in time; they do not predict the future. The price of medical care has continued to rise and the preliminary estimate was that \$120 billion would be spent on the 29 million people aged 65 or older in 1984 (Health Care Financing Administration 1984). That total includes \$54 billion for hospital care and \$25 billion for nursing home care. Thus, 66 percent of all expenditures for personal health care of the elderly in 1984 would be for inpatient care.

At the same time there are indications that the improvements in the financial status of the elderly may be slowing. Changes in benefits that increased the proportion of the expenditures that had to be paid out-of-pocket would adversely affect the elderly. If, however, the changes are carefully designed, the possibility of very high out-of-pocket expenditures can be minimized. Elderly people who need care can get it, and people who have little money can be helped pay for their care.

Technical Appendix

The National Medical Care Utilization and Expenditure Survey (NMCUES) utilized two independently drawn national area samples provided by the Research Triangle Institute and its subcontractor, the National Opinion Research Center. Both sample designs were stratified four-stage area probability designs and were similar in structure. The combined stage-specific samples for the two designs totaled 135 primary sampling units. All of the related persons in a housing unit were interviewed as a single reporting unit (RU). There were 7,244 RUs, 6,599 of which participated in the survey, for a response rate of 91.1 percent of the eligible RUs.

The data collection for NMCUES consisted of initial interviews during February through April 1980 and four follow-up interviews spaced at approximately 3-month intervals. About four-fifths of the

third and fourth interviews were conducted by telephone; all of the remaining interviews were conducted in person. In most RUs, data for all related persons were collected from a single respondent. A summary of selected information reported in previous interviews was reviewed with the family at each follow-up interview to correct errors and update information.

Missing information for critical data was imputed. Imputation was necessary because the purpose of the survey was to estimate the total expenditures in a number of categories and the sources of payment. For example, if it was known that an individual had, say, 10 visits to a physician but the charges were known for only 8 of those visits, using the information on 8 visits to estimate the total charges would lead to serious underestimates. Therefore, the charges for the other 2 visits were imputed.

The target population of the NMCUES was the civilian noninstitutionalized population residing in the United States. Exclusion of the military does not affect estimates for the elderly; exclusion of the institutionalized population does. Residents of nursing homes were excluded along with all expenditures for them regardless of whether the expenditure was in the nursing home. Thus, the expenditures for an episode of care in a short-stay hospital for a nursing home resident are excluded.

The statistical analysis in this article takes the presence of occasional outliers, the nonnormal distribution of expenditures, and the complex sample design into account.

The median is preferable as a measure of central tendency for many purposes because expenditures are skewed with a long tail to the right. The mean will be heavily influenced by a few people with very large expenditures. Estimates for both are given in this article.

The presence of a few large outliers, especially in small cells, will cause the mean to be extremely large and may make comparisons among population subgroups misleading. The following procedure was used to alleviate the problem: Total expenditures were estimated with the outliers included. All other statistics were estimated with the outliers modified by assigning the value at the 99th percentile of those with the specified expenditures if the outlying value was observed, or by assigning the value at the median if the outlying value was imputed. An outlier was defined as one or more of the 5 largest values in the distribution if, and only if, it was at least 50 percent larger

than the next value. There were 3 outliers for total expenditures, 2 for hospital expenditures, and 1 for out-of-pocket expenditures.

The effect of this procedure is to leave totals, values at specified percentiles, and cumulative percentage distributions unchanged (unless the outlier had been imputed, in which case values above the median would be changed slightly), and to make means and standard errors smaller.

All estimates are based on data that have been weighted to include nonresponse, sampling fractions, and poststratification to U.S. Bureau of the Census estimates of the civilian noninstitutionalized population on July 1, 1980. Standard errors of the means were calculated by a Taylor-series approximation (Shah 1981). All values, whether real or imputed, were used in the calculations. Sampling errors for median expenditures were not calculated, although they could be by using another approach to estimating variances (Landis et al. 1982; McCarthy, 1966). An approximation, based on the assumption that the logarithm of the estimate has a normal distribution, of the 95 percent confidence interval of the median is given by:

$$\begin{aligned} & m (1 + 1.96 (\pi/2)^{1/2} (\ln(CV)^2 + 1)^{1/2}) \\ & m (1 - 1.96 (\pi/2)^{1/2} (\ln(CV)^2 + 1)^{1/2}) \end{aligned}$$

where CV = coefficient of variation.

Means and standard errors were estimated by using SESUDAAN (Shah 1981). This computer program, which runs under SAS (SAS Institute 1982), produces estimates of means and totals that agree with the ones estimated from the SAS programs PROC UNIVARIATE and PROC TABULATE, which were used to calculate the other statistics. SESUDAAN takes the complex sample design into account, however; the SAS programs do not.

References

- Anderson, J.M., and E. Thorne. 1984. *Estimates of Aggregate Personal Health Care Expenditures in 1980: Comparison of the National Health Accounts and the National Medical Care Utilization and Expenditure Survey Data*. Washington: ICF Inc.
- Anderson, R., J. Lim, and O.W. Anderson. 1976. *Two Decades of Health Services: Social Survey Trends in Use and Expenditure*. Cambridge, Mass.: Ballinger.
- Bonham, G.S. 1983. *Procedures and Questionnaires of the National*

- Medical Care Utilization and Expenditure Survey. *National Medical Care Utilization and Expenditure Survey* series A, methodological report no. 1. DHHS pub. no. 83-20001. Washington: National Center for Health Statistics, Public Health Service.
- Bryant, E.E., and R. Biggar. 1985. Utilization and Expenditures for Ambulatory Medical Care by People Hospitalized, United States, 1980. *National Medical Care Utilization and Expenditure Survey*, series B, descriptive report no. 7. DHHS pub. no. 85-20207. Washington: National Center for Health Statistics, Public Health Service.
- Cafferata, G.L. 1984. Private Health Insurance Coverage of the Medicare Population. *Data Preview no. 18*. DHHS pub. no. (PHS) 84-3362. Rockville, Md.: National Center for Health Services Research, Public Health Service.
- Epstein, L.A., and J.H. Murray. 1967. *The Aged Population of the United States: The 1963 Social Security Survey of the Aged*. DHEW, Social Security Administration, Office of Research and Statistics, Research Report no. 19. Washington.
- Gibbs, J., and J. Newman. 1982. Study of Health Services Used and Costs Incurred during the Last Six Months of a Terminal Illness. Contract no. HEW-100-79-0110. Chicago: Blue Cross and Blue Shield Association.
- Health Care Financing Administration. 1984. Health Care Spending for the Elderly. *Health Care Spending Bulletin* no. 84-4. Bureau of Data Management and Strategy. Washington.
- Helbing, C. 1983. Medicare: Use and Reimbursement for Aged Persons by Survival Status, 1979. *Health Care Financing Notes*. HCFA pub. no. 03166. Baltimore: Office of Research and Demonstrations, Health Care Financing Administration.
- Hodgson, T.A., and A.N. Kopstein. 1984. Health Care Expenditures for Major Diseases in 1980. *Health Care Financing Review* 5 (4): 1-12.
- Kovar, M.G. 1983. Expenditures for the Medical Care of Elderly People Living in the Community throughout 1980. *National Medical Care Utilization and Expenditure Survey* data report no. 4. DHHS pub. no. (PHS) 84-20000. Washington: National Center for Health Statistics, Public Health Service.
- Landis, J.R., J.M. Lepkowski, S.A. Eklund, and S.A. Stehower. 1982. A Statistical Methodology for Analyzing Data from a Complex Survey: The First National Health and Nutrition Examination Survey. *Vital and Health Statistics*, series 2, no. 92. DHHS pub. no. (PHS) 82-1366. Washington: National Center for Health Statistics, Public Health Service.
- Lubitz, J., and R. Prihoda. 1983. Use and Costs of Medicare Services

- in the Last Years of Life. *Health, United States*, 1983. DHHS pub. no. (PHS) 84-1232. Washington: National Center for Health Statistics, Public Health Service.
- McCarthy, P.J. 1966. Replication: An Approach to the Analysis of Data from Complex Surveys. *Vital and Health Statistics*, series 2, no. 14. DHEW pub. no. (PHS) 79-1269. Washington: National Center for Health Statistics, Public Health Service.
- Piro, P.A., and T. Lutins. 1973. Utilization and Reimbursement under Medicare for Persons Who Died in 1967 and 1968. *Health Insurance Statistics*, HI.51. DHEW pub. no. (SSA) 74-11702. Office of Research and Statistics, Social Security Administration. Washington.
- Rice, D.P., and C.L. Estes. 1984. Health of the Elderly: Policy Issues and Challenges. *Health Affairs* 3 (4):25-49.
- Rosenblum, R.W. 1985. Medicare Revisited: A Look through the Past to the Future. *Journal of Health Politics, Policy and Law* 19 (4):669-81.
- SAS Institute. 1982. *SAS Users Guide, Basics*. 1982 ed. Cary, N.C.
- Scitovsky, A.A. 1984. "The High Cost of Dying": What Do the Data Show? *Milbank Memorial Fund Quarterly/Health and Society* 62 (4):591-608.
- Schlenger, W., and L. Corder. 1984. Access to Health Care among Aged Medicare Beneficiaries. *National Medical Care Utilization and Expenditure Survey* series B, descriptive report no. 3. DHHS pub. no. 84-20203. Washington: Office of Research and Demonstrations, Health Care Financing Administration.
- Scotto, J., and L. Chiaze, Jr. 1976. *Third National Cancer Survey, Hospitalization and Payments to Hospitals*, part A, summary. DHEW pub. no. (NIH) 76-1094. National Cancer Institute, National Institutes of Health. Washington.
- Shah, B.V. 1981. *SESUDAAN, Standard Errors Program for Computing of Standard Rates from Sample Survey Data*. Research Triangle Park, N.C.: Research Triangle Institute.
- Social Security Administration. 1980. *Your Medicare Handbook*. SSA pub. no. 05-10050. Baltimore.
- Timmer, E.J., and M.G. Kovar. 1971. Expenses for Hospital and Institutional Care during the Last Year of Life for Adults Who Died in 1964 or 1965, United States. *Vital and Health Statistics* series 22, no. 11. PHS pub. no. 1000. Washington: National Center for Health Statistics, Public Health Service.
- U.S. Bureau of the Census. 1982a. Population profile of the United States, 1981. *Current Population Reports*, series P-20, no. 374. Washington.

- . 1982b. Money Income of Households, Families, and Persons in the United States: 1980. *Current Population Reports*, series P-60, no. 132. Washington.
- . 1982c. Characteristics of the Population below the Poverty Level, 1980. *Current Population Reports*, series P-60, no. 133. Washington.
- . 1983. *Statistical Abstract of the United States*. 10th ed. Washington.
- . 1984a. Demographic and Socioeconomic Aspects of Aging in the United States. *Current Population Reports*, series P-23, no. 138. Washington.
- . 1984b. Persons in Institutions and Other Group Quarters. 1980 Census of Population, Volume 2. *Subject Reports* PC80-2-4D. Washington.
- U.S. House of Representatives. 1985. *America's Elderly at Risk: A Report Presented by the Chairman of the Select Committee on Aging*. Comm. pub. no. 99-508. Washington.
- U.S. Senate. 1983. *Developments in Aging: 1982 Volume I*. A report of the Special Committee on Aging. Washington.
- Van Nostrand, J., A. Zappolo, E. Hing, B. Bloom, B. Hirsch, and D.J. Foley. 1979. The National Nursing Home Survey: 1977 Summary for the United States. *Vital and Health Statistics* series 13, no. 43. DHEW pub. no. (PHS) 79-1794. Washington: National Center for Health Statistics, Public Health Service.

Address correspondence to: Mary Grace Kovar, Dr.P.H., Special Assistant for Data Policy and Analysis, Office of Interview and Examination Statistics Program, National Center for Health Statistics, U.S. Department of Health and Human Services, 3700 East-West Highway, Hyattsville, MD 20782.