

National Medical Care Utilization and Expenditure Survey

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

Data
Report
No. 4



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Data Highlights

Expenditures for the care of nursing home patients and for out-of-pocket health insurance premiums and over-the-counter drugs are not included in these estimates. With those exclusions:

- \$42 billion was spent in 1980 for the medical care of people who were 65 years of age and over and living in the community at the beginning of the year.

5 percent of the elderly died or were institutionalized during the year.

22 percent of the money was spent on their care before the death or institutionalization.

- \$33 billion was spent in 1980 for the medical care of people who were 65 years of age and over at the beginning of the year and still living in the community at the end of the year.

Total per capita expenditures for half of these people were under \$329, and under \$100 for 23 percent.

Out-of-pocket per capita expenditures for half were under \$156 and under \$100 for 38 percent; 13 percent had no out-of-pocket expenditures.

Overview

The high and increasing cost of medical care, particularly medical care for the elderly, is a critical issue. Medicare is expected to run out of funds within a decade. As a result, reimbursement mechanisms are being revised and new means of care, such as hospice care, are being covered.

Much of the debate on expenditures for the medical care for the elderly has focused on the high average cost, which was estimated to be \$3,140 per person 65 years of age and over in 1981 (Health Care Financing Administration, unpublished preliminary data). Of that amount, about 44 percent (\$1,381 per person) was spent on hospital care and 23 percent (\$732 per person) on nursing home care. Therefore, most strategies have focused on reducing the costs for those two inpatient facilities, and much of the research has been devoted to that effort.

Relatively little research, on the other hand, has been done on the distribution of elderly people according to their expenditures for medical care, although there have been a number of studies on the cost of illness in the period preceding death (Gibbs and Newman, 1982; Lubitz and Prihoda, in press; Piro and Lutins, 1973; Scotto and Chiazze, 1976; Timmer and Kovar, 1971). In general, these studies have shown that expenses for people who die are very high. Lubitz and Prihoda found that the 1.3 million Medicare enrollees in their last year of life in 1978 accounted for only 5.2 percent of all enrollees, but for 28.2 percent of program expenditures. The 94.7 percent of enrollees who survived 1978 accounted for 71.8 percent of program expenditures.

The data source for the Lubitz and Prihoda study was Medicare claims, and the research focused on comparisons between decedents and survivors. In contrast, data from the National Medical Care Utilization and Expenditure Survey (NMCUES) include (1) expenditures regardless of whether a claim was filed and (2) information on all people regardless of age or health insurance coverage. The data on expenditures

from NMCUES do have a limitation, however; residents of institutions such as nursing homes are excluded and so is information on their medical care utilization and expenditures (Bonham, 1983).

The purpose of this paper is to present data on the variation in expenditures for elderly (65 years of age and over) people who were living in the community at the beginning of 1980 and who neither died nor became residents of long-term-care institutions during 1980—that is, to show the distribution of expenditures for the vast majority of the elderly population. Data on elderly people who did not remain in the community are included for comparison with other research.

Discussion

Despite the high average expenditure for the medical care of the elderly, many elderly people who were living in households at the beginning of 1980 did not have high expenditures: Sixty percent had total expenditures (excluding nursing home care, out-of-pocket health insurance premiums, and nonprescription drugs) of less than \$500 during the year, and 23 percent had expenditures of less than \$100.

Of the 24 million people who were 65 years of age and over and living in the community at the beginning of 1980, about 1.25 million, or 5 percent, either were institutionalized or died during the year. Not surprisingly, the extremely old people (those 85 years of age and over) were more likely than the younger elderly to die or be institutionalized (Table 1). People whose health status was poor or who were limited in activity at the beginning of the year were also more likely than others to die or be institutionalized.

Medical care expenditures for this 5 percent of the elderly were extremely high (22 percent of total expendi-

tures) during the time they were in the community, even though, on the average, they were there for only half of the year. Forty percent of them had expenditures of \$5,000 or more in contrast with 7 percent of the elderly people who lived in the community for the entire year (Table 2). Eighty-eight percent of the money spent for their care was spent on people with expenditures of \$5,000 or more, in contrast with 58 percent for those still in the community at the end of the year. Of all elderly people in the community with expenditures of \$5,000 or more in 1980, 23 percent were in the community for only part of the year. In part, this was due to their high rate of hospitalization and the consequent high expenditures.

From a different perspective, then, these data confirm other results. The elderly people approaching death or institutionalization have very high expenditures for medical care. They constitute a small proportion of the elderly population, but use a relatively large proportion of the medical care dollar.

The vast majority of the elderly people, about 23 million people 65 years of age and over, lived in the community throughout the year. Of these, 62 percent had expenditures under \$500 during 1980, and 76 percent had expenditures under \$1,000 (Table 3). The median expenditure (that is, the point at which half the population is above and half below) was \$329 (Table 4). Because medical care expenditures are, like other financial measures, skewed to the right, the median is a better measure of centrality for many purposes than the mean; both are shown in Table 4. In general, the mean expenditures were about four times the median.

There was little variation in expenditures for subgroups of elderly people when they were classified by demographic, geographic, or income measures. However, the elderly people who were in poor health or unable to perform their usual activity at the beginning

Table 1
People 65 years of age and over according to whether they remained in the community throughout the entire year, by selected characteristics: United States, 1980

Characteristic	Estimated population in thousands	Total	In the community	
			All year	Part of year
Total	24,018	100.0	94.9	5.14
Age				
65-74 years	15,319	100.0	97.3	2.69
75-84 years	7,224	100.0	92.0	7.97
85 years and over	1,475	100.0	83.2	16.77
Sex				
Male	9,760	100.0	94.0	6.01
Female	14,258	100.0	95.5	4.54
Perceived health status				
Excellent	6,145	100.0	96.3	3.73
Good	8,723	100.0	97.1	2.88
Fair	5,994	100.0	95.0	4.96
Poor	3,032	100.0	86.9	13.10
Limitation of activity				
Not limited	14,128	100.0	97.2	2.82
Some limitation	1,637	100.0	96.9	3.11
Cannot perform usual activity	8,253	100.0	90.5	9.51

Table 2

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 population			Estimated expenditures		
	All people	All year	Part of year	All expenditures	All year	Part of year
Total	24,018	22,784	1,234	\$42,110	\$33,020	\$9,090
		In thousands			In millions	
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
Yes	23.1	20.2	75.7	84.5	80.5	99.1
No	76.9	79.8	24.3	15.5	19.5	0.9

of 1980 had significantly higher expenditures than did those who were in excellent health or were not limited in activity. The median expenditure for those in poor health was \$647, in contrast with \$200 for those in excellent health (Table 4).

Medicare, private health insurance, and other third-party payers helped to alleviate the burden of paying for medical care. The majority (57 percent) of the elderly people had out-of-pocket expenditures of under \$200, and 94 percent had out-of-pocket expenditures of under \$1,000 (Table 5). The median out-of-pocket expenditure was \$156 (Table 6). These estimates would certainly be somewhat higher if over-the-counter drugs and health insurance premiums were included, but these are usually family expenditures that cannot be attributed to specific individuals in a family.

In general, elderly people in families below the poverty level appeared to have lower out-of-pocket expenditures than did those at higher income levels, although the difference was not statistically significant. Poor elderly people did not receive significantly less medical care: On the average, elderly people below the poverty level made 5.0 visits during 1980 to physicians (including visits to offices, outpatient departments, and emergency rooms where a doctor was seen), whereas elderly people at 300 percent of the poverty level or above made 5.4 such visits. Sixteen percent of those below the poverty level and 19 percent of those at 300 percent of the poverty level or above were hospitalized during the year. As shown in Tables 3 and 4, their total charges were not significantly different.

A somewhat lower proportion of all charges were out-of-pocket charges in the poor families. On the aver-

age, out-of-pocket charges were 53 percent of all charges for elderly people below the poverty level and 61 percent of all charges for elderly people at 300 percent of the poverty level or above (Table 7). However, the median out-of-pocket charge of \$116 for an elderly person in a family below the poverty level was a much heavier burden than an out-of-pocket charge of \$178 in a family at 300 percent or more of the poverty level.

On the average, out-of-pocket charges for medical care amounted to 15 percent of the 1980 family income for elderly people below the poverty level, but only 2 percent of the 1980 family income for elderly people at 300 percent of the poverty level or above. In interpreting these figures, two things should be borne in mind. First, although 32 percent of all elderly people lived alone or with nonrelatives in 1980, 63 percent of the elderly below the poverty level were unrelated individuals, including 53 percent who were unrelated women (U.S. Bureau of the Census, 1982). Thus, for a majority of the elderly people below the poverty level, the total family income was the income of an individual. Second, the income reported here and used to construct the poverty level is money income only; assets such as home ownership are not included, nor are nonmonetary benefits such as lower tax rates on income and real estate, subsidized housing, and food stamps. Other data from the Current Population Survey show that about 58 percent of all poor households received one or more means-tested noncash benefits in 1980 (U.S. Bureau of the Census, 1982).

Table 3

People 65 years of age and over living in the community for the entire year with health care expenditures under specified amount, by selected characteristics: United States, 1980

Characteristic	Estimated population in thousands	Expenditures under—						
		\$100	\$200	\$500	\$1,000	\$3,000	\$5,000	
Total	22,784	23.4	36.4	62.2	76.3	88.0	92.6	
			Cumulative percent of population					
Age								
65-74 years	14,908	25.9	39.5	62.8	77.8	89.5	93.7	
75-84 years	6,648	17.9	31.0	61.2	73.2	84.7	89.8	
85 years and over	1,228	21.9	28.7	60.9	75.4	87.7	93.6	
Sex								
Male	9,173	26.3	40.2	64.0	75.6	87.4	91.7	
Female	13,611	21.4	33.9	61.0	76.9	88.5	93.2	
Race								
White	20,528	22.4	35.6	61.5	75.8	87.8	92.6	
All other	2,256	32.1	44.2	69.0	80.9	89.6	92.6	
Region								
Northeast	4,440	26.6	37.9	64.5	78.2	86.3	91.4	
North Central	5,563	23.2	38.2	65.5	77.5	88.9	92.9	
South	7,704	22.3	35.8	60.8	75.4	87.9	92.8	
West	5,078	22.2	34.2	58.8	74.9	88.8	93.0	
Residence								
SMSA	14,819	22.3	34.6	62.1	76.3	87.4	92.4	
In central city	7,063	23.3	34.2	62.5	76.9	88.1	92.2	
Outside central city	7,756	21.4	35.0	61.8	75.7	86.8	92.5	
Outside SMSA	7,965	25.3	39.8	62.5	76.4	89.2	92.9	
Family income in 1980								
Under \$5,000	5,162	22.2	34.7	63.9	77.6	88.4	94.4	
\$5,000-\$7,999	3,101	22.6	36.0	62.2	80.1	86.4	91.9	
\$8,000-\$9,999	4,091	23.5	37.6	63.1	76.5	88.0	92.6	
\$10,000-\$14,999	4,405	23.8	38.9	61.4	73.7	88.8	92.3	
\$15,000-\$24,999	3,645	22.7	34.8	60.7	74.9	88.0	91.5	
\$25,000 or more	2,381	26.8	36.6	61.1	75.5	87.8	91.6	
Poverty status in 1980								
Below poverty level	4,609	25.0	38.3	66.1	79.3	89.4	94.3	
100-149 percent	4,710	19.5	32.0	60.2	76.0	86.3	92.6	
150-199 percent	4,168	26.5	42.3	64.5	77.1	89.4	93.5	
200-299 percent	4,658	23.0	34.9	61.1	75.1	88.5	91.9	
300 percent or more	4,639	23.1	35.3	59.7	74.3	86.8	90.7	
Perceived health status								
Excellent	5,916	33.5	49.6	72.3	83.2	92.1	94.5	
Good	8,472	24.6	37.1	62.5	78.1	90.2	94.7	
Fair	5,697	15.8	30.3	60.2	72.8	86.3	90.8	
Poor	2,635	13.6	17.9	43.5	62.1	75.1	84.9	
Limitation of activity								
Not limited	13,729	28.1	43.0	69.3	82.7	92.2	95.8	
Some limitation	1,586	19.7	30.3	57.1	67.2	85.8	90.3	
Cannot perform usual activity	7,469	15.4	25.7	50.5	66.7	80.9	87.2	

Table 4

Health care expenditures for people 65 years of age and over living in the community for the entire year, by selected characteristics:
United States, 1980

Characteristic	Estimated population in thousands	Number in sample	Mean	Standard error	Expenditures at selected percentiles				
					10th	25th	50th	75th	90th
Total	22,784	1,774	\$1,328	\$82.6	\$15	\$111	\$329	\$900	\$3,607
Age									
65-74 years	14,908	1,150	1,193	79.0	8	94	310	858	3,078
75-84 years	6,648	525	1,652	161.3	31	159	359	1,045	5,022
85 years and over	1,228	99	1,209	196.1	13	160	373	912	3,194
Sex									
Male	9,173	735	1,381	120.0	0	89	293	954	4,134
Female	13,611	1,039	1,292	100.9	26	131	352	874	3,320
Race									
White	20,528	1,622	1,345	79.1	18	122	339	920	3,607
All other	2,256	152	1,170	292.0	0	60	235	756	3,627
Region									
Northeast	4,440	356	1,398	229.8	0	75	295	833	4,471
North Central	5,563	440	1,297	157.4	22	114	294	823	3,215
South	7,704	600	1,268	131.3	22	113	345	955	3,552
West	5,078	378	1,389	163.4	14	130	376	1,005	3,307
Residence									
SMSA	14,819	1,155	1,347	94.0	12	127	340	900	3,673
In central city	7,063	550	1,348	137.9	0	121	342	866	3,700
Outside central city	7,756	605	1,346	108.8	20	131	339	949	3,666
Outside SMSA	7,965	619	1,291	157.4	20	99	314	896	3,440
Family income in 1980									
Under \$5,000	5,162	389	1,129	121.4	23	125	303	828	3,293
\$5,000-\$7,999	3,101	243	1,375	173.2	12	110	367	741	4,308
\$8,000-\$9,999	4,091	321	1,633	246.6	14	109	329	955	3,581
\$10,000-\$14,999	4,405	349	1,377	158.2	8	107	329	1,059	3,440
\$15,000-\$24,999	3,665	286	1,305	104.0	15	115	346	1,030	3,711
\$25,000 or more	2,381	186	1,112	177.4	5	82	317	888	3,467
Poverty status in 1980									
Below poverty level	4,609	347	1,115	133.0	20	99	282	754	3,078
100-149 percent	4,710	372	1,368	153.0	25	133	365	955	4,218
150-199 percent	4,168	326	1,422	201.5	8	79	307	866	3,190
200-299 percent	4,658	367	1,455	176.0	0	109	333	917	3,618
300 percent or more	4,639	362	1,285	151.3	18	125	364	1,045	4,347
Perceived health status									
Excellent	5,916	455	881	86.0	0	63	200	558	2,335
Good	8,472	668	1,151	106.2	8	101	329	817	2,960
Fair	5,697	443	1,550	167.5	49	166	359	1,266	4,726
Poor	2,635	203	2,436	285.1	40	269	647	2,982	6,645
Limitation of activity									
Not limited	13,729	1,066	919	76.1	0	81	251	640	2,371
Some limitation	1,586	124	1,470	237.6	25	139	432	1,256	4,870
Cannot perform usual activity	7,469	584	2,047	184.3	40	185	488	2,090	6,321

Table 5

People 65 years of age and over living in the community for the entire year with out-of-pocket health care expenditures under specified amount, by selected characteristics: United States, 1980

Characteristic	Estimated population in thousands	No expend- itures	Out-of-pocket expenditures under—					
			\$100	\$200	\$300	\$400	\$500	\$1,000
Cumulative percent of population								
Total	22,784	12.1	38.0	57.3	70.4	78.5	84.2	94.3
Age								
65-74 years	14,908	13.1	40.0	59.8	72.2	79.0	84.3	94.6
75-84 years	6,648	9.3	32.0	51.7	66.4	76.7	82.9	93.7
85 years and over	1,228	14.9	45.8	57.8	70.1	83.1	90.5	95.4
Sex								
Male	9,173	15.9	41.9	60.8	73.2	80.9	86.0	93.8
Female	13,611	9.4	35.3	55.0	68.5	77.0	83.0	94.7
Race								
White	20,528	11.1	36.2	56.0	69.4	77.9	83.6	94.0
All other	2,256	20.5	53.8	69.2	79.3	84.8	89.9	97.1
Region								
Northeast	4,440	14.7	40.7	62.2	75.0	82.6	87.3	95.1
North Central	5,563	9.9	34.6	57.2	71.7	78.9	87.1	95.9
South	7,704	10.1	35.9	54.2	66.1	76.0	81.2	93.6
West	5,078	15.0	42.3	58.1	71.4	78.6	83.1	93.3
Residence								
SMSA	14,819	13.7	38.1	58.2	71.2	79.2	84.4	94.2
In central city	7,063	14.8	41.1	59.9	74.6	82.4	87.9	94.9
Outside central city	7,756	12.6	35.3	56.6	68.1	76.3	81.3	93.7
Outside SMSA	7,965	9.0	37.8	55.8	69.0	77.3	83.9	94.6
Family income in 1980								
Under \$5,000	5,162	14.0	44.8	61.3	74.6	82.6	86.6	95.1
\$5,000-\$7,999	3,101	11.5	37.4	55.9	72.6	79.9	87.4	96.2
\$8,000-\$9,999	4,091	12.0	34.2	57.0	68.8	77.4	82.5	90.7
\$10,000-\$14,999	4,405	11.7	36.3	55.6	70.7	78.1	83.8	95.3
\$15,000-\$24,999	3,645	11.1	36.1	54.8	65.9	73.7	82.3	93.7
\$25,000 or more	2,381	10.8	36.3	58.3	67.5	78.4	81.7	95.8
Poverty status in 1980								
Below poverty level	4,609	14.1	47.1	65.8	76.8	83.5	87.9	96.5
100-149 percent	4,710	11.3	37.3	54.9	71.9	80.1	86.2	93.8
150-199 percent	4,168	12.5	36.1	57.4	70.6	79.7	85.1	94.9
200-299 percent	4,658	12.6	37.1	55.5	69.2	76.3	82.0	92.6
300 percent or more	4,639	9.8	32.2	53.2	63.5	73.2	80.0	94.0
Perceived health status								
Excellent	5,916	14.3	44.6	63.8	76.7	84.5	89.1	95.2
Good	8,472	12.7	38.4	57.8	70.4	78.3	83.4	95.8
Fair	5,697	8.9	32.6	54.1	68.8	77.1	83.5	92.8
Poor	2,635	12.2	34.2	48.4	60.1	69.1	77.7	91.2
Limitation of activity								
Not limited	13,729	13.2	41.3	62.3	75.2	82.6	87.3	96.1
Some limitation	1,586	7.9	26.0	50.7	62.9	73.3	78.1	90.3
Cannot perform usual activity	7,469	10.9	34.5	49.6	63.2	72.1	79.9	91.9

Table 6

**Out-of-pocket health care expenditures for people 65 years of age and over living in the community for the entire year,
by selected characteristics: United States, 1980**

Characteristic	Estimated population in thousands	Number in sample	Mean	Standard error	Expenditures at selected percentiles				
					10th	25th	50th	75th	90th
Total	22,784	1,774	\$293	\$13.7	\$0	\$40	\$156	\$348	\$682
Age									
65-74 years	14,908	1,150	285	15.4	0	34	143	339	682
75-84 years	6,648	525	319	25.1	3	69	188	376	716
85 years and over	1,228	99	238	30.3	0	13	129	351	456
Sex									
Male	9,173	735	280	20.7	0	30	137	321	640
Female	13,611	1,039	301	14.4	1	50	173	370	700
Race									
White	20,528	1,622	304	13.9	0	46	165	361	699
All other	2,256	152	187	32.9	0	5	75	238	508
Region									
Northeast	4,440	356	261	18.6	0	33	138	302	588
North Central	5,563	440	272	22.0	1	60	161	340	627
South	7,704	600	326	28.3	0	43	180	380	753
West	5,078	378	292	32.2	0	25	130	344	676
Residence									
SMSA	14,819	1,155	292	16.7	0	37	153	342	652
In central city	7,063	550	268	20.0	0	30	144	306	588
Outside central city	7,756	605	313	26.7	0	44	167	377	794
Outside SMSA	7,965	619	294	23.7	3	44	165	366	694
Family income in 1980									
Under \$5,000	5,162	389	266	28.9	0	20	126	312	632
\$5,000-\$7,999	3,101	243	252	22.6	0	40	166	340	570
\$8,000-\$9,999	4,091	321	350	33.8	0	52	161	372	891
\$10,000-\$14,999	4,405	349	276	22.7	0	52	163	350	637
\$15,000-\$24,999	3,644	286	328	36.1	0	43	165	409	780
\$25,000 or more	2,381	186	281	29.1	0	38	158	369	775
Poverty status in 1980									
Below poverty level	4,609	347	239	26.1	0	16	116	256	549
100-149 percent	4,710	372	280	20.9	0	41	176	343	639
150-199 percent	4,168	326	296	32.2	0	53	153	340	652
200-299 percent	4,658	367	307	24.0	0	43	158	368	761
300 percent or more	4,639	362	341	29.2	1	56	178	415	844
Perceived health status									
Excellent	5,916	455	258	25.3	0	30	128	283	511
Good	8,472	668	268	16.1	0	38	150	349	644
Fair	5,697	443	330	24.9	3	64	180	373	760
Poor	2,635	203	366	39.0	0	31	210	465	893
Limitation of activity									
Not limited	13,729	1,066	245	13.0	0	36	135	297	560
Some limitation	1,586	124	405	70.4	18	76	199	449	982
Cannot perform usual activity	7,469	584	356	26.1	0	40	202	431	884

Table 7

**Median out-of-pocket charges and mean percent of charges and mean percent of family income that was out-of-pocket charges,
by selected characteristics: United States, 1980**

Characteristic	Median out-of-pocket charge	Estimated population with expenditures in thousands	Mean percent of charges	Mean percent of income
Total	\$156	20,869	56.67	5.58
Age				
65-74 years	143	13,481	57.17	4.91
75-84 years	188	6,227	56.71	7.27
85 years and over	129	1,161	50.67	4.38
Sex				
Male	137	8,113	55.02	4.70
Female	173	12,756	57.72	6.14
Race				
White	165	18,930	57.62	5.07
All other	75	1,939	47.45	10.57
Region				
Northeast	138	3,948	56.81	9.40
North Central	161	5,137	61.14	3.84
South	180	7,106	57.13	5.47
West	130	4,679	50.95	4.42
Residence				
SMSA	153	13,456	55.21	6.20
In central city	144	6,326	52.28	8.37
Outside central city	167	7,131	57.81	4.27
Outside SMSA	165	7,413	59.32	4.45
Family income in 1980				
Under \$5,000	126	4,805	52.72	14.41
\$5,000-\$7,999	166	2,821	59.19	4.61
\$8,000-\$9,999	161	3,743	58.73	4.58
\$10,000-\$14,999	163	3,967	56.78	2.54
\$15,000-\$24,999	165	3,367	55.45	1.86
\$25,000 or more	158	2,167	60.28	0.81
Poverty status in 1980				
Below poverty level	116	4,241	52.85	14.83
100-149 percent	176	4,407	55.81	5.10
150-199 percent	153	3,759	60.19	3.64
200-299 percent	158	4,182	54.32	2.83
300 percent or more	178	4,279	60.54	1.53
Perceived health status				
Excellent	128	5,255	65.17	5.79
Good	150	7,688	58.42	5.80
Fair	180	5,379	53.34	4.99
Poor	210	2,483	40.05	5.82
Limitation of activity				
Not limited	135	7,095	46.90	5.12
Some limitation	199	1,471	60.43	10.74
Cannot perform usual activity	202	12,304	61.86	5.23

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Technical Notes

Definition of Terms

Age—A person's age as of January 1, 1980. Babies born during the survey period were included in the category "under 5 years of age."

Family income in 1980—Each member of a family is classified according to the total income of the family of which he or she is a member. Because some persons changed families during the year, their family income is defined as the income of the family they were in the longest. If a family did not exist for the entire year, the family income is adjusted to an annual basis by dividing actual income by the proportion of the year the family existed. Unrelated persons are classified according to their own income. For each person, 12 categories of income were collected, including income from employment for persons 14 years of age and older and income from various government programs, pensions, alimony or child support, interest, and net rental income. Where information was missing, it was imputed. For persons who were members of more than one family, their total income was allocated to each family in proportion to the amount of time they were in that family.

Hospital admission—The formal acceptance by a hospital of a patient who is provided room, board, and regular nursing care in a unit of the hospital. Included as a hospital admission is any patient admitted to the hospital and discharged on the same day and any hospital stay following an emergency department visit.

Institution—A place providing room, board, and certain other services for the residents or patients. Correctional institutions, military barracks, and orphanages were always considered institutions for the NMCUES. Places that provided health care were also identified as institutions if they provided either nursing or personal care services. Certain other facilities licensed, registered, or certified by State agencies or affiliated with Federal, State, or local government agencies were also defined as institutions. People residing in institutions were not included in the household samples.

Limitation of activity—Four categories were developed for classifying limitation of activity:

1. Cannot perform usual activity.
2. Can perform usual activity but limited in kind or amount.
3. Can perform usual activity but limited in kind or amount of other activity.
4. Not limited.

People 6 years of age and over were classified into any of the categories; children 1-5 years of age were classified into categories 1, 2, and 4, and children under 1 year of age into categories 1 and 4.

Perceived health status—The family respondent's judgment of the health of the person compared to others the same age, as reported at the time of the first interview. The categories were excellent, good, fair, or poor.

Poverty status—The poverty status in 1980 was calculated by dividing the person's family income in 1980 by the appropriate 1980 nonfarm poverty level threshold and converting it to percent. These thresholds, as used by the U.S. Bureau of the Census, are determined by the age and sex of the family head and the average number of persons in the family.

Race—The race of people 17 years of age and over reported by the family respondent; the race of those under 17 derived from the race of other family members. If the head of the family was male and had a wife who was living in the household, her race was assigned to any children under 17 years of age. In all other cases, the race of the head of the family (male or female) was assigned to any children under 17 years of age. Race is classified as "white," "black," or "other." The "other" race category includes American Indian, Alaskan Native, Asian, Pacific Islander, and people not identified by race. The category "all other" includes the categories "black" and "other."

Region—The States comprising the four geographic regions of the United States correspond to those used by the U.S. Bureau of the Census. Northeast: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania; North Central: Michigan, Ohio, Illinois, Indiana, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas; South: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, and Texas; West: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Hawaii, and Alaska.

Sample Design

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 first stage consisted of primary sampling units (PSU's), which were counties, parts of counties, or groups of contiguous counties. The second stage consisted of secondary sampling units (SSU's), which were census enumeration districts or block groups. The third stage consisted of smaller area segments, and the fourth stage consisted of housing units (HU's). Related persons in an HU were interviewed as a single reporting unit (RU). Combined stage-specific samples for the two designs totaled 135 PSU's (covering 108 separate primary areas), 809 SSU's, 809 small area segments (one segment per SSU), and 7,244 RU's. Of these, 6,599 RU's agreed to participate in the survey, for a response rate of 91.1 percent of eligible RU's.

NMCUES consisted of initial interviews during February through April 1980 and four followup 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 RU's, 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 to correct errors and update information.

Statistical Notes

The statistics presented in this report are based on a sample of the target population rather than on the entire population. Thus the estimates may differ from values that would be obtained from a complete census.

Expenditures are skewed with a long tail to the right. The presence of a few 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 five largest values in the distribution if, and only if, it was at least 50 percent larger than the next value. There were three outliers for total expenditures, two for hospital expenditures, and one for out-of-pocket expenditures.

The effect of this procedure is to leave totals, values at specified percentiles, and cumulative percent 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. The reader interested in the unmodified means can obtain them by dividing the total expenditures by the population in Table 2.

Means and standard errors were estimated by using SESUDAAN (Shah, 1981). This program, which runs

under SAS (SAS Institute, Inc., 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.

Sampling errors for median expenditures were not calculated, although they could be by using another approach to estimating variances (Landis, Lepkowski,

Eklund et al., 1982; McCarthy, 1966). An approximation of the 95 percent confidence interval of the median is given by:

$$\begin{aligned} & \tilde{m} \left(1 + 1.96 \sqrt{\frac{\pi}{2}} \sqrt{\ln(CV)^2 + 1} \right) \\ & \tilde{m} \left(1 - 1.96 \sqrt{\frac{\pi}{2}} \sqrt{\ln(CV)^2 + 1} \right) \end{aligned}$$

where CV = coefficient of variation.

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