Age Differential in Medical Spending

By SELMA MUSHKIN

Out-of-pocket medical care expenditures of the urban population averaged $65 per person in 1950, a relatively small sum when considered in relation to the average city family income after taxes of about $4,000. Unlike most other items of consumer expenditures, however, medical care costs, in the absence of insurance coverage, are neither regularly recurring annual charges nor postponable expenses like those for such hard goods as automobiles or television sets.

In a single year, a relatively small number of persons incur a large part of the Nation's private medical care bill. More than 65 percent of all urban residents spent less than $50 for medical care in 1950. At the other extreme, 7 percent spent $200 or more, and their expenditures accounted for 41 cents of each $1 of the private medical care bill in cities. Only one-fourth of 1 percent of all urban residents spent $1,000 or more for medical care, but their expenditures represented 6 cents of each $1 of private spending for medical care in cities.

• • •

THE PATTERN of spending for medical care differs markedly among age groups. A large part of the medical expenditures for children is composed of small annual bills, whereas the major part of the medical care spending of the middle and older age groups is attributable to the large bills of a relatively few who become disabled or seriously ill.

Information on medical care expenditures was derived from a Public Health Service tabulation of schedules obtained by the Bureau of Labor Statistics in its survey of consumer expenditures for 1950. In this survey, Bureau of Labor Statistics interviewers visited 15,180 dwellings in 91 cities during 1950 and 1951. As a result, complete and useful information was obtained for approximately 12,500 families. The Bureau reports that "the expenditure data from this survey appear to be the most comprehensive and reliable ever collected by the Bureau in its long experience in this field dating back to 1889" (*1*).

Preliminary tabulations from the Bureau of Labor Statistics survey were released in revised form in 1953 (*1*). Extensive analytical tabulations of the data were published for the first time in 1956 as a joint project of the Wharton School of Finance and Commerce of the University of Pennsylvania and the Bureau of Labor Statistics, financed in part by a Ford Foundation grant (*2*). The 1956 reports include a considerable volume of material on medical care expenditures in relation to family income, together with information on urban spending for food, clothing, housing, recreation, and other components of consumer purchases.

In the several reports on the survey, the sampling methods used to collect the information, including the selection of the 91 cities, the selection of the dwelling units in these cities, and the factors determining the size of the sample in each city, are described in detail (*1*, *2*). The building up of nationwide urban estimates from the sample cities is also described in a published report (*3*). Work is still being done, by the Bureau, by the Wharton School, and by students of consumer income and expenditures, on evaluation of the distribution and aggregates of income, savings, and expenditures estimated from the survey findings (*4*).

Miss Mushkin is an economist in the Division of Public Health Methods, Public Health Service.

A considerable amount of the information obtained from the families on medical care costs and utilization of health services was not processed in the joint Bureau of Labor Statistics-Wharton School project. In fact, much of the detailed medical care information was not coded. Accordingly, the Public Health Service has undertaken a special study of consumer expenditures for medical care from a random subsample of the interviews. In this study, attention has been directed to (*a*) the composition and characteristics of the larger medical care bills, (*b*) the types of free medical services received by individuals in different economic circumstances, and (*c*) the variations in spending for medical care among different age groups. This paper presents the findings on age variations in spending.

Study Methods

In selecting the subsample, the interview schedules were stratified by the amount of medical care expenditures. The subsample included all schedules reporting expenditures of $1,000 or more, 50 percent of those reporting $400 to $1,000, 20 percent of those reporting $200 to $400, and 10 percent of those reporting some medical care expenditures but in amounts less than $200. To provide a basis for evaluating medical care received by public beneficiaries, such as public assistance recipients, 50 percent of the schedules reporting no medical care expenditures were also included in the subsample. In all, 2,414 consumer units and 7,639 persons were included in the subsample out of the total of 12,489 consumer units interviewed by the Bureau of Labor Statistics. A comparison of the subsample with the whole sample showed that the two corresponded very closely in the family averages for medical care spending in each of the medical expenditure intervals.

Schedules selected from the tabulation which listed schedule numbers by amount of medical care outlay were pulled from each of the city schedule files. Transcripts were then made of the information reported by the family on medical care costs and family income. Information was transcribed separately for each member of the family unit on a family sheet, and hand tabulations were made from these family sheets. The items of medical care expense covered in the survey are given on page 119.

The figures derived from the tabulations were weighted first to adjust for the subsampling ratio and then by the regional weights developed by the Bureau of Labor Statistics for each type of city, that is, large cities, suburbs, and small cities in each of three regions of the Nation, the north, the south, and the west. The total urban population represented by the survey sample was estimated by the Bureau of Labor Statistics to be approximately 95.6 million for the year 1950.

The study findings on age differentials necessarily reflect considerable error in the reporting of information by the family respondent, in sampling, and in estimation of aggregates from tabulated data. The total dollar volume of medical care expenditures is a computed amount, estimated by applying the midpoint of each of the dollar class intervals to the estimated number of persons in each age group spending amounts within these class intervals. For the open-end expense class, $1,000 and over, the tabulated average expense figure for the sample in each region was used instead of a midpoint.

Average Spending

Various surveys of hospital and physician services suggest a considerable variation in utilization of medical services by age. They suggest, for example, that the aged as a group use roughly 1.5 to 2 times as many days of hospitalization and 1.5 to 2.5 times as many physician services as all age groups in the civilian population (*5*).

There are marked differences also in out-of-pocket medical care expenditures by age (table 1). Although urban residents under 19 years of age spend half as much as the average urban resident for medical care, those 65 and over spend 28 percent more than the average.

Three out of each 10 persons living in cities are under 19 years of age, but about one-sixth of the amount spent for medical care is spent for these children. Aged persons in cities represent 8.1 percent of the urban population as

Table 1. Average out-of-pocket medical care expenditures per person, by age group, urban population, 1950

Age group	Average annual out-of-pocket medical expenses [1]	Percent of average expenditures of all age groups
All age groups	$65	100
Under 6	29	44
6–18	35	54
19–44	72	111
45–64	93	142
65–74	87	134
75 and over	76	118

[1] Amounts are adjusted to the $65 average expenditure for all age groups as computed by dividing the Bureau of Labor Statistics total medical care expenditures for all urban families by the Bureau of Labor Statistics estimate of urban population.

Table 2. Percentage distribution of urban population and of urban out-of-pocket medical care expenditures, by age group, 1950

Age group	Percent urban population		Percent out-of-pocket medical expenditures
	In sample	In United States [1]	
All age groups	100. 0	100. 0	100. 0
Under 6	12. 7	11. 9	5. 6
6–18	19. 1	17. 6	10. 3
19–44	38. 3	41. 1	42. 7
45–64	21. 3	21. 3	30. 3
65–74	5. 8	5. 6	7. 8
75 and over	2. 8	2. 5	3. 3

[1] 1950 Census.

of 1950, but their medical care bills account for about 11 percent of the total (table 2).

Skewed Distribution of Spending

Averages are a peculiarly inappropriate base for evaluating consumer medical care expenditures. The skewed distribution of amounts spent by the urban population for medical care is shown in table 3. The figures reflect whatever leveling effect has developed out of coverage under voluntary health insurance since premiums are counted as part of expenditures while benefits received are excluded. A sizable proportion of medical care expenditures represents the spending of the small proportion of urban people with large medical bills.

The uneven distribution of medical care outlays is especially characteristic of the older age groups. About 8 percent of urban residents 19–44 years of age spend $200 or more a year, but these persons spend 39 percent of the total spent by this age group. At ages 45–64, 11 percent of urban people spend $200 or more, but their expenditures account for over half the spending for the age group. At ages 65–74 and 75 and over, 9 to 10 percent of urban people spend $200 and over a year, and their expenditures account for 51 and 57 percent, respectively, of the medical care costs attributable to each of the age groups (tables 4 and 5).

The medical care spending pattern for children is considerably different from that for other age groups. A heavy concentration of expenditures in the large bills of a relatively small proportion of consumers has been noted repeatedly in the past as characteristic of family medical care spending and is indicated here for people 19 years of age and over. Expenditures for children, however, are largely concentrated in small annual charges. More than $7 out of each $10 spent for children under 6 is in amounts less than $100, and fully one-half of the expenditure for children is in amounts less than $50. In the age group 6–18

Table 3. Percentage distribution of persons and of total out-of-pocket medical care expenditures, by amount of medical care expenditures, urban population, 1950

Out-of-pocket medical care expenditures	Percent of persons	Percent of total medical care expenditures
All urban consumers	100. 0	100. 0
None	17. 4	
$1–$49.99	47. 9	17. 4
$50–$99.99	17. 5	19. 1
$100–$199.99	10. 2	22. 2
$200–$299.99	3. 7	13. 3
$300–$499.99	2. 1	12. 1
$500–$999.99	1. 0	9. 8
$1,000 and over	. 2	6. 1

Table 4. Percentage distribution of persons in each age group by amount of medical care expenditures, urban population, 1950

Out-of-pocket medical care expenditures	Age group					
	Under 6	6–18	19–44	45–64	65–74	75 and over
All urban consumers	100. 0	100. 0	100. 0	100. 0	100. 0	100. 0
None	25. 7	26. 3	11. 4	12. 8	19. 2	30. 7
$1–$49 99	61. 3	55. 8	46. 3	39. 1	41. 3	37. 2
$50–$99.99	9. 0	11. 3	21. 5	23. 1	12. 9	11. 6
$100–$199.99	2. 9	4. 3	12. 5	13. 8	16. 7	11. 4
$200–$299.99	(0. 6)	1. 5	4. 7	5. 6	3. 8	(2. 8)
$300–$499.99	(0. 4)	(0. 6)	2. 5	2. 8	4. 2	(4. 1)
$500 and over	(0. 1)	(0. 2)	1. 1	2. 8	(1. 9)	(2. 2)

NOTE. Figures are shown in parentheses when the product of the percentages and the unweighted count of persons in the sample in the given age group is less than 10.

years, $6 out of each $10 spent is in amounts less than $100. In part, the difference in the pattern of medical care expenditures by age reflects variations in sickness experience by age. The incidence of acute illness is higher among children than among older age groups, whereas the incidence of chronic illness is higher among older age groups than among children (*6*, *7*).

Health Information Foundation Study

While the Public Health Service study of medical care costs was in process, the Health Information Foundation published its findings from a 1952–53 survey of family medical costs and voluntary health insurance (*8*). Differences in definition of medical care expenditures, survey design and scope, and dates of the interviews, as well as differences in age grouping make direct comparison of the two sets of findings difficult. Health Information Foundation data are for a later period and include the rural population; the Public Health Service study related exclusively to the urban population and covered 1950 expenditures. However, the similarities and variations in findings are of considerable interest and at points suggest questions which warrant further study and analysis. These two studies are the first to provide nationwide information on medical care costs by age since the 1928–33 studies of the Committee on Costs of Medical Care. The many changes that have taken place since this

Table 5. Percentage distribution of medical care expenditures of each age group by amount of medical care expenditures, urban population, 1950

Out-of-pocket medical care expenditures	Age group					
	Under 6	6–18	19–44	45–64	65–74	75 and over
All urban expenditures	100. 0	100. 0	100. 0	100. 0	100. 0	100. 0
$1–$49. 99	50. 2	37. 7	15. 1	10. 0	11. 2	11. 5
$50–$99. 99	22. 2	22. 9	21. 1	17. 7	10. 6	10. 8
$100–$199. 99	14. 0	17. 3	24. 4	21. 0	27. 2	21. 2
$200–$299. 99	(4. 8)	10. 1	15. 3	14. 3	10. 3	(8. 5)
$300–$499. 99	(4. 6)	(6. 5)	13. 1	11. 5	18. 4	(20. 1)
$500 and over	(4. 2)	(5. 5)	11. 0	25. 5	(22. 3)	(27. 9)

NOTE: Figures are shown in parentheses when the product of the percentages and the unweighted count of persons in the sample in the given age group is less than 10.

committee made its survey indicate considerable caution in using its data as a basis for appraising present-day medical expense patterns.

The HIF study reports $65 as the average gross charge for medical care per person in the total civilian population for 1952–53. This is exactly the same amount as the PHS study found for the urban population in 1950.

Average gross charges for children under 6 years of age are reported at $28 and for children 6–17 at $38 in the HIF study. Out-of-pocket expenses for children under 6 are estimated at $29 from the PHS study; out-of-pocket expenses for those 6–18, at $35. There is a similar close correspondence of the figures for persons in the adult ages, except that the HIF figures suggest a larger increase in expenditures for persons 65 years of age and over than is indicated by the PHS study. The HIF study shows a $102 average gross charge per person 65 and over; the PHS study indicates out-of-pocket costs of $83 per person 65 and over.

In part, the difference for the 65-and-over age group is attributable to the difference between gross charges and out-of-pocket medical care expense. Gross charges as defined in the Health Information Foundation study include amounts paid out for physician, hospital, dental, and other medical care services and for services received as insurance benefits. Out-of-pocket medical expense in the Public Health Service study does not include services received as insurance benefits but includes health insurance premiums paid. Benefits received by older people may exceed their own health insurance premiums. To the extent that this is so, health insurance may serve at present to spread the risk among age groups in the covered

Definition of Medical Care Expenditures

Medical care expense is defined in the Bureau of Labor Statistics study to include health insurance premiums paid by the family, medical expense incurred in cases of illness (other than expense covered by an insurance plan), and expenses for such items as routine physical and dental examinations and nonprescription drugs. Expenses were reported for care received during 1950 even though payments were not made until after the close of the year.

The family member interviewed was asked to report expenses for each of the following items of medical care for each family member:

Premiums. Premiums for 1950 for hospitalization, surgical, and medical service plans; premiums for 1950 for disability, health, and accident insurance.

Expenses while hospitalized. Room or ward; physician, specialist, and surgeon services; nursing services; all other charges for hospitalization (including laboratory tests, X-rays, etc.); ambulance services; combined bills (if separate items not shown).

Other medical care expenses. Physician, specialist, and surgeon services; dental care; chiropractor, faith healer, etc.; oculist, optometrist, eye glasses, etc.; laboratory tests (other than in connection with hospitalized illness); X-rays (other than in connection with hospitalized illness); nursing care at home; prescription and nonprescription drugs and medicines; appliances and supplies; other medical care expenses.

A single expense figure was reported on some schedules for the entire family. Typically, expenditures for drugs and those premiums paid for family insurance coverage were reported in this way. For the present study, allocations were made to individual family members on the basis of the interviewer's notes when such notes indicated an appropriate basis for apportionment to individuals. In other instances, drug expenditures were apportioned equally among family members, and insurance premiums were apportioned among the family members covered in accordance with the usual practice in insurance plans of differentiating premiums for individual and for family membership without scaling premiums to family size. Premiums were allocated in equal sums among family members 18 years of age and over covered by a single premium payment.

population, and benefits added to direct personal expenditures may be larger for the older age groups than their own out-of-pocket payments, including health insurance premiums paid.

Comparison of the distribution of persons by amount of charges also indicates a general similarity in the findings of the two studies. The proportion of persons with bills of $200 or more, for example, is 7 percent in the PHS study, and the proportion with bills of $195 or more is 8 percent in the HIF study. The HIF study consistently reports a larger proportion with "no charges" than the PHS study, but again the difference may be largely the result of differences in definition of medical costs. The former study relates exclusively to medical costs paid by the family or by the insurance plan; the latter includes premiums paid for protection, with the result that persons who receive no medical services but prepay for future expenses are reported as making an out-of-pocket expenditure for medical care.

Need for Additional Information

The information on medical charges of individuals was compiled by the Health Information Foundation as a part of a study principally concerned with the distribution of costs for personal health services among families and the effect of voluntary health insurance in spreading the costs. The Bureau of Labor Statistics recorded information on medical care spending for individual family members largely to improve the reporting of total family expenditures. Although the family unit is of considerable importance in assessing the economic burdens of medical care, data on spending of individuals are needed for many purposes and by many groups such as health insurance carriers concerned with planning medical care benefit and coverage programs. In developing additional studies on the economics of medical care, it would appear desirable to plan the collection of information about the medical care spending habits of individuals and to broaden the scope of knowledge about the variations in medical care expenses by age especially in relation to differences in sickness experience.

REFERENCES

(*1*) U. S. Bureau of Labor Statistics: Family income, expenditures, and savings in 1950: From survey of consumer expenditures in 1950. Preliminary report (revised). Bull. No. 1097. Revised. Washington, D. C., U. S. Government Printing Office, 1953.

(*2*) University of Pennsylvania. Wharton School of Finance and Commerce: Study of consumer expenditures, incomes, and savings. Philadelphia, 1956.

(*3*) Selection of cities for consumer expenditures survey, 1950. Reprinted from Monthly Labor Review, vol. 72, April 1951, as Serial No. R. 2060. Washington, D. C., 1951.

(*4*) Lamale, H. H.: Study of consumer expenditures, incomes and savings: A monograph of methodology. Philadelphia, University of Pennsylvania. To be published.

(*5*) Perrott, G. St.J., Goldstein, M. S., and Collins, S. D.: Health status and health requirements of an aging population. *In* Illness and health services in an aging population. PHS Pub. No. 170. Washington, D. C., U. S. Government Printing Office, 1952, pp. 1–25.

(*6*) Collins, S. D., Trantham, K. S., and Lehmann, J. L.: Sickness experience in selected areas of the United States. PHS Pub. No. 390. Public Health Monogr. No. 25. Washington, D. C., U. S. Government Printing Office, 1955.

(*7*) Collins, S. D.: A review of illness from chronic disease and its variation with age, sex, and season, with some trends. J. Chron. Dis. 1:412–441, April 1955.

(*8*) Anderson, O. W., and Feldman, J. J.: Family medical costs and voluntary health insurance: A nationwide survey. New York, N. Y., McGraw-Hill, 1956.