

Health Insurance Protection and Medical Care Expenditures: Findings From Three Family Surveys

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A recently published report of a nationwide survey¹ showed family medical costs in relation to ownership of voluntary health insurance. The present study, based on surveys of a smaller group of families in three areas, permits a similar examination of the effect of health insurance on family spending for medical care. The findings corroborate those of the national study in many respects. In addition, some special analyses that augment those contained in the nationwide survey were possible in this smaller study.

TO determine insurance consumption patterns, including life insurance, pensions and annuities, automobile, fire and theft coverage, and health insurance, surveys were made in 1953 and 1954 of 473 families in three different areas. The schedules provided for detailed information on expenditures for medical care; the extent to which hospitals and the services of physicians, surgeons and obstetricians, and dentists were used; and the amounts and types of health insurance benefits received by insured families.²

This study deals with the experiences of the 473 families—102 in Columbus, Ohio; 151 in New Haven, Connecticut; and 220 in Vermont. Taken together, though not a true cross section of the population, they appear to be representative of urban

and rural families in many respects. A total of 1,657 persons were members of the 473 families.

The field work for the original surveys was directed in New Haven by Theodore Anderson of the Department of Sociology of Yale University; in Vermont by the Department of Rural Economics of the University of Vermont; and in Columbus by The Ohio State University Research Foundation.

Expenditures for medical care, health insurance benefits received, and utilization of medical services during a 12-month period were recorded for each family. The Columbus families were interviewed in the summer of 1953, and the New Haven and Vermont interviews were held in 1954. The findings about the health insurance protection of the families in the three localities and the distribution of the various components of their medical care bills, when averaged, closely reflected the findings from studies of national medical care expenditures. It therefore seemed worthwhile to examine more closely the material collected through these family interviews and to amplify the material presented in the original studies. The data for the three localities have also been combined, and further analyses of the findings have been made.

The families studied fall in the category of "lower to upper middle-class" in income and other characteristics. The sample was drawn from among the holders of some form of

automobile insurance policy purchased from a mutual insurance company that had large numbers of policyholders in the three areas. The universe from which the random sample was drawn therefore excluded families that were not car owners, an approach that apparently excluded those with very low incomes. There seemed to be no reason to assume, however, that car-owning families would differ materially from all families in corresponding income brackets in the medical care that they received or in the health insurance that they owned. Rural families were overrepresented, since they made up 47 percent of the sample though nationally they represent only a third of all families.

The authors fully recognize the limitations inherent in the sample but believe that the confirmation of other studies and the opportunity afforded for analyzing family expenditures and medical care utilization in relation to ownership of health insurance make the findings of considerable interest.

Families in Survey

Ownership of insurance.—The families in the study were closely questioned about the kinds of health insurance policies they held. Each interview included questions as to which family members were covered for each type of protection (hospitalization, surgical, or medical expense insurance) and whether any member had more than one policy covering the same service.

When the replies were analyzed, respondents who were covered by a poliomyelitis-expense insurance policy were recorded as having some form of medical expense insurance. A total of 61 poliomyelitis-expense policies were reported; 13 were the only type of health insurance policy held, and 48 were supplemental to other types.

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¹ Odin W. Anderson with Jacob J. Feldman, *Family Medical Costs and Voluntary Health Insurance: A Nationwide Survey* (Health Information Foundation), McGraw-Hill Book Company, Inc., 1956.

² Some of the survey findings have already been reported. See Simon Dinitz, *Insurance and Socio-Economic Status: A Study of Coverages and Attitudes of Policyholders in Columbus, Ohio*, The Ohio State University Research Foundation, June 1954; and Simon Dinitz, *Insurance Consumption Patterns in Four Areas, Nationwide Insurance Companies*, September 1955.

Since no cross tabulations were prepared to indicate the types of basic coverage held by the 48 families who had both polio-expense insurance and some form of basic coverage, it has not been possible to treat the polio-expense insurance entirely separately in some of the tabulations. Nor was it possible to determine precisely how many persons were insured in the 61 families that had polio-expense insurance, since these data were merged with those on other forms of medical care insurance. It was assumed that each of the 48 families that owned both polio-expense insurance and some other insurance had about the same number of persons (3.6) as the 93 families that were recorded as having any form of medical expense insurance policy, since the majority of them had polio-expense insurance. The records showed that the 13 families with only a polio-expense policy included 43 persons.

Twenty-eight percent of the 473 families in the study had no health insurance of any type (table 1). Less than 3 percent had a polio-expense policy as their sole form of health insurance. In 11 percent of the families a hospitalization policy was the only insurance, unless they were among the holders of the 48 polio-expense policies that were not identified. Almost half the families (49 percent) had protection against the costs of

Table 1.—Families and persons in survey, by type of health insurance owned in survey year

Type of health insurance owned	Families		Persons	
	Number	Percent	Number	Percent
Total.....	473	100.0	1,657	100.0
None.....	133	28.1	586	35.4
Some type of health insurance.....	340	71.9	1,071	64.6
Polio-expense only.....	13	2.7	43	2.6
Other.....	327	69.1	1,028	62.0
Hospitalization only.....	50	10.6	164	9.9
Hospitalization and surgical.....	232	49.0	704	42.5
Hospitalization, surgical, and medical ¹	45	9.5	160	9.7

¹ Forty-eight families also had a polio-expense policy in addition to other types of insurance.

² An estimated 172 persons also had a polio-expense policy.

³ Medical expense insurance relates to in-hospital medical expenses and services in home and/or office; families with polio-expense insurance have not been counted as having medical expense insurance in this table.

Table 2.—Families and persons in survey, by place of residence, insured status, and type of health insurance owned

Insured status	Hospitalization insurance			Surgical insurance			Medical care insurance ¹		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Number									
Families, total.....	473	253	220	473	253	220	473	253	220
Insured.....	327	218	109	277	171	106	45	24	21
Not insured.....	146	35	111	196	82	114	428	229	199
Persons, total.....	1,657	753	904	1,657	753	904	1,657	753	904
Insured.....	1,028	634	394	864	482	382	160	74	86
Not insured.....	629	119	510	793	271	522	1,497	679	818
In insured families.....	91	35	56	78	22	56	15	(²)	(²)
In uninsured families.....	538	84	454	715	249	466	1,482	(²)	(²)
Percentage distribution									
Families, total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Insured.....	69.1	86.2	49.5	58.6	67.6	48.2	9.5	9.5	9.5
Not insured.....	30.9	13.8	50.5	41.4	32.4	51.8	90.5	90.5	90.5
Persons, total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Insured.....	62.0	84.2	43.6	52.1	64.0	42.3	9.7	9.8	9.5
Not insured.....	38.0	15.8	56.4	47.9	36.0	57.7	90.3	90.2	90.5
In insured families.....	5.5	4.6	6.2	4.7	2.9	6.2	0.9	(²)	(²)
In uninsured families.....	32.5	11.2	50.2	43.2	33.1	51.5	89.4	(²)	(²)

¹ Other than a polio-expense policy.

² Not available.

both hospitalization and surgery, and slightly less than 10 percent had some medical expense protection (other than a polio-expense policy) in addition to their hospitalization and surgical expense insurance—a proportion less than the national average in 1953.

That some members of the insured families were not themselves covered by the family insurance is indicated when the percentage of individuals having various forms of protection is compared with the percentage of families reported as having the same types of insurance. Thirty-five percent of the individuals but only 28 percent of the families had no type of insurance. More individuals had hospitalization and surgical expense insurance than any other type, but the percentage of covered persons was 42 percent compared with the reported coverage of 49 percent of the families.

The extent to which there are uninsured persons in insured families is shown more clearly in table 2. Ninety-one persons (6 percent of all the persons in the study and 8 percent of those in families insured against hospitalization costs) had no hospitalization insurance. Fewer families and fewer persons were insured for surgical expense than for

hospitalization costs, but, again, 8 percent of the members of insured families were not themselves insured for surgical expense. Only 10 percent of the families had any type of medical expense protection (excluding polio-expense insurance).³ About 10 percent of all individuals in the study had medical expense insurance, and this type of insurance was usually applicable to all family members.

There were marked differences in the extent of insurance protection held by urban and rural families. Because rural families were overrepresented in the study, with no weighting for this fact, a bias may have been introduced into the findings for the study group as a whole, although the presence of the rural families would tend to provide some correction for the absence of very low-income families. The insured rural families contained a larger proportion of uninsured individuals than did the urban families. This difference reflects the pattern of rural living; more often there are three generations living in one dwelling among rural families than among urban families.

³ When polio-expense policies are counted as providing medical expense insurance, 22 percent of the families are in this category.

Table 3.—Size of families and number of policies owned, by place of residence and type of health insurance in survey year

Place of residence	All families	Families with no insurance	Families with insurance		
			Hospitalization	Surgical expense	Medical and/or polio-expense
Average number of persons per family					
All families.....	3.5	3.7	3.4	3.4	4.0
Urban families.....	3.0	2.4	3.1	2.9	3.2
Rural families.....	4.1	4.1	4.1	4.1	4.2
Average number of insured persons					
Per insured family.....			3.1	3.1	3.5
Urban.....			2.9	2.8	2.9
Rural.....			3.6	3.6	4.2
Per policy.....			2.8	2.9	3.4
Average number of policies					
Per insured family.....			1.12	1.07	1.04
Urban.....			1.17	1.11	1.07
Rural.....			1.03	1.02	1.00
Per insured person.....			1.05	1.04	1.01

Size of family.—The 473 families were composed of 46 single persons, 427 husbands and 427 wives, and 757 other adults and children—3.5 persons per family unit (table 3). The urban families averaged three persons, and the rural families, 4.1 persons. There were 109 two-person families, and 318 families of more than two persons.

Insured urban families were larger, on the average, than uninsured urban families, but among rural families there was no difference in family size between insured and uninsured families. As would be expected, rural families with insurance contained more insured persons than did urban uninsured families, regardless of the type of insurance. It was also apparent that families holding polio-expense insurance policies, included in table 3 with other forms of medical expense insurance, were larger than average.

Still another difference between urban and rural families was in the extent of multiple policyholding, which was much more usual in urban than in rural families.

When family members had more than one insurance policy, the second policy generally covered only one person in the family. There were only 46 single persons in the survey, but 81 single policies covering hospital

care were recorded (table 4). In contrast, in a third of the multiple-member families there was no family coverage, though there may have been coverage for one family member from among the holders of the single hospitalization policies. Forty-three percent of the multiple-member families did not have surgical insurance applying to the whole family. Though only slightly more than half of all the hospitalization and surgical policies held were family policies, these poli-

cies covered 74 percent of all persons with such protection. Family hospitalization and surgical policies covering the husband, wife, and dependent children averaged about 4 persons per policy.

Utilization of medical care.—Only 13 percent of the families incurred no form of direct medical expense during the year; 30 of these 62 families had expenses for the purchase of health insurance, not counted as a direct medical expense. The percentage of all families incurring each type of direct medical expense follows.

Any form of medical expense.....	86.9
Physicians' nonsurgical expense.....	76.7
Surgical and obstetrical expense.....	16.9
Dental expense.....	41.0
Hospitalization expense.....	26.0
All other (prescriptions, drugs, appliances, nursing services, etc.).....	74.0

Data on a per person basis were available for three of the categories of medical expense. Of the individuals in the families studied, 43.3 percent had seen a physician one or more times, 4.4 percent required surgical services at least once, 0.9 percent received obstetrical services, and 8.1 percent were hospitalized one or more times. The hospital admission rate was 9.1 per 100 persons.

A total of 123 families had 135 persons hospitalized one or more times during the year; 151 admissions to hospitals were recorded. Fifteen

Table 4.—Health insurance policies held by insured families and persons, by number of persons covered, and type of health insurance policy in survey year

Policy coverage	Hospitalization insurance		Surgical insurance		Medical insurance and/or polio-expense	
	Policies	Persons	Policies	Persons	Policies	Persons
Number						
Total.....	1 368	1,028	2 297	864	3 110	4 375
1-person.....	81	81	54	54	15	15
2-person.....	95	190	84	168	22	44
Family.....	192	757	159	642	73	316
Percentage distribution						
Total.....	100.0	100.0	100.0	100.0	100.0	100.0
1-person.....	22.0	7.9	18.2	6.3	13.6	4.0
2-person.....	25.8	18.5	28.3	19.4	20.0	11.7
Family.....	52.2	73.6	53.5	74.3	66.4	84.3

¹ Held by 327 families.

² Held by 277 families.

³ Held by 106 families; 61 policies, held by 61 families, covered only polio-expense insurance; 49

policies, held by 45 families, applied to other forms of medical insurance.

⁴ Includes an estimated 215 persons with only a polio-expense policy.

admissions were for obstetrics, and 89, involving 73 persons, were for surgery; 47 persons in 43 families were hospitalized at least once for non-surgical reasons in the course of the year.

Expenditures for Medical Care

There were differences in the amount of medical care expenditures among insured and noninsured families as well as urban-rural differences. Urban families as a group spent on the average \$227 for all forms of medical care, and rural families spent \$136. Differences in average family expenditures were particularly striking for surgical and obstetrical care and for dental care and miscellaneous services, and they were more nearly comparable for hospitalization and physicians' services. In view of the larger size of the rural families, these differences are especially interesting.

Average family expenditure	Urban	Rural
Total.....	\$227	\$136
Hospitalization.....	54	42
Surgery and obstetrics.....	32	13
Physicians' services.....	52	39
Dentistry.....	44	22
Other.....	44	20

Over a 12-month period, the 473 families spent for medical care an aggregate of \$87,216, or an average of \$184 per family (table 5). The amount they spent to purchase health insurance protection is not known. Sixty-two families reported no expenditures of any kind for medical care;

the 411 families that had expenditures spent, on the average, \$212. Ninety-nine families, 29 percent of the families with some form of insurance, were paid insurance benefits totaling \$16,912. This amount is equivalent to 19 percent of the gross costs incurred by all the families; insurance benefits, which averaged \$35 among all families, reduced their average expenditure from \$184 to \$149.

Items included in the most usual types of insurance coverage—that is, hospitalization and surgery and obstetrics—accounted for 39 percent of the total of \$87,216. Physicians' non-surgical services accounted for a fourth of all expenditures, and dental care for nearly a fifth.

The distribution of expenditures among the families classified as insured differed somewhat from those of the families with no form of health insurance. Proportionately more of the total expenditures of insured families than of uninsured families went to surgeons and dentists and for miscellaneous items. When the expenditures, before insurance benefits are taken into account, are put on a per family or per capita basis, insured families on the average spent \$53 more a year than noninsured families (\$18.50 more per capita), and their gross expenditures for each item were larger. The two groups spent about the same amounts for physicians' services, other than those for surgery and obstetrics, but insured families spent more on the average for every other item of medical expense. On a per capita basis the dif-

Table 6.—Gross expenditures for medical care and net expenditures after insurance benefits for families and persons using services, by place of residence and type of service used

Type of user	Total	Hos- pital care	Physicians' services	
			Medi- cal care	Sur- gery and obstet- rics
Gross expenditures				
Family.....	\$212	\$186	\$60	\$137
Urban.....	243	189	64	148
Rural.....	171	181	55	113
Person.....	-----	169	30	124
Net expenditures after insurance benefits				
Family.....	171	99	56	77
Urban.....	187	74	59	75
Rural.....	150	134	52	81
Person.....	-----	90	28	70

ferences were even more striking because the noninsured families contained slightly more members (3.69) than the insured families (3.43).

Because the number of families and of persons using hospitals and the services of physicians and of surgeons and obstetricians was known, expenditures could be shown on a per user basis for the three main items of medical expense and related to all expenditures for families incurring any medical expense whatsoever.

When data are shown on the amounts used per family or per individual (table 6), the differences between urban and rural family costs

Table 5.—Expenditures for medical care and amounts per family and per capita, by type of medical expense in survey year

Type of medical expense	Total expenditures						Expenditures per family ²			Expenditures per capita ³		
	Amount			Percentage distribution			Total	Insured families ¹	Uninsured families	Total	Insured families ¹	Uninsured families
	Total	Insured families ¹	Uninsured families	Total	Insured families ¹	Uninsured families						
Total.....	\$87,216	\$67,763	\$19,453	100.0	100.0	100.0	\$184.39	\$199.30	\$146.26	\$52.63	\$58.12	\$39.62
Physicians' services.....	32,762	24,523	8,239	37.6	36.2	42.4	69.26	72.13	61.95	19.77	21.03	16.78
Medical care.....	21,812	15,734	6,078	25.0	23.2	31.2	46.11	46.28	45.70	13.16	13.49	12.38
Surgery and obstetrics.....	10,950	8,789	2,161	12.6	13.0	11.1	23.15	25.85	16.25	6.61	7.54	4.40
Hospital care.....	22,864	17,341	5,523	26.2	25.6	28.4	48.34	51.00	41.53	13.80	14.87	11.25
Dentistry.....	16,721	13,448	3,273	19.2	19.8	16.8	35.35	39.55	24.61	10.09	11.53	6.67
Drugs and prescriptions.....	11,200	9,079	1,521	12.8	14.3	7.8	23.68	28.47	11.44	6.76	8.30	3.10
Other.....	3,669	2,772	897	4.2	4.1	4.6	7.76	8.15	6.74	2.21	2.38	1.83

¹ The 340 families with any form of health insurance.
² Includes families with no expenditures.

³ Includes persons with no expenditures.

Table 7.—Total expenditures of all insured families¹ for medical care met by insurance benefits and net expenditures after insurance benefits, per family and per capita, by type of medical expense in survey year

Type of medical expense	Total expenditures				Expenditures per family		Expenditures per capita		Net expenditures as percent of total
	Amount		Percentage distribution		Met by insurance benefits	Net	Met by insurance benefits	Net	
	Met by insurance benefits	Net	Met by insurance benefits	Net					
Total.....	\$16,912	\$50,851	100.0	100.0	\$49.74	\$149.56	\$14.50	\$43.61	75.0
Physicians' services.....	6,204	18,319	36.7	36.0	18.25	53.88	5.32	15.71	74.7
Medical care.....	1,417	14,317	8.4	28.2	4.17	42.11	1.22	12.28	91.0
Surgery and obstetrics.....	4,787	4,002	28.3	7.9	14.08	11.77	4.11	3.43	45.5
Hospital care.....	10,678	6,663	63.1	13.1	31.41	19.60	9.16	5.71	38.4
Dentistry.....	20	13,418	.1	26.4	.06	39.46	.02	11.51	99.8
Drugs and prescriptions.....		9,679		19.0		28.47		8.30	100.0
Other.....	10	2,772	.1	5.5	.03	8.15	.01	2.38	100.0

¹ The 340 insured families include 1,166 persons.

for medical care are again apparent. The effect of the lack of health insurance among a relatively large proportion of the rural group then shows up, since their net costs (for insured and uninsured families combined) are larger than those for urban families for hospitalization and surgery although their gross costs were smaller. Data were not analyzed on a per capita basis for urban and rural residents separately.

Relation of benefits to expenditures.—The data presented in table 5 do not take into account the insurance benefits that 99 of the 340 insured families received to offset some of their expenditures. Table 7 deals with the effect that the \$16,912 received in insurance benefits had on expenditures among the 340 insured families. Sixty-three percent of this amount was applicable to the costs of hospitalization. As a result, the costs that the families had to meet directly, out of pocket, were redistributed, and more than 50 percent was accounted for by expenditures for dentistry, drugs and prescriptions, and items classified as "other." Physicians' services remained at 36 percent of total net expenditures, but the percentage going for hospital care was cut in half. The insured families met 25 percent of their total expenditures through insurance benefits, and they paid 75 percent directly.

Table 7 also shows the average size of the insurance benefits received. They varied from \$31.41 per family

for hospitalization to \$4.17 per family for medical services. On a per capita basis the benefits received were about a third the size that they were on a per family basis.

Many of the 340 insured families had no occasion to file a claim for benefits, but 99 (29 percent) actually received insurance payments that offset their gross expenditures. The 99 families spent a total of \$39,502 in the 12 months of the study. Their combined expenditures amounted to 45 percent of the expenditures of all the families studied and 58 percent of the total expenditures of insured families. Their expenditures before the insurance benefits were deducted equaled \$399 a family. Among individual families the outlay for medical care ranged from less than \$100 to \$2,326. Table 8 shows that expenditures for hospital care, before insurance benefits were deducted, loomed large and that expenses for surgery were also an important item. Neither finding is unexpected, since these were the families that benefited from their health insurance and hospitalization and surgical expense insurance were the two types most widely held.

Insurance benefits covered 43 percent of all expenditures among these families. The families still paid out an average of more than \$200, including nearly \$80 for hospitalization and surgery. Part of this expenditure undoubtedly arose among families that incurred surgical expense but did not have a policy covering surgical

care. The family incurring the bill of \$2,326 was unusually fortunate in one respect; insurance covered 92 percent of its total expenditures.

Size of family expenditures.—The analyses up to this point have been in terms of types of expenditures, average expenditures, and insurance benefits for the various items of medical expense. Table 9 shows the distribution of the families and their expenditures in terms of the aggregate amounts spent in the course of the year.

Expenditures of less than \$100 were recorded by 52 percent of the families, with 13 percent spending nothing and 39 percent spending \$1-\$99. Relatively more uninsured than insured families incurred medical expenses of less than \$100. In general, declining proportions of families experienced the larger expenditures. At the far end of the scale, proportionately more insured than noninsured families had expenditures of \$500 or more.

About a fourth of all expenditures were made by the families who spent \$500 or more during the year. Though insurance benefits were somewhat concentrated at the \$500-\$999 expenditure level, the net costs to the insured families—after insurance benefits were deducted—were also large for families with expenditures in this interval. Families with expenditures of \$100-\$299 and \$400-

Table 8.—Gross and net expenditures for medical care and amount of insurance benefits among 99 families in survey year

Type of medical expense	Gross expenditures	Insurance benefits	Net expenditures	Insurance benefits as percent of total expenditures
Average per family.....	\$399.01	\$170.83	\$228.18	42.8
Total, amount.....	\$39,502	\$16,912	\$22,590	42.8
Total, percent.....	100.0	100.0	100.0	-----
Physicians' services.....	35.3	36.7	34.3	44.5
Medical care.....	16.5	8.4	22.6	21.7
Surgery and obstetrics.....	18.8	28.3	11.7	64.5
Hospital care.....	40.5	63.1	23.6	66.7
Dentistry.....	11.5	.1	20.0	.4
Drugs and prescriptions.....	9.8		17.1	-----
Other.....	2.9	.1	5.0	.9

Table 9.—Number of families and expenditures for medical care among uninsured and insured families, by amount of expenditure, survey year

Amount of expenditure	Number of families			Expenditures					Insurance benefits as percent of total expenditures
	Total	Un-insured	Insured	Total	Un-insured families	Insured families			
						Gross	Met by insurance benefits	Net	
Total.....	473	133	340	\$87,216	\$19,453	\$67,763	\$16,912	\$50,851	-----
Percent.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	25.0
No expenditures.....	13.1	22.6	9.4	-----	-----	-----	-----	-----	-----
\$1-99.....	39.3	43.6	37.6	9.7	13.5	8.6	1.7	10.9	5.1
100-199.....	17.5	12.8	19.4	13.5	10.9	14.2	5.2	17.3	9.0
200-299.....	9.7	5.3	11.5	12.8	8.6	13.9	7.8	16.0	14.0
300-399.....	5.5	4.5	5.9	10.3	10.7	10.2	15.7	8.3	38.6
400-499.....	5.9	3.8	6.8	14.9	12.0	15.5	10.8	17.0	17.4
500 and over.....	8.9	7.5	9.5	39.2	44.2	27.5	58.7	30.4	-----

had incurred expenses for hospitalization and for surgery, and their insurance—particularly their hospitalization insurance—was of great assistance to them.

The average expenditure for the 42 families was \$811; the range was from \$500 to \$2,326. Seventy-four percent of the costs went for hospital bills and physicians' and surgeons' charges. The balance was for services and items not usually covered under existing forms of health insurance—even under such policies as those classified as major medical expense insurance.

Expenditures of the families with no insurance protection closely paralleled those of the families that collected insurance benefits. Seventy-nine percent of their expenses were for hospital bills and physicians' and surgical services, but a much larger proportion was for nonsurgical services of physicians for this group than for families aided by insurance. Both groups spent about equal proportions for dental services.

The insured families that did not have occasion to make an insurance claim had their heaviest expenses for nonsurgical physicians' services, drugs, and dental services. These families spent an average of \$144 on dental care—nearly three times the average for all families in the study. Thus dental expenses obviously loomed large among the outlays that put their total medical expenses for the year over \$500. Hospitalization, surgery, and all other services accounted for only 28 percent of their expenses. It is assumed that the families in this group were unable to file insurance claims for one or more of the following reasons: (1) their expenses were largely for physicians' nonsurgical services or for dental services, drugs, or other items to which their policy did not apply; (2) their insurance applied only to poliomyelitis or to a hospitalization or surgical operation, and their expenses did not involve these services; and (3) the expenditures were incurred for one of the uninsured members of the insured family.

Insurance met 68 percent of hospital care costs for the families that benefited from having health insurance protection. Surgeon's bills ac-

\$499 appeared to have received the smallest proportionate benefit from their insurance. Among the families who received insurance benefits, the proportion met by insurance rose somewhat as expenditures increased. The size of the sample produced some fluctuations.

In determining the effect of various forms of health insurance in assisting families to meet their medical expenses, it is sometimes useful to know the proportions of expenditures falling above and below certain levels. Table 10 shows the percentage of families whose expenses exceeded various levels annually and the percentage of their expenditures, as averaged among the families at each level, that were represented by expenditures above the designated level. These data do not take into consideration any insurance benefits received.

Families spending \$500 or more.—Nine percent of the families in the study spent between \$500 and \$2,400 for all forms of medical care in the 12 months preceding the survey. These 42 families represented slightly less than 10 percent of the 411 families who incurred some form of medical expense. Among these families with very large expenditures, 39 percent of the total was attributable to that part of their expenses exceeding \$500. It is of interest that among families spending more than \$500, 55 percent of the costs they incurred was for hospitalization and for surgery and obstetrics. The proportion going

for other physicians' services, for dentistry, and for all other items was less than for all families in the study. Among the much larger group of families spending less than \$500, 23 percent was for dentistry and 29 percent was for nonsurgical physicians' services.

More than half the families that spent more than \$500 were aided by their health insurance, which met 47 percent of their combined expenditures (table 11). Seven other families with large expenses were classified as covered by some form of health insurance, but their expenses were not reimbursable. The remaining families with bills of \$500 or more had no form of health insurance to assist them in meeting their large medical expenses. They included three of the families incurring the highest costs of any of the families in the study. Most of the families

Table 10.—Percent of families with expenditures for medical care above specified levels and the amounts above levels as percent of total expended, survey year

Level of total expenditures ¹	Percent of all families			Amount above specified level as percent of total expended		
	Total	Insured	Uninsured	Total	Insured	Uninsured
\$400 or more	12.7	13.2	11.3	21.6	20.6	25.4
\$300 or more	18.2	19.1	15.8	31.0	30.0	34.6
\$200 or more	30.0	33.5	21.1	44.3	43.5	46.8

¹ Before insurance benefits were deducted.

counted for 23 percent of their aggregate bills, but 65 percent of this cost was also covered by insurance. Thirty percent of their physicians' bills was met by insurance.

Major Medical Expense Insurance

The data on expenditures among the families in the study lend themselves to an exploration of the theoretical effect on out-of-pocket expenditures of the addition of a "major medical expense" policy to the basic coverage held by the insured families. The analysis assumed a major medical expense policy with the following provisions: (a) the insured family would pay out of pocket a fixed deductible amount, called a "corridor," over and above any basic benefits received before benefits under the policy could be claimed; and (b) the major medical expense policy would reimburse the insured for 75 percent of the amounts to which the policy was applicable (table 12). Corridors of three different sizes were postulated. It was further assumed that the major medical expense policy would apply to a family's entire expenditures within a year, including the cost of dentistry. This assumption is broader than the usual terms of major medical expense insurance, which rarely covers dentistry or permits accumulation of expenses among all family members on an annual basis.

The 340 insured families spent a

total of \$67,763 and received \$16,912 in basic benefits, leaving them a total of \$50,851 to pay directly. Basic insurance benefits met 25 percent of their total expenditures. The other percentages shown in table 12 were derived by first distributing the families according to the size of their gross expenditures and then determining the amounts each family would have spent out of pocket after (1) insurance benefits were taken into account and (2) the indicated amount of the deductible corridor was taken out for each family whose out-of-pocket expenditures were sufficiently large to put them within reach of the postulated major medical expense benefits. The expenditures remaining after these deductions from total out-of-pocket expenditures were then distributed on the basis of 75 percent paid by the major medical expense policy and 25 percent by the family.

When it is assumed that each family pays a corridor of \$100 over and above the basic insurance benefits, 128 families with net expenditures totaling \$5,528 would not have qualified for benefits from major medical expense insurance. There remain 180 families who would have had to pay the corridor amount before they could file a claim for major medical expense. At \$100 per family, their deductible corridor would have equaled \$18,000, leaving \$27,323 against which the major medical expense benefit of 75 percent could be claimed. Their benefits would equal 30.0 percent of

Table 12.—Theoretical distribution of expenditures for medical care, assuming ownership by families of a major medical expense policy in survey year

Item	Expenditures, assuming a policy with a deductible corridor ¹ above basic benefits of—		
	\$100	\$150	\$200
Total expenditures...	100.0	100.0	100.0
Total insurance benefits...	55.2	46.5	40.2
Basic insurance benefits	25.0	25.0	25.0
Major medical expense benefits ²	30.2	21.5	15.2
Total out-of-pocket expenditures.....	44.8	53.5	59.8
Deductible corridor.....	³ 34.7	⁴ 46.3	⁵ 54.7
Coinsurance ⁶	10.1	7.2	5.1

¹ The amount the insured pays out of pocket before major medical expense benefits are applicable.

² 75 percent of balance after basic insurance and deductible corridor are subtracted from total expenditures.

³ 180 families would pay the deductible amount (the expenses of 160 families were less than \$100).

⁴ About 114 families would pay the deductible amount (the expenses of about 226 families averaged less than \$150).

⁵ 114 families would pay the deductible amount (the expenses of 226 families were less than \$200).

⁶ 25 percent of the balance after basic insurance benefits and the deductible corridor are subtracted from total expenditures.

their total expenditures. If the deductible corridor is raised to \$150 or to \$200 for each family, 194 families with net expenditures of \$14,308 would not qualify for the additional insurance, and the corridor to be paid out of pocket would rise to \$17,100 (at \$150) or \$22,776 (at \$200). The fraction remaining, against which the benefit of 75 percent of costs could be claimed, would become relatively small, and the major medical expense benefit would equal either 21.5 percent (for the \$150 corridor) or 15.2 percent (for the \$200 corridor) of total expenditures.

As already indicated, these are maximum figures for this group of families, since it was assumed that the insurance would cover dental expenditures, which amounted to \$13,448, and all types of drug purchases, and that expenditures throughout the year among all family members could be accumulated. In actual practice only the families in which a family member had an expensive illness would have been able to claim major medical expense benefits.

Summary

Three facets of the economics of medical care among a group of 473

Table 11.—Expenditures for medical care among 42 families spending \$500 or more, by insured status and receipt of benefits, and percentage distribution by type of medical expense in survey year

Type of medical expense	Total	Insured families			Uninsured families	Insurance benefits as percent of total expenditures
		Total	Receiving insurance benefits	Not receiving insurance benefits		
Total amount.....	\$34,064	\$25,462	\$20,988	\$4,474	\$8,602	¹ \$9,937
Percent of expenditures of all families ²	39.1	29.2	24.1	5.1	9.9	³ 58.8
Total percent.....	100.0	100.0	100.0	100.0	100.0	47.3
Hospital care.....	36.6	37.4	42.4	14.3	34.2	67.7
Physicians' services.....	37.3	34.9	35.7	31.2	44.5	52.1
Medical care.....	18.8	15.3	13.0	26.2	29.1	29.8
Surgery and obstetrics.....	18.5	19.6	22.7	5.0	15.4	64.8
Dentistry.....	11.2	11.7	9.4	22.5	9.7	1.0
Drugs and prescriptions.....	10.7	12.2	9.9	23.1	6.2	-----
Other.....	4.2	3.8	2.6	8.9	5.4	-----

¹ Amount of benefits.

² Total expenditures of specified families as a percent of \$87,216.

³ Benefits received as a percent of total insurance benefits (\$16,912) received by all families.

families were examined in the course of this analysis. They include (1) the health insurance protection that the families had available; (2) the distribution of their medical care dollars among six classes of expenditures; and (3) the distribution of expenditures for medical care by the size of the annual expenditures. Some of the interplay of these three factors of medical economics has been shown.

The study provided data on the kinds of health insurance held by 340 of the families and showed differences in protection between urban and rural families. The findings about the health insurance holdings of these families appear especially significant in relation to national estimates of the number of persons having various types of health insurance. First, multiple policyholding appears to take the form of additional policies applying only to a single member of a family unit. While 1 in 8 families reported having more than one hospitalization policy, in terms of the persons making up these families and with the nonprotected members of the family unit excluded, only 1 in 20 insured persons had more than one hospitalization policy.

Second, multiple policyholding occurs more often in hospitalization insurance than in surgical insurance (1.125 hospitalization policies per insured family compared with 1.070 surgical policies) and more frequently among urban than among rural families.

Third, between 5 percent and 8 percent of the members of insured families in the study were not included in the family policy. Presumably these persons were adult dependents and therefore ineligible for coverage under the terms of the family policy. This finding was more pronounced for rural families.

Finally, the study indicates that insured families may contain fewer members than noninsured families and that there are urban-rural differences in the size of insured families. The rural Vermont families insured for hospitalization had an average of 3.61 members, compared with 3.03 in Columbus and 2.83 in New Haven. While it is true that uninsured Vermont families had 4.10 members on the average, compared with 2.22

members in the Columbus families and 2.60 in the New Haven families, the larger size of the uninsured rural families more than offset the opposite findings among the uninsured urban families. Nationally, urban families are overrepresented in health insurance enrollment, and rural families are underrepresented. Care should be exercised in estimating the number of dependents per family included under a group policy in the many situations where only a count of subscribers is available, since group-enrollment data generally apply to urban families.

The study afforded an opportunity to contrast the ways the medical care dollar is spent by the families that have health insurance protection against part of their anticipated medical expenditures and those lacking any protection. Both groups spend approximately equal amounts for non-surgical physicians' services, a type of medical cost incurred by more than three-fourths of the families and infrequently and inadequately covered by insurance. This expenditure is the only point of similarity between the expenditures of insured families as a group and those of uninsured families as a group. It is problematical whether the higher level of expenditures of insured families for such services and supplies as dentistry and drugs and prescriptions stems from inherent differences in the two groups or can be attributed to the availability of protection against part of the expenses they may incur. Some of the variation relates to differences in the cost of medical care in urban and rural settings. Differences in income level, health consciousness, age, state of health, and so forth may be contributing factors. It is interesting to observe that the net costs that were borne directly by insured families were larger than the entire expenditures of the uninsured families. If expenditures for the purchase of health insurance had been known and these amounts included as additional costs, the difference would have been much greater.

The marked differences between insured and uninsured families in their gross expenditures for the two items most usually included in the protection available to the insured families

—hospitalization and surgical-obstetrical services—lead to speculation regarding the impact of insurance on the insured family's receipt of these two items. Is there greater morbidity requiring these services among the insured persons, or are they freer, because of prepayment, to enter hospitals and perhaps remain longer? To what extent does the knowledge that the patient has insurance affect the size of the charges or the decision to perform an operation? What factors affect the larger expenditures among insured families for dental services and for drugs and prescriptions, items for which neither group has prepaid protection? Such questions cannot be categorically answered; they have been posed to illustrate the fact that prepayment is affecting the economics of medical care in a number of ways.

The study has called attention to the impact of dental care on family spending for health and to the possibility of a relationship between the ability to budget for other forms of medical care and the use of a larger segment of the medical dollar for dental services.

Finally the study provided data for an examination of the distribution of families by the amounts they spend annually for medical care, and of the reduction in direct expenditures resulting from basic health insurance benefits at different levels of expenditure. An exploratory testing of the reduction in direct expenditures that might result from the benefits of insurance policies containing deductible amounts, coinsurance features, and a high maximum payment showed that even a corridor of \$100 leaves a large segment of family expenditures to be paid directly. This exploration points to the need for further family expenditure studies of sufficiently large scale to permit identification of the causes of large expenditures according to their nature—hospitalization, surgery, and dentistry—and according to family income and age composition. Perhaps it will then be possible to design more effective forms of major medical expense insurance than those currently available.

The relationship of the percentage
(Continued on page 31)

Table 11.—Aid to dependent children: Recipients and payments to recipients, by State, August 1956¹

[Includes vendor payments for medical care and cases receiving only such payments]

State	Number of families	Number of recipients		Payments to recipients			Percentage change from—			
		Total ²	Children	Total amount	Average per—		July 1956 in—		August 1955 in—	
					Family	Recipient	Number of families	Amount	Number of families	Amount
Total.....	607,755	2,231,976	1,693,529	\$54,706,719	\$90.01	\$24.51	(³)	+0.6	(⁴)	+3.7
Alabama.....	19,794	76,724	59,046	817,220	41.29	10.65	+0.7	+9	+6.9	-8
Alaska.....	1,339	4,683	3,464	115,593	86.33	24.68	-1.7	-1.4	+10.7	+5.6
Arizona.....	4,830	18,755	14,236	493,717	102.22	26.32	+7	+8	+2.6	+11.2
Arkansas.....	7,370	27,804	21,611	411,913	55.89	14.81	+1.1	+1.0	-2.4	-1.0
California.....	50,490	175,189	134,936	6,337,769	125.53	36.18	-1.6	-1.3	-6.0	-6.7
Colorado.....	5,747	21,960	16,953	630,463	109.70	28.71	+2	+3	+1	+2.0
Connecticut.....	5,350	17,304	12,903	763,869	142.78	44.14	+2	+2.1	+1.1	+2.8
Delaware.....	1,148	4,439	3,405	95,539	83.22	21.52	-8	-2.1	+7.6	+4.2
District of Columbia.....	2,125	9,141	7,142	224,923	105.85	24.61	+6	+1.0	+2.3	+5
Florida.....	21,594	76,950	58,952	1,193,768	55.28	15.51	+6	+8	+2.4	+3.1
Georgia.....	13,996	50,983	38,965	1,050,349	75.05	20.60	-1.1	-1.2	-2.2	-2.3
Hawaii.....	2,821	10,755	8,589	287,217	101.81	26.71	-4.1	+3.9	-13.1	-12.1
Idaho.....	1,733	6,259	4,598	221,909	128.05	35.45	+4	+5	-3.2	-2.8
Illinois.....	24,941	99,472	74,584	3,514,485	140.91	35.33	-3	+2.4	+17.8	+24.1
Indiana.....	8,741	30,960	23,038	806,036	92.21	26.03	+4	+4	+4	+3.9
Iowa.....	6,808	24,586	18,330	767,091	112.67	31.20	+2	+7	+4.8	+8.6
Kansas.....	4,576	16,768	12,950	518,518	113.31	30.92	+7	+2.3	+4.5	+7.8
Kentucky.....	18,729	68,006	51,123	1,197,846	63.96	17.61	+1	+2	-1.0	-5
Louisiana.....	19,777	77,618	59,297	1,455,418	73.59	18.75	+1.8	+2.3	+6.6	+19.8
Maine.....	4,339	15,037	10,876	365,763	84.30	24.32	-9	-7	0	-3
Maryland.....	6,302	25,811	20,050	613,920	97.42	23.79	+1.2	+2.1	+1.6	+3.4
Massachusetts.....	12,448	41,579	30,857	1,738,691	139.68	41.82	-7	+3.1	-3.4	+6.2
Michigan.....	18,974	66,502	48,764	2,219,105	116.96	33.37	(⁵)	+3	-3.8	(⁵)
Minnesota.....	7,985	27,093	20,833	989,171	123.88	36.51	+1	-2.7	+2.1	+4.6
Mississippi.....	11,653	43,086	33,560	323,141	27.73	7.50	-1	(⁵)	-8.0	+15.2
Missouri.....	19,939	71,664	53,590	1,426,762	71.56	19.91	-1.3	-3	-8.5	-3.9
Montana.....	1,973	7,085	5,447	212,094	107.50	29.94	+5	-1	-1.5	+3
Nebraska.....	2,740	10,052	7,546	269,959	98.53	26.86	+6	+7	+9.0	+13.3
Nevada.....	499	1,740	1,325	45,119	90.42	25.93	+2.9	+4.4	+172.7	+182.0
New Hampshire.....	921	3,390	2,540	123,069	133.63	36.30	-1.6	-4	-6.0	-1.7
New Jersey.....	6,518	21,492	16,198	792,823	121.64	36.89	+9	+1.4	+8.8	+11.3
New Mexico.....	6,083	22,756	17,413	520,622	85.59	22.88	(⁵)	+4	+8	+25.2
New York.....	54,116	199,913	148,586	7,597,594	140.39	38.00	+5	+1.5	+7	+4.7
North Carolina.....	18,653	71,783	54,996	1,170,235	62.74	16.30	-6	-7	+6	+1.7
North Dakota.....	1,617	5,925	4,545	195,684	121.02	33.03	+4	+1	+9.0	+13.0
Ohio.....	17,258	66,072	50,249	1,552,029	89.93	23.49	+4	+8	+8.6	+3.1
Oklahoma.....	15,717	52,940	40,327	1,309,524	83.32	24.74	+6	+1.6	0	+7.8
Oregon.....	3,005	10,445	7,724	378,548	125.97	36.24	+3	+2.1	-4.5	+4.7
Pennsylvania.....	29,256	112,542	85,327	3,178,575	108.65	28.24	+1.6	+3.3	+2	+4.1
Puerto Rico ⁶	43,000	151,200	116,100	487,500						
Rhode Island.....	3,458	12,079	8,951	397,068	114.83	32.87	+3	+7	-1.3	+2.9
South Carolina.....	7,945	30,615	23,902	376,292	47.36	12.29	-7	-9	-3.3	-3.7
South Dakota.....	2,771	9,282	7,071	233,014	84.09	25.10	+7	+5	+9	+2.1
Tennessee.....	19,494	70,557	52,780	1,219,536	62.56	17.28	+1	+4	-6.5	-2.6
Texas.....	21,252	86,558	65,578	1,377,325	64.81	16.91	-7	-9	-7.8	+6.0
Utah.....	2,826	9,865	7,301	316,474	111.99	32.08	-2	+3	-5.2	-5.7
Vermont.....	1,062	3,639	2,715	83,500	78.63	22.95	-1.5	-2.3	-1.9	-3.0
Virgin Islands.....	240	871	715	8,297	34.57	9.53	+4.3	+3.5	+15.4	+14.0
Virginia.....	8,809	34,535	26,809	595,589	67.61	17.25	-6	-1.1	+9	+4.1
Washington.....	8,798	30,506	22,508	1,078,092	122.54	35.34	-1.0	-1.7	+2.1	+5.4
West Virginia.....	17,746	67,161	52,088	1,423,871	80.24	21.20	-2	-3	-2.3	+7.2
Wisconsin.....	7,879	27,792	20,568	1,120,491	142.21	40.32	-5	-3.3	-1.0	-6
Wyoming.....	570	2,053	1,568	63,599	111.58	30.98	+5	+6	+3.4	+6.4

¹ For definition of terms see the *Bulletin*, January 1953, p. 16. All data subject to revision.

² Includes as recipients the children and 1 parent or other adult relative in families in which the requirements of at least 1 such adult were considered in determining the amount of assistance.

³ Increase of less than 0.05 percent.

⁴ Decrease of less than 0.05 percent.

⁵ In addition, supplemental payments of \$175,444 were made from general assistance funds to 4,749 families.

⁶ Estimated.

SURVEY OF FAMILY MEDICAL CARE COSTS

(Continued from page 10)

of coinsurance to the net effect of these policies on a family's own liability is of less significance than the size of the corridor. In the example presented in table 12, a shift of 5 percent in the coinsurance—from the 25 percent used to 20 percent—would have reduced the family's direct out-

lay by 2 percent when the corridor was \$100 and by 1 percent when it was \$200. On the other hand, improvement in the benefits provided by the basic insurance coverage would have reduced direct family expenditures in almost the same ratio that benefits represented of total family expenditures.

This study, though small in scale, offers concrete evidence that health

insurance is doing much to assist families in meeting medical care costs; it also shows that there is room for improvement. Rural families, which are larger than the average family, would benefit if they were protected in the same proportions as urban families. A period of stocktaking appears to be desirable to determine the directions improvements should take.