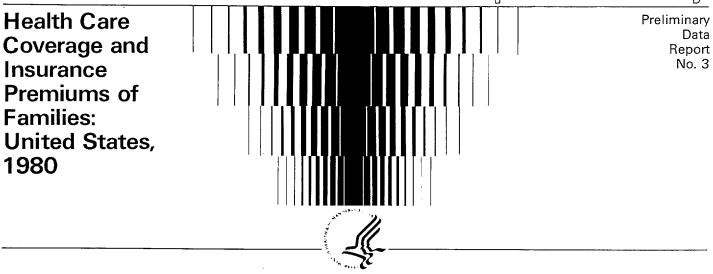
National Medical Care Utilization and Expenditure Survey



by Marvin Dicker, Ph.D., Division of Health Interview Statistics, National Center for Health Statistics

Overview

Introduction

Health care costs as a proportion of the gross national product continue to increase year by year (National Center for Health Statistics, 1982). To construct policies that will alter this situation, it is necessary to have accurate information about health insurance coverage, payment of premiums, and out-of-pocket expenses. Because the family is the basic unit of health care consumption and expenditure, knowledge of its health care financing experience is needed. This preliminary report presents information on sources of coverage and on private health insurance premiums for families categorized by selected socioeconomic, demographic, and health characteristics in 1980.

The Survey

The data in this report were collected during the first 6 months of the 1980 National Medical Care Utilization and Expenditure Survey conducted by the National Center for Health Statistics. The survey consisted of three separate components: a national household survey of about 6,600 families accounting for about 17,900 people, a survey of Medicaid cases and associated family members in four States (New York, Michigan, Texas, and California) that involved about 4,000 families and about 13,700 persons, and a survey of the Medicaid and Medicare administrative records of persons included in both the national and State surveys. The national household survey was a longitudinal panel survey; that is, the same families and persons were repeatedly surveyed about their health care experiences from January 1, 1980, through December 31, 1980. This survey consisted of five rounds of interviews, and the data in this report come from the first two rounds.

Families

For this report, the family is constituted as found in the first interview and is defined as either two or more persons residing together in a common household who are related by blood, marriage, adoption, or foster parentage (multiple-person family) or a person living alone or with others in a social relationship that does not constitute a multiple-person family (one-person family). Unmarried students 17 years of age and over living away from home at the time of the first interview are considered to be separate families. This report differs, therefore, from others that include students 17–22 years of age as part of the family of origin. The multipleperson family concept also includes cohabiting persons who define themselves as families at the time of the interview.

Health Care Coverage

A family was considered to have health care coverage if one or more of its members was covered by at least one private health insurance plan or at least one public health care program. Therefore, some of the families coded as having health care coverage may include members who do not have coverage. The exact proportion of all families in this category has not been determined. However, a study by the National Center for Health Services Research estimated that in 1977 12.5 percent of all multiple-person families in the United States had coverage for at least one member but not for all (Kasper, Walden, and Wilensky, 1981).

As no distinction is made in this report between families having complete or incomplete coverage, so, also, no distinction is made between families covered by a single plan and families covered by multiple plans. One exception, however, is the category in Tables 1–5 labeled "public and private coverage combined." The families in this category are covered by both public programs and private insurance plans.

Public health care coverage was defined as a family having at least one member who was covered by one of the following: Medicare; Medicaid; Civilian Health and Medical Program for Uniformed Services; Civilian Health and Medical Program for Veterans Administration; the Indian Health Service and similar plans; or any other type of public assistance program, whether Federal, State, or local, that paid for medical or dental services. All other health care coverage was considered to consist of private health insurance plans.

Family Characteristics

Five family characteristics are examined in this report. Three are characteristics of the family as a whole: family size, family income, and family employment status. The other two involve characteristics of the family head: the age of the family head and the respondent's rating of the health of the family head.

Standard Errors of Proportions and Means

Because estimates presented in this report for populations and premiums are derived from a sample, an estimate may differ from the true value existing in the population. The standard error gives an indication of how great this difference could be, and a more detailed discussion of this statistic can be found in the section "Reliability of Estimators" in Technical Notes. This section gives a method for finding the standard error for

each percentage in Tables 1-7. The standard errors for each of the out-of-pocket premium costs found in Tables 8-12 are included in those tables.

Who Has Health Care Coverage?

Table 1 shows patterns of private and public health care coverage in 1980 for all persons, all families, multiple-person families, and one-person families. Although the percent of each population category with some type of health care coverage is approximately the same (ranging from 85 percent to 88 percent), the percent with different types of coverage-private health insurance coverage only, public and private coverage combined. and public health care coverage only-differs with the population category under examination. For example, only 54 percent of families, the unit of analysis of this report, have private health insurance coverage only compared to 65 percent of individuals, the more familiar unit of analysis. But among families, it is the one-person families that are least likely to have private health insurance coverage only. Only 46 percent of these families have such coverage compared to 58 percent of multipleperson families.

While this preliminary report for 1980 shows approximately the same total coverage for persons as previous reports (Kasper, Walden, and Wilensky, 1980; Corder, 1979), it differs from previous reports in the proportion of persons covered by private health insurance. As indicated in Table 1, when "private health insurance coverage only" and "public and private coverage combined" are considered as one category, only 72 percent of all persons are covered by some type of

Table	1
Iable	

Number of persons and families and percent distribution of health care coverage: United States, 1980

[Civilian noninstitutionalized population]

	Number in thousands ¹	Total	With known coverage					Without known coverage		
Persons and families			Total	Private health insurance coverage only ²	Public and private coverage combined	Public health care coverage only	Total	No coverage	Coverage unknown	
					Percent	distribution				
All persons	217,348	100.0	86.6	65.3	7.1	14.0	13.4	12.0	1.4	
All families	84,264	100.0	87.2	54.3	18.2	14.7	12.8	8.9	3.9	
2 or more persons 1 person	58,426 25,838	100.0 100.0	88.4 84.6	57.9 46.1	17.9 19.0	12.6 19.5	11.6 15.4	7.2 12.5	4.4 2.9	

¹ For sample size and a method for calculating standard errors for each cell, see Technical Notes and Table 13.

²No distinction was made between private coverage that only covered dental services and private coverage for other types of health care as only 1.4 percent of the families with private health insurance reported a dental plan without an accompanying private medical or surgical plan.

private health insurance. By contrast, surveys conducted between 1975 and 1978 have indicated that between 76 percent and 78 percent of all persons are covered by private health insurance (Choi and Ries, 1978; Corder, 1979; National Center for Health Statistics, 1981).

Multiple-Person Families

In Tables 2 and 3 data are presented on the proportion of families with known health care coverage for types of multiple-person families. Data for all multipleperson families are presented in Table 2; data for multiple-person families in which the age of the head is under 65 are presented in Table 3.

Total health care coverage-Since 1966, most persons 65 years and over have been eligible for coverage by the Federal health care financing program known as Medicare. As a consequence, almost all multiple-person families (99 percent) where the head of family is at least 65 years old have some type of health care coverage (Table 2). This finding indicates a change from the pre-Medicare period when 34 percent of these families were reported as lacking health care coverage (Andersen and Anderson, 1967). The category of families in Table 2 with the smallest percent with some type of health care coverage is families whose members have inconsistent work patterns (the members work but not every week). Only 81 percent of these families had some type of health care coverage for at least one member.

Patterns of health care coverage—When the percent of multiple-person families with different types of health care coverage is examined, the finding is that family characteristics show stronger associations with

Table 2

Number of multiple-person families and percent distribution of health care coverage by selected characteristics: United States, 1980

[Civilian poninstitutionalized population]

				With kno	own coverage		Wit	hout known (coverage
Characteristic	Number in thousands ¹	Total	Total	Private health insurance coverage only ²	Public and private coverage combined	Public health care coverage only	Total	No coverage	Coverage unknown
					Percent	distribution			
All multiple-person families	58,426	100.0	88.4	57.9	17.9	12.6	11.6	7.2	4.4
Family size									
2 persons	22,913	100.0	89.6	48.4	27.4	13.8	10.4	6.9	3.5
3 persons	13,332	100.0	89.5	65.0	12.8	11.8	10.4	6.7	3.7
4 or more persons	22,181	100.0	86.4	63.5	11.1	11.8	13.7	7.9	5.8
1979 family income ³									
Less than \$10,000	12,259	100.0	84.4	21.4	26.6	36.4	15.6	13.8	1.8
\$10,000-\$19,999	17,353	100.0	89.1	61.2	19.2	8.6	10.9	7.2	3.7
\$20,000-\$34.999	16,227	100.0	91.3	77.0	11.2	3.0	8.7	3.3	5.4
\$35,000 or more	6,303	100.0	92.6	79.5	11.2	1.9	7.4	3.4	4.0
Family employment status									
No family member worked	9,785	100.0	93.6	16.7	39.1	37.8	6.3	4.5	1.8
Some family members worked but none worked									
every week	8,870	100.0	81.0	43.2	20.0	17.8	19.0	14.9	4.1
Only 1 family member worked every week	23,560	100.0	88.0	67.4	13.9	6.7	12.1	7.5	4.6
2 or more family members worked every week	16,210	100.0	89.8	77.0	9.7	3.1	10.2	4.3	5.9
Perceived health status of head of family 3									
Poor or fair	10,382	100.0	90.5	29.6	33.7	27.1	9.5	7.0	2.5
Good or excellent	47,901	100.0	87.9	64.0	14.5	9.4	12.1	7.3	4.8
Age of head of family									
Under 45 years	30,008	100.0	84.9	68.5	4.9	11.5	15.1	10.2	4.9
45-64 years	19,970	100.0	89.1	65.3	15.6	8.2	10.8	5.7	5.1
65 years and over	8,447	100.0	98.9	3.0	69.1	26.7	1.1	0.4	0.7

¹For sample size and a method for calculating standard errors for each cell, see Technical Notes and Table 13.

²No distinction was made between private coverage that only covered dental services and private coverage for other types of health care as only 1.4 percent of the families with private health insurance reported dental plans without accompanying private medical or surgical plans. ³Does not add to total because unknowns are excluded.

Number of multiple-person families with heads under 65 years of age and percent distribution of health care coverage by selected characteristics: United States, 1980

[Civilian noninstitutionalized population]

				With kno	own coverage		Wit	hout known d	coverage		
Characteristic	Number in thousands ¹	Total	Total	Private health insurance coverage only ²	Public and private coverage combined	Public health care coverage only	Total	No coverage	Coverage unknown		
	Percent distribution										
All multiple-person families	49,979	100.0	86.6	67.2	9.2	10.2	13.4	8.4	5.0		
Family size											
2 persons	16,100	100.0	85.8	68.0	9.3	8.6	14.2	9.6	4.6		
3 persons	12,388	100.0	88.7	69.6	8.6	10.5	11.3	7.2	4.0		
4 or more persons	21,491	100.0	85.9	65.3	9.5	11.2	14.1	8.1	5.9		
1979 family income ³											
Less than \$10,000	8,524	100.0	77.7	29.7	12.4	35.6	22.3	19.7	2.6		
\$10,000-\$19,999	14,797	100.0	87.5	71.3	9.0	7.2	12.5	8.4	4.1		
\$20,000-\$34,999	15,418	100.0	91.0	80.8	8.0	2.2	9.0	3.4	5.6		
\$35,000 or more	5,929	100.0	92.1	83.7	7.4	1.1	7.9	3.6	4.3		
Family employment status											
No family member worked	5,177	100.0	89.3	30.3	15.2	43.8	10.7	8.1	2.5		
Some family members worked but none worked	7 450	400.0	r	505	10.0	10.0	00 F	17.0	10		
every week Only 1 family member worked every week	7,450 21,596	100.0 100.0	77.5 86.9	50.5 73.2	10.8 8.3	16.2 5.4	22.5 13.1	17.6 8.1	4.9 4.9		
2 or more family members worked every week	15,755	100.0	86.9 89.5	73.2 79.0	6.3 7.6	5.4 2.9	10.5	4.5	4.9 6.0		
2 or more ranny members worked every week	15,755	100.0	09.0	79.0	7.0	2.9	10.5	4.0	0.0		
Perceived health status of head of family 3											
Poor or fair	7,085	100.0	86.4	42.2	18.6	25.6	13.6	9.9	3.7		
Good or excellent	42,797	100.0	86.6	71.3	7.7	7.7	13.4	8.1	5.2		

¹For sample size and a method for calculating standard errors for each cell, see Technical Notes and Table 13.

²No distinction was made between private coverage that only covered dental services and private coverage for other types of health care as only 1.4 percent of the families with private health insurance reported a dental plan without an accompanying private medical or surgical plan.

³Does not add to total because unknowns are excluded.

patterns of coverage than with total coverage. These data are found in Tables 2 and 3.

As indicated in Table 2, multiple-person families in which the head of family is 65 years of age or older are distinguished by a lack of exclusive private coverage and an almost total reliance on public health care programs for at least some part of their health care coverage. Only 3 percent of these families are covered exclusively by private health insurance. This outcome is expected, given the existence of the Federal Medicare program. By contrast, families in which the head of family was younger were much more likely to have only private health insurance. For example, 65 percent of the families in which the head of family was between 45 and 64 years of age were covered by private health insurance coverage only, and 69 percent of the families in which the head of family was less than 45 years of age were so covered.

It is common for most families in the United States to acquire their private health insurance indirectly through the place of employment rather than directly from a private health insurance carrier. Therefore, the employment status of the family should be associated with this type of health care coverage. The data in Table 2 indicate that as a family's employment status changes from no member of the family employed to two or more members employed on a regular basis, the proportion of families in the United States relying exclusively for their health care coverage on private health insurance increases dramatically. For example, in families in which no member worked, 17 percent of the families had private health insurance coverage only. If some members of the family worked but none worked every week, 43 percent of the families had private health insurance coverage only. If only one member of the family worked every week, 67 percent of the families had private health insurance coverage only. Finally, if two or more members of the family worked every week, 77 percent had private health insurance coverage only. If all families with a head of family 65 years of age or older are removed from the analysis, as in Table 3, the distribution is altered but the same pattern of association is

apparent. Among these families, if no member of a family worked, 30 percent of the families had private health insurance coverage only. If some members worked but none worked every week, 51 percent had this coverage. Finally, if two or more members of the family worked every week, 79 percent of the families had private health insurance coverage only. It appears that, as expected, continuous gainful employment is an intervening variable determining whether a family has private health insurance coverage. Similar patterns of coverage are found in Tables 2 and 3 when 1979 family income is examined.

One would suspect that health insurance coverage would also be associated in some manner with the perceived health of the family. Table 2 indicates that if the health of the head of family was rated "poor or fair," 30 percent of families had private health insurance coverage only. By comparison, if the health of the head of family was rated "good or excellent," 64 percent of families had private health insurance coverage only. Again, if we examine only those multiple-person families in which the head of family was less than 65 years of age, the distribution is altered, but the pattern of coverage remains the same (Table 3). For this population, if the health of the head of family was rated poor or fair, 42 percent of families had private health insurance coverage only. If the health of the head of family was rated good or excellent, 71 percent of families had private health insurance coverage only. It would appear from these data that the families in which the head of family had the most need for medical care are the families least likely to have had private insurance for their health care coverage. Because both the Medicaid and Medicare programs have provisions to cover persons under 65 years of age with high medical costs or limiting medical disabilities, this finding may be partially the result of the availability of those programs or it may reflect a relationship between low socioeconomic status, which deters families from purchasing private health insurance, and poor health.

One-Person Families

Presented in Tables 4 and 5 are data on the health insurance coverage of one-person families. Data for all

Table 4
Number of 1-person families and percent distribution of health care coverage by selected characteristics:
United States, 1980

							14/64	haut kaanna i	t known coverage	
					wn coverage					
Characteristic	Number in thousands ¹	Total	Total	Private health insurance coverage only ²	Public and private coverage combined	Public health care coverage only	Total	No coverage	Coverage unknowr	
					Percent	distribution				
All 1-person families	25,838	100.0	84.6	46.1	19.0	19.5	15.4	12.5	2.9	
1979 income ³										
Less than \$10,000	14,756	100.0	82.4	32.4	22.8	27.2	17.5	15.2	2.3	
\$10,000-\$19,999	6,572	100.0	86.0	68.4	12.4	5.3	14.0	10.1	3.9	
\$20,000-\$34,999	1,827	100.0	93.1	82.7	4.6	5.8	7.0	4.7	2.3	
\$35,000 or more	507	100.0	90.7	74.6	13.5	2.5	9.3	3.4	5.9	
Employment status										
Did not work	11,069	100.0	89.0	17.7	34.2	37.2	11.0	8.9	2.1	
Worked but not every week	5,392	100.0	76.4	54.2	10.7	11.4	23.7	19.5	4.2	
Worked every week.	9,377	100.0	84.1	74.9	5.8	3.3	15.9	12.9	3.0	
Perceived health status ³										
Poor or fair	5,230	100.0	87.6	17.1	29.5	41.0	12.5	10.6	1.9	
Good or excellent	20,524	100.0	83.7	53.4	16.3	14.1	16.3	13.1	3.2	
Age										
Under 45 years	12,270	100.0	76.6	69.7	2.3	4.7	23.4	19.6	3.8	
45-64 years	5,221	100.0	82.0	59.4	6.4	16.2	17.9	13.8	4.1	
65 years and over	8,347	100.0	97.8	3.0	51.4	43.3	2.2	1.4	0.8	

¹ For sample size and a method for calculating standard errors for each cell, see Technical Notes and Table 13.

²No distinction was made between private coverage that only covered dental services and private coverage for other types of health care as only 1.4 percent of the families with private health insurance reported a dental plan without an accompanying private medical or surgical plan.

³Does not add to total because unknowns are excluded.

Number of 1-person families with heads under 65 years of age and percent distribution of health care coverage by selected characteristics: United States, 1980

[Civilian noninstitutionalized population]

	Number in thousands ¹		With known coverage					Without known coverage			
Characteristic		Total	Total	Private health insurance coverage only ²	Public and private coverage combined	Public health care coverage only	Total	No coverage	Coverage unknown		
					Percent	distribution					
All 1-person families	17,491	100.0	78.3	66.6	3.5	8.1	21.7	17.9	3.9		
1979 income ³											
Less than \$10,000	8,510	100.0	71.4	54.4	4.3	12.7	28.6	25.0	3.5		
\$10,000-\$19,999	5,581	100.0	83.8	79.8	2.3	1.6	16.2	11.8	4.4		
\$20,000-\$34,999	1,719	100.0	92.6	86.4	2.5	3.7	7.4	5.0	2.4		
\$35,000 or more	⁴ 411	100.0	⁴ 88.5	⁴ 88.5		-	⁴ 11.5	⁴ 4.2	47.2		
Employment status											
Did not work	4,092	100.0	73.9	42.3	7.2	24.5	26.1	22.0	4.1		
Worked but not every week	4,626	100.0	72.4	63.2	2.9	6.4	27.6	22.7	4.9		
Worked every week	8,773	100.0	83.4	79.8	2.2	1.4	16.6	13.4	3.3		
Perceived health status ³											
Poor or fair	2,431	100.0	76.8	35.0	9.0	32.8	23.2	20.9	2.4		
Good or excellent	15,004	100.0	78.4	71.6	2.6	4.2	21.6	17.4	4.1		

¹For sample size and a method for calculating standard errors for each cell, see Technical Notes and Table 13.

²No distinction was made between private coverage that only covered dental services and private coverage for other types of health care as only 1.4 percent of the families with private health insurance reported a dental plan without an accompanying private medical or surgical plan.

³Does not add to total because unknowns are excluded.

⁴Unreliable because of small sample size.

one-person families appear in Table 4, and data for oneperson families under 65 years of age appear in Table 5. The findings in these tables generally exhibit the same patterns of coverage as found for multiple-person families. It appears that people in similar socioeconomic, demographic, or health situations are faced with a similar set of health care financing problems and respond in a similar manner irrespective of whether they live in multiple-person families.

Who Pays for Private Health Insurance?

Sources of Premium Payments

Private health insurance is seldom purchased completely by family funds. Employers often cover all or part of the premiums as a fringe benefit of employment, and sometimes unions or other organizations cover premium payments. In 1980, 86 percent of all cases in which a nongovernment party other than the family paid a family's health insurance premiums involved an employer, either alone (72 percent of the time) or in combination with other nonfamily payers (14 percent of the time). A union was the sole payer in another 4 percent of the cases, and other parties (neither employers nor unions) were the sole payers in the remaining 10 percent of the cases. The existence of nonfamily payers for private health insurance premiums suggests three family premium payment statuses: (1) the family pays none of the premiums (another party pays all); (2) the family pays a part of the premiums (another party pays the remainder); and, (3) the family pays all of the premiums. The distribution of all families by whether the family pays none, part, or all of the premiums (divided into multiple-person and one-person families) is shown in Table 6. In Table 7, the same kind of data is presented for families in which the head of family is under 65 years of age. The same family characteristics are examined as in the section on coverage.

The overall finding of Tables 6 and 7 is that at least some part of the premiums of a majority of families with private health insurance are paid by nonfamily payers. This phenomenon is most easily comprehended by analyzing the proportion of families who pay all health insurance premiums themselves. For example, as indicated in Table 6, only 22 percent of all multipleperson families and only 37 percent of all one-person families who have private health insurance pay all their health insurance premiums themselves. The remainder of the families have either all or part of their premiums paid by nonfamily payers (that is, 78 percent of all multiple-person families and 63 percent of all oneperson families have all or part of their premiums paid by another party). In families in which the head of

Number and percent distribution of families with private health insurance by premium payment status and selected characteristics: United States, 1980

[Civilian noninstitutionalized population]

		Mul	tiple-person fa	amilies				1-person fami	lies			
			Premium p	payment statu	s		Premium payment status					
Characteristic	Number in thousands ¹	Total	Family pays none of premiums	Family pays part of premiums	Family pays all of premiums	Number in thousands ¹	Total	Family pays none of premiums	Family pays part of premiums	Family pays all of premiums		
			Percent	distribution				Percent	distribution			
All families	35,455	100.0	39.1	38.7	22.2	14,985	100.0	44.0	19.3	36.7		
Family size												
1 person 2 persons 3 persons 4 or more persons	14,614 8,153 12,689	100.0 100.0 100.0	35.0 42.5 41.6	34.7 39.1 42.9	30.3 18.4 15.4	14,985 	100.0 	44.0 	19.3 	36.7 		
1979 family income ²												
Less than \$10,000 \$10,000–\$19,999 \$20,000–\$34,999 \$35,000 or more	4,969 11,712 11,723 4,302	100.0 100.0 100.0 100.0	24.7 37.6 45.0 42.7	27.3 39.9 43.2 38.4	48.0 22.4 11.8 18.9	7,190 4,924 1,520 ³ 357	100.0 100.0 100.0 100.0	36.4 52.1 57.7 ³ 44.3	13.6 28.2 19.5 ³ 31.7	50.0 19.7 22.8 ³ 24.0		
Family employment status												
No family member worked Some family members worked but none worked	4,802	100.0	25.5	22.4	52.0	4,985	100.0	24.4	12.9	62.6		
every week	4,294	100.0	35.8	33.3	31.0	2,837	100.0	52.2	12.7	35.1		
Only 1 family member worked every week 2 or more family members	15,176	100.0	42.8	39.5	17.8	7,163	100.0	54.4	26.3	19.3		
worked every week	11,183	100.0	41.2	46.6	12.2		•••					
Perceived health status of head of family ²												
Poor or fair	5,508 29,861	100.0 100.0	30.9 40.6	34.6 39.4	34.5 20.0	2,229 12,673	100.0 100.0	27.4 46.9	16.3 19.9	56.3 33.2		
Age of head of family												
Under 45 years 45–64 years 65 years and over	17,832 12,547 5,076	100.0 100.0 100.0	45.0 37.9 21.0	40.2 42.3 24.4	14.8 19.7 54.6	7,733 3,269 3,983	100.0 100.0 100.0	59.1 41.6 16.7	22.4 22.4 10.7	18.5 36.0 72.7		

¹For sample size and a method for calculating standard errors for each cell, see Technical notes and Table 13.

²Does not add to total because unknowns are excluded.

³Unreliable because of small sample size.

NOTE: This table presents data for families in which the respondent was able to specify both an out-of-pocket premium expenditure for all private health insurance policies (\$0 to \$*N*) and the source of payment for that part of the premium charge not paid for by the family. If the respondent could not supply both pieces of information, the family was excluded from the analysis. The premiums and sources of payment for separate dental plans (one not included as part of a comprehensive health care package) were not recorded in the survey and are not included in this analysis.

family is under 65 years of age (Table 7), even greater proportions of families have all or part of their premiums paid by nonfamily payers. Only 17 percent of multipleperson families and 24 percent of one-person families with private health insurance pay all the premiums themselves.

As shown in Tables 6 and 7, many families also have all of their private health insurance premiums paid by nonfamily payers. For example, 39 percent of all multiple-person families and 44 percent of all oneperson families have all their health insurance premiums paid by another party (Table 6).

Moreover, the proportion of families with private health insurance having all of their premiums paid by nonfamily payers has been relatively constant since at least 1975. A survey in that year by the National Center for Health Statistics (Wilder, 1979) found that 38 percent of all multiple-person families and 48 percent of all one-person families reported both private health insurance coverage and zero premium payments. Data in

Number and percent distribution of families with heads under 65 years of age and with private health insurance by premium payment status and selected characteristics: United States, 1980

[Civilian	noninstitutionalized	population]
-----------	----------------------	-------------

		Mult	tiple-person fa	amilies			1	l-person famil	ies			
			Premium p	payment statu	s		Premium payment status					
Characteristic	Number in thousands ¹	Total	Family pays none of premiums	Family pays part of premiums	Family pays all of premiums	Number in thousands ¹	Total	Family pays none of premiums	Family pays part of premiums	Family pays all of premiums		
			Percent	distribution				Percent	distribution			
All families	30,379	100.0	42.1	41.0	16.8	11,002	100.0	53.9	22.4	23.7		
Family size												
1 person						11,002	100.0	53.9	22.4	23.7		
2 persons	10,322	100.0	41.1	40.5	18.4							
3 persons	7,698	100.0	· 43.3	39.0	17.7							
4 or more persons	12,359	100.0	42.3	42.8	15.0		•••					
1979 family income ²												
Less than \$10,000	2,974	100.0	32.2	34.1	33.7	4,339	100.0	50.7	16.6	32.7		
\$10,000-\$19,999	9,875	100.0	39.9	41.5	18.5	4,343	100.0	54.9	29.7	15.3		
\$20,000-\$34,999	11,262	100.0	45.7	43.9	10.4	1,454	100.0	60.3	19.5	20.2		
\$35,000 or more	4,043	100.0	43.1	39.3	17.6	³ 286	100.0	³ 50.0	³ 29.9	³ 20.1		
Family employment status							•					
No family member worked Some family members worked but none worked	1,925	100.0	35.7	27.6	36.6	1,783	100.0	43.2	14.4	42.4		
every week	3,512	100.0	40.2	35.5	24.3	2,419	100.0	56.3	14.9	28.7		
worked every week 2 or more family members	14,054	100.0	44.0	39.8	16.2	6,800	100.0	55.8	27.1	17.0		
worked every week	10,887	100.0	41.4	46.9	11.7							
Perceived health status of head of family ²												
Poor or fair	3,599	100.0	34.6	41.6	23.8	1,000	100.0	44.3	22.9	32.8		
Good or excellent	26,693	100.0	43.1	41.0	15.9	9,946	100.0	54.9	22.5	22.7		

¹ For sample size and a method for calculating standard errors for each cell, see Technical Notes and Table 13.

²Does not add to total because unknowns are excluded.

³Unreliable because of small sample size.

NOTE: This table presents data for families in which the respondent was able to specify both an out-of-pocket premium expenditure for all private health insurance policies (\$0 to \$N) and the source of payment for that part of the premium charge not paid for by the family. If the respondent could not supply both pieces of information, the family was excluded from the analysis. The premiums and sources of payment for separate dental plans (one not included as part of a comprehensive health care package) were not recorded in the survey and are not included in this analysis.

Table 7 indicate that for families in which the head of family is under 65 years of age, the proportion of families with private health insurance having all premiums paid by a nonfamily payer is even larger. This is particularly true of one-person families under 65 years of age, where 54 percent of the families have all premiums paid by another party.

Premium Payment Status and Family Characteristics

The remainder of this section focuses on the distinction between those families who pay all the premiums themselves and those families with at least some part of their premiums paid by nonfamily payers.

As previously pointed out, the major nonfamily payers of premiums for private health insurance are employers and labor organizations. Families in which the head of family is 65 years of age or over tend to be less involved in the labor force and, therefore, would be more likely to have to pay health insurance premiums themselves. This assumption is supported by the data in Table 6. Fifty-five percent of multiple-person families with private health insurance where the head of family is 65 years of age and over pay the total premium themselves compared with only 15 percent of families in which the head of family is under 45 years of age. One would also expect the index of family employment status to be strongly associated with the presence or absence of private, nonfamily premium payments. The data in Tables 6 and 7 confirm this association. Examining all multiple-person families, data in Table 6 show that if no member of the family worked, 52 percent of families with private health insurance paid the entire premium themselves. If some members of the family worked but none worked every week, 31 percent of the families paid the entire premium themselves. If only one person in the family worked every week, 18 percent of the families paid the entire premium themselves. Finally, if two or more members of the family worked every week, 12 percent of the families paid the entire premium themselves.

The same pattern is found for one-person families. The pattern of relationships is the same when we remove families with older heads of family from the analysis and examine only those families in which the head of family was under 65 years of age (Table 7). For multipleperson families with a head of family under 65 years of age, if no member of the family worked, 37 percent paid the entire premium themselves; if two or more members of the family worked every week, only 12 percent of families paid the entire premium themselves. One-person families under 65 years of age show the same pattern. It appears, then, that for families with private health insurance, regular employment is a major factor in determining whether a family pays the total premiums itself or has a part or all of the premiums paid by some other nongovernment source.

How Much Is Paid Out-of-Pocket for Private Health Insurance and by Whom?

Tables 8–11 present the average annual out-ofpocket premiums of families who made premium payments. The data for all families are found in Tables 8 and 9. The data for families in which the head of family was under 65 years of age are in Tables 10 and 11. These tables examine the same family characteristics as Tables 2–7.

Table 8

Average annual health insurance expenses with standard errors for multiple-person families with out-of-pocket expenses by premium payment status and selected characteristics: United States, 1980

	A			Premium pa	yment status	
Characteristic	out-of- expe (with s	rage pocket inses tandard ors)	Average expenses for families paying all premiums (with standard errors)		Average expenses for families paying part of premiums (with standard errors	
All multiple-person families with out-of-pocket expenses	\$472	(\$14)	\$616	(\$23)	\$389	(\$12)
Family size						
2 persons	444	(23)	514	(33)	382	(29)
3 persons	450	(22)	663	(38)	349	(21)
4 or more persons	523	(16)	811	(44)	419	(15)
1979 family income						
Less than \$10,000	432	(20)	483	(25)	342	(36)
\$10,000-\$19,999	457	(15)	581	(24)	387	(14)
\$20,000-\$34,999	471	(27)	750	(67)	395	(29)
\$35,000 or more	605	(36)	900	(63)	459	(34)
Family employment status						
No family member worked	442	(20)	476	(22)	364	(45)
Some family members worked, but none worked every week	485	(28)	570	(48)	407	(36)
Only 1 family member worked every week	494	(25)	691	(50)	405	(22)
2 or more family members worked every week	455	(17)	773	(44)	372	(15)
Perceived health status of head of family						
Poor or fair	486	(39)	529	(40)	443	(71)
Good or excellent	469	(13)	643	(28)	381	(10)
Age of head of family						
Under 45 years	445	(13)	676	(30)	360	(13)
45–64 years	537	(28)	772	(57)	428	(25)
65 years and over	413	(19)	421	(17)	395	(37)

[Civilian noninstitutionalized population]

NOTE: The sample and population totals for each cell can be calculated from Table 6.

Average annual health insurance expenses with standard errors for 1-person families with out-of-pocket expenses by premium payment status and selected characteristics: United States, 1980

[Civilian noninstitutionalized population]

				Premium pa	yment status	
Characteristic		rage -pocket enses tandard ors)	expen familie: all pre	rage ses for s paying miums dard errors)	Average expenses for families paying part of premiums (with standard errors)	
All 1-person families	\$244	(\$10)	\$283	(\$15)	\$169	(\$8)
1979 family income						
Less than \$10,000. \$10,000-\$19,999. \$20,000-\$34,999. \$35,000 or more	224 218 356 ¹ 301	(12) (15) (51) (98)	236 312 ¹ 503 ¹ 487	(14) (28) (87) (195)	179 152 ¹ 185 ¹ 161	(17) (10) (33) (48)
Employment status						
Did not work. Worked, but not every week Worked every week	254 239 233	(15) (22) (13)	266 259 338	(18) (29) (29)	196 ¹ 185 156	(21) (24) (10)
Perceived health status						
Poor or fair	267 237	(20) (11)	280 283	(24) (18)	¹ 222 161	(24) (8)
Age						
Under 45 years	208 313 237	(13) (20) (17)	279 391 241	(31) (27) (19)	150 189 ¹ 210	(9) (19) (28)

¹ Unreliable because of small sample size.

NOTE: The sample and population totals for each cell can be calculated from Table 6.

The Effects of Premium Payment Statuses

Those families who pay all premiums themselves have higher average out-of-pocket payments for private health insurance than families who only pay part of the premiums, regardless of socioeconomic, demographic, and health characteristics. As shown in Table 8, for example, the average annual out-of-pocket premium is \$616 for all multiple-person families who pay all premiums themselves while the average is only \$389 for all families who have a part of their premiums paid by another party.

Not only do families who pay all the premiums themselves pay more out-of-pocket dollars for health insurance, but the average amount paid varies considerably with the characteristics of these families. In contrast, it does not vary with the characteristics of families where another party pays a part of the family's premiums. For example, in Table 8 the average out-of-pocket premium payments made by families who pay all premiums themselves ranged from a minimum of \$421 to a maximum of \$900. The difference is \$479. By comparison, the average out-of-pocket premium payments made by families who have another party pay part of their premiums ranged from a minimum of \$342 to a maximum of \$459 (Table 8). The difference is \$117. The same pattern is found for one-person families, although in a more modest form (Table 9) and also for families where the head of family was under 65 years of age (Tables 10 and 11).

It appears that the overall effect of another party paying a part of the family premium is twofold: It lowers the overall out-of-pocket cost of health insurance to the consumer, and at the same time, it acts to create out-ofpocket premium homogeneity among consumers so that all consumers pay about the same amount, regardless of sociodemographic or health status differences.

Families Who Pay All Premiums Themselves

The age of the head of family once again appears as an important discriminator (Tables 8 and 9). Among multiple-person families with private health insurance who pay all the premiums themselves, families in which the head of family was 65 years of age or over paid an average annual premium of \$421. By comparison, multiple-person families in which the head of family was between 45 and 65 years of age paid an average annual premium of \$772, and those in which the head of family

Average annual health insurance expenses with standard errors for multiple-person families with heads under 65 years of age and with out-of-pocket expenses by premium payment status and selected characteristics: United States, 1980

[Civilian noninstitutionalized population]

	A			Premium payment status		
Characteristic	Average out-of-pocket Average expenses expenses for (with standard families paying errors) all premiums (with standard errors)		Average expenses for families paying part of premiums (with standard errors			
All multiple-person families	\$486	(\$16)	\$722	(\$33)	\$389	(\$12)
Family size						
2 persons	467	(35)	651	(72)	383	(35)
3 persons	457	(23)	692	(40)	350	(21)
4 or more persons	519	(17)	819	(45)	415	(16)
1979 family income						
Less than \$10,000	450	(26)	605	(40)	297	(27)
\$10,000–\$19,999	465	(17)	631	(32)	391	(15)
\$20,000-\$34,999	474	(29)	810	(87)	394	(29)
\$35,000 or more	605	(36)	945	(65)	453	(35)
Family employment status						
No family member worked	515	(35)	625	(58)	368	(50)
Some family members worked, but none worked every week	513	(35)	645	(66)	422	(39)
Only 1 family member worked every week	500	(27)	742	(58)	401	(22)
2 or more family members worked every week	454	(18)	793	(44)	369	(15)
Perceived health status of head of family						
Poor or fair	535	(56)	710	(64)	436	(82)
Good or excellent	478	(15)	723	(39)	383	(10)

NOTE: The sample and population totals for each cell can be calculated from Table 7.

Table 11

Average annual health insurance expenses with standard errors for 1-person families with heads under 65 years of age and with out-of-pocket expenses by premium payment status and selected characteristics: United States, 1980

[Civilian noninstitutionalized population]

				Premium payment status		
Characteristic	errors)		of-pocket Average penses expenses for standard families paying		Aver expens families part of p (with stanc	ses for paying remiums
All 1-person families	\$248	(\$13)	\$329	(\$25)	\$161	(\$8)
1979 family income						
Less than \$10,000	236	(17)	265	(24)	178	(19)
\$10,000-\$19,999	211	(16)	329	(31)	151	(11)
\$20,000-\$34,999	358	(56)	¹ 547	(100)	¹ 162	(26)
\$35,000 or more	¹ 315	(131)	¹ 632	(251)	¹ 101	(28)
Employment status						
Did not work	291	(25)	330	(30)	175	(25)
Worked, but not every week	243	(26)	274	(38)	¹ 185	(24)
Worked every week	235	(14)	362	(35)	155	(10)
Perceived health status						
Poor or fair	328	(40)	396	(58)	¹ 232	(38)
Good or excellent	236	(14)	318	(27)	154	(8)

¹Unreliable because of small sample size.

NOTE: The sample and population totals for each cell can be calculated from Table 7.

was under 45 years of age paid an average annual premium of \$676. Because the difference of \$96 between these latter two categories of families is not statistically significant, these findings should be interpreted as indicating no difference in the amount paid as premiums. This comparison leads to the conclusion that the major age distinction affecting the amount of premiums paid by families who pay all the premiums themselves was whether the head of family was over or under 65 years of age.

All other things being equal, larger families probably use greater amounts of medical resources than smaller families. Given this situation, microeconomic theory predicts that premium payments should increase with the increasing demand associated with increasing family size (Dicker, 1982). This assumption is supported by the data in Tables 8 and 9 for families that pay all the premiums themselves. For example, the average annual premium for a one-person family that paid all premiums was \$283. For a two-person family, it was \$514; for a three-person family it was \$663; and, finally, for a family of four or more persons it was \$811. Also, as indicated in Tables 8 and 9, multiple-person families always paid higher premiums than one-person families, regardless of socioeconomic, demographic, and health conditions. The same patterns of relationships are found in Tables 10 and 11 for a population limited to families who paid all the premiums themselves and whose heads of family were under 65 years of age. It would appear, therefore, that among families who pay the entire premium themselves, family size is an important characteristic affecting the amount of premium payments.

One would also expect that family income would be related to the quality of private health insurance policies a family would have and that wealthier families would have better policies. If true, this relationship should be reflected in the amount of premiums paid, and one would expect families of higher income to pay higher premiums than families of lower income. For families where another party paid a part of the premiums, this was not the case. However, it is the case for multipleperson families who pay the total premium themselves (Table 8). For example, families with 1979 incomes under \$10,000 paid \$483 in average annual premiums whereas families with incomes of \$35,000 or more paid \$900. Among multiple-person families where the head of family was under 65 years of age, the same pattern is found. Families with 1979 incomes of under \$10,000 who paid all premiums themselves, paid an annual average premium of \$605. Families with incomes of \$35,000 or more paid \$945. While the difference here is less than for all multiple-person families, it is still statistically significant.

A similar pattern is found when one examines the employment status of the family. However, when we move from all multiple-person families (Table 8) to families in which the age of the head of family is under 65 years of age (Table 10), few of the differences between employment status categories are statistically significant. Whereas employment status was a very important family characteristic for explaining types of health insurance coverage and premium payment status, it is a less important socioeconomic characteristic than family income for explaining the size of out-of-pocket premiums among families who pay all the premiums themselves. Similarly, the perceived health of the head of family appears to be unrelated to the size of premiums. Of the variables examined here, only family size and family income appear to be consistently important for determining health insurance premium amounts.

The Additive Effect of Family Size and Family Income

Both family size and family income have an effect on the size of premiums for private health insurance paid by a family when the family pays all the premiums (Table 12). In Table 12, family size was collapsed into one-person, two-person, and three-or-more-person families. Total family income was combined into incomes under \$10,000, incomes of \$10,000-\$19,999, and incomes of \$20,000 or more. Within each level of family income, larger families always paid higher premiums (Table 12). But also for each family size, families with higher incomes always paid higher premiums. The two ends of this distribution are as follows: for one-person families with incomes under \$10,000, the average an-

Table 12

Number of families paying all health insurance premiums and average annual premiums by 1979 family income and family size: United States, 1980

[Civilian noninstitutionalized population]

Family income ¹ and size	Number in sample	Number population prei		e annual nium dard error)
Less than \$10,000				
1-person families 2-person families 3-or-more-person	260 158	3,594 1,845	\$236 448	(\$14) (25)
families	45	541	603	(51)
\$10,000-\$19,999				
1-person families	69	970	312	(28)
2-person families 3-or-more-person	116	1,365	486	(28)
families	106	1,264	683	(42)
\$20,000 or more				
1-person families	30	432	500	(84)
2-person families 3-or-more-person	67	807	681	(100)
families	113	1,393	878	(53)

¹Excludes families with unknown incomes.

nual premium is \$236; for three-person or larger families with family incomes of \$20,000 or more, the average annual premium is \$878.

A Special Note on Premium Payments Among One-Person Families

The patterns found for multiple-person families in relation to age and family income are found only in an attenuated form for one-person families who pay all the premiums themselves. Three factors appear to account for this lessened relationship. First, this population pays a relatively low premium so that sociodemographic and health differences have only a small effect on premium amounts. Second, the population is bimodal, that is, composed primarily of very young and very old adults. Therefore, some of the factors that cause premiums to vary among multiple-person families may not affect this group in the same way. Finally, some of the cells in the tables for this population have very small numbers, making the estimates less statistically reliable than those for larger families.

Acknowledgments

Robert R. Fuchsberg of the National Center for Health Statistics and Allen Dobson of the Health Care Financing Administration were co-project officers on the survey, with Robert A. Wright and Larry S. Corder of these two agencies, respectively, also having major responsibilities. Daniel G. Horvitz, Research Triangle Institute, was the project director primarily responsible for data collection, with Esther Fleishman of the National Opinion Research Center, Robert H. Thornton of the Research Triangle Institute, and James S. Lubalin of SysteMetrics, Inc., as associate project directors. Barbara Moser, Research Triangle Institute, provided major guidance for data preparation. Others who made contributions to this report are Dorothy P. Rice, Mary Grace Kovar, Ann Cugliani, and Cecelia B. Snowden.

References

Andersen, R., and Anderson, O.W.: *A Decade of Health Services*. Chicago and London. The University of Chicago Press, 1967.

Choi, J., and Ries, P.: Sociodemographic and health characteristics of persons by private health insurance coverage and type of plan, United States, 1975. Advance Data From Vital and Health Statistics. No. 32. DHEW Pub. No. (PHS) 78-1250. National Center for Health Statistics, Public Health Service. Hyattsville, Md., Aug. 22, 1978.

Corder, L. S.: Health care coverage, United States, 1976. Advance Data From Vital and Health Statistics. No. 44. DHEW Pub. No. (PHS) 79–1250. National Center for Health Statistics, Public Health Service. Hyattsville, Md., Sept. 20, 1979.

Dicker, M.: A Social Indicator, Microeconomic Model for Analyzing the Cost of Health Insurance Premiums for Families. Working Paper Series. No. 11. National Center for Health Statistics. Apr. 1982.

Division of Health Interview Statistics: Health care coverage under private health insurance, Medicare, Medicaid, and military or Veterans Administration health benefits, United States, 1978. Advance Data From Vital and Health Statistics. No. 71. DHHS Pub. No. (PHS) 81–1250. National Center for Health Statistics, Public Health Service. Hyattsville, Md., June 29, 1981.

Kasper, J. A., Walden, D. C., and Wilensky, G. R.: *Who are the uninsured? National Health Care Expenditure Study.* Data Preview 1. National Center for Health Services Research, Public Health Service. Hyattsville, Md., 1980.

National Center for Health Statistics: *Health, United States, 1982.* DHHS Pub. No. (PHS) 83–1232. Public Health Service. Washington. U.S. Government Printing Office, Dec. 1982.

Wilder, C. S.: Family out-of-pocket health expenses, United States, 1975. *Vital and Health Statistics*. Series 10, No. 127. DHEW Pub. No. (PHS) 79–1555. National Center for Health Statistics, Public Health Service. Washington. U.S. Government Printing Office, Mar. 1979.

Symbols

- - Data not available
- ... Category not applicable
- Quantity zero
- 0.0 Quantity more than zero but less than 0.05
- * Test statistic is significant at 0.05 level
- ** Test statistic is significant at 0.01 level

Technical Notes

Definition of Terms

Family head—At the time of the first interview, the respondent for the family was asked to designate a "family head." If no head was designated or this information was missing, a family head was imputed (the oldest adult male or if no male was present, the oldest adult female).

Index of family employment status—This index was constructed from a question that asked "how many weeks" each person in the family worked "for pay, either full-time or part-time, not counting work around the house." On the basis of their answers, families were categorized by the number of people in the family employed (two, one, none) and whether the employed people worked every week (were fully employed) or less than every week (were not fully employed). The index has four statuses: (1) no members of the family worked; (2) some members of the family worked but none worked every week; (3) only one person in the family worked every week; and, (4) two or more persons in the family worked every week. The time period covered was approximately the first 6 months of 1980, which represented the initial two rounds of interviews.

Age of the head of family—The age of the head of family was the age as of January 1, 1980.

1979 family income—Income of all members of the family from all sources constituted 1979 family income. The respondent for the family selected an income bracket from a list on a card presented at the time of the first interview.

Perceived health status of the family head—The respondent rated all family members on their health at the time of the first interview. In the case of one-person families, this is a self-rating. The question asked was, "Compared to other people (person's age), would you say that (person's) health is excellent, good, fair, or poor?"

Sources of payment-This measure was constructed from three pieces of information: the family reported having a private health insurance plan, the family reported a premium for the plan (either zero or an out-ofpocket dollar amount), and the family reported a source of payment (either the family itself or an employer, union, or other source). If any of the above pieces of information was missing, the family was not included in the analysis. A private nonfamily payer was considered to have paid the total premium when the family reported (1) private health insurance coverage, (2) a zero out-ofpocket payment for premiums, and (3) another source paid "all or part of the premiums." A private nonfamily payer was considered to have paid part of the premiums when the family reported (1) private health insurance coverage, (2) an out-of-pocket dollar amount payment for premiums, and (3) another source paid "all or part of the premiums." The family was considered to have paid the total premium when the family reported (1) private health insurance coverage, (2) an out-of-pocket dollar amount for premiums, and (3) no other source paid any part of the premiums.

Out-of-pocket premiums for private health insurance-The average annual out-of-pocket premiums discussed in this report and presented in the tables have been calculated from the total premiums reported as paid out of pocket for all health insurance plans held by all members of the family. They are family totals rather than insurance plan totals or person totals. They cannot be compared, therefore, with estimates based on either plan or person totals (except when analyzing the subpopulation, one-person families). They do not include premiums for dental plans held by members of the family separate from other health insurance plans. Data on these premiums were not collected in the survey. They do include premiums for dental components of integrated health insurance plans, because one premium covers all services.

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. Smaller area segments constituted the third stage, and housing units (HU's) were selected in the fourth stage. Related persons in occupied HU's were interviewed as a single reporting unit (RU). Combined stage-specific sample sizes over the two designs were 135 PSU's (covering 108 separate primary areas), 809 SSU's, 809 small area segments, and 7,596 HU's containing about 7,200 RU's. About 6,600 RU's were interviewed for a response rate of 91.8 percent of eligible RU's.

NMCUES was a panel survey consisting of an initial interview during February–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 other 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 to update the record as more information became available.

Sample size and estimated average design effects for selected family characteristics in Tables 1-7

		Tab	Table 1		Table 2		Table 2		Table 3		
	Characteristic	Sample size n _i	Average design effect d _i	Sample size n _i	Average design effect d _i	Sample size n _i	Average design effect d _i				
1	All persons	17,442	6.5								
2	All families	6,605	2.7								
3	Multiple-person families	4,793	2.1	4,793	2.1	4,079	2.4				
4	2 persons			1,905	1.3	1,323	1.2				
5	3 persons			1,105	1.6	1,026	1.6				
6	4 or more persons			1,783	1.5	1,730	1.6				
7	1 person families	1,812	1.6								
	1979 family income ¹										
8	Less than \$10,000			1,023	1.5	706	1.4				
9	\$10,000-\$19,999			1,427	1.4	1,210	1.4				
10	\$20,000-\$34,999			1,327	1.8	1,259	1.9				
11	\$35,000 or more	••••		507	1.0	477	1.3				
	Family employment status										
12	No family member worked			818	1.4	423	1.1				
13	Some family members worked, but none worked every week			722	1.4	603	1.6				
14	Only 1 family member worked every week			1,932	1.5	1,768	1.7				
15	2 or more family members worked every week			1,321	1.0	1,285	1.0				
	Perceived health status of head of family ¹										
16	Poor or fair			867	1.2	588	1.1				
17	Good or excellent			3,914	2.2	3,483	2.3				
	Age of head of family										
				2 4 2 0	2.2						
18	Under 45 years			2,428	2.2						
19	45–64 years		• • •	1,651 714	1.4 1.1		• • •				
20	65 years and over	• • •	• • •	/14	1.1	• • •					

¹ Does not add to total because unknowns are excluded.

Reliability of Estimators

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. The difference between an estimate based on a sample and the true population value is called the sampling error. The expected magnitude of the sampling error is measured by a statistic called the standard error. In this report, standard errors for average annual out-of-pocket premiums are found in the tables showing those premiums (Tables 8–12). Standard errors (S.E.) for the proportions in Tables 1–7 can be calculated from the data in Table 13 using the equation

S.E.
$$(\hat{P}_{ij}) = \sqrt{\frac{\hat{P}_{ij}(100 - \hat{P}_{ij})d_i}{n_i}}$$

where \hat{P}_{ij} is the percent in a cell of a category in Tables

1-7, n_i is the sample size given in Table 13 for the category, and d_i is the average design effect given in Table 13 for the category. An example using this formula follows: From Table 1, it is found that 57.9 percent of multiple-person families have private health insurance coverage only. From Table 13, the sample size for that category is 4,793 families, and the average design effect for that category is 2.1.

Applying the formula, the standard error may be calculated as follows:

S.E.(57.9) =
$$\sqrt{\frac{(57.9)(42.1)(2.1)}{4,793}} = 1.03$$

Standard errors should be interpreted as follows. The chances are 95 out of 100 that the true population value is within plus or minus two standard errors of the estimate. The chances are 68 out of 100 that the true value is within plus or minus one standard error. The standard error, therefore, is a measure of the accuracy

Table 13—Con.

Sample size and estimated average design effects for selected family characteristics in Tables 1-7

	Table 7				Table 6							
	families	1-persor	Multiple-person families		1-person families			Multiple fam	Table 5		Table 4	
	Average design effect <i>d_i</i>	Sample size n _i	Average design effect d _i	Sample size n _i	Average design effect d _j	Sample size n _i	Average design effect d _i	Sample size n _i	Average design effect d _i	Sample size n _i	Average design effect d _i	Sample size n _i
1									<i></i>	• • •		•••
2	• • •		•••		•••		•••	•••		•••		
з			2.0	2,491	• • •		2.3	2,922				
4			1.5	851			1.7	1,219				
5		·	1.2	642	• • •	• • • •	1.2	680				• • •
5 6			1.8	998	• • •		1.8	1,023				•••
7	1.2	757		•••	1.2	1,048	•••	• • •	1.4	1,206	1.6	1,812
8	1.3	302	0.9	249	1.3	511	0.9	419	1.3	595	1.5	1,050
9	1.3	296	1.5	814	1.2	338	1.5	971	1.1	380	1.1	451
10	1.0	99	1.5	922	1.0	104	1.6	961	1.1	117	1.2	125
11	1.1	20	1.1	326	1.1	25	1.2	346	1.0	28	1.0	35
12	1.1	125	0.9	159	1.2	359	1.2	407	0.9	285	1.5	791
13	1.0	168	1.0	290	1.1	198	1.1	356	1.1	321	1.1	377
14	1.0	464	1.5	1,155	1.0	491	1.5	1,249	1.5	600	1.4	644
15	•••	•••	1.6	887	•••		1.6	910				•••
16	1.1	70	1.2	298	1.1	160	1.2	461	0.9	171	1.2	376
17	1.2	683	2.1	2,186	1.2	882	2.2	2,454	1.4	1,031	1.6	1,430
18					1.2	525	1.5	1,453			1.0	834
19					0.8	232	1.7	1,038			1.2	372
20					1.1	291	1.4	431			2.0	606

of the estimate relative to the true population value. A small standard error relative to the estimate means that the estimate is relatively accurate. A large standard error relative to the estimate means that the estimate is not reliable. (When this ratio is calculated, it is referred to as the relative standard error or the coefficient of variation.) An example of the use of the standard error follows: Table 1 indicates that 58 percent of multiple-person families have private health insurance coverage only. The standard error is 1.0 percent. This standard error can be interpreted to mean that 95 percent of the time, using a similar sampling procedure, estimates of the proportion of multiple-person families with private health insurance coverage only will be between 56 and 60 percent.

In addition to sampling errors, the results are also subject to various types of nonsampling errors such as nonresponse, misreporting by respondents, and dataprocessing mistakes. In the final reports from this survey, these types of errors will be kept to a minimum by various quality control procedures, imputation procedures, outlier checks, and other methods. These procedures have not been completed for the data in this report, and hence, the estimates should be used with care.

Estimates shown in the tables are rounded. Totals, averages, and percents were calculated using unrounded numbers and may differ slightly from those calculated from the rounded estimates.