Socioeconomic factors and Medicare supplemental health insurance

by Steven A. Garfinkel, Arthur J. Bonito, and Kenneth R. McLeroy

This analysis was conducted to determine how personal and community characteristics affect coverage by private insurance to supplement Medicare. Data from the 1980 National Medical Care Utilization and Expenditure Survey were used. After controlling for health status, it was found that supplemental coverage was positively associated with education, income, number of self-reported chronic conditions, being white, being married, and having a regular source of care. Private coverage was negatively associated with Medicaid coverage and age. The only community characteristic associated with supplemental coverage was region. Consideration of local medical resources and economic measures did not change that.

Introduction

Private health insurance to supplement Medicare coverage is an important source of financial assistance for Medicare beneficiaries. It has been estimated that private insurance plans paid about 20 percent of the charges incurred by Medicare beneficiaries covered by such plans in 1980 (Garfinkel, Wheeless, and Corder, 1985). Medicare supplemental insurance has also become an important product for the health insurance industry. Noninstitutionalized Medicare beneficiaries spent an estimated $3.2 billion for Medicare supplements in 1977, an amount constituting 6.3 percent of all private health insurance premiums (Cafferata, 1983).

As the population ages, Medicare supplements, in one form or another, are likely to grow in importance. Thus, it becomes increasingly valuable to understand who has and does not have these supplementary policies and the factors that influence their purchase. The purpose of this article is to examine the impact of selected personal and community characteristics on the probability of aged Medicare beneficiaries' obtaining supplemental health insurance coverage. Its major contribution is the test of local community characteristics, in addition to personal demographic characteristics, while controlling for several dimensions of health status, using a national probability sample.

Background

Medicare coverage

The Medicare program provides coverage for hospital, physicians', and other medical services for persons 65 years of age or over and certain persons who are disabled or have end stage renal disease. Coverage is provided through two separate but complementary Medicare components: hospital insurance, HI (Part A), and supplementary medical insurance, SMI (Part B). HI provides coverage for the cost of inpatient hospital stays and certain posthospital care. The beneficiary is not required to pay a premium for this coverage. SMI provides coverage for physicians' services and certain services and supplies ordered by a physician. Payment of a monthly premium is required.

Medicare beneficiaries covered by HI are responsible for deductibles and copayments. In 1980, the HI deductible was $180. Medicare covers all other allowable costs for the first 60 days of hospitalization during a spell of illness. Beneficiaries are responsible for a daily copayment equal to one-fourth of the HI deductible ($45 in 1980) for days 61 through 90. Beneficiaries also have a lifetime reserve of 60 days, usable only once, for which the daily copayment is one-half the deductible ($90 in 1980).

Care in a skilled nursing facility (SNF) is covered by Medicare only when it follows a covered hospital stay of 3 days or more and the patient requires daily skilled nursing care or skilled rehabilitation services. Custodial care is not covered. Medicare fully covers the first 20 days of SNF care. Covered care from the 21st through 100th day of a spell of illness requires a copayment equal to one-eighth of the HI deductible ($22.50 in 1980).

Physicians' and related services covered by SMI are subject to separate deductible and coinsurance requirements. In 1980, the SMI deductible was $60. The SMI coinsurance is 20 percent of the reasonable charge allowed by the Health Care Financing Administration (HCFA). Historically, the amounts of the HI and SMI deductibles have been increased as the cost of medical care increased. However, the copayment and coinsurance percentages have remained constant.

Beneficiaries are also responsible for all charges that exceed the reasonable charge determined by HCFA. Physicians who accept assignment of Medicare payments agree to accept HCFA's reasonable-charge determination as the charge for the service furnished and are paid directly by Medicare. When physicians accept assignment, they are not permitted to charge the patient more than the 20-percent coinsurance portion of the reasonable charge. Physicians who do not accept assignment may charge

the patient any amount for the unassigned services, but the patient is responsible for paying the physician and seeking reimbursement of 80 percent of the reasonable charge from Medicare. Until 1985, physicians could choose to accept or reject assignment on a service-by-service basis. However, under the new participating-provider arrangement, physicians must choose to accept assignment for all Medicare patients and services or none.

Private supplemental insurance

Several types of private health insurance policies are available for persons 65 years of age or over. They may be group plans available to retirees through their former employers or through fraternal, religious, and other voluntary associations, or they may be individual contracts purchased from insurance companies, health maintenance organizations, or Blue Cross plans. In 1977, 36 percent of noninstitutionalized persons aged 65 or over who had private insurance had group policies; 94 percent of those with group policies had their coverage through current or prior employment (Cafferata, 1984). Until January 1, 1983, Medicare beneficiaries 65 years of age or over who remained employed in a position that provided health insurance benefits received their primary coverage from Medicare when they became age 65. Since that time, employed beneficiaries 65-69 years of age who are covered by their employer's health plan have had Medicare as their secondary source of coverage (*Code of Federal Regulations*, 1984).

The scope of benefits provided by these private insurance plans varies considerably. One type of plan, sometimes called a Medicare supplement, or Medigap, policy, is specifically intended to pay for charges on Medicare-covered services that Medicare does not pay. Most Medigap policies cover only the deductibles, copayments, and coinsurance portion of reasonable charges, although there is considerable variation within this class of policy (Merritt and Potemken, 1982). Medigap policies do not usually cover services that are not covered by Medicare, such as long-term care.

Although Federal legislation imposing minimum standards on policies marketed as Medigap plans became effective in 1982, the rules apply only to new policies and not to those that were already in effect. The legislation (Public Law 96-265), known as the 1980 Baucus amendments to the Social Security Act, provides, among other things, that Medigap policies cannot exclude preexisting conditions from coverage for more than 6 months after the policy takes effect and that the loss ratio (i.e., the percent of premiums paid out as benefits) must reach or exceed 75 percent for group policies and 60 percent for individual policies (Cafferata, 1985a; Merritt and Potemken, 1982).

A second type of private insurance policy available to persons aged 65 or over is the indemnity policy. These plans are designed to provide cash payments for specific medical events, most often for each day spent in the hospital. A third type of policy is limited to a specific condition or circumstance. Commonly referred to as specified disease, or dread disease, plans, they pay for medical care associated with a specific disease such as cancer. Indemnity and specified disease policies are not usually considered Medigap policies because their benefits are not designed to fill the gaps in Medicare coverage and because they are sold to persons of all ages (DeNovo and Shearer, 1978; Merritt and Potemken, 1982). Nonetheless, it is estimated that about 12 percent of persons aged 65 or over had such policies during 1977 (Cafferata, 1985b).

Equity and cost containment

Medicare supplemental health insurance is an important public policy issue for reasons of both equity and cost containment. Concern over equity stems from the fact that Medicare beneficiaries are at risk for substantial out-of-pocket expenditures despite their Medicare coverage. In 1980, 0.1 percent of the noninstitutionalized population 65 years of age or over spent more than $5,000 per person out of pocket for medical care, an amount equal to about 50 percent of the average annual family income. Sixteen percent of this population spent more than 5 percent of their family income (Garfinkel, Riley, and Iannacchione, to be published).

Supplemental insurance is intended to protect against the relatively small but potentially devastating risk of high medical expenses that are not paid for by Medicare, although usually only for Medicare-covered services. However, if one's utilization experience is no worse than average, private insurance increases the cost of health care because the premium covers the average cost of services plus administrative costs and profit for the insurer.

Thus, the lack of supplemental coverage could be caused by lack of access or be based on a voluntary decision to self-insure, depending on one's attitude toward risk. However, if it is assumed that poorer, sicker, older, and less educated elderly persons are at least as averse to risk as other elderly persons are, then lower rates of supplemental coverage among these groups would suggest the existence of barriers to obtaining supplemental insurance.

From the perspective of cost containment, the risk-sharing aspect of insurance that reduces the out-of-pocket financial consequences of needed medical care also reduces the financial constraints on seeking and obtaining unnecessary care. More specifically, Medicare deductibles, copayments, and coinsurance are intended to inhibit the use of medical services, and thereby limit Medicare payments, by requiring patients to make out-of-pocket expenditures for services. In effect, Medicare beneficiaries are expected to compare the benefits and costs as part of their decision to seek care. Supplemental insurance that covers these deductibles, copayments, and coinsurance

may reduce or eliminate the intended inhibiting effect on the use of medical services.

Prior research

Medicare supplements have become quite common. Based on data from the National Medical Care Expenditure Survey, Cafferata (1984) reported that 65 percent of the noninstitutionalized population 65 years of age or over had Medicare and private insurance in 1977. Of those with supplemental insurance, 98 percent had plans that covered inpatient hospital care. Of those with private hospital coverage, 93 percent were covered in full for the Medicare inpatient hospital deductible, and 89 percent were covered in full for the inpatient copayment applicable to the 61st-90th day of hospitalization.

In 1977, 62 percent of aged Medicare beneficiaries with private insurance were covered for physician office visits (Cafferata, 1984). Of these persons, 43 percent were covered for the full amount of the applicable deductible, and 71 percent were covered for the coinsurance up to the amount of the reasonable charge. Supplemental insurance coverage appears to have been comprehensive for hospital inpatient deductibles and copayments but less thorough for physician deductibles and coinsurance.

Despite this seemingly widespread coverage, about one-third of persons aged 65 or over did not have private supplemental insurance in 1977 (Cafferata, 1984). About 10 percent of the population had Medicaid in addition to their Medicare coverage, but about 20 percent had Medicare alone. Cafferata (1984) also reported that the probability of having a private Medicare supplement was smaller than average for low-income persons, persons with little education, the unemployed, persons of races other than white, persons aged 75 or over, persons living in the South and West, and persons in fair or poor health.

Long, Settle, and Link (1982) assessed the effect of these characteristics (except for health status, which was represented by age in their model) on the probability of obtaining supplemental insurance in 1975, using data from the Survey of Income and Education. Holding other factors constant, race, age, and income had significant effects on the probability of aged beneficiaries' having a Medicare supplement. Black persons were less likely to have private supplemental coverage than white persons were, and persons 75 years of age or over were less likely to have private supplemental insurance than younger persons were. The probability of having a supplement rose with income until $10,000, at which point it leveled off.

There is ample reason to believe that the possession of private Medicare supplements was affected by race, income, and age during the mid-1970's. Because the persons who were less likely to have private supplemental insurance—black persons, low-income persons, and very old persons—are those who have

traditionally been subject to deprivation and discrimination, these results lead to concern about continuing inequitable access to supplemental insurance coverage. Nevertheless, it is necessary to control for the effects of health status before more definitive statements can be made because there are clear incentives for less healthy persons to seek insurance and for insurers to avoid them. In addition, health status is highly associated with race, income, and age.

Cafferata (1984) reported that the probability of obtaining private supplemental coverage in 1977 varied by perceived health status as well as by the other characteristics analyzed. Of the elderly Medicare beneficiaries, in excellent health 74 percent, had private supplemental insurance, compared with 54 percent of persons in fair or poor health. Schlenger, Wadman, and Corder (1983) found that health status (as measured by the mean number of restricted-activity days, perceived health status, mean number of medically unattended conditions, and presence of activity limitations) was generally worse for black persons, low-income persons, and the oldest of the elderly than it was for white, wealthier, and younger persons.

Persons who are ill find health insurance financially attractive because their individual costs for covered medical services are likely to exceed the premium, which is based on the expected cost for ill and well persons combined. Conversely, insurers prefer to enroll individuals who are healthier than average because their costs are likely to be less than the premium revenue. Insurers are able to protect themselves against adverse selection of beneficiaries by aiming their marketing programs at healthy individuals, denying sales of individual policies to sick persons, or structuring their policies to limit benefits under certain circumstances. The use of exclusionary clauses to limit benefits (e.g., exclusion of preexisting conditions) decreases the incentive to market selectively by limiting the insurer's liability for sick individuals who enroll.

The incentive for insurers to protect against adverse selection by marketing selectively increased in 1982 when the Baucus legislation took effect because the use of exclusionary clauses for preexisting conditions was limited. Prior to 1982, the incentive for insurers to selectively market Medicare supplements was partly mitigated by the use of clauses that excluded preexisting conditions from coverage. Nevertheless, insurers' aversion to high-risk individuals is an inherent feature of the insurance relationship. This incentive, together with the association of health status with age, race, and income, suggests that a sizable portion of the effects demonstrated for age, race, and income may actually reflect health status.

Rice and McCall (1985) addressed this issue by applying a multiple-regression model to data from a 1982 sample of Medicare beneficiaries in six States. The effects of demographic, economic, and health status characteristics on the probability of obtaining

private Medicare supplemental insurance were estimated. When these factors were considered simultaneously, significant effects emerged in the predicted direction for sex, race, education, income, and perceived health status. The results suggest that black and low-income persons have a lower probability of being covered by private supplemental insurance regardless of their health status.

It is also possible that the characteristics of the community in which beneficiaries live influence the extent to which they obtain supplemental insurance. Cafferata (1984) found private supplemental insurance to be more common in the Northeast and North Central regions than in the South and West. Long, Settle, and Link (1982) found that, among the nine Census subdivisions, black persons were most likely to have private supplemental insurance if they lived in the Northeast or West North Central subdivision, and white persons were most likely to have supplemental insurance if they lived in the East North Central or West North Central subdivision.

In order to determine whether local resources and economic characteristics of a community underlie these broader geographic differences, we have included in the model measures of the cost of living, cost of medical care, and availability of medical care resources. We would expect that individuals living in areas with high costs would be more likely than others to have supplemental coverage. Although the relationship between the supply of health care services and utilization is controversial, we would expect that persons living in areas with an abundance of medical care resources would be more likely than persons in other areas to have supplemental insurance.

In this article, we seek to identify the personal and community characteristics associated with the probability of having private supplemental insurance coverage, after controlling for individual variation in health status, using a sample that is representative of the national population of noninstitutionalized aged Medicare beneficiaries.

Methods

Data on the personal characteristics and insurance coverage of aged Medicare beneficiaries in 1980 were obtained from the National Medical Care Utilization and Expenditure Survey (NMCUES), described by Bonham (1983). In NMCUES, data were collected from a household probability sample of 17,900 individuals representing the civilian noninstitutionalized population of the United States. Information about medical resources and health manpower in the counties of residence of sample persons was abstracted from the Area Resource File (Bureau of Health Professions, 1983). Data on prevailing charges for physician visits in the counties of residence were obtained from the Medicare Directory of Prevailing Charges, 1980 (Health Care Financing Administration, 1980).

The relationship between private supplemental insurance and personal and community characteristics

Table 1

Mean of variables in the model of Medicare supplemental insurance: United States, 1980

Variable	Mean
Dependent variable	
Private Medicare supplement[1]	0.72
Explanatory variables	
Medicaid indicator	0.17
Age in years	72.48
Race: White[1]	0.90
Sex: Male[1]	0.41
Education in years	9.80
Marital status: Married[1]	0.54
Region:	
Northeast	0.20
North Central	0.24
South	0.33
West	0.22
SMSA[2]: Living in an SMSA[1]	0.65
Employment: Employed[1]	0.19
Functional limitations scale	3.29
Perceived health status:	0.63
Excellent or good[1]	
Number of chronic conditions	
Charge for followup visit with general practitioner	3.26
in dollars[3]	33.00
Median rent in dollars[3]	231.64
Medicare-certified skilled nursing facility beds per	
1,000 persons 65 years or over[4]	7.60
Physicians per 100,000 persons[4]	161.15
Short-term hospital beds per 1,000 persons[4]	4.65
Percent occupancy of short-term hospital beds[4]	71.26
Had a usual source of care[1]	0.90
Specialist physicians per 100 general practitioners[4]	546.25
Surgical specialists per 100 medical specialists[4]	121.66
Percent of short-term hospital admissions covered	
by Medicare[4]	28.32
Poverty level[5]	264.00
Travel time to usual source of care in minutes	20.15
Waiting time at usual source of care in minutes	40.28

[1] Mutually exclusive dichotomous variable; indicated mean is the estimated proportion of aged Medicare beneficiaries with the characteristic noted.
[2] Standard metropolitan statistical area.
[3] For county of residence.
[4] For county of residence and contiguous counties.
[5] Adjusted family income as a percent of national poverty-level-adjusted family income.

SOURCE: Health Care Financing Administration and National Center for Health Statistics: Data from the National Medical Care Utilization and Expenditure Survey, 1980.

was evaluated using a multiple regression model in which the dependent variable was a dichotomous indicator of whether or not the Medicare beneficiary had a private Medicare supplement. The hypothesized explanatory variables and their means are listed in Table 1. The unit of analysis was the noninstitutionalized aged Medicare beneficiary. The sample included 1,947 persons who were 64 years of age or over on January 1, 1980, and thus turned 65 sometime during 1980.

Persons covered by Medicaid should be less likely to have private supplemental insurance than other Medicare beneficiaries because they already have a publicly provided supplement. Thus, one approach to estimating the probability of having a private supplement would be to remove persons with Medicaid from the population. However,

approximately 6 percent of Medicare beneficiaries had Medicaid and a private supplement during 1980 (mostly because individuals may move in and out of Medicaid coverage during a given year). Because individuals with Medicaid coverage may be faced with decisions about supplemental coverage, they were retained in the sample. The effect of Medicaid coverage was controlled in the model with an indicator variable.

The model was estimated using Research Triangle Institute's survey regression program, SURREGR. Although logistic regression is the theoretically appropriate technique for estimating models with dichotomous dependent variables, SURREGR was used because the regression coefficients are directly interpretable. It has been demonstrated that logistic and linear probability models produce similar results when the dependent variable is split by a ratio no greater than 3 to 1 (Cleary and Angel, 1984). SURREGR accounts for complex sample design effects and does not require the ordinary least squares assumptions of normality, homoskedasticity, and linearity, which are violated when the dependent variable is dichotomous (Holt, 1982). Therefore, it provides appropriate tests of hypotheses for models with dichotomous dependent variables estimated from a finite population sample. These results are based on a reduced form of the model that was reestimated using only those explanatory variables that were statistically significant at or below the 0.05 probability level in the original model.

NMCUES respondents were asked to distinguish Medicare supplemental insurance policies from cash indemnity and specified disease policies. Because the focus of this study was on the purchase of Medigap policies, individuals who had cash indemnity or specified disease policies were counted among the beneficiaries without private supplemental insurance. Thus, the dependent variable used in this analysis was coverage by Medicare supplemental policies only. In any event, the number of individuals with cash indemnity or specified disease policies was small.

Among the explanatory variables, the local cost of medical care was represented by the 75th percentile of the distribution of general practitioners' charges to Medicare for a comprehensive followup office visit in the county of residence. The median gross rent for the county of residence was included as an indicator of the local cost of living. The measures of medical resources available to persons living in each county were computed for a cluster of counties consisting of the county of residence and all contiguous counties, rather than for the county of residence alone. This was done in order to take into account the effects of border crossing and the fact that medical care markets do not necessarily coincide with the county of residence. Functional limitations were quantified using an eight-point scale, based on the Rand functional limitations scale, which is used to measure personal care, mobility, and general activity (Conklin, 1985). Poverty level was represented by the ratio of family income to national nonfarm poverty-level family income, controlling for family size and the age and sex of the family head.

Findings

Slightly less than three-fourths (72 percent) of elderly Medicare beneficiaries reported having private supplemental insurance at some time during 1980. This estimate includes the 6.1 percent of elderly Medicare beneficiaries who had both private supplemental insurance and Medicaid at some time during the year. An estimated 11 percent of elderly Medicare beneficiaries had Medicaid without private coverage, and 17 percent had no coverage but Medicare (Table 2).

The estimated percentage of persons with multiple coverage was determined by whether or not the individual reported more than one kind of coverage at any time during 1980. These estimates differ only slightly from NMCUES estimates published elsewhere that were based on person-years of coverage (Garfinkel and Corder, 1985). The relationship between personal characteristics and supplemental coverage observed in the bivariate statistics was similar regardless of whether the estimates were based on coverage at any time during the year or person-years of coverage. Thus, it is unlikely that the multiple-regression results based on person-years of coverage would differ greatly from the results presented here.

The variation in private supplemental insurance coverage by demographic and economic characteristics was similar to that reported by Cafferata (1984) and Rice and McCall (1985). Education, health status, race, geographic region, age, and income were found to be related to having private supplemental insurance coverage (Table 2).

The probability of having private supplemental insurance increased as education increased. Beneficiaries with 13 years or more of education were almost twice as likely to have private coverage as were those with less than 8 years (83 percent compared with 45 percent). Almost 75 percent of persons in excellent health had a private supplement, compared with 45 percent of persons in poor health. White persons (68 percent) were almost twice as likely to be covered as persons of other races were (38 percent). Private supplemental coverage was least common in the West region of the United States (58 percent). Beneficiaries 75 years of age or over were less likely to have private supplemental coverage than younger beneficiaries (58 percent compared with 69 percent). Finally, the probability of having private supplemental insurance increased as family income increased. Persons at or below the poverty level, who made up an estimated 14 percent of all aged Medicare beneficiaries, were less than one-half as likely to have private supplemental insurance as were beneficiaries whose family income was more than twice the poverty level.

In Table 3, we present the results of the reduced-form regression equation for the effects of personal and community characteristics on the probability of

Table 2

Number and percent distribution of Medicare population 64 years of age or over, by health insurance coverage and selected characteristics: United States, 1980

Characteristic	Estimated population in millions	Health insurance coverage				
		Medicare only	Medicare and Medicaid, no private	Medicare Medicaid, and private	Medicare and private	Medicare and other
		Percent distribution				
Total	24.5	16.6	10.7	6.1	65.4	1.1
Education						
Less than 8 years	5.7	24.5	23.5	6.3	45.0	(¹)
8 years	4.6	18.7	8.2	8.6	64.2	(¹)
9-11 years	4.3	19.1	12.6	6.3	61.7	(¹)
12 years	5.1	10.2	4.6	6.2	76.5	2.6
13 years or more	4.7	9.7	2.5	3.2	82.9	1.7
Perceived health status						
Excellent	6.4	15.8	4.8	3.4	74.5	1.6
Good	9.1	16.6	9.1	6.1	65.1	1.2
Fair	6.2	17.4	11.7	7.0	63.3	(¹)
Poor	2.9	16.9	26.9	10.4	44.8	(¹)
Number of chronic conditions						
None	2.9	30.3	5.3	3.9	58.9	(¹)
1	4.0	16.2	8.3	4.3	70.7	(¹)
2 or more	17.5	14.4	12.1	6.9	65.3	1.2
Race						
White	22.2	15.9	8.5	6.2	68.2	1.1
All other	2.3	23.3	31.1	5.9	38.8	(¹)
Geographic region						
Northeast	4.9	17.6	8.2	4.4	69.8	(¹)
North Central	6.0	12.2	6.5	7.7	72.5	(¹)
South	8.1	18.0	13.0	6.0	62.3	(¹)
West	5.5	18.4	14.2	6.2	58.3	2.9
Age						
64-74 years	16.3	14.6	9.0	5.9	69.3	1.1
75 years or over	8.2	20.6	14.0	6.6	57.7	1.1
Annual family income						
Less than $5,000	4.6	21.2	27.8	9.4	41.3	(¹)
$5,000-$9,999	6.7	18.7	10.8	7.0	63.0	(¹)
$10,000-$19,999	8.0	14.3	4.3	4.4	75.5	1.5
$20,000 or more	5.2	13.4	5.2	4.8	74.5	(¹)
Poverty level						
0-100 percent	3.5	20.1	33.9	10.5	35.2	(¹)
101-200 percent	7.6	21.7	12.8	7.1	58.1	(¹)
201 percent or more	13.4	12.8	3.4	4.4	77.6	1.8

¹Omitted data have relative standard errors greater than 50 percent.

NOTES: Population is persons 64 years or over on January 1, 1980, who were covered by Medicare at any time during 1980. Health insurance categories are mutually exclusive and are defined as follows:

Medicare only—The only insurance coverage ever reported in 1980 was Medicare.

Medicare and Medicaid, no private—During 1980, the person was covered at some time by Medicare and Medicaid. The person may also have been covered by other public programs, but not by private insurance.

Medicare, Medicaid, and private—During 1980, the person was covered at some time by Medicare, Medicaid, and private insurance. The person may also have been covered by other public programs.

Medicare and private—During 1980, the person was covered at some time by Medicare and private insurance. The person may also have been covered by other public programs, but not by Medicaid.

Medicare and other—During 1980, the person was covered at some time by Medicare and other public sources, but not by Medicaid or private insurance.

SOURCE: Health Care Financing Administration and National Center for Health Statistics: Data from the National Medical Care Utilization and Expenditure Survey, 1980.

Table 3

Regression estimates for predicting private supplemental insurance coverage for aged Medicare beneficiaries, by independent variables: United States, 1980

Independent variable	Regression coefficient	Joint F statistic[1]	Probability level[1]
Medicaid indicator	−0.3109	104.10	<0.0001
Education	0.0205	44.06	<0.0001
White[2]	0.1408	13.33	0.0005
Age	−0.0060	17.26	0.0001
Poverty level	0.0002	6.43	0.0135
Married[2]	0.0612	6.61	0.0123
Number of chronic conditions	0.0145	15.31	0.0002
Had a usual source of care[2]	0.1042	8.30	0.0053
Region[2,3]:			
Northeast	0.1361 ⎫		
North Central	0.1643 ⎬	3.86	0.0129
South	0.1014 ⎭		
Waiting time at usual source of care	−0.0004	2.01	0.1606
Charge for followup visit with general practitioner	0.0019	1.98	0.1640
Travel time to usual source of care	−0.0005	1.46	0.2310
Short-term hospital beds per 1,000 persons	0.0077	0.35	0.5566
Intercept	0.4723	—	—

[1]The F statistic and probability level are given for the test of the hypothesis in which the regression coefficients equal zero.

[2]Omitted categories are: race other than white; not married (widowed, separated, divorced, or never married); had no usual source of care; and West region.

[3]Northeast, North Central, and South differ from West individually but do not differ from each other individually.

NOTES: Dependent variable = private Medicare supplement. Model F = 20.29, a = 0.0001; R^2 = 0.225.

SOURCE: Health Care Financing Administration and National Center for Health Statistics: Data from the National Medical Care Utilization and Expenditure Survey, 1980.

possessing private supplemental insurance coverage. Medicaid coverage, which was included as a control variable, had the most significant impact on obtaining a private Medicare supplement, as expected.

Among the personal characteristics, education had the most significant effect. The probability of having private supplemental coverage increased about 2.1 percent with each additional year of education and decreased 0.6 percent with each additional year of age. The probability of having a private Medicare supplement increased 1.5 percent with each additional chronic condition. White persons had a 14.1-percent greater probability of coverage than persons of other races had. Persons with a usual source of care were 10 percent more likely to have supplemental insurance than those without a usual source, although it may actually be that persons who had supplemental insurance were more likely to have a usual source of care. Elderly Medicare beneficiaries who were married at the time of the survey were about 6.1 percent more likely to have had private supplemental coverage than those who were not married. The likelihood of supplemental coverage increased 0.02 percent with each 1.0-percent increase in the poverty ratio, meaning that supplemental coverage was 2.0 percent greater for persons whose family income was twice the poverty level than for persons who were at the poverty level.

Among the community characteristics, only geographic region was significant. Persons living in the West region of the United States were 10-16 percent less likely to have a Medicare supplement than persons living in the other three regions were.

Discussion

The significant determinants of whether or not a Medicare beneficiary is covered by private supplemental insurance are mainly demographic characteristics. Education, age, race, poverty level, and marital status all had independent effects on the probability of having a private Medicare supplement. Among the community characteristics, only geographic region was significant. The level of available medical resources, the cost of medical care, and the cost of living in the community had no significant effect.

The importance of personal characteristics is consistent with differences observed in previous studies and in the NMCUES bivariate statistics (Table 2). It is expected that poor Medicare beneficiaries would be less likely to have private supplemental insurance than wealthier individuals because low-income persons are generally less likely to have worked for companies that offer supplemental Medicare insurance as a retirement benefit, and they are less able to afford insurance premiums. Although many poor, elderly Medicare beneficiaries received supplemental coverage through Medicaid, 56 percent of the elderly Medicare beneficiaries living at or below the poverty level and 63 percent with annual incomes of less than $5,000 were not covered by Medicaid in 1980 (Table 2).

Beneficiaries who were married had about a 6-percent greater probability of having private insurance than those who were unmarried. There is no obvious explanation for this result. However, one-third of private supplemental coverage is provided through

affiliations with present or former employers, and such coverage is often offered at group rates (Cafferata, 1984). Thus, it is possible that previously unemployed spouses of workers may be left without supplemental coverage when their marriage ends through death or divorce. This interpretation is supported by the fact that the lower rate of coverage among unmarried beneficiaries is probably not attributable to the loss of income associated with the loss of a spouse, because poverty level is also included in the model.

The presence of chronic conditions was the only one of three measures of health status in the model that was significant. As the number of chronic conditions increased, the probability of being insured rose. Two other measures in the model, perceived health status and functional limitations, were not related to private supplemental insurance coverage. In view of the positive effect of chronic conditions on supplemental coverage and the absence of any effect for the other two health-status measures, there is no unambiguous evidence that persons in poor health were less likely to obtain private supplemental insurance than other persons.

From this analysis, it appears that significant disparities in private supplemental insurance coverage existed in 1980 for groups of Medicare beneficiaries defined by several demographic characteristics. What, then, are the implications of having or not having supplemental insurance? In the aggregate, the impact of private supplemental coverage is to increase the total costs for health care, because the premiums paid by covered persons must equal the amount returned to them in benefits plus administrative cost and a fee for the assumption of risk. Supplemental insurance is likely to increase utilization, so the impact on aggregate costs will actually exceed administrative costs and fees.

The aggregate effects of supplemental insurance may be to increase health care expenditures, but the effects on individuals are much less certain. Equity concerns not only the differential possession of private supplemental health insurance but also the effects of lack of coverage on disadvantaged individuals. The individuals who are least likely to have supplemental coverage are older, not married, poorer, less educated, and of races other than white. However, it is for persons in these groups that the economic consequences of a severe illness are likely to be catastrophic. Thus, the disadvantaged bear a disproportionate share of the risks of catastrophic illness.

Coverage of out-of-pocket expenditures of more than $2,000 through the Medicare program is currently being proposed. Such coverage would have mixed consequences. For individuals without supplemental insurance, deductibles and copayments for out-of-pocket expenditures totaling less than $2,000 would be continued. This would benefit the Medicare program by maintaining the current front-end disincentives (deductible and copayment) on the use of health services by those without supplemental

coverage. Thus, current inequities in the use of health services between the less advantaged and more advantaged beneficiaries would probably be unchanged because only a small percentage of both groups exceeds $2,000 in out-of-pocket expenditures in any given year.

Although the proposed coverage would blunt the impact of catastrophic medical care expenditures, this might make supplemental coverage as it is currently structured less attractive to middle- and high-income beneficiaries. Persons whose total risk for Medicare-covered costs is limited to $2,000 might be more inclined to self-insure for amounts of less than $2,000. This would benefit the Medicare program by restoring the front-end disincentives to utilization represented in the out-of-pocket assumption of the deductible and copayment. However, the effect of the proposed changes on Medicare beneficiaries would also depend on the response of the insurance industry.

Limiting the liability of insurers offering supplemental insurance plans to a maximum of $2,000 could result in either lower premiums for supplemental insurance coverage or expansion of the coverage to services not included in Medicare. If the cost of supplemental coverage were substantially reduced, coverage might become more accessible to low-income individuals. If the development of long-term care coverage were accelerated, covered individuals might be less likely to spend down and become eligible for Medicaid. However, the widespread availability of private insurance for long-term care would probably create new inequities in exposure to the risk of catastrophic expenses. We would expect the same disadvantaged persons who are now less likely to have supplemental coverage to also be less likely to have new kinds of insurance for noncovered Medicare services.

The proposed coverage might benefit hospitals and physicians by covering coinsurance and copayment charges in excess of $2,000 that might otherwise remain unpaid by low-income individuals without private Medicare supplemental coverage. These unpaid charges have historically been shifted to other consumers. However, because cost shifting is currently being resisted by private insurers, the proposed coverage might serve to improve the financial position of providers, particularly those serving large numbers of low-income Medicare beneficiaries.

Summary

The objective of this analysis has been to determine how personal and community characteristics affect private supplemental insurance coverage among aged Medicare beneficiaries, after controlling for health status. The data used in the analysis came from the 1980 National Medical Care Utilization and Expenditure Survey, which was based on a national probability sample of noninstitutionalized persons in the United States. Coverage by private supplemental insurance was positively associated with education, income, the number of self-reported chronic

conditions, being married, being white, and having a regular source of care. Coverage was negatively associated with age and Medicaid coverage. No effects were found for community characteristics, except for U.S. Census Region. An attempt to explain regional variation with measures of local medical resource availability and cost of living was unsuccessful.

Although health insurance may increase aggregate health care costs, the fact that members of traditionally disadvantaged groups are less likely to have private supplemental insurance suggests that they bear a disproportionate share of the risks for catastrophic health care expenditures. Their increased exposure to the risk of catastrophic expenditures exists in spite of the availability of Medicaid coverage for the poor because only 44 percent of aged Medicare beneficiaries living at or below the poverty level had Medicaid coverage in 1980.

It is unclear what effect the currently proposed catastrophic coverage through the Medicare program would have on the distribution of supplemental coverage. The effects might depend on the response of the insurance industry to an anticipated reduction in the demand for supplemental coverage caused by the proposed $2,000 limit on out-of-pocket expenditures for Medicare-covered services. Lower premiums for supplemental coverage might make it more accessible to disadvantaged persons. Accelerated development of private insurance for services not covered by Medicare, such as long-term care, might, however, produce disparities in new types of coverage.

The proposed catastrophic coverage would probably benefit health care providers by increasing the number of low-income individuals with catastrophic coverage, thereby reducing the amount of uncompensated care.

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