

# A Study of the "Crossover Population": Aged Persons Entitled to Both Medicare and Medicaid

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*This study focused on persons 65 years of age and over who were dually entitled to Medicare and Medicaid in 1978. The paper examines their age, sex, and race characteristics, and their Medicare utilization and mortality rates in comparison to persons eligible for Medicare only.*

*The study showed that the group entitled to both Medicare and Medicaid was relatively much older than those with Medicare only, with a mean age of 76.6 years compared to 73.6 years. In the group entitled to both Medicare and Medicaid, the proportion of persons of minority races was four times as great as the proportion in the remaining population. Nevertheless, nearly three out of four persons entitled to both programs were white. In the group with dual eligibility, 71 percent were women, compared to only 59 percent in the Medicare-only population. Thus, the dually covered group may be characterized as being relatively older than other Medicare enrollees, largely composed of white persons and women, and as having a higher proportion of minority persons than the general population. The study showed that a much higher proportion of dually entitled persons were users of the Medicare program than were persons eligible for Medicare only. On a per-enrollee basis, reimbursement was substantially higher for those dually eligible. The study also found differences in the diagnostic conditions of the dually entitled. The data indicate (after being standardized for age) that the death rate was 50 percent higher for the dually entitled. This difference in mortality is partly attributable to the relatively high mortality rates for the medically needy; nonetheless, the mortality rate for the dually entitled who also received cash assistance was 20 percent higher than those for other Medicare enrollees. The excess mortality among this group was notably higher for the age group 65-69, with a 50 percent excess mortality, and for the age group 70-79, the excess mortality was 30 percent. Thus, the dually entitled, in general, experience higher mortality rates than those with Medicare only, and that fact very likely explains to a large extent the higher utilization rates found for the dually entitled in this study.*

*The paper concludes by raising some possible consequences of either Medicare or Medicaid coverage being altered or tightened.*

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## Introduction

The 1965 amendments to the Social Security Act created two distinct health insurance programs: Medicare for the aged and Medicaid for the poor. Recently, a number of changes have been suggested for these programs stemming from a need to contain the ever-rising expenditures. For Medicaid, proposals range from restricting program entitlement and benefits, altering reimbursement policies, and limiting freedom of choice of providers, to the most far-reaching of all—the federalization of Medicaid. For Medicare, proposals range from changes in program payment mechanisms and beneficiary cost-sharing to a fundamentally different financing system based on vouchers for Medicare beneficiaries.

Although Medicare and Medicaid are distinct programs, in 1980, an estimated 3.6 million aged persons were entitled to both. Consequently, any changes in one of the programs is likely to impact on the other. If benefits or eligibility are curtailed under Medicaid, persons entitled also to Medicare may substitute covered Medicare services for services that would otherwise have been covered by Medicaid. Similarly, changes in Medicare, for example increased cost-sharing, will shift the costs to Medicaid for the dual entitlements. Thus, knowledge about the characteristics of the population covered simultaneously by both programs, and their patterns of use, can be helpful in predicting the impact of any proposed changes to these programs.

This paper provides a description of the aged population entitled to both programs and analyzes their use of Medicare services. Aged persons in this study have qualified for Medicaid because they receive or are eligible for cash payments under a public assistance program, or are considered to be medically needy. Earlier studies have shown that the dually entitled population uses a higher than average proportion of Medicare services. A study published in 1973 focused on the use of physicians' services in 1969 (Piro, 1973). It showed that the aged population covered by both Medicare and Medicaid had higher proportions of persons in the older age groups; that there were larger proportions of women and persons of races other than white; and that reimbursements per enrollee were higher for the dually entitled. Another study by Peel and Scharff (1973), based on 1969 data from the Current Medicare Survey, showed that persons entitled to both Medicare and Medicaid had a higher number of services per user and a higher level of charges per user for ambulatory services than did other Medicare enrollees.

This study updates the earlier findings by presenting information for 1978 and analyzes a number of other important utilization variables including hospitalization and diagnostic case-mix. It also provides an estimate of total *per capita* expenditures made by these two public financing programs. In addition, the study analyzes mortality rates in order to determine

whether or not the health status of the aged poor (that is, aged persons who are dually entitled and who receive cash assistance) differs from that of the aged Medicare-only population.

Before presenting the findings of this study, it is necessary to discuss briefly the structures of Medicare and Medicaid. Medicare is a Federal program. Acute care in hospitals and related post-hospital services provided by skilled nursing facilities and home health agencies are covered under Part A, the hospital insurance (HI) program. Physicians' and other related services are covered under Part B, the supplementary medical insurance (SMI) program. In addition, Part B also covers outpatient and home health services.

Of the total population 65 years and over in the nation, 95-98 percent are eligible for Medicare coverage. Currently, the major exceptions are certain aliens and Federal civil service employees and annuitants.<sup>1</sup> Effective in July 1973, Medicare coverage was extended to disabled persons under 65 years of age receiving cash benefits under the social security law for at least 24 consecutive months and persons under 65 years who have end-stage renal disease.

Medicaid is a State-Federal program that varies from State to State. Each Medicaid program is required to provide several basic services including inpatient hospital care, outpatient hospital care and rural health clinic services; other laboratory and X-ray services, skilled nursing facility care, and physicians' services. States may include additional services such as prescribed drugs, eyeglasses, and dental services.

State Medicaid programs must cover all groups or categories of people who are eligible to receive cash payments under one of the existing welfare programs established under the Social Security Act; that is, Title IV-A, the program of Aid to Families with Dependent Children, or Title XVI, the Supplemental Security Income program for the aged, blind, and disabled. In addition, States can elect to extend Medicaid coverage to the "medically needy"—those whose income resources are within limits set under the Medicaid State plan, or those who "spend down" their income because of large medical bills. Some States also provide Medicaid coverage to certain special groups not included in any of the Federal categories, that is, not entitled to Federal matching funds. Under the Medicare law, States may buy coverage in the SMI program for persons eligible for cash assistance or for medical assistance. For persons enrolled in both Medicare and Medicaid, Medicare makes the primary payment for Medicare-covered services.

<sup>1</sup>The Tax Equity and Fiscal Responsibility Act of 1982 provides for the inclusion of Federal employees under Medicare.

## Methods

### Sources of the Data

The analysis of services presented in this study is limited to services covered under the Medicare program. These utilization data come from the Medicare Statistical System, which is a by-product of the Medicare administrative record-keeping system. The study also uses information on the number of Medicaid recipients, which comes from the Medicaid annual reporting system. Because Medicaid data reported to the Health Care Financing Administration (HCFA) annually are available only on an aggregated basis, we could not link utilization data from both programs.<sup>2</sup>

Most of the utilization data were drawn from the Continuous Medicare History Sample (CMHS), a sub-file of the Medicare Statistical System. This sub-file was begun with 1974 data and was designed to provide a longitudinal data base for studying Medicare program use with a 5-percent sample of enrollees. Selected data from enrollment and utilization files have been combined into one record for each sample person. The CMHS is a 5-percent probability sample of all Medicare enrollees based on Medicare claim number. In periodic updates of the CMHS, new information on the use of Medicare benefits, derived from claims for payments, is appended to the sample enrollees' records. Because these data are based on a *sample* of enrollees, there are sampling errors associated with the estimates in this paper. A discussion of sampling error and tables of standard errors are given in the Technical Note.

### Limitations of the Data

A limitation of this study involves identifying the population enrolled both in Medicare and in a State Medicaid program (often called the "crossover" population). In the Medicare Statistical System (MSS) there is no direct indicator that the Medicare enrollee is also enrolled in a State Medicaid program. However, there is a code used in the MSS known as the "buy-in indicator" which was used in this study to identify most of the crossover population.

As noted earlier, States may buy coverage in the supplementary medical insurance (SMI) program for persons who are eligible for cash assistance or for medical assistance. To do so, States pay the monthly SMI premiums for these individuals. In 1978, the annual premium amounted to \$95.40 for each enrollee.

<sup>2</sup>Two followup studies are being planned for analyzing the use of all health care services by persons covered simultaneously under Medicare and Medicaid. One study will use data collected in the National Medical Care Utilization and Expenditures Survey (NMCUES); the other study will use person-level data from the Medicaid Management Information System (MMIS).

When persons are eligible under both programs, Medicare makes the primary payment for the Medicare service, and the State Medicaid obligation is limited to the deductible and coinsurance amounts.

States also have the option of deciding whether to buy coverage for all of their Medicare-eligible persons or only some of them. In 1978, 45 State Medicaid programs and the District of Columbia had buy-in agreements with the Federal government for some or all of their eligible population. Of those States with buy-in agreements in 1978, 21 bought coverage for cash assistance recipients only; the other 25 States bought coverage for both their cash and non-cash recipients.

Alaska entered into a buy-in agreement effective October 1982. Louisiana, Oregon, and Wyoming still do not have buy-in agreements for any of their Medicaid enrollees. Although Arizona has no Medicaid program, the State buys in to Medicare-Part B for its supplemental security income (SSI) population.<sup>3</sup> In 1982, Michigan and Wisconsin broadened their agreements to cover the medically needy. Medicare enrollees who are covered for SMI services through State buy-in agreements are referred to in this report as the "buy-in population" or simply the "buy-ins."

The study population was confined to persons covered by both parts A and B of Medicare; that is, persons covered by only *one* part of Medicare were excluded. An estimated 96 percent of the buy-ins had coverage under both parts of Medicare.

### Standardization of Rates

The age distribution of the buy-in population included in the study was very different from the comparison group. Thus, comparisons of the overall rates between the two groups could be misleading. To correct the crude rates for differences due to age composition, rates were standardized by the direct method, using the age composition of the total study population as the standard. The standardized rates are shown in the utilization, diagnosis, and mortality tables.

<sup>3</sup>Title XVI of the Social Security Act provides cash assistance for the aged, blind, and disabled who have little or no income or resources.

## Findings

During 1978, there were 24.7 million aged persons in the U.S. enrolled in the SMI program (Table 1). Of these, 2.8 million persons or 11.4 percent were enrolled sometime during that year through State buy-in agreements. That percentage differed greatly among States. Several southern States and California had percentages of buy-ins that were nearly double or

greater than the national average: South Carolina (22.9), Georgia (24.2), Alabama (27.9), Mississippi (31.2), Arkansas (24.3), and California (22.3). In contrast, the percentage of buy-ins was relatively low in other States: Connecticut (2.4), New Hampshire (2.5), Illinois (3.9), Minnesota (3.5), and Nebraska (3.2). These figures reflect differences by State in the proportions of the aged in the States' Medicaid programs as well as whether or not the State bought Medicare coverage for all eligible persons.

TABLE 1

Number of Aged Supplementary Medical Insurance Enrollees and Medicare Buy-ins Ever Enrolled During 1978 and Number of Aged Medicaid Recipients, by State, 1978

Area of Residence	Medicare (Ever enrolled)			Medicaid			
	Total SMI Enrollment (000)	Medicare "Buy-ins" (000)	Buy-ins as Percent of SMI Enrollment	Medicaid Recipients (000)	Does State Buy in all Medicaid Eligibles?	Buy-ins as Percent of Medicaid Recipients	Medicaid Recipients as Percent of SMI Enrollment
U.S. Total <sup>1</sup>	24,703.7	2,818.6	11.4	3,385.3	—	83.8	13.6
Northeast	6,022.0	484.6	8.0	783.4	—	61.9	13.0
New England	1,504.4	129.7	8.6	308.4	—	42.1	20.5
Maine	142.4	14.6	10.3	18.6	No	78.5	13.1
New Hampshire	101.4	2.5	2.5	10.6	No	23.6	10.5
Vermont	58.7	5.4	9.2	8.6	No	62.8	14.6
Massachusetts	718.8	89.6	12.5	205.9	No	43.5	28.7
Rhode Island	124.6	9.0	7.2	34.8	No	25.9	27.9
Connecticut	358.6	8.6	2.4	29.9	No	28.8	8.3
Middle Atlantic	4,517.6	354.9	7.9	475.0	—	74.7	10.5
New York	2,160.1	204.3	9.5	312.6	No	65.4	14.5
New Jersey	850.1	85.5	7.7	59.2	Yes <sup>2</sup>	110.6	7.0
Pennsylvania	1,507.5	85.1	5.6	103.2	No	82.5	6.8
North Central	6,661.7	424.7	6.4	591.2	—	71.8	8.9
East North Central	4,457.5	267.0	6.0	363.6	—	73.4	8.2
Ohio	1,154.2	83.3	7.2	80.9	Yes <sup>2</sup>	103.0	7.0
Indiana	578.7	33.6	5.8	32.9	Yes <sup>2</sup>	102.1	5.7
Illinois	1,245.0	48.1	3.9	87.6	No	54.9	7.0
Michigan	911.4	59.9	6.6	89.7	No <sup>3</sup>	66.8	9.8
Wisconsin	568.3	42.2	7.4	72.5	No <sup>3</sup>	58.2	12.8
West North Central	2,204.3	157.7	7.2	227.6	—	69.3	10.3
Minnesota	480.9	16.6	3.5	60.9	No	27.3	12.7
Iowa	392.6	32.2	8.2	32.2	Yes <sup>2</sup>	100.0	8.2
Missouri	643.2	65.6	10.2	72.3	Yes <sup>2</sup>	90.7	11.2
North Dakota	81.4	4.0	4.9	8.2	No	43.8	10.1
South Dakota	91.7	5.9	6.4	11.6	Yes <sup>2</sup>	50.9	12.6
Nebraska	207.7	6.6	3.2	15.3	No	43.1	7.4
Kansas	306.8	26.7	8.7	27.1	Yes	98.5	8.8

(continued)

TABLE 1 (continued)

**Number of Aged Supplementary Medical Insurance Enrollees and Medicare Buy-ins Ever Enrolled During 1978 and Number of Aged Medicaid Recipients, by State, 1978**

Area of Residence	Medicare (Ever enrolled)				Medicaid		
	Total SMI <sup>1</sup> Enrollment (000)	Medicare "Buy-ins" <sup>1</sup> (000)	Buy-ins as Percent of SMI Enrollment	Medicaid <sup>2</sup> Recipients (000)	Does State Buy in all Medicaid Eligibles?	Buy-ins as Percent of Medicaid Recipients	Medicaid Recipients as Percent of SMI Enrollment
South	7,935.7	1,252.7	15.8	1,313.4	—	95.4	16.8
South Atlantic	4,016.7	532.1	13.2	525.4	—	101.3	13.1
Delaware	57.9	3.8	6.6	5.8	Yes <sup>3</sup>	65.5	10.0
Maryland	368.5	42.1	11.4	42.6	Yes	98.8	11.6
District of Columbia	68.5	13.1	19.1	10.7	Yes	122.4	15.6
Virginia	472.0	61.0	12.9	61.0	Yes	100.0	12.9
West Virginia	233.6	22.2	9.5	32.6	No	68.1	14.0
North Carolina	568.1	84.4	14.9	89.2	Yes	94.6	15.7
South Carolina	266.6	61.1	22.9	56.5	Yes <sup>2</sup>	108.1	21.2
Georgia	486.1	117.5	24.2	122.5	Yes <sup>2</sup>	95.9	25.2
Florida	1,495.4	126.9	8.5	104.5	Yes <sup>2</sup>	121.4	7.0
East South Central	1,597.1	352.1	22.0	322.3	—	109.2	20.2
Kentucky	403.4	62.3	15.4	68.7	No	90.7	17.0
Tennessee	495.1	85.9	17.4	70.1	No	122.5	14.2
Alabama	420.8	117.3	27.9	101.6	Yes <sup>2</sup>	115.5	24.1
Mississippi	277.8	86.6	31.2	81.9	Yes <sup>2</sup>	105.7	29.5
West South Central	2,321.9	368.5	15.9	465.7	—	79.1	20.1
Arkansas	300.1	72.8	24.3	64.9	Yes	112.2	21.6
Louisiana <sup>4</sup>	364.0	0	—	102.5	—	—	28.2
Oklahoma	360.0	44.9	12.5	54.8	No	81.9	15.2
Texas	1,297.4	250.9	19.3	243.5	Yes <sup>2</sup>	103.0	18.8
West	4,062.3	656.7	16.2	677.5	—	96.9	16.7
Mountain	984.8	90.6	9.2	82.0	—	110.5	8.3
Montana	84.1	7.9	9.4	7.3	Yes	108.2	8.7
Idaho	90.6	8.4	7.1	11.3	Yes <sup>2</sup>	56.6	12.5
Wyoming <sup>4</sup>	37.1	0	—	2.1	—	—	5.7
Colorado	237.4	32.2	13.6	35.9	Yes <sup>2</sup>	89.7	15.1
New Mexico	106.7	16.8	15.7	12.0	Yes <sup>2</sup>	140.0	11.2
Arizona <sup>4</sup>	270.0	16.4	6.1	—	—	—	—
Utah	101.5	6.3	6.2	8.9	Yes	70.8	8.8
Nevada	57.4	4.6	8.0	4.5	Yes <sup>2</sup>	102.2	7.8
Pacific	3,077.5	566.1	18.4	595.5	—	95.1	19.4
Washington	411.9	42.9	10.4	45.0	Yes	95.3	10.9
Oregon <sup>4</sup>	288.2	0	—	19.4	—	—	6.7
California	2,300.5	513.6	22.3	518.5	Yes	99.1	22.5
Alaska <sup>4</sup>	8.7	0	—	1.5	—	—	17.2
Hawaii	68.2	9.7	14.2	11.1	Yes	87.4	16.3

<sup>1</sup>Includes residence unknown.

<sup>2</sup>No "Medically needy" program.

<sup>3</sup>Modified buy-in agreement in 1981 to include the medically needy.

<sup>4</sup>State does not buy in for Part B (SMI) coverage.

<sup>5</sup>No Medicaid Program, State buys-in for Supplemental Security Income (SSI) recipients.

<sup>6</sup>Entered into Buy-in agreement effective October, 1982.

SOURCES: Health Care Financing Administration: Bureau of Data Management and Strategy, Office of Statistics and Data Management, Data from the Medicare Statistical System, and Office of Financial and Actuarial Analysis, Data from the Medicaid Data File; Bureau of Program Operations. Data on State buy-ins for Medicaid eligibles.

No data have been available on a continuing basis for the total number of aged persons in the U.S. who are eligible each year for Medicaid. However, Medicaid program statistics show that 3.4 million aged persons received at least one Medicaid-covered service in 1978.<sup>4</sup> Hence, the 2.8 million aged Medicare enrollees identified as buy-ins in 1978 constituted 83.8 percent of aged persons identified as Medicaid recipients that year. It is generally believed that at least 95-97 percent of aged persons enrolled in Medicaid are recipients of at least one Medicaid-covered service each year. Thus, it is apparent that most, but clearly not all, aged persons with Medicaid entitlement can be identified through the Medicare buy-in indicator.

Aged buy-ins as a percentage of aged Medicaid recipients differed considerably among the States. In 28 States, the buy-ins represented 80 percent or more of the total aged Medicaid recipients whereas in 7 States the buy-ins were 50 percent or less of the total aged Medicaid recipients. These figures reflect differences by State in whether or not a State bought coverage for all eligible persons as well as the proportion of recipients to total Medicaid eligibles.

Nationwide, in 1978, aged Medicaid recipients (3.4 million persons) comprised 13.6 percent of the aged

<sup>4</sup>This number comes from Medicaid State Tables, Fiscal Year 1978, Recipients, Payments, and Services, U.S. Dept. of Health and Human Services, Health Care Financing Administration. The National Medical Care Utilization and Expenditures Survey showed that there were approximately 3.6 million aged persons who reported themselves as entitled to both Medicare and Medicaid in 1980.

SMI enrollment. The comparable percentages by State ranged from 29.5 percent in Mississippi to 5.7 percent in Wyoming. Medicaid recipients as a percent of the SMI enrollment represent a better estimate of Medicare-Medicaid crossovers than does the percent of the aged identified by the buy-in indicator.

### Demographic Characteristics

As noted earlier, the study population included only persons with both HI and SMI coverage. Table 2 shows the demographic characteristics of the study population. Of the 23.0 million Medicare beneficiaries enrolled under both HI and SMI, 2.4 million persons were identified as having dual entitlement to Medicare and Medicaid (using the buy-in indicator for the determination). The distribution of the study population by age shows that the buy-in group was much older, with 17.3 percent 80-84 years old and another 18.3 percent 85 years and over. In contrast, in the group without buy-in status, 11.9 percent were 80-84 years of age and 7.9 percent were 85 years and over.

In the group with buy-in status, 28.8 percent were men and 71.2 percent were women. Thus, more than 7 of 10 in the buy-in population were women. For the group without buy-in, the percentages were 41.3 men and 58.7 percent women.

There were considerable differences by race. A much greater proportion of persons of races other than white was found among the buy-ins than in the comparison group. About three-fourths or 73.8 percent of the buy-ins were white and one-fourth or 24.3

**TABLE 2**  
**Number and Percent Distribution of Medicare Beneficiaries in the Study by Buy-in Status and Age, Sex, and Race, U.S., July 1, 1978**

Age, Sex, and Race	All Persons		Without Buy-in		With Buy-in	
	Number (000)	Percent	Number (000)	Percent	Number (000)	Percent
U.S. Total	22,954	100.0	20,574	100.0	2,380	100.0
<b>Age</b>						
65-69	7,663	33.4	7,165	34.8	498	20.9
70-74	6,025	26.3	5,511	26.8	514	21.6
75-79	4,352	19.0	3,833	18.3	520	21.8
80-84	2,852	12.4	2,441	11.9	412	17.3
85 and over	2,061	9.0	1,625	7.9	437	18.3
<b>Sex</b>						
Men	9,180	40.0	8,493	41.3	687	28.8
Women	13,774	60.0	12,080	58.7	1,694	71.2
<b>Race</b>						
White	20,479	89.2	18,722	91.0	1,756	73.8
Other	1,852	8.1	1,273	6.2	579	24.3
Unknown	623	2.7	579	2.8	45	1.9

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Statistics and Data Management: Data from the Medicare Statistical System.

percent were persons of other races. Among those without buy-in status, 91.0 percent were white, and only 6.2 percent were persons of races other than white.

Table 3 shows that 10 percent of the persons in the study population were buy-ins. For all races combined, the percentages of buy-ins were higher for older age groups, ranging from 6 percent for the age group 65-69 years to 21 percent for persons 85 years and over. Of the total white enrollees, 9 percent were buy-ins, in comparison to 31 percent of persons of other races who were buy-ins. Further, among persons of races other than white there were very high proportions of buy-ins in the three oldest age groups. As shown, among persons of races other than white, 37 percent of all persons age 75-79 years were buy-ins; in the age group 80-84, the figure was 41 percent; and in the age group 85 and over, 51 percent were buy-ins. The corresponding percentages for white persons were only 10, 13, and 19 respectively.

**TABLE 3**

**Buy-ins as a Percent of All Medicare Enrollees in the Study, by Age and Race, U.S., 1978**

Age	All Persons	White	All Other Races
	Percentage with Buy-in Status		
U.S. Total	10	9	31
65-69	6	5	23
70-74	9	8	29
75-79	12	10	37
80-84	14	13	41
85 and over	21	19	51

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Statistics and Data Management: Data from the Medicare Statistical System.

**Utilization**

The proportion of persons who used Medicare benefits was substantially greater for the buy-in population than for those without buy-in under both HI and SMI, and for each type of service (Tables 4, 5, and 6).

Overall 230 persons per 1,000 enrollees used HI benefits (Table 4). The rate for the buy-ins was 320 persons served per 1,000 or 1.5 times the rate of 220 per 1,000 for those without buy-in. When these rates were standardized to correct for differences in the age composition, the ratio of the rates of buy-ins to those without buy-in dropped to 1.4. In the age group 65-69 years, the number of persons served per 1,000 was 60 percent higher for the buy-ins than those with-

out buy-in. The difference between the two groups diminished dramatically in the oldest age group with the rate of persons served per 1,000 only 20 percent greater for buy-ins age 85 years and over.

Under the SMI program, differences in persons served per 1,000 enrollees were not as great between the buy-ins and those without buy-in. Overall, under the SMI program, there were 595 persons served per 1,000 enrollees (Table 5). The rate of 756 per 1,000 for the buy-ins was 1.3 times the rate of 577 per 1,000 for non-buy-ins. The standardized rates also resulted in a ratio of 1.3.

The proportions of persons served in the buy-in group were greater for each type of service than for those in the non-buy-in status, whether measured by the actual or standardized rates (Table 6). Using the standardized rates, the greatest ratios between the two groups were in the use of home health agency services -SMI (2.0), home health agency services -HI (1.7), and other medical services (1.7). It is interesting to note that standardizing for age had its greatest effect on the rate of use of skilled nursing facilities, changing the ratio of buy-ins to non-buy-ins from 2.3 to 1.6.

The next series of tables show average reimbursements on a *per user* basis and on a *per enrollee* basis. Average reimbursements per user reflects the intensity of use of services by those who actually use program services. Average reimbursement per enrollee reflects the proportion of users as well as the average amount reimbursed per user of services.

Data on average reimbursements per user under HI and SMI by age, sex, and race are shown in Tables 7 and 8. As the data indicate, differences in per user rates were not very great. Under HI the average reimbursement per user for buy-ins was \$2,861 compared to \$2,560 for those without buy-in, resulting in a ratio of 1.1. The standardized rates also produced a ratio of 1.1.

As noted in other measures of use, the ratio of reimbursements per user of buy-ins to those without buy-in under HI was highest (1.2) for the youngest age group, 65-69 years; for the oldest age group, 85 years and over, the reimbursement rates for buy-ins were about the same as for the comparison group. Under SMI, reimbursements per user were \$488 for buy-ins and \$411 for those without buy-in—a ratio of 1.2. Standardizing the rates resulted in only slight changes, maintaining the 1.2 ratio. Thus, the intensity of use of Medicare dollars was not substantially different for the actual users of services among the buy-ins compared to the non-buy-ins.

**TABLE 4**  
**Hospital Insurance: Persons Served Per 1,000 Enrollees by**  
**Buy-in Status and by Age, Sex, and Race, U.S., 1978**

Age, Sex, and Race	Persons Served Per 1,000 Enrolled			Ratio: With to Without Buy-in
	Total	Without Buy-in	With Buy-in	
U.S. Total	230	220	320	1.5
U.S.—Age Adjusted		222	306	1.4
Age:				
65-69	178	172	268	1.6
70-74	214	206	298	1.4
75-79	252	243	319	1.3
80-84	294	285	347	1.2
85 and over	334	322	378	1.2
Sex:				
Men	246	238	347	1.5
Women	219	207	309	1.5
Race:				
White	232	222	339	1.5
Other	207	183	262	1.4

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Statistics and Data Management: Data from the Medicare Statistical System.

**TABLE 5**  
**Supplementary Medical Insurance: Persons Served Per 1,000**  
**Enrollees by Buy-in Status and by Age, Sex, and Race, U.S., 1978**

Age, Sex, and Race	Persons Served Per 1,000 Enrollees			Ratio: With to Without Buy-in
	Total	Without Buy-in	With Buy-in	
U.S. Total	595	577	756	1.3
U.S.—Age Adjusted		580	741	1.3
Age:				
65-69	530	518	703	1.4
70-74	586	573	723	1.3
75-79	631	615	755	1.2
80-84	663	642	787	1.2
85 and over	697	662	830	1.3
Sex:				
Men	573	561	722	1.3
Women	610	588	770	1.3
Race:				
White	600	583	779	1.3
Other	550	488	686	1.4

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Statistics and Data Management: Data from the Medicare Statistical System.



**TABLE 6**

**Aged Persons Served Per 1,000 Enrollees by Type of Medicare Service and by Buy-in Status, U.S. 1978**

Type of Service	Persons Served Per 1,000 Enrollees						Ratio: With to Without Buy-in	
	All Persons	Without Buy-in		With Buy-in				
		Actual	Standardized <sup>1</sup>	Actual	Standardized <sup>1</sup>	Actual	Standardized <sup>1</sup>	
Inpatient Hospital	227	217	220	315	302	1.5	1.4	
Skilled Nursing Facility	8	7	8	16	13	2.3	1.6	
Home Health Agency -HI	23	21	21	38	36	1.8	1.7	
Physicians' Services	569	552	555	721	704	1.3	1.3	
Other Medical Services	162	149	151	280	258	1.9	1.7	
Outpatient Services	227	214	215	333	336	1.6	1.6	
Home Health Agency -SMI	10	9	9	20	18	2.2	2.0	

<sup>1</sup>Age adjusted.

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Statistics and Data Management: Data from the Medicare Statistical System.

**TABLE 7**

**Hospital Insurance: Reimbursements Per User by Buy-in Status and by Age, Sex, and Race, U.S., 1978**

Age, Sex, and Race	Reimbursement Per User			
	Total	Without Buy-in	With Buy-in	Ratio: With to Without Buy-in
U.S. Total	\$2,604	\$2,560	\$2,861	1.1
U.S.—Age Adjusted		2,538	2,878	1.1
Age:				
65-69	2,412	2,362	2,875	1.2
70-74	2,570	2,529	2,872	1.1
75-79	2,718	2,675	2,957	1.1
80-84	2,726	2,691	2,897	1.1
85 and over	2,712	2,713	2,710	1.0
Sex:				
Men	2,652	2,614	2,971	1.1
Women	2,568	2,517	2,811	1.1
Race:				
White	2,573	2,537	2,826	1.1
Other	3,008	3,020	2,990	1.0

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Statistics and Data Management: Data from the Medicare Statistical System.

TABLE 8

**Supplementary Medical Insurance: Reimbursements Per User  
by Buy-in Status and by Age, Sex, and Race, U.S., 1978**

Age, Sex, and Race	Reimbursement Per User			Ratio: With to Without Buy-in
	Total	Without Buy-in	With Buy-in	
U.S. Total	\$421	\$411	\$488	1.2
U.S.—Age Adjusted		410	498	1.2
Age:				
65-69	401	390	512	1.3
70-74	423	412	514	1.2
75-79	436	427	490	1.1
80-84	434	427	470	1.1
85 and over	430	422	453	1.1
Sex:				
Men	476	468	548	1.2
Women	387	373	466	1.2
Race:				
White	421	411	499	1.2
Other	430	415	455	1.1

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Statistics and Data Management: Data from the Medicare Statistical System.

Reimbursement amounts per user were developed for each State (but not presented here) to determine the ratios for the buy-ins to the non-buy-ins. For nearly every State the ratio was close to 1.0 for HI and SMI. However, in a few States the intensity of use of services by the buy-in group was considerably greater than the use by the non-buy-ins. In those States, the average reimbursement per user in the buy-in group was at least 40 percent higher than that for the non-buy-ins, as shown:

	HI	
Nevada		1.7
Vermont		1.5
Illinois		1.4
New Jersey		1.4
	SMI	
Hawaii		1.5
District of Columbia		1.5
Connecticut		1.5
New Jersey		1.4

Because the proportion of users was so much greater, the reimbursement on a per enrollee basis was much higher for the buy-ins than for non-buy-ins. For all age groups combined, reimbursements under HI were 60 percent higher for the buy-ins than for those

without buy-in (Table 9). The standardized rates resulted in a difference of 50 percent. The difference was greatest for the youngest age group, 65-69 years, where the average reimbursement was nearly twice as high for the buy-ins as for non-buy-ins. The disparity in reimbursement per enrollee decreases for older age groups: for persons 85 years and over, the reimbursement per enrollee for the buy-ins was only 20 percent higher than for non-buy-ins.

The ratios of reimbursement per enrollee under SMI were similar to those observed under HI. Overall, the standardized rates produced a ratio of 1.5; that is, reimbursements per enrollee were 50 percent higher for the buy-ins (Table 10). By age, the pattern was similar to that noted under HI, that is, the disparity was greatest for the youngest age group and was considerably less for older age groups.

Table 11 shows average reimbursement per enrollee by State. As shown, there was a wide range in average reimbursement per enrollee under both parts of Medicare. Under HI, several States showed average reimbursement per enrollee for buy-ins that were two times (or more) the rate for non-buy-ins: Vermont (2.4), Connecticut (2.2), New Jersey (2.3), Illinois (2.1), North Carolina (2.1), Colorado (2.0), Utah (2.3), Nevada (2.9), Washington (2.1), and Hawaii (2.4).

**TABLE 9**  
**Hospital Insurance: Reimbursements Per Enrollee by Buy-in**  
**Status and by Age, Sex, and Race, U.S., 1978**

Age, Sex, and Race	Reimbursement Per Enrollee			Ratio: With to Without Buy-in
	Total	Without Buy-in	With Buy-in	
U.S. Total	\$598	\$562	\$914	1.6
U.S.—Age Adjusted		570	879	1.5
Age:				
65-69	429	405	771	1.9
70-74	549	520	856	1.6
75-79	686	651	943	1.4
80-84	802	768	1,006	1.3
85 and over	906	874	1,025	1.2
Sex:				
Men	652	621	1,029	1.7
Women	563	520	868	1.7
Race:				
White	598	564	959	1.7
Other	624	551	784	1.4

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Statistics and Data Management: Data from the Medicare Statistical System.

**TABLE 10**  
**Supplementary Medical Insurance: Reimbursement Per Enrollee**  
**by Buy-in Status and by Age, Sex, and Race, U.S., 1978**

Age, Sex, and Race	Reimbursement Per Enrollee			Ratio: With to Without Buy-in
	Total	Without Buy-in	With Buy-in	
U.S. Total	\$251	\$237	\$369	1.6
U.S.—Age Adjusted		238	368	1.5
Age:				
65-69	212	202	360	1.8
70-74	248	236	371	1.6
75-79	275	262	370	1.4
80-84	288	274	370	1.4
85 and over	300	279	376	1.3
Sex:				
Men	273	263	396	1.5
Women	236	219	359	1.6
Race:				
White	253	240	389	1.6
Other	237	202	312	1.5

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Statistics and Data Management: Data from the Medicare Statistical System.

Under SMI, there were two States with average reimbursements per enrollee twice as high for buy-ins as for those without buy-in—Utah and Hawaii.

The relatively large disparities found in the HI and SMI programs (between the buy-ins and the non-buy-ins) in the proportion of users indicates that the probability of illness and use of services is far greater among the buy-ins. On the other hand, the relatively small differences generally found in the average reimbursement per user suggests that—once sick—the intensity of use of program dollars does not differ greatly between the two groups. Thus, the large dif-

ferences in average reimbursement per enrollee for the two groups primarily reflects the large differences in the proportion of users.

These findings parallel those nearly always observed in the Medicare program regarding younger and older beneficiaries. Consistently, the proportion of users in the older age groups has been found to be far greater than the proportion of users in the younger age groups. Yet, the average reimbursement per user has been found to be similar for every age group, resulting, nonetheless, in large differences in average reimbursements per enrollee by age groups.

**TABLE 11**  
**Medicare Reimbursements Per Enrollee by Buy-in Status and by State, 1978**

Area of Residence	HI				SMI			
	All Persons	Without Buy-in	With Buy-in	Ratio: With to Without Buy-in	All Persons	Without Buy-in	With Buy-in	Ratio: With to Without Buy-in
United States	\$598	\$562	\$ 914	1.6	\$251	\$237	\$369	1.6
Northeast	650	618	1,075	1.7	277	268	398	1.5
New England	658	626	1,019	1.6	259	252	347	1.4
Maine	572	536	898	1.7	203	194	285	1.5
New Hampshire	470	461	850	1.8	189	187	289	1.5
Vermont	508	451	1,064	2.4	195	186	277	1.5
Massachusetts	750	712	1,039	1.5	277	267	350	1.3
Rhode Island	596	582	791	1.4	302	299	353	1.2
Connecticut	606	590	1,296	2.2	262	257	449	1.7
Middle Atlantic	647	615	1,097	1.8	283	273	419	1.5
New York	684	650	1,071	1.6	309	298	428	1.4
New Jersey	606	560	1,265	2.3	268	273	506	1.9
Pennsylvania	618	596	1,033	1.7	244	239	332	1.4
North Central	631	607	1,023	1.7	213	207	308	1.5
East North Central	659	634	1,081	1.7	220	213	333	1.6
Ohio	603	572	1,037	1.8	200	190	329	1.7
Indiana	555	533	942	1.8	188	182	287	1.6
Illinois	742	716	1,530	2.1	222	217	381	1.8
Michigan	732	712	1,037	1.5	275	270	361	1.3
Wisconsin	577	555	887	1.6	199	193	286	1.5
West North Central	575	550	927	1.7	199	194	267	1.4
Minnesota	557	546	918	1.7	215	213	292	1.4
Iowa	535	504	906	1.8	179	173	253	1.5
Missouri	616	581	948	1.6	199	193	261	1.4
North Dakota	585	578	708	1.2	196	193	249	1.3
South Dakota	504	489	770	1.6	155	152	198	1.3
Nebraska	534	520	1,010	1.9	175	172	272	1.6

(continued)

**TABLE 11 (Continued)**

**Medicare Reimbursements Per Enrollee by Buy-in Status and by State, 1978**

Area of Residence	HI				SMI			
	All Persons	Without Buy-in	With Buy-in	Ratio: With to Without Buy-in	All Persons	Without Buy-in	With Buy-in	Ratio: With to Without Buy-in
<b>South</b>	522	486	742	1.5	228	218	289	1.3
South Atlantic	537	502	801	1.6	251	241	328	1.4
Delaware	609	584	942	1.6	221	217	268	1.2
Maryland	692	643	1,104	1.7	268	248	430	1.7
District of Columbia	704	640	987	1.5	362	327	516	1.6
Virginia	503	462	799	1.7	211	197	307	1.6
West Virginia	454	441	606	1.4	150	148	185	1.3
North Carolina	449	392	814	2.1	167	149	280	1.9
South Carolina	410	367	574	1.6	156	146	194	1.3
Georgia	453	420	570	1.4	210	198	250	1.3
Florida	594	562	1,037	1.8	332	321	490	1.5
East South Central	476	441	618	1.4	174	163	215	1.3
Kentucky	451	430	590	1.4	149	144	187	1.3
Tennessee	481	449	650	1.4	177	172	204	1.2
Alabama	512	483	595	1.2	189	181	215	1.2
Mississippi	452	377	636	1.7	180	153	246	1.6
West South Central	528	485	775	1.6	225	211	304	1.4
Arkansas	447	399	613	1.5	201	191	239	1.3
Louisiana <sup>1</sup>	519	519	—	—	189	188	—	—
Oklahoma	546	516	595	1.2	200	194	247	1.3
Texas	544	484	819	1.7	247	228	332	1.5
<b>West</b>	618	541	1,051	1.9	319	281	536	1.9
Mountain	532	502	846	1.7	251	245	314	1.3
Montana	549	538	666	1.2	228	219	322	1.5
Idaho	412	396	629	1.6	184	181	225	1.2
Wyoming <sup>1</sup>	490	486	—	—	178	176	—	—
Colorado	607	540	1,054	2.0	247	233	346	1.5
New Mexico	488	462	630	1.4	249	250	245	1.0
Arizona <sup>2</sup>	558	557	582	1.0	301	303	250	0.8
Utah	392	365	852	2.3	190	180	361	2.0
Nevada	641	550	1,612	2.9	335	311	386	1.9
Pacific	645	554	1,085	2.0	341	293	573	2.0
Washington	513	464	968	2.1	233	221	350	1.6
Oregon <sup>1</sup>	537	536	—	—	227	227	—	—
California	684	576	1,093	1.9	377	320	592	1.9
Alaska <sup>2</sup>	994	966	—	—	384	381	—	—
Hawaii	557	480	1,143	2.4	291	258	543	2.1

<sup>1</sup>No State buy-in agreement.

<sup>2</sup>No Medicaid program. State buys in for supplemental security income (SSI) recipients.

<sup>3</sup>Entered into buy-in agreement effective October, 1982.

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Statistics and Data Management: Data from the Medicare Statistical System.

## Short-Stay Hospital Discharges by Diagnosis

For the two population groups, the rate of short-stay hospital discharges per 1,000 enrollees varied substantially for the major diagnostic groups and the 29 most common diagnoses. For each of the 15 diagnostic groups, buy-ins had higher discharge rates than non-buy-ins with ratios ranging from 1.1 to 2.4. The diagnostic group consisting of "Neoplasms" had the lowest ratio—1.1, and all of the leading diagnoses in that group had relatively low ratios. The group "Diseases of the Nervous System and Sense Organs" also had a low ratio—1.2, and the leading diagnosis in that group, "Cataract," had a low ratio of 1.1 (Table 12). Evidently, for these conditions the poor and non-poor have a similar rate of hospitalization.

In contrast, the hospitalization experience for certain conditions was dramatically different for the buy-ins compared to the non-buy-ins even when standardized by age. The diagnosis group, "Endocrine, Nutritional, Metabolic Diseases" had a high ratio of 2.4. The leading diagnosis within that group "Diabetes Mellitus" had the highest ratio (2.6) of any of the 29 leading diagnoses among Medicare beneficiaries. The groups "Mental Disorders" and "Diseases of the Skin and Subcutaneous Tissues" each had high ratios of 2.2. Further study is needed to determine why such great differences exist.

## Mortality rates

Differentials in the mortality rates by age, sex, and race between the buy-in and non-buy-in enrollees are shown in Table 13. The death rate (standardized) for the buy-ins was 1.5 times that for non-buy-ins. A previous study that analyzed use and costs of health care services of Medicare beneficiaries in the last year of life (Lubitz and Prihoda, 1982) showed that in 1978, use of Medicare benefits by persons who died during that year greatly exceeded that of survivors. In that study, reimbursements per enrollee for persons in the last year of life were 6.2 times that for survivors. Thus, the higher utilization rates for the buy-ins very likely reflect, in part, their excess mortality.

The greatest differential in mortality rates for the two groups were found in the youngest age group. In the 65-69 age group the death rate for the buy-ins was 1.8 times the rate for non-buy-ins; for the 85 years and over group, the rate for the buy-ins was 1.3 times that for the comparison group.

This question arises: Does the excess mortality found in the buy-in population primarily reflect a higher mortality experienced by the medically needy population—who enter the program because of illness and high medical bills? Or do the poor generally have higher mortality rates than the non-poor? To shed some light on this question, the buy-in groups were examined in each State. States were separated into two groups according to their coverage policy. It was determined that 21 States bought coverage for their cash assistance recipients only, and 25 States bought coverage for both their cash and noncash recipients (Table 14).

This separation indicates that the excess mortality was greatest where the buy-in group included both cash and non-cash recipients, averaging 70 percent, whereas for the buy-in group which was confined to cash assistance recipients only, the excess mortality was 20 percent, after standardization by age.

For each of the groups, cash assistance recipients only and cash and non-cash recipients, there was a wide variation in mortality rates and in the ratios by State (Table 14). Further study of Medicaid program characteristics is necessary for understanding and interpreting these differences.

Table 15 shows mortality differences by demographic characteristics for the States that buy in for cash assistance recipients only and for States that buy in for both. It is interesting to note that for the cash assistance only group, there was no difference in the mortality rates for the two oldest age groups (80-84 and 85 years and over). Thus, the 20 percent excess mortality for the buy-ins for this group was directly attributable to the youngest age groups. For persons 65-69 years of age, the difference in mortality was 50 percent; for persons 70-79 the difference was 30 percent. Thus these figures indicate that the aged poor under 80 years of age apparently experience higher mortality rates than the non-poor.

TABLE 12

**Medicare—Short-Stay Hospital Discharges Per 1,000 Aged Enrollees by Major Diagnostic Group and the 29 Most Common Diagnoses, by Buy-in Status, U.S., 1978**

Diagnostic Group	ICDA-8 Codes	Total	Without Buy-in		With Buy-in		Ratio: With to Without	
			Actual	Standard-ized <sup>1</sup>	Actual	Standard-ized <sup>1</sup>	Actual	Standard-ized <sup>1</sup>
<b>Total, All Groups</b>		334.3	315.3	318.6	498.4	480.9	1.6	1.5
<b>Infective and Parasitic Disease</b>	(000-136)	5.8	5.2	5.3	11.0	10.3	2.1	1.9
Gastroenteritis and colitis	0092	2.1	1.9	1.9	3.9	3.7	2.1	1.9
<b>Neoplasms</b>	(140-239)	34.2	34.0	34.1	36.5	37.1	1.1	1.1
Malignant neoplasms of large intestine	153,154	4.0	4.0	4.0	3.7	3.5	0.9	0.9
Malignant neoplasms of bronchus and lung	162.1	3.3	3.3	3.2	3.3	3.7	1.0	1.2
Malignant neoplasm of breast	174X	2.5	2.4	2.4	2.8	2.9	1.2	1.2
Malignant neoplasm of prostate	185X	3.4	3.4	3.4	3.5	3.4	1.0	1.0
<b>Endocrine, Nutritional, Metabolic Diseases</b>	(240-279)	9.4	8.3	8.3	18.6	20.1	2.2	2.4
Diabetes mellitus	250X	7.3	6.4	6.4	15.3	16.7	2.4	2.6
<b>Diseases of the Blood and Blood-forming Organs</b>	(280-289)	3.5	3.2	3.3	5.8	5.0	1.8	1.5
<b>Mental Disorders</b>	(290-315)	6.4	5.7	5.8	11.9	12.5	2.1	2.2
<b>Diseases of the Nervous System and Sense Organs</b>	(320-389)	18.6	18.1	18.3	22.2	22.3	1.2	1.2
Cataract	374X	10.5	10.3	10.4	12.3	11.9	1.2	1.1
<b>Diseases of the Circulatory System</b>	(390-458)	89.5	83.0	84.3	146.0	136.9	1.8	1.6
Essential benign hypertension	401X	3.0	2.7	2.7	5.3	5.7	2.0	2.1
Acute myocardial infarction	410X	8.4	8.2	8.3	9.7	9.6	1.2	1.2
Chronic ischemic heart disease	412X	22.6	20.9	21.3	37.2	34.5	1.8	1.6
Other ischemic heart disease	411, 413, 414	4.0	3.8	3.8	5.7	6.0	1.5	1.6
Congestive heart failure	427.0	8.4	7.6	7.9	15.1	13.6	2.0	1.7
Acute cerebrovascular disease	433, 434, 436	10.0	9.0	9.2	19.0	16.8	2.1	1.8
Generalized ischemic cerebrovascular disease	437X	2.8	2.5	2.6	5.7	4.8	2.3	1.8
Arteriosclerosis	440X	2.2	2.0	2.0	4.1	3.6	2.1	1.8
<b>Diseases of the Respiratory System</b>	(460-519)	30.8	28.0	28.4	54.9	53.5	2.0	1.9
Acute bronchitis, bronchiolitis and upper respiratory infection	465X, 466X	3.2	2.9	2.9	5.8	5.7	2.0	2.0
Pneumonia	480X, 486X	7.9	7.0	7.2	16.3	14.2	2.3	2.0
Bronchitis, emphysema, asthma	490X-493X	5.5	5.1	5.1	9.1	9.8	1.8	1.9

(continued)

TABLE 12 (Continued)

Medicare—Short-Stay Hospital Discharges Per 1,000 Aged Enrollees by Major Diagnostic Group and the 29 Most Common Diagnoses, by Buy-in status, U.S., 1978

Diagnostic Group	ICDA-8 Codes	Total	Without Buy-in		With Buy-in		Ratio: With to Without	
			Actual	Standardized <sup>1</sup>	Actual	Standardized <sup>1</sup>	Actual	Standardized <sup>1</sup>
Diseases of the Digestive System	(520-577)	36.3	34.9	35.1	48.3	47.6	1.4	1.4
Peptic Ulcer	531, 532, 533	3.5	3.3	3.3	5.0	5.1	1.5	1.5
Hernia of abdominal cavity without mention of obstruction	550X, 551	6.7	6.7	6.7	6.7	6.9	1.0	1.0
Intestinal obstruction without mention of hernia	560X	2.7	2.5	2.5	4.6	4.0	1.8	1.6
Diverticula of intestine	562X	4.2	4.1	4.2	5.2	4.7	1.3	1.1
Cholelithiasis	574X	3.6	3.5	3.5	4.4	4.5	1.3	1.3
Cholecystitis and Cholangitis without mention of calculus	575X	1.9	1.8	1.8	3.1	3.0	1.7	1.7
Diseases of Genitourinary System	(580-629)	22.3	21.5	21.5	29.6	29.5	1.4	1.4
Infections of kidney	590X	1.0	.8	.8	2.1	1.9	2.6	2.4
Hyperplasia of prostate	600X	6.9	7.0	7.0	5.7	5.8	0.8	0.8
Uterovaginal prolapse	623X	1.3	1.3	1.3	1.3	1.5	1.0	1.2
Diseases of the Skin and Subcutaneous Tissue	(680-709)	3.9	3.5	3.5	7.8	7.6	2.2	2.2
Disease of Musculoskeletal System and Connective Tissue	(710-738)	12.5	12.2	12.2	15.8	16.6	1.3	1.4
Osteoarthritis	(713.0-713.2)	4.1	4.0	4.0	5.4	5.3	1.4	1.3
Congenital Anomalies	(740-759)	0.5	0.5	0.5	0.6	0.7	1.2	1.4
Symptoms and Ill-Defined Conditions	(780-796)	14.9	13.9	14.0	23.4	22.8	1.7	1.6
Accidents, Poisonings and Violence	(800-999)	25.0	23.3	23.8	39.9	34.8	1.7	1.5
Fracture of neck of femur	820X	5.9	5.2	5.4	11.7	8.8	2.3	1.6

<sup>1</sup>Standardized for age.

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Statistics and Data Management: Data from the Medicare Statistical System.



**TABLE 13**  
**Percent of Study Enrollees Dying, by Buy-in Status and by**  
**Age, Sex, and Race, U.S., 1978**

Age, Sex, and Race	Percent Dying			Ratio: With to Without Buy-in
	Total	Without Buy-in	With Buy-in	
U.S. Total	5.4	4.9	9.2	1.9
U.S.—Age Adjusted		5.1	7.5	1.5
Age:				
65-69	2.5	2.4	4.4	1.8
70-74	3.7	3.5	5.9	1.7
75-79	5.6	5.3	8.0	1.5
80-84	8.5	8.2	10.3	1.3
85 and over	15.9	15.0	18.9	1.3
Sex:				
Men	6.6	6.2	11.4	1.8
Women	4.5	4.0	8.2	2.1
Race:				
White	5.3	4.9	9.7	2.0
Other	5.5	4.7	7.3	1.6

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Statistics and Data Management: Data from the Medicare Statistical System.

TABLE 14

## Medicare: Percent of Aged Enrollees Dying, by Buy-In Status and by State, 1978

Geographic Area	Percent Dying					Ratio: With to Without Buy-In	
	All Persons	Without Buy-In		With Buy-In		Actual	Standardized
		Actual	Standardized	Actual	Standardized		
U.S. Total	5.4	4.9	5.1	9.2	7.5	1.9	1.5
States that Buy in for Cash Assistance Recipients Only							
Sub-total	5.5	5.3	5.4	7.5	6.3	1.4	1.2
Northeast							
Maine	5.1	4.8	4.8	7.4	6.1	1.5	1.3
New Hampshire	5.3	5.1	5.2	12.0	6.4	2.4	1.2
Vermont	5.1	4.9	5.0	7.5	5.0	1.5	1.0
Massachusetts	5.3	5.2	5.0	6.4	5.6	1.2	1.1
Rhode Island	5.9	5.9	5.8	6.4	4.8	1.1	0.8
Connecticut	5.5	5.4	5.2	7.9	6.9	1.5	1.3
New York	5.4	5.3	5.3	6.8	5.6	1.3	1.1
Pennsylvania	5.6	5.5	5.6	8.5	7.5	1.5	1.3
North Central							
Illinois	5.8	5.7	5.7	9.3	8.1	1.6	1.4
Michigan'	5.5	5.4	5.6	7.1	5.6	1.3	1.0
Wisconsin'	5.7	5.6	5.5	7.1	6.4	1.3	1.2
Minnesota	5.2	5.1	4.8	7.2	6.0	1.4	1.3
Missouri	5.3	4.8	4.9	9.7	8.0	2.0	1.6
North Dakota	5.6	5.6	5.3	5.4	5.5	1.0	1.0
South Dakota	5.4	5.1	4.9	10.2	8.8	2.0	1.8
Nebraska	5.3	5.2	4.9	11.2	10.5	2.2	2.1
South							
Delaware	5.2	5.1	5.1	6.5	6.1	1.3	1.2
West Virginia	5.6	5.5	5.7	6.4	5.3	1.2	0.9
Kentucky	5.8	5.4	5.7	8.1	7.0	1.5	1.2
Tennessee	5.3	5.0	5.4	7.2	6.4	1.4	1.2
Oklahoma	5.0	4.8	5.0	7.2	5.8	1.5	1.2

(continued)

TABLE 14 (Continued)

## Medicare: Percent of Aged Enrollees Dying, by Buy-In Status and by State, 1978

Geographical Area	Percent Dying				Ratio: With to Without Buy-In		
	All Persons	Without Buy-In Actual	Without Buy-In Standardized	With Buy-In Actual	With Buy-In Standardized	Actual	Standardized
States that Buy In for Cash and Noncash Recipients							
Sub-total	5.3	4.5	4.8	9.9	8.0	2.2	1.7
Northeast							
New Jersey	5.5	5.0	5.3	13.0	9.4	2.6	1.8
North Central							
Ohio	5.8	5.2	5.3	13.3	10.0	2.6	1.9
Indiana	6.0	5.4	5.5	17.1	13.4	3.2	2.4
Iowa	5.5	4.8	4.7	13.5	9.6	2.8	2.0
Kansas	5.3	4.7	4.6	12.2	9.1	2.6	2.0
South							
Maryland	5.5	4.9	5.2	10.2	8.9	2.1	1.7
District of Columbia	5.1	4.6	4.5	6.9	5.9	1.5	1.3
Virginia	5.3	4.7	5.0	10.2	8.5	2.2	1.7
North Carolina	4.9	4.1	4.5	9.8	8.8	2.4	2.0
South Carolina	5.4	4.3	4.9	9.6	8.3	2.2	1.7
Georgia	5.5	4.7	5.3	8.3	6.8	1.8	1.3
Florida	4.6	4.2	4.5	10.4	8.2	2.5	1.8
Alabama	5.7	4.5	5.1	9.2	7.7	2.0	1.5
Mississippi	5.2	4.0	4.5	8.3	7.2	2.1	1.6
Arkansas	5.2	4.1	4.5	8.9	7.0	2.2	1.6
Texas	5.3	4.2	4.6	10.5	8.1	2.5	1.8
West							
Montana	5.8	5.2	5.3	12.2	9.7	2.3	1.8
Idaho	4.6	4.3	4.6	8.8	6.7	2.0	1.5
Colorado	5.4	4.4	4.6	11.9	8.7	2.7	1.9
New Mexico	4.4	4.1	4.6	6.3	5.0	1.5	1.1
Utah	4.5	4.0	4.2	13.4	8.8	3.4	2.1
Nevada	4.6	3.5	4.2	15.4	12.9	4.4	3.1
Washington	4.9	4.2	4.4	11.5	9.0	2.7	2.0
California	5.1	4.2	4.5	8.5	7.2	2.0	1.6
Hawaii	4.0	3.4	3.9	9.1	6.9	2.7	1.8
States With No Buy-In Agreement							
South							
Louisiana	6.0	6.0	6.2	—	—	—	—
West							
Wyoming	4.9	4.8	4.8	—	—	—	—
Oregon	5.2	5.2	5.2	—	—	—	—
Alaska <sup>2</sup>	4.3	4.1	4.2	—	—	—	—
Arizona <sup>3</sup>	4.3	4.0	4.5	8.9	7.3	2.2	1.6

<sup>1</sup>Modified buy-in agreement in 1982 to cover medically needy.

<sup>2</sup>Entered into buy-in agreement, effective October 1982.

<sup>3</sup>No Medicaid program; State buys-in for supplemental security income (SSI) recipients.

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Statistics and Data Management: Data from the Medicare Statistical System.

**TABLE 15**

**Percent of Study Enrollees Dying in States that Buy in for Cash Assistance Recipients Only and States that Buy in for Cash and Noncash Recipients, by Buy-in Status and by Age, 1978**

Age	Percent Dying			Ratio: With to without Buy-in
	Total	Without Buy-in	With Buy-in	
State buys in for cash assistance recipients only				
Total	5.5	5.3	7.5	1.4
Total—Age Adjusted		5.4	6.3	1.2
Age:				
65-69	2.5	2.5	3.8	1.5
70-74	3.8	3.7	4.9	1.3
75-79	5.7	5.6	7.2	1.3
80-84	8.8	8.8	8.5	1.0
85 and over	15.7	15.8	15.2	1.0
State buys in for cash and noncash recipients				
Total	5.3	4.5	9.9	2.2
Total—Age Adjusted		4.8	8.0	1.7
Age:				
65-69	2.5	2.3	4.6	2.0
70-74	3.7	3.4	6.2	1.8
75-79	5.6	5.0	8.3	1.7
80-84	8.3	7.6	11.3	1.5
85 and over	15.9	14.0	20.4	1.5

SOURCE: Health Care Financing Administration, Bureau of Data Management and Strategy, Office of Statistics and Data Management: Data from the Medicare Statistical System.

## The Interrelationship between Medicare and Medicaid

Only utilization and expenditures under the Medicare program have been presented in this study. However, for both the buy-in group and the group without buy-in status there are substantial additional expenditures made for health care services. Many of those persons without buy-in status supplement their Medicare coverage by purchasing private health insurance. In addition, these individuals have out-of-pocket expenses. For buy-ins, Medicaid picks up a substantial portion of the health care expenses, including coinsurance and deductible amounts for services covered by Medicare, as well as for services not covered under Medicare but covered under Medicaid.

Since Medicare is the first payer for Medicare-covered services for the buy-ins, any benefit change in Medicare has a direct effect on Medicaid. If hospital services were restricted under Medicare or if cost-sharing were increased, the cost for these services to the dually entitled (shown in this study to be considerably higher than that for persons entitled to Medicare only) would be shifted directly to the Medicaid program. On the other hand, if program benefits were restricted under the Medicaid program, this change could have an indirect impact on the Medicare program. For example, if the long-term care facility benefits were reduced under Medicaid, then the Medicare program might experience more acute care hospitalization.

The data presented in Table 16 on personal health expenditures demonstrate the interrelationship between Medicare and Medicaid. In 1978, personal

health expenditures for the aged totaled \$49.4 billion (or \$2,026 *per capita*). Medicare and Medicaid, both publicly-funded programs, cover a substantial percentage of this total, with Medicare covering 44 percent and Medicaid an additional 13 percent.

It is important to observe how these programs complement and supplement each other. Medicare plays the most important role in financing hospital care and physicians' services, and Medicaid is most important with respect to nursing home care and other health care services, especially drugs. Medicare paid 75 percent of the expenditures for hospital care and Medicaid paid only 4 percent. On the other hand, Medicare paid only 3 percent of the nursing home care expenditures, compared to Medicaid's 39 percent.

*Per capita* payments under Medicare and Medicaid by State are shown in Table 17. Nationally, *per capita* reimbursements under Medicare for the buy-in group averaged \$1,283. Estimated per recipient payments under Medicaid averaged \$1,908, yielding an approximate total *per capita* payment for the buy-in group under both programs of \$3,191.<sup>5</sup> Because *per capita* personal health care expenditures for all aged persons in 1978 were estimated at about \$2,000, and because the buy-in group has an estimated *per capita* expenditure of \$3,191, one can estimate that the *per capita* expenditure (public and private) for the Medicare group without buy-in status was \$1,900, or about 60 percent of that for the buy-in group.

<sup>5</sup>*Per capita* payments are overestimated to some extent because Medicaid payments are per recipient and include persons who are eligible for Medicaid only.

TABLE 16  
Estimated Amount of Personal Health Care Expenditures and Percent Paid by Medicare and Medicaid, 1978<sup>1</sup>

Type of Service	Expenditures		Percent of Total Paid by:	
	Total (billions)	Percent	Medicare	Medicaid
All Types of Service	\$49.4	100	44	13
Hospital Care	21.2	43	75	4
Physicians' Services	8.9	18	56	3
Dentists' Services	1.4	3	—	2
Other Professional Services	1.1	2	35	7
Drugs and Drug Sundries	3.2	6	—	15
Eyeglasses and Appliances	0.6	1	31	NA
Nursing Home Care	12.6	26	3	39
Other Health Services	0.4	1	20	15

<sup>1</sup>Preliminary data.  
NA— not available

Source: Fisher, Charles R., "Differences by Age Groups in Health Care Spending," *Health Care Financing Review*, Vol. 1, Issue 4, Spring 1980, page 89.

TABLE 17

*Per Capita Payments for Medicare and Medicaid Aged Persons, by State, 1978*

Area of Residence	All Persons	Medicare Payments		Medicaid Payments Per Recipient	Approximate Per Capita Payments under Medicare and Medicaid for the Buy-ins <sup>1</sup>
		Without Buy-in	With Buy-in		
U.S. Total	\$ 849	\$ 799	\$1,283	\$1,908	\$3,191
<b>New England</b>					
Maine	774	730	1,183	2,586	3,769
New Hampshire	659	648	1,139	2,729	3,868
Vermont	703	638	1,341	2,310	3,651
Massachusetts	1,027	979	1,388	1,187	2,575
Rhode Island	898	880	1,145	1,546	2,691
Connecticut	868	848	1,795	4,010	5,805
<b>Middle Atlantic</b>					
New York	993	948	1,499	4,456	5,955
New Jersey	894	832	1,772	3,303	5,075
Pennsylvania	862	835	1,365	3,582	4,947
<b>East North Central</b>					
Ohio	803	762	1,365	2,412	3,777
Indiana	743	715	1,229	3,351	4,580
Illinois	964	933	1,911	2,189	4,100
Michigan	1,007	982	1,399	2,505	3,904
Wisconsin	776	748	1,173	2,796	3,969
<b>West North Central</b>					
Minnesota	773	759	1,211	1,434	2,645
Iowa	714	677	1,159	2,450	3,609
Missouri	816	774	1,209	998	2,207
North Dakota	780	772	956	2,563	3,519
South Dakota	659	641	968	1,757	2,725
Nebraska	709	693	1,282	2,437	3,719
Kansas	842	806	1,257	1,740	2,997
<b>South Atlantic</b>					
Delaware	830	801	1,210	1,498	2,708
Maryland	960	891	1,534	1,920	3,454
District of Columbia	1,066	966	1,504	1,284	2,788
Virginia	714	659	1,106	1,785	2,891
West Virginia	604	588	790	666	1,456
North Carolina	616	541	1,094	1,249	2,343
South Carolina	566	512	768	1,186	1,954
Georgia	662	618	820	1,063	1,883
Florida	927	882	1,527	1,034	2,561

(continued)

TABLE 17 (Continued)

Per Capita Payments for Medicare and Medicaid Aged Persons, by State, 1978

Area of Residence	All Persons	Medicare Payments Without Buy-in	With Buy-in	Medicaid Payments Per Recipient	Approximate Per Capita Payments under Medicare and Medicaid for the Buy-ins <sup>1</sup>
<b>East South Central</b>					
Kentucky	600	574	776	968	1,744
Tennessee	658	621	854	712	1,566
Alabama	701	663	809	950	1,759
Mississippi	632	530	882	1,007	1,889
<b>West South Central</b>					
Arkansas	649	589	852	1,167	2,019
Louisiana <sup>2</sup>	709	707	—	1,132	1,132
Oklahoma	745	710	1,043	1,546	2,589
Texas	791	712	1,151	1,613	2,764
<b>Mountain</b>					
Montana	778	757	988	2,951	3,939
Idaho	596	578	854	1,261	2,115
Wyoming <sup>2</sup>	667	662	—	2,454	2,454
Colorado	854	773	1,400	1,682	3,082
New Mexico	737	712	875	1,022	1,897
Arizona <sup>3</sup>	859	860	832	—	832
Utah	583	545	1,214	2,182	3,396
Nevada	976	860	2,199	2,358	4,557
<b>Pacific</b>					
Washington	746	685	1,318	1,850	3,168
Oregon <sup>2</sup>	765	762	—	3,949	3,949
California	1,061	896	1,686	1,231	2,917
Alaska <sup>4</sup>	1,378	1,347	—	4,060	4,060
Hawaii	848	738	1,686	2,427	4,113

<sup>1</sup>Per Capita payments are overestimated because Medicaid payments per recipient include persons who are eligible for Medicaid only

<sup>2</sup>No State Buy-in agreement.

<sup>3</sup>No Medicaid program. State buys in for supplemental security income (SSI) recipients.

<sup>4</sup>Entered into buy-in agreement effective October, 1982.

SOURCES: Health Care Financing Administration: Bureau of Data Management and Strategy, Office of Statistics and Data Management, Data from the Medicare Statistical System, and Office of Financial and Actuarial Analysis, Data from the Medicaid Data File.

## Summary and Discussion

This study shows that the crossover population (identified by the "buy-in" indicator) differed substantially by demographic characteristics, compared to those without buy-in status. The buy-in group was considerably older, with 36 percent of the group 80 years of age and over compared to only 20 percent among those without buy-in status. Seventy-five percent of the buy-ins were white persons. Persons of races other than white comprised 24 percent of the buy-in group, but only 6 percent of those without buy-in status. Furthermore, of all minority persons age 85 and over in the study, more than half (51 percent) were buy-ins. More than 70 percent of all buy-ins were women. Thus, the buy-in group may be characterized as being relatively older than other Medicare enrollees, largely composed of white persons and women, and with a higher proportion of minority persons than found in the general population.

This study showed that the proportion of users of Medicare services was much higher among the buy-ins than in the group with Medicare entitlement only. However, the average intensity of use of Medicare program dollars was relatively similar for the actual users of services among the buy-ins in comparison to other Medicare enrollees. These results, combined, produce far greater average reimbursements per enrollee among the buy-in group, though standardized for age differences.

The study also indicates that there were certain conditions among the leading diagnoses where there was little difference in the rate of hospitalization between the buy-ins and all others, particularly for malignant neoplasms and cataract. On the other hand, the rate of hospitalization was vastly greater for the buy-in group for certain other conditions, including diabetes.

This study attempted to answer the question: Do the high mortality rates found in the buy-in population reflect an underlying excess mortality of the poor (cash assistance recipients) or do they primarily reflect an expected high mortality of the medically needy group (persons with large medical bills)? We found that the cash assistance only group had an excess mortality of 20 percent whereas the group with both cash and non-cash recipients had an excess mortality of 70 percent. It was also noted that the 20 percent excess mortality found in the cash assistance group was attributable to persons under age 80 years of age. For those in the age group 65-69, the excess mortality was 50 percent and for those 70-79 the excess mortality was 30 percent, thus suggesting that the aged poor experience notably higher mortality rates than the non-poor.

The finding in this study that the buy-in group used considerably more services than the non-buy-in group raises the question: Why do some States decide not to enter into a buy-in agreement for any of their Medicaid eligibles and why do other States limit their buy-in agreements to the cash assistance recipients only? One reason States may not buy coverage for their medically needy is that they are aware of the fact that many of the dually entitled population pay for their Part B coverage themselves. In addition, States do not receive Federal matching funds for Part B premiums for other than their cash assistance recipients.

Another explanation for the States' decisions is that there has been little information on the cost of providing Medicare services to Medicaid's aged population. In 1978, the States paid \$95.40 per enrollee in premiums for Part B coverage, and the average reimbursement under Medicare Part B was \$369 (Table 11). Even though there are additional amounts such as deductibles and coinsurance that the States must pay for their crossover populations, it appears that it is advantageous for the States to buy coverage for this group. The findings from this study may be useful for some States as they consider their response to the recent legislation of December 1980 (Public Law 96-499), which allowed States to request buy-in agreements in 1981 (or send in a letter of intent), or to broaden their buy-in agreements. Under Public Law 96-499, Alaska entered into an agreement to buy coverage for both cash and non-cash Medicaid eligibles effective October 1982, and Michigan and Wisconsin broadened their agreements to cover the non-cash group. Several other States, including two of the States without buy-in agreements (Oregon and Louisiana), recently submitted "letters of intent" to enter into buy-in agreements or to modify their agreements under this law.

Medicare and Medicaid are programs designed to remove financial barriers and equalize access to health care for the aged, disabled, and poor. There is evidence that access to care has been equalized to a large extent. However, differences between the poor and non-poor in health status evidently still persist. These differences are demonstrated by the high mortality rates of the buy-in group. These findings are substantiated by a recent study in which the poor—despite Medicare and Medicaid—continue to report considerably more bed disability days and restricted activity days. Using data from the 1977 Health Interview Survey of the National Center for Health Statistics, the study shows a greater prevalence and severity of activity-limiting chronic conditions among low-income people (Newacheck *et al.*). The National Medical Care Utilization and Expenditures Survey (NMCUES) of 1980 also found higher restricted activity days among the low income population. Perhaps the excess morbidity and mortality of the poor as they enter their senior years, reflect a lifetime of poor nutrition, housing, and other non-medical factors that are believed to influence health status.



## Technical Note

In order to look at total utilization and expenditures for the two populations reported upon in this study, we plan a second study using data from the NMCUES. This data source will provide for a more in-depth analysis of public and private expenditures for health care. The survey data will also provide information on health status and income and will shed more light on the excess mortality and utilization patterns found in the current study for the buy-in group. To continue the analysis of the crossover population, a third study is planned using person-level data from the Medicaid Management Information System (MMIS).

### Acknowledgments

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### Reliability of Estimates\*

Most of the utilization data shown in this paper are estimates from the 5-percent Continuous Medicare History sample and hence are subject to sampling error. Tables A, B, and C will enable the reader to obtain approximate standard errors for the estimates in this paper. The standard error is primarily a measure of sampling variability—that is, of the variation that occurs by chance because a sample rather than the whole population is used. To calculate the standard errors at a reasonable cost for the wide variety of estimates in this paper, it was necessary to use approximation methods. Thus, these tables should be used only as indicators of the order of magnitude of the standard errors for specific estimates.

The relative standard error is defined as the standard error of the estimate divided by the value being estimated. In general, estimates for small subgroups, and percentages or means with small bases tend to be relatively unreliable. The reader should be aware that some of the estimates in this paper have high relative standard errors.

The use of Table A is straightforward. For example, the standard error of an estimated 50,000 persons is found to be 970 persons. Simple linear interpolation may be used for values not tabled.

Table A may also be used to find standard errors of rates of persons per 1,000 enrollees or percent of persons. This is achieved by finding the standard error of the number of persons in the numerator of the rate or percent and dividing this by the enrollees or persons in the denominator of the rate or percent.

TABLE A

#### Approximate Standard Error of Estimated Number of Persons

Estimated Number of Persons	Standard Error
1,000	140
2,000	190
5,000	310
10,000	440
20,000	620
50,000	970
100,000	1,400
200,000	1,900
500,000	3,100
1,000,000	4,300
2,000,000	5,900
5,000,000	8,800
10,000,000	11,000
13,000,000	11,000

\*Prepared by James C. Beebe, mathematical statistician, Office of Research.

Obtaining standard errors of estimated means from Table B, or estimated discharge rates from Table C requires knowledge of the number in the base of the estimate. To illustrate their use, Table 9 shows an average reimbursement of \$549 for all persons age 70 to 74. The following steps, using double linear interpolation, show how to obtain the standard error of this estimate.

1. Table 2 shows the number of enrollees in the base to be 6,025,000.
2. In Table B we find:
  - a. Standard error for \$500 and 5 million enrolled—\$4.4.
  - b. Standard error for \$700 and 5 million enrolled—\$5.3.
3. The interpolated standard error for \$549 and 5 million is \$4.6.
4. Again in Table B we find:
  - a. Standard error for \$500 and 10 million enrolled—\$3.2.
  - b. Standard error for \$700 and 10 million enrolled—\$3.8.
5. The interpolated standard error for \$549 and 10 million is \$3.3.
6. Interpolating between \$4.6 and \$3.3 for the 6,025,000 enrollees in the base, we find the standard error of the estimate to be \$4.3.

**TABLE B**  
**Approximate Standard Error of Reimbursement Per Enrollee or Per User**

Estimated Reimbursement Per Person	Base of Rate (Number of Enrollees or Users in Thousands)									
	25	50	100	250	500	1,000	2,500	5,000	10,000	25,000
\$100	\$ 20	\$15	\$11	\$7.1	\$5.2	\$3.8	\$2.5	\$1.8	\$1.3	\$.87
200	30	22	16	10	7.6	5.5	3.6	2.7	1.9	1.3
300	37	27	20	13	9.5	6.9	4.5	3.3	2.4	1.6
500	49	36	26	17	12	9.1	6.0	4.4	3.2	2.1
700	59	43	31	21	15	11	7.2	5.3	3.8	2.5
1,000	71	52	38	25	18	13	8.7	6.4	4.7	3.1
2,000	100	76	55	36	27	19	13	9.3	6.8	4.5
3,000	130	95	69	45	33	24	16	12	8.5	5.6

**TABLE C**  
**Approximate Standard Error of Discharges Per Thousand Enrollees**

Estimated Discharges Per 1,000 Enrolled	Base of Rate (Enrollees in Thousands)									
	25	50	100	250	500	1,000	2,500	5,000	10,000	25,000
1	1.0	.99	.70	.44	.31	.22	.14	.095	.067	.042
2	2.0	1.4	.98	.61	.43	.30	.19	.13	.094	.059
4	3.1	2.2	1.5	.96	.68	.48	.30	.21	.15	.092
5	3.7	2.6	1.8	1.1	.80	.56	.35	.25	.17	.11
10	4.4	3.1	2.2	1.4	.95	.67	.42	.29	.21	.13
20	6.1	4.3	3.0	1.9	1.3	.94	.59	.41	.29	.18
50	9.6	6.8	4.8	3.0	2.1	1.5	.92	.65	.46	.29
100	14	9.5	6.7	4.2	2.9	2.1	1.3	.91	.64	.40
200	19	13	9.4	5.9	4.1	2.9	1.8	1.3	.90	.56
300	23	16	11	7.2	5.0	3.5	2.2	1.6	1.1	.69
500	30	21	15	9.2	6.5	4.5	2.9	2.0	1.4	.88
700	35	25	17	11	7.6	5.4	3.4	2.4	1.7	1.0

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