
Does Health Status Explain Higher Medicare Costs of Medicaid Enrollees?

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In this article, the authors present findings on differences in Medicare costs between elderly beneficiaries who are dually eligible for Medicare and Medicaid and other Medicare beneficiaries. Data from the Medicare Current Beneficiary Survey (MCBS) were used in the analysis. After controlling for health and functional-status differences, the higher Medicare costs of dually eligible persons, relative to other enrollees, was reduced from 282 percent to 45 percent.

INTRODUCTION

Because of their low income and limited financial resources, some Medicare beneficiaries are also covered for health care by Medicaid. These dually eligible beneficiaries have been the subject of wide-ranging policy interest because their health care costs are dramatically higher than those of other Medicare beneficiaries. Highlighting this point are the frequently cited statistics that dually eligible beneficiaries account for 30 percent of total Medicare expenditures, while comprising only 16 percent of Medicare's enrollee population. Similarly, dually eligible beneficiaries are 17 percent of Medicaid recipients but account for 35 percent of total Medicaid expenditures. One reason why dually eligible beneficiaries have such high health care costs is that they are sicker and more disabled than other Medicare enrollees.

The extent to which health status and other personal characteristics account for the differences in health care, however, is much less clear.

Because Medicare and Medicaid are separate programs with different sets of rules on coverage, payment, and provider certification, questions arise about the efficiency with which health care is delivered to dually eligible beneficiaries. It has been noted, for example, that the discontinuity resulting from the separate programs leads to cost-shifting and movement of patients to satisfy revenue, rather than patient, needs. Given the fragmented health care system, it is reasonable to hypothesize that the higher costs of dually eligible beneficiaries may be attributable to how care is provided to them as well as to their greater needs. Although some innovative programs have been developed to coordinate services for dually eligible beneficiaries, including the integration of acute and long-term care, such initiatives are relatively new and currently cover only a small proportion of the dually eligible population.

As policymakers continue to seek ways to efficiently meet the health care needs of this population, it would be helpful to better understand both the components and distributions of health care costs incurred by this group. In extending prior research on the determinants of health care costs in the Medicare population, we analyzed the Medicare costs of elderly persons who were dually eligible in comparison to other Medicare beneficiaries. Although prior research clearly showed that differences in health status and other personal character-

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istics are important reasons for the higher costs of dually eligible beneficiaries, our aim was to estimate how much of the difference could be attributed to such characteristics.

We use data from the MCBS in our analysis. Our findings are naturally limited by the information available in the MCBS, but that data source provides extensive information on the personal characteristics of Medicare enrollees. Netting out the costs that are attributable to health status and other characteristics provides an estimate of how much the remaining higher Medicare costs of dually eligible beneficiaries might be attributable to inefficiencies in how health services are provided to them. The following sections provide background on the dually eligible population, a description of the data source and methods, findings from our analysis, and a discussion of policy and research implications.

BACKGROUND

Medicare and Medicaid Interactions

Medicare covers the cost of hospital care, physician services, and other acute care services for elderly and disabled individuals. Because Medicare requires cost-sharing for most services, approximately three-quarters of enrollees have supplementary coinsurance policies, such as medigap or employee-sponsored insurance benefits (Moon, Brennan, and Segal, 1998). Medicare does not cover all services needed by this population, particularly long-term care (LTC). The restrictions on Medicare's coverage create an even larger problem for the indigent and disabled elderly, as they have significantly greater health care needs and are unable to afford most supplementary coverage plans (Rowland and Lyons, 1996).

Medicaid acts as a supplement to Medicare for many low-income and disabled beneficiaries and covers the costs of prescription drugs, transportation, and LTC for the poor and disabled (Coughlin, Ku, and Holahan, 1994). The majority of dually eligible beneficiaries who are elderly qualify for Medicaid assistance by receiving Supplemental Security Income (SSI). Other recipients include individuals who "spend down" their income and assets to levels that are pre-determined by Medicaid; many residents of nursing homes fall into this group. Most of the remaining elderly dually eligible beneficiaries are either qualified Medicare beneficiaries (QMBs) or specified low-income Medicare beneficiaries (SLMBs) who are low-income persons for whom at least some portion of Medicare coinsurance costs are subsidized by Medicaid.¹

As they are currently structured, Medicare and Medicaid do not offer a continuous system of care for the approximately 6 million elderly and disabled poor who rely on both programs to fund their health care (Parker, 1998). Each program has traditionally been run separately, under a fee-for-service (FFS) system, even though their coverage domains overlap. This arrangement often forces dually eligible beneficiaries to navigate a confusing and poorly coordinated system of care (Scanlon, 1997). Research has also shown, for example, that dually eligible beneficiaries are less likely to receive adequate disease management because of potential problems with access to appropriate and timely care (Merrell, Colby, and Hogan, 1997). This type of situation, which raises

¹ QMBs have annual incomes below 100 percent of the Federal poverty level and receive Medicaid coverage for Medicare Part B premiums, as well as any Medicaid copayments and/or deductibles. SLMBs have incomes below 120 percent of the Federal poverty level and receive Medicaid assistance with Part B premiums only.

questions about the quality of care received by dually eligible beneficiaries, can also increase health care costs if more expensive hospital care is required because preventive or followup care was not provided.

Fragmentation in coverage and service delivery creates complications both within and between acute and LTC systems (Wiener, 1996). Inefficiencies and improper financial incentives can result in unnecessary expenses. Coverage overlap creates opportunities for cost-shifting between the two programs. For example, States have incentives to have Medicare billed for as many services as possible, because it is entirely federally funded, unlike Medicaid, where States are expected to pay as much as one-half of the costs. The opportunities and incentives for cost-shifting are particularly strong for nursing homes and home care agencies, because both Medicare and Medicaid are major sources of payment for such providers. In general, because of the interdependence of Medicare and Medicaid, changes to one program should always be considered in the context of the other (Feder and Lambrew, 1996).

Characteristics of Dually Eligible Beneficiaries

Many characteristics of the dually eligible population are commonly recognized correlates of poverty among Americans. The vast majority of dually eligible beneficiaries are 85 years of age or over. They are many times as likely as Medicare-only recipients to reside in institutional settings (Health Care Financing Administration, 1997). Racial minorities represent a disproportionately high share of the dually eligible population, with 62 percent of Hispanic and 37 percent of black Medicare beneficiaries being dually eligible. Females also constitute a high ratio of this population, 66 percent, but are only 55 percent of the general Medicare population (Hegner, 1997).

Studies also show that dually eligible beneficiaries tend to be sicker than other Medicare enrollees. They are twice as likely to report a poor health status and six times more likely to have more than four dependencies in activities of daily living (ADLs) limitations (Merrell, Colby, and Hogan, 1997). Nearly one-half of dually eligible beneficiaries have a cognitive or mental impairment, compared with only 9 percent of Medicare-only beneficiaries. They are several times more likely to have a mental disorder, Alzheimer's disease, or mental retardation. Compared with other Medicare beneficiaries, dually eligible beneficiaries have "substantially greater health care needs and fewer personal resources" (Scanlon, 1997). Because of their relatively low incomes and their manifold health care needs, dually eligible beneficiaries spend a larger proportion of their income on health care than do other Medicare enrollees (Rowland and Lyons, 1996).

Integrating Acute and LTC

Although most managed care organizations have relatively little experience in operating comprehensive acute and LTC service systems, attempts in some States to integrate the two types of care for the dually eligible population have been considered successful (Stone and Katz, 1996).² Demonstration projects attempt to integrate care with the objective of eliminating administrative conflicts, manipulation of funding sources, and financial influences in clinical settings (Parker, 1998). Coordinated systems would presumably reduce spending on acute care, freeing up funds for more comprehensive post-acute and LTC (Wiener, 1996). Some studies pre-

² To implement integration programs, States obtain Federal 1915(b) program waivers and/or 1115 demonstration waivers, allowing them to experiment with the use of managed care to integrate the financing and delivery of Medicare and Medicaid services (Scanlon, 1997).

dict that “integrated acute and LTC will save 10 to 20 percent in expenditures without cutting services to consumers, improve quality of care, and expand the number of qualified providers” (Stone and Katz, 1996).

In concept, programs currently underway can serve as models for possible integrated care programs in the future and may lend insight into methods for systems improvement, encouraging further innovation on the State level. Some examples of these are the Program of All-inclusive Care for the Elderly (PACE), social health maintenance organizations (S/HMOs), and demonstration projects in the States of Arizona, Oregon, and Minnesota.

PACE and S/HMOs were created in an effort to generate incentives for managed care providers to integrate acute and LTC for the elderly while pooling Medicare and Medicaid dollars. PACE extends the type of program modeled in the On Lok Senior Health Services of San Francisco, and is operated as staff-model HMOs, with eligible individuals limited to those who qualify for nursing home admission. S/HMOs operate under a coordinated case management system, adding modest LTC coverage to the list of benefits provided under the traditional HMO.

Minnesota, Oregon, and Arizona are each operating programs with enrollment of dually eligible beneficiaries in Medicaid managed care plans. Arizona, however, is the only State to actually provide full coverage for LTC costs. The Minnesota Senior Health Options (MSHO) demonstration was implemented in March 1997. This voluntary program has since expanded to serve a wide range of dually eligible beneficiaries with varying health care needs.³ The demonstration program creates a coordinated system of coverage for

acute and LTC by contracting with HMOs that have agreed to provide Medicare and Medicaid services to voluntarily enrolled individuals under one State-managed contract. The Oregon Health Plan (OHP) operates under a system of waivers, with a managed care program designed to keep dually eligible beneficiaries in the most appropriate care settings for their needs. The State endeavors to provide care in home and community-based settings whenever possible, with the goal of minimizing use of nursing homes.

Many difficulties and uncertainties still exist within managed health care programs for the elderly poor and disabled. Managed care plans have little experience providing care to a population with “expensive medical and long-term care needs” (Scanlon, 1997), making it difficult to predict the effects of managed care on cost and access. Capitated arrangements put providers at great risk when dealing with this population. Adding to the difficulty of developing a successful system of integrated care, the composition of the dually eligible population varies greatly among States, making it necessary for each State to craft a program tailored to its own needs.

DATA AND METHODS

Models and Approach

On average, dually eligible Medicare beneficiaries have recorded Medicare costs that are much higher than those of other Medicare beneficiaries. At the same time, population characteristics of the two groups are very different, with dually eligible beneficiaries having higher prevalences of many conditions that are correlated with higher health care costs. As a result, it is not surprising that dually eligible beneficiaries have higher Medicare costs than other beneficiaries. Our aim in this study was to estimate the extent to

³ Minnesota is the only State that has been granted permission to operate a program under a combination of Medicaid 1115 and Medicare 222 waivers.

which the cost differential between dually eligible beneficiaries and other Medicare beneficiaries is attributable to differences in health and other personal characteristics. Net of such personal differences, the remaining cost differences provide an estimate of the amount of Medicare costs that might be saved through innovative programs. We focus on the FFS population of dually eligible beneficiaries and other elderly Medicare beneficiaries. Hence, inferences about costs and cost savings do not refer to Medicare beneficiaries who are in managed care programs.

We estimated multivariate models of Medicare payments in which varying sets of personal characteristics were included as control variables. Each model also contained Medicaid eligibility status. The coefficient of the Medicaid variable, in each model, provides an estimate of the remaining difference in costs between dually eligible beneficiaries and other beneficiaries after controlling for personal and other characteristics.

Data Sources

This study employs the 1993 MCBS cost and use file. With the goal of forming a continuous profile of the Medicare population's health care experiences, the MCBS is a longitudinal panel survey designed to follow a representative sample of the Medicare population over a 4-year period. (Refer to Adler [1994] and Laschober and Olin [1996] for details.) Detailed information on medical use, sources of payments, and payment amounts are collected from tri-annual personal interviews and Medicare claims data from HCFA's National Claims History files. The service information is linked to beneficiaries' health and socioeconomic characteristics. For each sample person, an initial survey elicited information on demographic characteristics that are constant (e.g., gender), and an annual core questionnaire pro-

vides information on the personal characteristics that change over time (e.g., income, living arrangements, and health status and functioning information).

The MCBS looks at the disabled and the elderly who live in the community or in facilities. It also follows respondents as their place of residence changes. Not all of the institutional sample were residing in traditional nursing homes; other institutions included mental health facilities, retirement and domiciliary facilities, and homes for the mentally retarded and developmentally disabled. Health care expenditures are included for both acute and chronic care services whether they are covered by Medicare or not. Service use information is collected in detail and summed by the following nine categories of care: inpatient hospitalization, skilled nursing facility (SNF) services, outpatient hospital care, physician services, home health care, long-term nursing home care, prescription medicines and other medical services, dental care, and hospice care.

Medicare Part A and Part B payments, as well as other administrative information (e.g., State buy-in status) are appended to the survey information. Although the Medicare payments are not final because of the need for cost reconciliation with certain providers, the interim payment data correlate closely with final payments.

Samples

This study addresses the Medicare costs of beneficiaries 65 years of age or over who were covered for both Medicare Part A and B services, regardless of whether individuals or Medicaid paid for the coinsurance. We excluded persons eligible because of end stage renal disease and those in group health plans (which generally do not report Medicare costs). We limited our analyses to individuals residing in the 50 States and the District of Columbia.

Table 1
Summary of Explanatory Variables (Weighted)

Variable	Mean	Standard Deviation
Whether Medicaid Enrollee	0.127	0.333
74-84 Years	0.329	0.470
85 Years or Over	0.122	0.328
White	0.892	0.310
Female	0.596	0.491
Married	0.554	0.497
Never Married	0.045	0.208
Health Status Is Fair or Poor	0.265	0.442
Myocardial Infarction	0.155	0.362
Stroke	0.119	0.324
Cancer	0.189	0.392
Diabetes	0.167	0.373
Rheumatoid Arthritis	0.134	0.341
Alzheimer's Disease	0.048	0.213
Mental Disorder	0.046	0.211
Osteoporosis	0.097	0.296
Parkinson's Disease	0.019	0.137
Emphysema, COPD, or Asthma	0.139	0.346
5 or More Conditions	0.011	0.102
Instrumental Activities of Daily Living Only	0.193	0.395
1-2 Activities of Daily Living	0.047	0.211
3 or More Activities of Daily Living ¹	0.029	0.168
Ever Resident in an Institution in 1993	0.072	0.259
Died in 1993	0.056	0.219
Sample Size	9, 255	—

¹ Persons in an institution for the full year are assumed to have 3 or more activities of daily living.

NOTE: COPD is chronic obstructive pulmonary disease.

SOURCE: Data from the 1993 Medicare Current Beneficiary Survey; analysis by the Urban Institute.

The resulting sample consisted of 9,255 persons, of whom 92 percent were residing in the community throughout 1993.

Variables

The variables in this analysis were derived from the MCBS. The means and standard deviations for those variables are presented in Table 1. Although we also examined other variables derived from other sources, we found the results using those measures were not significantly different from the results reported here based only on MCBS data.⁴

Medicare Payments

The dependent variable in our analysis was aggregate Medicare payments in 1993. We also wanted to determine if differences

in payments between dually eligible beneficiaries and other Medicare elderly beneficiaries existed primarily for “acute” care services (e.g., inpatient hospital, outpatient hospital, physician care) or for “subacute” care services (i.e., SNF, home health agency, hospice), which were more likely to interact with Medicaid-financed services.⁵ Consequently, in addition to examining differences in total Medicare payment, we analyzed separately Medicare payments for the two broad categories of services.

Medicaid

The primary explanatory variable of interest in our analysis was whether an elderly Medicare beneficiary was also eligi-

⁴ These variables included a variety of characteristics of the States' Medicaid programs.

⁵ We used the terms acute and subacute simply to label Medicare services into broad categories that might have different degrees of interaction with Medicaid services. We recognize that the meaning of the term subacute has been ambiguous and that lines between acute and subacute care providers are not necessarily distinct.

ble for Medicaid. The MCBS provides three ways for determining whether an individual was eligible for Medicaid: (1) self-report of eligibility during the interview, (2) administrative record of eligibility (State buy-in records), and (3) the use of Medicaid as a payment source for services used during the year. In this study, we employed all three means to designate a person as being Medicaid-eligible. That is, if any of the three measures indicated that an individual was eligible for Medicaid, we assumed that the individual was indeed eligible.

Control Variables

We included, as control variables, characteristics of persons that have been found in prior research to be associated with Medicare payments (Gruenberg, Kaganova, and Hornbrook, 1996; Liu, Wall, and Wissoker, 1997). They include sociodemographic characteristics, health-status and disability indicators, and census region of residence (Table 1).

We included age, sex, race, and marital status to control for characteristics that predispose individuals to use health care services. To control for health status, we included 10 medical condition variables that were derived by the MCBS through questions posed as “has a physician ever told you that you had (condition).” The conditions include diabetes, cancer, stroke, and heart disease. We also included responses to a subjective health-status question in which a sample person was asked to rate his or her health on a scale ranging from excellent to poor.

The disability variables that we created are based on dependencies in ADLs and instrumental activities of daily living (IADLs), which have been used widely in research on disability and LTC of elderly persons (Katz et al., 1963; Lawton and Brody, 1969). We considered persons dependent in ADLs or IADLs if they

received personal assistance because of those dependencies. For the community residents, five ADLs (bathing, dressing, toileting, transferring, and eating) were examined, as were six IADLs (using the telephone, doing light housework, doing heavy housework, preparing meals, shopping for personal items, and managing money). Beneficiaries were classified by whether they had no disability, one or more IADL (and no ADL) dependencies, one or two ADL dependencies, and three or more ADL dependencies.

The MCBS also recorded ADL and IADL dependencies for persons residing in institutions. Unlike community residents from whom disability information was elicited directly or from proxies, the disability of institutional residents was collected routinely from staff at the facilities. Because of the possibility that responses for the two groups were not comparable, we did not use community and institutional ADL and IADL dependency variables in constructing our disability measures. Instead, we assumed that institutional residents had at least three ADLs and included an additional variable that indicated that the individual was in an institution.

Estimation

Our multivariate analysis focuses on total Medicare payments and Medicare payments for acute and subacute care services. Because many Medicare enrollees do not have any Medicare payments in a year, particularly subacute care-related payments, we cannot estimate our models using ordinary least squares regression. Ordinary least squares regression will produce biased estimates when significant shares of the sample are censored (i.e., clustered at a single value). We need a method that accounts for the clustering of Medicare payments at zero. Tobit analysis provides such a method.

The Tobit model assumes that there is an underlying variable that is only observed when it passes some threshold. If the underlying variable is below that threshold, a zero is observed. In this case, our unobserved latent variable (Y^*) is the propensity for medical care under Medicare. Our observed variable (Y) is positive medical payments for those individuals who pass some threshold level of need or desire for care and actually seek medical care. For those who do not pass that threshold, we observe medical payments of zero.

$$Y^* = X\beta + \varepsilon$$

where

$$Y = Y^* \quad \text{if } Y^* > 0$$

$$Y = 0 \quad \text{otherwise}$$

The coefficient estimate (β) obtained from the Tobit model is the measure of the effect of a change in the explanatory variable (i.e., Medicaid eligibility) on the latent outcome, in this case the propensity for medical care under Medicare. We are interested in three components that can be derived from the Tobit estimates: (1) the effect of Medicaid eligibility on the probability of having positive Medicare payments, (2) the effect of Medicaid eligibility on the average level of payments for those with Medicare payments, and (3) the total effect of Medicaid eligibility on the average level of Medicare payments. (An explanation of that decomposition is provided in MacDonald and Moffitt [1980].) The Tobit models are estimated with the dependent variable (Medicare payments) in logarithmic form to better represent the skewed distribution of payments and reduce the influence of very high levels of payments on the estimates.⁶

⁶ Medicare payments for this population are highly skewed: Median payments for those with any Medicare payments are \$806, less than one-fifth of the mean payment of \$4,597.

We use the Tobit results to compute the predicted outcomes for each individual in the sample, first assuming that the individual was a Medicaid enrollee and then assuming that the individual was not (regardless of actual enrollment state). The difference between these two estimates is the predicted effect of Medicaid enrollment on the outcome of interest. We average the predicted effects across all sample members to obtain the average effect of Medicaid enrollment on total Medicare payments, the probability of any Medicare payments and, for those with payments, the level of their Medicare payments.⁷

FINDINGS

Medicare Payments

Table 2 presents the average Medicare payments for all services and for each type of service. The statistics here highlight the considerably higher costs of dually eligible beneficiaries relative to other enrollees. Total Medicare payments of dually eligible beneficiaries, \$6,110, are almost twice as high as that of non-Medicaid enrollees, \$3,238. Medicare payments for dually eligible beneficiaries are also higher than those of non-Medicaid enrollees for each of the five specific service categories (i.e., SNF, home health agency [HHA]/hospice, inpatient hospital, outpatient hospital, and physicians). It is notable that the largest relative cost differences between the two groups of enrollees are found for SNF and HHA/hospice services.

⁷ It is likely that Medicaid enrollment is endogenous. Even in the equations in which we control for a variety of demographic and health characteristics, it is possible that there exist unmeasured characteristics that are associated both with Medicare payments and the likelihood of enrolling in Medicaid. If those differences exist, our estimates of the differences between Medicaid enrollees and non-enrollees will be biased. This bias is likely to overstate the impact of Medicaid enrollment on Medicare payments because persons with high payments are more likely to enroll in Medicaid.

Table 2
Types of Medicare Payments, by Medicaid Status (Weighted)

Medicare Payment	Medicaid Enrollees	Non-Medicaid Enrollees	Difference
Dollars			
Average Medicare Payment for All Enrollees			
Total Medicare Payments	\$6,110	\$3,238	**\$2,872
Skilled Nursing Facility	415	74	**341
Home Health Agency/Hospice	619	228	**391
Inpatient Hospital	3,167	1,761	**1,416
Outpatient Hospital	449	239	**210
Physicians	1,433	919	**514
Percent			
Share of Enrollees With Each Type of Payment			
Any Medicare Payments	91.0	82.7	**8.3
Skilled Nursing Facility	7.4	1.7	**5.7
Home Health Agency/Hospice	16.1	7.1	**9.0
Inpatient Hospital	29.0	17.3	**11.7
Outpatient Hospital	64.1	49.0	**15.1
Physicians	89.1	81.5	**7.6
Dollars			
Average Medicare Payment for Enrollees With Each Type of Payment			
Total Medicare Payments	\$6,716	\$3,915	**\$2,801
Skilled Nursing Facility	5,631	4,349	*1,282
Home Health Agency/Hospice	3,853	3,214	639
Inpatient Hospital	10,980	10,199	781
Outpatient Hospital	697	485	**212
Physicians	1,607	1,127	**480
Sample Size	1,440	7,815	—

* Statistically significant at the 0.05 level.

** Statistically significant at the 0.01 level.

NOTE: Figures may not sum to totals because of rounding.

SOURCE: Data from the 1993 Medicare Current Beneficiary Survey; analysis by the Urban Institute.

Table 2 also presents the proportion of enrollees with payments for each type of service and the average payment for those persons who incurred payments for each type of service. This table also shows the degree to which the higher costs of dually eligible beneficiaries are attributable to a greater propensity to use a particular service or to higher spending for persons who do use the service. Dually eligible enrollees are more likely to use any services (91 percent versus 83 percent) and each type of service than non-Medicaid enrollees. The largest relative difference in service use is found for SNF care, where dually eligible enrollees are more than three times as likely to incur SNF payments as non-Medicaid enrollees (7.4 percent versus 1.7 percent). The smallest relative difference between dually eligible

beneficiaries and other enrollees is found for physician care (89 percent versus 81.5 percent). Among the users of particular services, Medicare payments are generally higher for dually eligible beneficiaries, although these differences are not statistically significant for HHA/hospice and inpatient hospital care.

In sum, Table 2 indicates that Medicare costs are higher for dually eligible enrollees in general and for each service category. Dually eligible beneficiaries are more likely to use SNF services and incur higher costs when they do. The same pattern applies to outpatient and physician services. The higher HHA/hospice and inpatient hospital costs of dually eligible beneficiaries appear to be attributable mainly to higher proportions of dually eligible beneficiaries using those services.

Table 3
Health-Status and Functional Limitations, by Medicaid Status (Weighted)

Characteristic	Medicaid Enrollees	Non-Medicaid Enrollees	Difference
		Percent	
85 Years or Over	24.5	10.4	14.1
Myocardial Infarction	18.6	15.0	3.6
Stroke	22.9	10.3	12.6
Cancer (Excluding Skin Cancer)	16.8	19.2	-2.4
Diabetes	25.0	15.5	9.5
Rheumatoid Arthritis	18.7	12.6	6.1
Alzheimer's Disease	15.7	3.2	12.6
Mental Disorder	12.2	3.5	8.7
Osteoporosis	11.6	9.4	2.2
Parkinson's Disease	3.3	1.7	1.6
Emphysema, COPD, or Asthma	15.5	13.7	1.8
Fair or Poor Health	51.6	22.9	28.7
No Instrumental Activities of Daily Living or Activities of Daily Living	32.9	70.7	-37.8
Instrumental Activities of Daily Living Only	23.6	18.7	4.9
1-2 Activities of Daily Living	7.9	4.2	3.7
3 or More Activities of Daily Living ¹	35.6	6.4	29.2
In an Institution in 1993	29.2	4.0	25.2
Died in 1993	9.9	4.3	5.6
Sample Size	1,440	7,815	—

¹ Persons in an institution for the full year are assumed to have 3 or more activities of daily living.

NOTE: COPD is chronic obstructive pulmonary disease.

SOURCE: Data from the 1993 Medicare Current Beneficiary Survey; analysis by the Urban Institute.

Characteristics of the Enrollees

Consistent with findings from other studies, previously discussed, Table 3 highlights the differences in health and disability status between dually eligible and other Medicaid enrollees. About one-quarter of dually eligible beneficiaries are 85 years of age or over, in contrast to only 10 percent of other enrollees. With few exceptions, higher proportions of dually eligible beneficiaries have a history of 1 of the 10 conditions that we selected. For example, dually eligible beneficiaries are five times more likely to have Alzheimer's disease than other Medicare enrollees (15.7 percent versus 3.2 percent).

Moderate or severe disability is also more common in the dually eligible population. More than one-third of dually eligible beneficiaries have three or more ADL dependencies, in contrast to only 6.4 percent among other enrollees. Another indicator of the worse health status of dually eligible beneficiaries is the fact that almost 10

percent of them died during the year, in contrast to 4.2 percent of other enrollees. We also found that dually eligible beneficiaries were seven times more likely to reside in institutions (29.2 percent versus 4.0 percent). This reflects their greater likelihood of being in an institution at the beginning of the sample period, as well as their greater likelihood of entering an institution over the course of the year (not shown in table).

Collectively, the statistics of Table 3 indicate that there are marked differences in health status between dually eligible beneficiaries and other Medicare enrollees that could well justify significant Medicare cost differences between them.

Linking Medicare Payments and Enrollee Characteristics

Consistent with the analysis of descriptive statistics previously presented, we find that health and disability status explain a substantial share of the higher Medicare payments for the dually eligible population. In the absence

Table 4
Percentage Difference Between Payments With Medicaid Enrollment and Payments Without Medicaid Enrollment¹

Medicare Payment	No Controls	Controlling for	
		Demographics, Health Status, and Health Conditions ²	Plus Disability Status ³
Total	+282	+96	+45
Acute Care-Related	+244	+89	+4
Subacute Care-Related	+217	+44	+19

¹ These estimates are obtained using the results from a series of Tobit regression models of Medicaid enrollment on the natural logarithm of Medicare payments. We computed the predicted outcomes for each individual in the sample, first assuming that the individual was a Medicaid enrollee and then assuming that the individual was a non-enrollee (regardless of actual enrollment state). The coefficient on Medicaid enrollment was statistically significant at at least the 0.01 level in each of the models.

² The demographic attributes and health conditions include age, race, sex, marital status, income, self-reported health status, and a series of dummy variables indicating the presence of specific health conditions.

³ The health-status and functional-limitation variables include activities of daily living, instrumental activities of daily living, residence in an institution, and a dummy variable indicating whether the individual died during the year.

SOURCE: Data from the 1993 Medicare Current Beneficiary Survey; analysis by the Urban Institute.

of any controls for individual characteristics (Table 4), we predict that average Medicare payments with Medicaid enrollment (i.e., assuming that everyone in the sample enrolled in Medicaid) would be nearly four times average Medicare payments⁸ in the absence of Medicaid enrollment (i.e., assuming that no one in the sample enrolled in Medicaid).

These differences are reduced substantially as we control for demographic characteristics and health and disability conditions. Although still higher, the predicted level of Medicare payments with Medicaid enrollment are reduced by almost two-thirds with the addition of demographic and health-status controls (Table 4). Medicare payments with Medicaid enrollment are 196 percent higher than payments in the absence of Medicaid in that model. Adding controls for disability status further reduces the difference in Medicare payments to only 45 percent (Table 4), down significantly from the 282-percent difference with no controls for individual characteristics. Much of the cost difference between dually eligible beneficiaries and other Medicare enrollees is eliminated when health and disability status are taken into consideration.

⁸ Because our analysis is based on a model of Medicare payments in logarithmic form, the reference to Medicare payments throughout this section refers to the natural logarithm of Medicare payments.

The influence of health and disability status is quite similar for acute and subacute care Medicare payments. As with total Medicare payments, controlling for health and disability status reduces the difference in payments for acute care that are attributable to Medicaid enrollment by more than 80 percent. The difference in acute care Medicare payments with Medicaid enrollment drops from 244 percent higher in the simple model to 42 percent higher with the health- and disability-status controls. The difference for subacute care Medicare payments is even greater, dropping from a 217-percent differential to only 19 percent higher for dually eligible beneficiaries with the controls for individual characteristics.

As previously reported, the difference in Medicare payments between dually eligible beneficiaries and other enrollees reflects both a greater likelihood of service use and higher payments for those using services. Just as controlling for health and disability status reduced much of the differences in overall Medicare payments, the differences in the fraction of the sample using services and the payments for those services for those with services are reduced by controlling for health and disability status (Table 5). Table 6 provides the estimation results for total Medicare

Table 5
Percentage Difference Between Payments With Medicaid Enrollment and Payments Without Medicaid Enrollment¹

Medicare Payment	No Controls	Controlling for	
		Demographics, Health Status, and Health Conditions ²	Plus Disability Status ³
Total	+282	+96	+45
Fraction of Sample			
With Any Payments	+4	+2	+1
Average Level of Payments for			
Those Using Services	+214	+79	+38
Acute Care-Related	+244	+89	+42
Fraction of Sample With			
Any Payments	+4	+2	+1
Average Level of Payments for			
Those Using Services	+286	+73	+35
Subacute Care-Related	+217	+44	+19
Fraction of Sample			
With Any Payments	+153	+41	+19
Average Level of Payments for			
Those Using Services	+353	+62	+26

¹ These estimates are obtained using the results from a series of Tobit regression models of Medicaid enrollment on the natural logarithm of Medicare payments. We computed the predicted outcomes for each individual in the sample, first assuming that the individual was a Medicaid enrollee and then assuming that the individual was a non-enrollee (regardless of actual enrollment state). The coefficient on Medicaid enrollment was statistically significant at at least the 0.01 level in each of the models.

² The demographic attributes and health conditions include age, race, sex, marital status, income, self-reported health status, and a series of dummy variables indicating the presence of specific health conditions.

³ The health-status and functional-limitation variables include activities of daily living, instrumental activities of daily living, residence in an institution, and a dummy variable indicating whether the individual died during the year.

SOURCE: Data from the 1993 Medicare Current Beneficiary Survey; analysis by the Urban Institute.

payments based on the full-model specification. For both total Medicare payments and acute care-related payments, the difference remaining after controlling for health and disability status is largely in the level of payments for those using services. In contrast, the difference for subacute-related payments reflects both a greater likelihood of any payments and higher payments for those who do have payments with Medicaid enrollment. We also estimated models that excluded those who were either residents of an institution or who died during the year. Because the results for that model were virtually identical to the results for the models estimated for the full sample, we presented the results for the full sample.

Although health and disability status explain a great deal of the effect of Medicaid enrollment on Medicare payments, a substantial difference does remain. In an effort to identify other factors

that could explain those differences, we estimated three additional sets of models. First, we estimated models that controlled for characteristics of the State Medicaid program, including average Medicaid payments per elderly person on acute and subacute care services, the State's Medicaid matching rates, the percent of eligible elderly without QMB benefit, and the ratio of Medicaid payments for office visits to Medicare office visit payments. Although these variables were occasionally significantly correlated with Medicare payments, they had no impact on the estimates of the differences in Medicare payments with Medicaid enrollment.

Second, we estimated models that included a series of dummy variables for the State of residence to allow for State-specific differences that could affect Medicare payments for dually eligible enrollees. Again, although there were significant differences in Medicare payments across the

Table 6

Estimation Results From Tobit Model of Natural Logarithm of Total Medicare Payments (Weighted)

Explanatory Variable	Parameter Estimate	Standard Error
Intercept	2.5815	0.242
Whether Medicaid Enrollee	0.4574	0.117
75-84 Years	0.9511	0.078
85 Years or Over	0.7222	0.123
White	0.5167	0.116
Female	0.3569	0.077
Married	0.2909	0.080
Never Married	0.2465	0.171
Health Status Is Fair or Poor	0.6723	0.089
Myocardial Infarction	0.8892	0.098
Stroke	0.2115	0.113
Cancer	1.1353	0.087
Diabetes	0.8970	0.094
Rheumatoid Arthritis	0.4269	0.103
Alzheimer's Disease	-0.2872	0.191
Mental Disorder	0.0575	0.169
Osteoporosis	0.2956	0.121
Parkinson's Disease	0.3401	0.252
Emphysema, COPD, or Asthma	0.6179	0.101
5 or More Conditions	-1.7327	0.360
Instrumental Activities of Daily Living Only	0.8858	0.095
1 or 2 Activities of Daily Living	1.5191	0.172
3 or More Activities of Daily Living	1.6424	0.221
Ever Resident in Institution in 1993	1.9156	0.183
Died in 1993	1.3032	0.161
Sigma	3.2289	0.027
Mean of Dependent Variable	5.6027	—
Percentage of Sample at Zero	88	—
Log-likelihood	-21,960.45	—
Sample Size	9,255	—

NOTES: COPD is chronic obstructive pulmonary disease.

SOURCE: Data from the 1993 Medicare Current Beneficiary Survey; analysis by the Urban Institute.

States, there were no State-specific differences in Medicare payments for dually eligible beneficiaries. The estimates of the percentage change with Medicaid enrollment from both the models controlling for characteristics of State Medicaid programs and the model including State dummy variables were essentially the same as the results from the models controlling for health and disability status.

Finally, we considered the possibility that the structural model for Medicare payments differed for dually eligible beneficiaries and other Medicare enrollees. To test this hypothesis, we estimated a fully interactive version of the model, allowing for differences in the coefficients for each of the variables for dually eligible beneficiaries. With few exceptions, those interac-

tive terms were not significantly associated with Medicare payments. This suggests that the differences in Medicare payments between dually eligible beneficiaries and other Medicare enrollees that remain after controlling for health and disability status are not associated with the individual characteristics of dually eligible beneficiaries.

DISCUSSION

This study found that the vast majority of the higher Medicare costs of dually eligible beneficiaries relative to other Medicare enrollees are attributable to demographic, health, and disability characteristics. For example, while the average Medicare payment for dually eligible beneficiaries is 282 percent higher than that for other Medicare

beneficiaries, it is only 45 percent higher after controlling for such personal characteristics. We found similarly large reductions in cost differential in the separate analyses of Medicare acute care services and of Medicare subacute care services.

The multivariate analyses provide estimates of the extent to which cost differences are attributable to predisposing and illness factors, rather than enabling or health-systems factors. Despite the remarkable amount of the Medicare cost difference that is attributable to the measures that we included, it is important to consider possible causes behind the remaining differences between the two populations.

First, some of the remaining difference could be attributable to other health and personal characteristic variables that were not available in the MCBS. For example, the history of specific conditions that we examined was collected as binary variables and contained no detail on the severity of the conditions or on lasting effects. Other comorbidities that were not listed in the survey could not be included. We also could not account for any differences in Medicare costs associated with prior problems with access to acute health care or with the use of preventive health services. Basically, a more detailed profile of health-status differences between dually eligible individuals and other Medicare beneficiaries might have improved our ability to explain cost differences between the two groups.⁹

Second, some dually eligible beneficiaries were eligible for Medicaid simply because they spent down as a consequence of recently incurred health care costs. Hence, unlike other Medicare beneficiaries, the

dually eligible population contained, by definition, some portion that tautologically had high health care costs. Although many people who spend down do so because they are long-term nursing home residents, others spend down in the community because of acute care costs. The latter group is more likely to increase the average Medicare costs of dually eligible beneficiaries.

Third, nursing home patients are often admitted to hospitals when the need for acute care arises. The relatively higher proportion of dually eligible beneficiaries who are nursing home residents may also be a reason for the higher average Medicare costs of this group. Although our models controlled for institutional status, the broad MCBS definition of institutions included a wide range of facilities (e.g., assisted living facilities, board and care homes). Dually eligible beneficiaries are more likely to be residents in traditional nursing homes, rather than other types of facilities that serve less disabled persons. Nevertheless, our findings were essentially the same if we limited our sample to individuals who are continuously in the community.

Finally, the higher Medicare costs of dually eligible beneficiaries may also reflect systems inefficiencies because Medicare and Medicaid financing of services is generally not coordinated, except in the few demonstration situations. Incentives exist for cost-shifting between the two programs. Some of the remaining higher Medicare costs of dually eligible beneficiaries may, therefore, reflect the use of services that might otherwise have been covered by Medicaid. This possibility seems particularly likely in the area of subacute care services, such as home health care. It is plausible that, for dually eligible beneficiaries, Medicare is supporting assistance with personal care (e.g., bathing, transferring) that might otherwise be financed by Medicaid.

⁹ In this analysis we have referred to dually eligible Medicare beneficiaries as those recorded by the MCBS as also being enrolled in the Medicaid program. Not all Medicare beneficiaries who are technically eligible for Medicaid are enrolled. For example, many beneficiaries eligible for the QMB programs have not been enrolled.

The major policy implication of this study is a direct reflection of our principal finding. Although dually eligible beneficiaries have much higher Medicare costs than other FFS ones, a very large portion of those higher costs are attributable to demographic and health characteristics. These “natural” characteristics are generally not a direct function of the health system, nor are they easily affected by the health system. In the short run, it is important to simply acknowledge the higher costs of dually eligible beneficiaries in the design of policies and programs. Adjusting capitation payment rates based on health- and functional-status characteristics, for example, seems to be essential if more of the dually eligible population is to be brought into Medicare managed care programs.

The remaining difference in Medicare costs that was not accounted for by health and disability status, on the other hand, presents a reference amount for cost savings that might be achieved through innovations in the delivery of services and coordination between Medicare and Medicaid financing of acute and LTC services. Many of the innovations already considered by the integrated managed care demonstration projects illustrate the possibilities. They include improving access to lower cost services, fostering early detection of health problems and increasing use of preventive services. Increased savings might also be achieved by reducing administrative burden associated with participation in two programs that have different policies governing coverage, payment, and certification. Coordination of funding and administrative processes between Medicare and Medicaid would also reduce administrative complexity and confusing cost-shifting from one program to the other (Fox and Fama, 1996). Although the impact of these measures is still undetermined, they are

acceptable goals that may also reduce the difference in Medicare costs between dually eligible beneficiaries and other enrollees.

In conclusion, providing and paying for health care for the dually eligible population is a particular challenge for public policymakers. People who receive assistance from Medicare and Medicaid do so because they are more likely to need both acute and LTC services. Moreover, they are likely to need more of each type of service than other beneficiaries of either program. Our analysis, which estimated the extent to which health characteristics of dually eligible beneficiaries account for their higher Medicare costs, addressed only one piece of a complex relationship between dually eligible beneficiaries and the public programs that finance their health services. Continuing efforts to clarify the cost determinants of the group can help inform policymakers about how to design future programs and policies affecting this important population.

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