

#2006-21
October 2006

**METHODOLOGICAL ISSUES IN
ESTIMATING PRESCRIPTION DRUG COVERAGE
USING THE MEDICARE CURRENT BENEFICIARY SURVEY**

by

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ACKNOWLEDGMENTS

The authors would like to thank Anna Gu for her research assistance in early drafts of this paper. The authors also are grateful to anonymous reviewers and to Susan Raetzman and David Gross of the AARP Public Policy Institute for providing thoughtful comments on a previous version of the paper.

FOREWORD

A number of research studies over the years have used the Medicare Current Beneficiary Survey (MCBS) to estimate the extent of drug coverage among Medicare beneficiaries. This research has helped to inform the debate around the need for access to drug coverage through the Medicare program, a debate that ultimately resulted in the creation of a Medicare prescription drug benefit that was implemented this year. However, while these studies all showed that substantial numbers of beneficiaries lacked drug coverage, there was sizeable variation among the estimates. This variation is due to methodological differences such as which part of the MCBS data is used, what is counted as drug coverage, and how the duration of coverage is handled in the analysis.

The ultimate value of the Medicare prescription drug benefit will be measured, in part, by how many beneficiaries who previously lacked coverage have gained it. Given the importance of being able to assess the contribution of this costly—but vital—government program, it is critical that researchers and policymakers have a shared understanding of how different methodological approaches to the questions can result in different answers. It is also helpful, where possible, to have some agreement about preferred ways to measure drug coverage levels among Medicare beneficiaries in order to produce more consistent answers to key questions.

This paper, by Becky Briesacher and colleagues, is intended to move the research and policy communities closer toward achieving these objectives. By providing a thorough analysis of the methodological differences in previous analyses of drug coverage among Medicare beneficiaries and by making recommendations about preferred methods, this paper should be useful in informing future policy development regarding drug coverage for this population.

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EXECUTIVE SUMMARY

Published estimates vary widely on how many Medicare beneficiaries have prescription drug coverage, the source of the coverage, and the stability of that coverage. Discrepancies arise among these basic estimates because no standardized method exists for measuring prescription drug coverage. The resolution of these issues is a pressing concern, as analyses regarding the new Medicare drug benefit require a consistent understanding of both baseline and future coverage levels. This paper addresses the available methods and technical concerns in estimating drug coverage using the primary data source available for such analyses, the Medicare Current Beneficiary Survey (MCBS) sponsored by the Centers for Medicare and Medicaid Services (CMS).

Methodology

A review of the published literature of the methods for estimating drug coverage in the MCBS identified the main approaches used by researchers. These approaches include using third-party payment information, calculating point-in-time versus ever-covered estimates, including part-year-entitled beneficiaries in the study sample, and assigning the source of drug coverage with exclusive categories or hierarchical methods. This paper describes how different methodological approaches affect various measures of drug coverage. In addition, the paper compares the effects of using two different sources of data from the MCBS: the 2001 Access to Care (ATC) file and the 2001 Cost and Use (CAU) file. Descriptive tables comparing the results are provided.

Findings

Any drug coverage. Estimates of having any drug coverage in 2001 ranged from 65.5 percent using point-in-time estimates to 80.7 percent using ever-covered estimates and including information from third-party payment records ($p < .05$).

Characteristics of beneficiaries with drug coverage. Estimates of drug coverage rates among various subgroups of beneficiaries were systemically higher when third-party payment information was included in the calculations. However, the difference was larger for certain beneficiary characteristics (e.g., males, rural residents) than for others.

Duration of drug coverage. Estimates of how many beneficiaries had part-year drug coverage ranged from zero to 14.4 percent and 20.7 percent ($p < .05$), depending on whether part-year-entitled people were included in the study sample and whether third-party payment records were included in the calculations.

Source of drug coverage. The prevalence of drug coverage source also varied substantially depending on the methods. For instance, although employer-sponsored insurance was the largest source of drug benefits for Medicare beneficiaries, irrespective of the scheme for classifying coverage source, drug coverage from an employer source

ranged from 27.6 percent to 34.4 percent ($p < .05$), depending on how multiple sources were counted and whether third-party payment records were included in the calculations.

Generosity of drug coverage. Estimations of the generosity of drug coverage (defined as the ratio of third-party payments to total drug spending, and measurable only in the CAU file) varied in sensitivity depending on which method was used and whether third-party payment information was included. For instance, the generosity of employer-sponsored coverage (69.0%) did not change whether it was assigned through a hierarchical method or a nonexclusive method. However, the generosity of individually purchased Medigap plans varied from 29.5 percent to 37.1 percent if they were assigned through the hierarchical method rather than the nonexclusive method.

Discussion

On the basis of the findings of this study, it is apparent that methods matter in estimating prescription drug coverage. These findings support the following recommendations for future research:

- First, the MCBS Cost and Use files rather than the Access to Care files should be used to characterize beneficiary drug coverage. This recommendation is based on the importance and strong influence of enrollment and disenrollment volatility in a given year, which can be measured only with a longitudinal data source.
- Second, CMS should consider adding questions to the survey that address respondents' ability to use their drug benefit. There is evidence that some drug coverage, such as that offered by the Department of Veterans Affairs, is available to eligible beneficiaries but used only on a limited basis. Such circumstances raise the question of whether beneficiaries who pay out of pocket for nearly 90 percent of their medication purchases should still be counted as having drug coverage.
- Third, it is clear that a standardized approach would be useful for describing the sources of drug coverage. For general reporting purposes, nonexclusive categories should be used to capture the considerable number of cases in which beneficiaries have multiple sources of drug coverage (the degree of overlap can be reported in text or table footnotes).

The implication of these methods and the recommendations will take on greater importance as evaluations of Medicare Part D are undertaken to assess the impact of this policy. Researchers can best aid policymakers by applying consistent and open approaches. These preparatory decisions will have a major bearing on how successful the Medicare Modernization Act (MMA) ultimately is considered to be in providing meaningful drug coverage to the Medicare population as a whole.

INTRODUCTION

This study examines various approaches for estimating prescription drug coverage in the Medicare population. Published estimates vary widely on how many Medicare beneficiaries have prescription coverage, the source of the drug coverage, and the stability of that coverage. Discrepancies arise about these basic estimates because no standardized method exists for measuring prescription coverage, despite the use of the same dataset: the Medicare Current Beneficiary Survey (MCBS), which is made publicly available in the form of an Access to Care (ATC) file and a Cost and Use (CAU) file. For instance, it has been estimated that 73 percent of Medicare beneficiaries had drug coverage at some point during 1998 (Poisal and Murray 2001). For the same year, a second group of researchers detected drug benefits for another 900,000 beneficiaries—putting the estimate at 76 percent (Briesacher, Stuart, and Shea 2002)—while a third analysis calculated that only about 60 percent of the Medicare population had drug coverage (Laschober et al. 2002). Thus, it is not surprising that confusion exists about the true extent of private and public prescription drug coverage. The resolution of these issues is a pressing concern, as analyses regarding the Medicare drug benefit require a consistent understanding of both baseline and future coverage levels. Today's assessments of who has or does not have drug coverage will be used to evaluate the impact of the new Medicare prescription drug benefit, which began January 1, 2006 (Shea, Stuart, and Briesacher 2003a).

To date, there has been little documentation of the various ways researchers estimate drug coverage using the MCBS and no systematic review to compare what each approach offers or to determine whether one method is better than the others. Estimates of prescription drug coverage are highly sensitive to issues such as duration of measure (point-in-time versus cumulative), type of evidence (self-reports versus third-party payment records), and classification system (primary source of insurance versus multiple sources). Peculiarities of the dataset also influence calculations, e.g., inadvertent capture of discount card programs as insurance¹, drug benefits for beneficiaries who are still employed², and Medicare managed care coverage paid for by employers³. Little of this methodological information has been recorded and made available for public review.

¹ Concerns have arisen about beneficiaries incorrectly reporting discount cards for prescription drug purchases as prescription drug insurance. In 2002, the MCBS collected data about the use of discount cards by the Medicare population. Approximately 5 percent of noninstitutionalized beneficiaries reported having a discount card, and another 2 percent reported having health insurance coverage that appeared, in fact, to be a discount card (Eppig and Poisal 2003).

² The MCBS changed its procedures in 1997 for categorizing employer-sponsored insurance. From that year forward, drug coverage from Medicare+Choice plans has included that paid for by beneficiaries as well as that where the premium is paid, at least in part, by a former employer. This distinction is important if one is trying to track trends in employer support for retiree health benefits.

³ The Centers for Medicare and Medicaid Services (CMS) classify Medicare+Choice (or Medicare Advantage) plans as publicly funded. Payments to private plans for Part A and Part B benefits come from the Medicare trust funds.

As a result, it is difficult to compare drug coverage estimates across years or those generated by different researchers.

The purpose of this paper is to identify the various ways researchers estimate drug coverage using the MCBS and to quantify the implications of these various approaches. Specifically, the paper describes the available methods and technical concerns in estimating drug coverage with the MCBS; demonstrates the main approaches using the 2001 ATC and CAU files; and discusses the policy implications of using one method versus another. It proposes methods that are preferred by the authors for estimating drug coverage levels among Medicare beneficiaries and that, if used by other researchers, would produce more consistent results.

BACKGROUND

Dimensions of Prescription Drug Coverage

As with most complex issues, prescription drug coverage has multiple dimensions that can be described with little detail or great specificity. At the most basic level, the coverage can be characterized simply as *how many people have coverage and how many do not*. This measure is useful as a national snapshot of the drug benefits available to Medicare beneficiaries. It is often used to describe the characteristics of beneficiaries who have coverage or in trend analyses. For example, researchers compare proportions of the population with or without drug coverage over time to gauge whether there is growth or decline in coverage (Briesacher, Stuart, and Shea 2002; Chulis, Eppig, and Poisal 1995; Laschober et al. 2002; Poisal and Murray 2001; Shea, Stuart, and Briesacher 2003b; Stuart et al. 2003). Alternatively, some analyses have compared medication use and spending of persons with drug coverage with use and spending of persons who do not have coverage to establish the potential impact (AARP 1997; Blustein 2000; Wrobel, et al. 2003). It is important to be able to identify Medicare beneficiaries who have drug coverage in order to make comparisons with those who do not have such coverage.

Another level of characterization is the *source of coverage*. From the MCBS, it is possible to create a detailed picture of the many ways that Medicare beneficiaries receive assistance in paying for their prescription drugs (Artz, Hadsall, and Schondelmeyer 2002; Atherly, Dowd, and Feldman 2004; Briesacher, Stuart, and Shea 2002; Laschober et al. 2002; Shea, Stuart, and Briesacher 2003a; Shea, Stuart, and Briesacher 2003b; Stuart et al. 2004; Stuart, Shea, and Briesacher 2001; Stuart, Shea, and Briesacher 2000a; Stuart, Shea, and Briesacher 2000b). For publicly funded programs, the possible sources of drug coverage are Medicaid (both regular eligibility and extended eligibility though the Qualified Medicare Beneficiary program, which includes Medicaid drug benefits in some states prior to 2006); Medicare managed care plans (Medicare+Choice (M+C), now known as Medicare Advantage (MA)); and an assortment of other programs. Other public programs are recorded in the MCBS but not specifically identified; they include state pharmaceutical assistance programs (e.g., Pennsylvania's PACE/PACENET program) and the Civilian Health and Medical Program of the Uniformed Services

(CHAMPUS), which provides health benefits for retired military personnel and dependents. Drug coverage from the Department of Veterans Affairs (VA) is included in this category, although this source can also be identified by examining third-party payment records.

For private forms of drug coverage, sources include employer-sponsored plans, individually purchased plans (mostly Medigap plans H, I, and J, although nonstandardized plans were issued before 1990), and private HMOs.⁴ Analyses showing the source of coverage are useful for questions about a particular segment of the insurance market or program (Stuart et al. 2003). For instance, policymakers may want to know the impact of rising premiums on enrollment in Medigap plans with drug coverage or the influence of drug benefits on Medicare+Choice plan participation (Atherly, Dowd, and Feldman 2004).

A third way to characterize prescription coverage is by *duration*. Some drug coverage spans an entire year, is renewed routinely, and can be counted on to regularly pay for some portion of chronic medication needs. Other drug coverage is temporary and may last only a few months for any one of three reasons: (1) changes in supply opportunities (e.g., a new M+C plan enters the market or an employer stops offering benefits); (2) changes in eligibility opportunities (e.g., a disabled beneficiary reaches his or her 65th birthday and qualifies for a state's senior drug assistance program); or (3) changes in personal preference (e.g., a beneficiary elects to discontinue a Medigap plan). Estimates of the duration of coverage are useful to understand the stability of the health insurance market (Briesacher, Stuart, and Shea 2002; Shea, Stuart, and Briesacher 2003b; Stuart, Shea, and Briesacher 2001; Stuart, Shea, and Briesacher 2000a; Stuart, Shea, and Briesacher 2000b). Duration of coverage is also important if one is isolating the impact of continuous drug coverage on drug demand behavior (Stuart et al. 2004). Only the CAU data files in the MCBS contain enough information to examine how people transition in and out of coverage during the year.

The last dimension of drug coverage is *generosity*. This term is used here to describe the portion of the prescription drug bill assumed by insurance plans or public programs versus the portion paid out of pocket by the beneficiary (Artz, Hadsall, and Schondelmeyer 2002; Briesacher, Stuart, and Shea 2002; Doshi, Brandt, and Stuart 2004; Poisal et al. 1999; Shea, Stuart, and Briesacher 2003b). The extent of financial assistance with covered drug costs gives some indication of the quality of the plan or program, as well as the protection from catastrophic personal medication costs (Adams, Soumerai, and Ross-Degnan 2001; Briesacher, Limcangco, and Gaskin 2003; Crystal et al. 2000).⁵

⁴ Misclassification bias may affect the estimates of individually purchased plans. Since 2000, beneficiaries have been increasingly reporting drug coverage from individually purchased plans, despite insurance provider reports that enrollment rolls are stable (Laschober, 2004). Some respondents reported drug coverage from Medigap plans but also said that they paid premiums far below the industry standard. This suggests some overreporting of drug coverage from this source. Beginning in 2000, the MCBS has asked respondents to identify the letter of their standardized Medigap plan. In 2001, more than 1,000 ATC respondents said their Medigap plan did not have a letter.

⁵ An issue is the influence of drug coverage from Medicare beneficiaries who are employed full time and getting health benefits from their current employer. Federal law requires employers with at least 20

It is important to note, however, that this is an ex-post measure rather than an ex-ante measure. Researchers must derive the generosity measure by creating a ratio of third-party payments to total costs. As noted in Appendix A, the MCBS applies procedures that may influence these estimates, such as deflating the total cost of each drug transaction by a factor that varies depending on the source of coverage.

Description of the Medicare Current Beneficiary Survey

Central to any discussion of measuring prescription drug coverage in the Medicare population is a brief description of the main dataset, the Medicare Current Beneficiary Survey (MCBS) (Adler 1994). (For a more detailed description, see the MCBS documentation and Appendix A.) The MCBS is a national survey of the Medicare population that captures detailed information on what medical services were received, how much the care cost, who paid for it, and how the beneficiary's health status fared. The MCBS is distinguished from other datasets by its unique design of person-level survey responses linked to Medicare administrative and claims records. It also offers the highly desirable capability of producing estimates that are representative of the approximately 40 million persons in the Medicare population, the result of a complex sample selection design that requires statistical techniques for applying population sampling weights and variance adjustments for sample clustering.

The MCBS dataset is released each year as two distinct files: Access to Care (ATC) and Cost and Use (CAU) (see Figure 1). The files overlap in some of the data they contain (for instance, both have variables related to insurance coverage), but they serve different purposes, contain different information, and can produce dissimilar estimates in answer to the same research question, such as how many Medicare beneficiaries have prescription drug coverage. The ATC file contains data drawn from approximately 17,000 persons and provides information on the continuously enrolled Medicare population. Beneficiaries in the ATC sample are surveyed up to three times a year, but only the responses from the fall round are contained in the ATC file. This file provides single point-in-time estimates. In contrast, the CAU sample is designed to represent the entire Medicare population (persons continuously enrolled in the program, those who are newly enrolled, and those who died during the year) and includes around 12,000 people. Beneficiaries in the CAU sample are also surveyed three times a year; however, this file contains cumulative information from all three survey rounds. The CAU file can generate estimates spanning the whole year or can track mid-year changes. This ability, however, depends on the question, as some items are captured more often than others. Prescription drug coverage is measured in each interview.

employees to offer their Medicare-eligible employees the same benefits they offer to younger employees. Consequently, the private health insurance experiences of employed beneficiaries may be quite different from those of retired beneficiaries (Stuart et al. 2003). The MCBS asks about employment but does not ask whether it is full time or whether the employer offers health benefits. It is not possible to reliably identify individuals who have health benefits from current employment.

Figure 1: Comparison of Key Characteristics of Access to Care and Cost and Use Files

	Access to Care	Cost and Use
Approximate size of sample	17,000	12,000
Definition of sample	Continuously enrolled Medicare beneficiaries	Ever-enrolled Medicare beneficiaries
Number of survey rounds	1	3
Timeframe represented	Point-in-time (fall only)	Ever-covered, point-in time, and mid-year changes
Availability of third-party payment information	No	Yes

In general, the MCBS contains data on prescription drug coverage through a combination of survey reports and Medicare’s administrative data on Medicaid or M+C enrollment.

Questions about health insurance include type of plan (e.g., HMO or Medigap), dates of enrollment, main policyholder, number of people covered under the policy, premium contributions, source of the policy (e.g., self-purchased plan or employer-sponsored benefit), and whether the plan pays for prescription drugs. Respondents in the CAU sample are also asked to collect and present to the surveyor insurance statements, bills, and receipts for any medication purchases. The MCBS surveyor records the payment amounts and whether the payment came from out-of-pocket funds or a third party. Third-party sources include private plans and public programs such as Medicaid and state drug assistance programs.

In its final condition, the ATC file contains information on prescription drug coverage drawn from Medicare administrative records on beneficiaries and a single interview with the beneficiary, while the CAU file contains information on prescription drug coverage drawn from Medicare’s claims records, three interviews during the year, and prescription drug payment information.

Methodological Issues in Measuring Drug Coverage

A measure of prescription drug coverage can be calculated in various ways. Four aspects of technical implementation explain most differences in estimates of coverage from study to study: *composition of the sample, point-in-time versus ever-covered measurement, use of supplemental third-party payment information, and classification scheme for assigning coverage.*

Composition of Sample

Research that estimates drug coverage characterizes only those groups represented in the sample. Two groups are frequently excluded from estimates using the MCBS. The first is institutionalized beneficiaries (i.e., those whose primary residence is a nursing home, assisted living facility, or mental health facility). This group, which numbers approximately 2.5 million people, is often omitted from analyses because the MCBS

captures less information about health insurance coverage on them. The second often-excluded group is people enrolled in the Medicare program for part of the year. Beneficiaries in this category either died during the year or became newly entitled; they number approximately 3 million each year. Research using the ATC file does not include information on part-year-entitled people because they are intentionally removed by the survey's design. Analyses that do not include the part-year group result in estimates that apply only to the continuously enrolled Medicare population.

Point-in-Time Versus Ever-Covered Measures

For many years, research provided only ever-covered estimates of drug coverage in the Medicare population; more recent work, however, has offered point-in-time estimates (Laschober et al. 2002). Point-in-time analyses provide snapshot figures relevant to the time of measurement; in the case of estimates from the ATC file, the figures relate to the fall period. In contrast, ever-covered estimates relate to the entire year and can be presented as a summary measure of annual activity or at the quarterly or monthly level. Research presenting monthly levels of drug coverage has demonstrated considerable fluctuation throughout the year, reflecting beneficiaries' enrollment and disenrollment decisions (Stuart, Shea, and Briesacher 2001). Because of this variation, point-in-time analyses require a clear rationale to justify why one point is as valid as another. Also, single point-in-time estimates of drug coverage are always lower than those drawn from a full year's data. Stuart, Shea, and Briesacher (2000a) provide an illustration of both measures as applied to the 1996 CAU file.

Use of Supplemental Payment Information

Research also varies with regard to whether the supplemental third-party payment information in the MCBS is used to determine evidence of drug coverage. This information is included only in the CAU dataset; it is contained in separate files summarizing services used and payments. Use of payment source information increased the estimated level of drug coverage in the 1992 MCBS by 4 percentage points over estimates generated using only self-reported coverage information (Poisal et al. 1999). However, it is not clear whether one or two claims over the course of a year constitute legitimate evidence of drug coverage. Unpublished analyses by the authors show that MCBS respondents who reported no drug coverage but had claims evidence of coverage still paid most of their drug bills out of pocket in 2001 (87%, compared with 33% for those with full-year self-reported coverage and 62% for those with part-year self-reported benefits).

Classification Scheme for Assigning Coverage

Over the years, Medicare beneficiaries' opportunities for obtaining drug benefits have increased, which often means multiple plans and overlapping coverage. Researchers have developed three approaches to count drug coverage from multiple sources: *nonexclusive classification*, *mutually exclusive classification*, and *hierarchical classification*. The nonexclusive method counts a person for each source of drug coverage. The

exclusive method counts each person once but combines those with multiple sources into one category (Briesacher, Stuart, and Shea 2002). This method undercounts the types of coverage. The hierarchical method classifies people by their primary source of coverage using a sequence defined by the researchers (Laschober et al. 2002). Different researchers have developed various sequences for the hierarchies. One group of researchers assigned people with multiple sources of coverage to the one considered to function as their primary supplement of Medicare, such as Medicare HMO (M+C plans), Medicaid, employer-sponsored, individually purchased, and other public (Poisal et al. 1999). Other researchers ordered the hierarchy as current employer-sponsored, Medicaid, Medicare HMO, employer-sponsored retiree, individually purchased, other public, and no Medicare supplementation (Laschober et al. 2002). The ordering of the hierarchy greatly influences the rates of coverage by source.

EMPIRICAL DEMONSTRATION OF APPROACHES USING THE 2001 MCBS

The previous section reviewed the published literature, identifying the main methodological issues in estimating prescription drug coverage with the MCBS and the alternative approaches used by researchers. This section provides a demonstration of the quantitative impact of these alternative approaches on various measures of prescription drug coverage among noninstitutionalized Medicare beneficiaries. In addition, the effects of using two different sources of data from the MCBS—the 2001 ATC and the 2001 CAU files—are systematically compared.

Methods

Two samples were used for this study. The first was drawn from the ATC file and consisted of persons who lived in the community throughout the year; people with any residence in long-term care facilities were excluded ($n = 1,215$). The final unweighted ATC sample size was 15,246. Estimates from this sample represent the community-dwelling Medicare population enrolled in Medicare for the entire year. The second sample was drawn from the CAU file and also included only people who lived in the community, i.e., the sample excluded those with any long-term care residence ($n = 1,222$). The final unweighted CAU sample was 11,642. Estimates from this sample represent the community-dwelling Medicare population enrolled in Medicare at any time during the year. The two samples were selected to represent community-dwelling Medicare beneficiaries as available in the dataset.

Three approaches were used to measure drug coverage with the information in the MCBS. The first approach uses only the self-reported drug coverage information in the ATC file; the second uses only the self-reported drug coverage information in the CAU file; and the third uses the latter information plus third-party payment records. This supplemental information is used to identify the source of drug coverage for persons who report having coverage but do not know the source, and to identify new drug coverage not reported in the survey. In these cases, the source of third-party payments was used to

assign type of coverage. The implications of this approach are demonstrated by comparing the coverage rates from the CAU samples with and without the third-party payment information.

Five measures of drug coverage were developed for this demonstration. The first measure describes the proportion of individuals who had evidence of any coverage during the year. The second describes coverage rates by duration of coverage during the year and can be calculated only for the CAU sample. To measure duration of coverage, the beginning and ending dates of enrollment in insurance plans or public programs were used to build monthly indicators of coverage. Partial months of enrollment are counted as full months of coverage. Persons with 12 months of coverage are classified as “full year”; those with less than 12 months of coverage are classified as “part year.” The other three measures used in this demonstration apply different approaches to counting drug coverage when people have multiple sources: nonexclusive, mutually exclusive, and hierarchical. The hierarchical categorization employed in this study differs from what other researchers have used in the past, focusing on drug coverage rather than general health insurance coverage to avoid misclassifying people with multiple sources of coverage into a coverage category that may not be their primary source of drug benefit. The descending order of the hierarchy used in this study is M+C, Medicaid, employer-sponsored, individually purchased, other public, and unknown.

Drug coverage rates are calculated for selected sociodemographic characteristics to demonstrate how the method for measuring coverage influences estimates of who has and who does not have drug coverage. The characteristics include age, gender, race, marital status, metropolitan residence, geographical region, and income. Two health indicators are used: self-reported health status and number of chronic conditions.

The mean spending level and generosity of coverage for the covered population defined by each drug coverage measure described above were estimated for the CAU sample; differences are shown between using just the survey information and adding third-party payment information. Generosity of drug coverage was defined as a ratio of third-party payments over total drug spending. Generosity of coverage was calculated only for persons who reported some drug spending.

All analyses were conducted in SAS v.8.02. The software’s survey procedures with the MCBS cross-sectional sampling weights and clustering/stratification adjustments were used to generate national-level estimates with standard error corrections. Statistical differences were assessed by constructing 95 percent confidence intervals to determine statistical difference. The tests compared the estimates drawn from the CAU sample with the survey data and third-party payment data with those drawn from the ATC sample or from the CAU sample with only the survey data.

Finally, an ad hoc analysis was conducted with a third sample. This sample is a specially constructed group of people who appear in both the ATC and CAU files. These persons were enrolled in Medicare for the full year, lived only in the community, and responded to the fall round of the survey. The unweighted number of the overlapping ATC/CAU

sample is 10,432. The estimates drawn from this sample demonstrate the different drug coverage rates resulting from differences in what the survey captures, since the sample is identical. The results of this analysis are in Appendix B.

Results

Table 1 shows the range of estimates for drug coverage among noninstitutionalized Medicare beneficiaries by type of MCBS file and method for defining drug coverage. The *point-in-time* estimate from the ATC survey file indicates that nearly two-thirds (65.5%) of the 35.5 million beneficiaries enrolled in Medicare for the entire year had some form of drug coverage in the fall of 2001. Using *calendar-year estimates* from the CAU file results in significantly higher rates of drug coverage. When only the CAU survey is used, nearly three-quarters (74.1%) of the 38.5 million beneficiaries who were enrolled in Medicare for at least part of the year had drug coverage during 2001. Supplementing the CAU survey with information from the third-party payment records increases the estimate of the drug coverage rate to 80.7 percent.⁶ The re-estimation of these rates for the group of people found in both the ATC and CAU files (shown in Appendix Table B1) shows differences in coverage rates similar to those in Table 1. This suggests that the 9–15 percentage point higher drug coverage rates in the CAU file over the ATC file are mainly due to differences in the survey capture.

Whereas 74 percent of noninstitutionalized Medicare beneficiaries in the CAU survey file had some drug coverage, the duration-of-coverage measures indicate that only 60 percent of these had full-year coverage and about 14 percent had only part-year coverage. Supplementing the CAU survey with third-party payment information does not change the full-year drug coverage estimates but increases the proportion of beneficiaries with part-year coverage. This reflects the study methodology of assigning persons with only third-party payment evidence of drug coverage to the part-year coverage group.

Irrespective of the classification scheme, employer-sponsored insurance was the largest source of drug benefits for Medicare beneficiaries, followed by M+C plans, Medicaid, individually purchased plans, and other public plans. The proportion of beneficiaries with multiple drug coverage sources ranged from 3.4 percent using the ATC file to 13.4 percent using the CAU survey and third-party payment information. Using a nonexclusive coverage category approach and the ATC file, about 29 percent of the beneficiaries had some drug benefits from their employer, 16 percent had drug benefits from their M+C plans, 12 percent had full Medicaid, 8 percent had individually purchased drug coverage, and 5 percent had drug coverage from other public plans.

Application of the same classification scheme to the CAU survey and third-party payment information resulted in statistically significant increases in drug coverage rates for each source except M+C plans. While the proportion of beneficiaries with drug coverage from Medicaid increased by only 2 percent, coverage rates increased by 6 percent for those with employer-sponsored drug benefits, almost doubled for those with

⁶ This difference might have been even larger if the study had corrected for underreporting of coverage, which was not done.

Table 1: Rates of Supplemental Drug Coverage for Noninstitutionalized Medicare Beneficiaries by Type of MCBS File, 2001

Type of Coverage	Access to Care (%)	Cost and Use	
		Survey Only (%)	Survey + Third-Party Payment (%)
Total N	35.5 M	38.5 M	38.5 M
<i>Any coverage</i>	65.5*	74.1*	80.7
<i>Duration of coverage¹</i>			
Full year	NA	59.9	59.9
Part year ²	NA	14.4*	20.7
<i>Nonexclusive Coverage Categories</i>			
M+C	15.5	14.2	14.8
Full Medicaid	11.9*	12.4	14.1
Employer	28.7*	33.4	34.4
Individually purchased	8.1*	12.9*	15.0
Other public	4.6*	6.0*	14.4
Unknown source	0.2*	2.9	2.4
<i>Exclusive Coverage Categories</i>			
M+C	13.5*	10.9	10.6
Full Medicaid	10.1	10.2	10.9
Employer	27.6	29.5	26.8
Individually purchased	7.2*	9.9	9.8
Other public	3.5*	3.5*	6.7
Multiple sources ⁴	3.4*	7.3*	13.4
Unknown source	0.2*	2.9	2.4
<i>Hierarchical Coverage Categories</i>			
M+C	15.5	14.2	14.8
Full Medicaid	11.0*	11.5	13.2
Employer	28.1*	31.9	32.6
Individually purchased	7.3*	10.1	11.0
Other public	3.5*	3.5*	6.7
Unknown source	0.2*	2.9	2.4

* Significantly different at p<.05 from estimate using Cost and Use survey and third-party payment information.

¹ Estimated only for those with 12 months of Medicare eligibility.

² Persons with coverage based on third-party payment files were assigned to part-year coverage.

³ Represents traditional Medicaid coverage and Qualified Medicare Beneficiary (QMB) plus coverage.

⁴ Includes only known sources of coverage.

individually purchased drug plans, and more than tripled for beneficiaries with other public drug coverage.

The use of an exclusive coverage category approach, wherein individuals with multiple drug coverage sources are combined into one category, results in a lower drug coverage rate for each type of coverage. The reduction in coverage rates using this approach compared with the nonexclusive coverage category approach was quite small for the ATC file estimates (1–2%) but more substantial for the estimates from the CAU file using survey only information (2–4%) or survey plus third-party payment information (4–8%). As a result, the proportion of beneficiaries with M+C drug benefits was significantly higher in the ATC file than in the CAU file. The difference in rates of Medicaid and employer-sponsored drug coverage across the two files observed under the nonexclusive coverage category approach disappeared. Only the estimates for individually purchased and other public drug coverage were still higher in the CAU file than in the ATC file, although the difference was smaller than that observed under the nonexclusive coverage category approach.

Under the hierarchical coverage classification, beneficiaries with multiple sources of drug coverage were assigned to a single source of coverage in a hierarchical manner in the order listed in Table 1. Hence, drug coverage rates from sources higher in the hierarchy (e.g., M+C, Medicaid, and employer-sponsored drug coverage) remained quite similar to those under the nonexclusive coverage category approach, whereas the coverage rates from sources lower in the hierarchy (e.g., individually purchased plans and other public) were more similar to those under the exclusive coverage category approach.

With the exception of M+C, the drug coverage rates for each type of source from the ATC file were significantly lower than those derived from the CAU survey and third-party payment information. (The M+C rates are statistically the same.) Only the “other public drug coverage” rate from the CAU survey only was significantly lower than that from the CAU survey and third-party payment information.

Table 2 displays supplemental drug coverage rates by characteristics of noninstitutionalized Medicare beneficiaries and type of MCBS file. Overall, the drug coverage rate is underestimated by 15 percentage points in the ATC file compared with the CAU survey and third-party payment information; however, examination of these rates by beneficiary characteristics suggests that the level of underestimation is not the same across all types of beneficiaries. For example, the level of underestimation is higher for males than females (18 percentage points vs. 13 percentage points). There is also a systematic undercounting of the prevalence of drug coverage by race, income, and geographic characteristics. For instance, the level of underestimation is higher for beneficiaries residing in rural versus urban areas (18 percentage points vs. 14 percentage points) and for those residing in the Midwest (16 percentage points) and the South (17 percentage points) versus those in the East (14 percentage points) or West (12 percentage points). Similarly, systematic differences in underestimation were observed for drug coverage rates obtained from the CAU survey only compared with the rates from the CAU survey and third-party payment information. See Appendix Table B2 for the results of the analysis using the overlapping sample from the ATC and CAU files.

Table 2: Medicare Supplemental Drug Coverage Status by Beneficiary Characteristic and Type of MCBS File, 2001

Characteristic	Access to Care (%)	Cost and Use		Difference between ATC and CAU
		Survey Only (%)	Survey + Third-Party Payment (%)	
Total N	35.5 M	38.5 M	38.5 M	
<i>All</i>	65.5*	74.2*	80.7	-15.2
<i>Age</i>				
<65	66.9*	72.7*	82.5	-15.6
65–79	68.2*	77.1*	82.5	-14.3
70–74	66.8*	75.9*	81.5	-14.7
75–79	65.8*	73.6*	80.3	-14.5
80+	60.5*	70.5*	77.0	-16.5
<i>Gender</i>				
Male	63.0*	72.3*	80.6	-17.6
Female	67.4*	75.6*	80.7	-13.3
<i>Race</i>				
White	64.8*	73.8*	80.2	-15.4
Black	66.5*	73.8*	81.6	-15.1
Hispanic	74.0*	81.0	86.5	-12.5
Other	76.3*	80.0	87.4	-11.1
<i>Marital Status</i>				
Married	66.6*	75.2*	81.6	-15.0
Not married	64.2*	72.9*	79.6	-15.4
<i>Metro Residence</i>				
Yes	69.2*	77.7*	83.4	-14.2
No	53.6*	62.6*	72.0	-18.4
<i>Census Region</i>				
East	72.9*	81.7*	86.7	-13.8
Midwest	59.6*	68.4	75.3	-15.7
South	60.5*	70.0*	77.8	-17.3
West	74.3*	81.4*	86.4	-12.1
<i>Income</i>				
< \$5,000	62.1*	69.9*	79.0	-16.9
\$5,000–\$10,000	66.5*	72.2*	81.7	-15.2
\$10,000–\$20,000	60.0*	70.0*	77.0	-17.0
\$20,000–\$30,000	65.8*	74.6*	80.3	-14.5
>\$30,000	70.7*	79.8*	84.4	-13.7
<i>Self-Reported General Health</i>				
Excellent–good	65.4*	74.5*	80.0	-14.6
Fair–poor	65.9*	73.4*	82.5	-16.6
<i># of Chronic Conditions</i>				
None	56.8*	67.5	72.6	-15.8
One	63.3*	72.9	77.4	-14.1
Two	64.6*	72.9*	79.2	-14.6
Three or more	68.4*	76.1*	83.6	-15.2

* Significantly different at p<.05 from estimate using Cost and Use survey and third-party payment information.

Table 3 presents estimates of generosity of drug coverage by type of coverage and coverage definition in the CAU file, both with and without the supplemental third-party payment information. Overall, 93 percent of beneficiaries with any drug coverage had some drug expenditure; on average, they paid out of pocket for 38 percent of their annual drug bill (\$1,515). These estimates were similar regardless of whether beneficiaries with drug coverage were identified from the CAU survey only or the CAU survey plus third-party payment information. Similarly, 95 percent of beneficiaries identified with full-year drug coverage from either source used some drugs; on average, they paid for one-third of their annual drug bills (\$1,701). However, beneficiaries with part-year drug coverage identified from the CAU survey only had a lower probability of any drug spending and higher out-of-pocket costs than those identified from the CAU survey plus third-party payment information (percentage with any spending, 91% vs. 94%; percentage with out-of-pocket spending, 63% vs. 55%). Furthermore, beneficiaries classified as having no drug coverage using only the CAU survey did not pay 100 percent out of pocket for their annual drug bill as one would expect. About 17 percent of their annual drug expenditures were paid by a third party, suggesting that they actually *do* have some drug coverage. This misclassification is corrected by supplementing the CAU survey with third-party payment information to more accurately identify beneficiaries with no drug coverage. When the CAU survey is thus supplemented, the drug expenditures paid out of pocket by this population segment increase to nearly 100 percent. In addition, the probability of any drug spending and mean drug spending drop (88% to 84%, and \$1,017 to \$825, respectively).

The different classification schemes also affected the estimates of generosity, but only for some sources of coverage. For instance, according to the CAU file without third-party payment information, Medicaid covers 81.1 percent to 83.3 percent of drug expenses, regardless of whether one uses the nonexclusive, exclusive, or hierarchical approach. In contrast, drug coverage from individually purchased plans ranged from a high of 37.1 percent to a low of 29.5 percent. This differential effect illustrates a weakness of having a category for multiple coverage sources or of classifying coverage as a lower ranked source within a hierarchy. In this example, the multiple source category tended to comprise an assortment of relatively good coverage plans (indicated by an average generosity level of 66.3%), including the most generous of the individually purchased plans. Conversely, this result suggests that beneficiaries with these types of Medigap drug plans were more likely to have multiple sources of coverage. Similarly, when individually purchased plans were placed at the bottom of a hierarchy, the analysis reallocated financial contributions from this source to those higher in the hierarchy whenever beneficiaries had multiple sources. Hence, both the exclusive coverage and hierarchical approaches biased downward the generosity estimates for individually purchased plans.

Table 3: Mean Annual Outpatient Prescription Drug Spending and Percentage Paid by Third-Party Payers for Noninstitutionalized Medicare Beneficiaries by Type of Coverage and Coverage Definition in MCBS Cost and Use File, 2001

Type of Coverage	Mean Spending		Mean Percentage Paid by Third Party	
	Survey Only (\$)	Survey + Third-Party Payment (\$)	Survey Only (%)	Survey + Third-Party Payment (%)
All (N = 38.5 M)	1,373.6	1,373.6	50.9	50.9
<i>Any Coverage</i>	1,511.5	1,514.8	61.6	61.6
<i>Duration of Coverage¹</i>				
Full year	1,701.1	1,701.1	67.3	67.3
Part year ²	1,074.9*	1,235.8	37.5*	44.9
None	1,016.9*	825.3	17.0	0.1
<i>Nonexclusive Coverage Categories</i>				
M+C	1,098.5	1,105.8	52.7	53.2
Full Medicaid ³	1,650.8	1,737.8	81.1	81.7
Employer	1,737.0	1,727.6	69.0	68.5
Individually purchased	1,217.9	1,270.7	37.1	37.3
Other public	1,866.3	1,802.6	66.9	69.7
Unknown source	1,051.5	1,054.0	45.4	41.0
<i>Exclusive Coverage Categories</i>				
M+C	1,073.3	954.7	49.8	48.5
Full Medicaid ³	1,627.8	1,710.1	83.3	84.4
Employer	1,744.9	1,696.7	69.0	67.9
Individually purchased	1,136.5	1,103.4	29.5*	23.8
Other public	1,887.0	1,578.4	64.4	65.7
Multiple sources ⁴	1,567.9	1,785.7	66.3	68.7
Unknown source	1,051.5	1,054.0	45.4	41.0
<i>Hierarchy Coverage Categories</i>				
M+C	1,098.5	1,105.8	52.7	53.2
Full Medicaid ³	1,688.4	1,777.0	82.1	82.6
Employer	1,743.8	1,735.4	69.0	68.4
Individually purchased	1,155.6	1,158.8	30.4	28.3
Other public	1,887.0	1,578.4	64.4	65.7
Unknown source	1,051.5	1,054.0	45.4	41.0

* Significantly different at 0.05 from estimate using Cost and Use survey and third-party payment information.

¹ Estimated only for those with 12 months of Medicare eligibility.

² Individuals with coverage based on third-party payment files were assigned to part-year coverage.

³ Represents traditional Medicaid coverage and Qualified Medicare Beneficiary (QMB) plus coverage.

⁴ Includes only known sources of coverage.

DISCUSSION

This methodological exercise was undertaken with the conviction that “methods matter.” The results show that the fraction of Medicare beneficiaries reported to have drug coverage in 2001 varies by more than 15 percentage points, depending on the dataset and the methods used. At the low end (using the ATC survey), about two-thirds of community-dwelling Medicare beneficiaries are counted as having any drug coverage; at the high end (using survey plus third-party payment records from the CAU survey), over 80 percent are counted as covered.

The differences are due both to when coverage is measured and the source of the information. If prescription benefits held by Medicare beneficiaries were stable and maintained over the long term, it would not matter when the measurement was taken. But, as shown here, drug coverage for the Medicare population has been volatile, with between 14 percent and 21 percent of beneficiaries having part-year benefits in 2001. Given the importance of volatility and the fact that it can be measured only with a longitudinal data source, it is strongly recommended that CAU files rather than ATC files be used to characterize beneficiary drug coverage. However, it is important to note that the earlier release of the ATC file may make it a more suitable dataset for certain research questions.

The question of whether to use prescription-level indicators of coverage in addition to survey responses is more complex. There is good reason to believe that the MCBS insurance questions undercount the true proportion of beneficiaries with any prescription coverage—by up to 6 percentage points in 2001. However, because the evidence of coverage from service records might be based on as little as one or two claim records, the qualitative value of this measure deserves discussion. On average, MCBS respondents who reported no drug coverage but had claims evidence of coverage still paid most of their drug bills out of pocket in 2001 (compared with 33% for those with full-year self-reported coverage and 62% for those with part-year self-reported benefits). Most of these individuals received third-party assistance from the VA. This demonstrates the gap that sometimes occurs between eligibility for drug coverage and receipt of the drug benefit. It is an open question whether thresholds of assistance should be met before a third-party payment constitutes evidence of drug coverage. It is recommended that CMS consider adding a question to the health plans section of the survey that addresses respondents’ ability to obtain drug products on an as-needed basis from various public or private sources. This information should be offered as a separate measure that can be applied as needed or ignored when conducting trend analyses.

The final measurement question addressed here is how best to array the sources of drug coverage. The three possibilities are nonexclusive coverage measures (with possible overlaps); exclusive measures (with a catch-all category for “multiple plans”); and a hierarchy of coverage (with individuals placed in the first, or highest, category for which they are eligible). If one uses the ATC file to generate insurance coverage estimates, the

choice of method makes little difference, as the degree of reported overlap is very small (under 4 percentage points).

However, when using the preferred CAU files, the overlap (about 8 percentage points) cannot be ignored. The hierarchical approach appears to have limited application, as there is no natural order in which insurance sources should be listed. For example, Poisal and Murray (2001) put Medicare+Choice plans first, while Laschober and colleagues (2002) put current employer-sponsored coverage first. Furthermore, the duration of coverage is important to avoid situations in which 1 month of coverage from one source trumps 11 months of coverage from a source lower in the hierarchy. The Medicare Payment Advisory Commission (MedPAC) classifies drug coverage according to the type held longest; this may be a sound alternative. The exclusive coverage approach has two disadvantages: First, coverage under volatile plan types (e.g., M+C coverage) will tend to be underreported relative to more stable forms of coverage; second, the catch-all “multiple coverage” category will contain a very disparate group of beneficiaries. For general reporting purposes, it is best to use nonexclusive measures, particularly when payment data are reported by the source of coverage. The extent of overlap can be reported in text or table footnotes.

What methods researchers use to measure drug coverage continues to be a relevant issue, even though Medicare Part D began in 2006. The sources of drug coverage will substantially change, but who has it and what the coverage includes will still matter as long as the option is voluntary and administered by multiple entities. The MMA recognizes two basic types of Part D plans: stand-alone prescription drug plans (PDPs) and Medicare Advantage prescription drug plans (MA-PDs).⁷ Arrayed against this MMA structure is the range of drug coverage types that people had before the policy change. As of January 1, 2006, dually eligible beneficiaries no longer receive drug coverage from Medicaid, and many beneficiaries who had drug coverage through Medigap plans H, I, and J will switch to a PDP or MA-PD plan (beneficiaries who had such plans may keep them, but no new Medigap drug coverage can be sold). Measurement will entail tracking the final disposition of these persons and the impact of the transition. Of particular concern for these groups is whether those with coverage remain covered and whether the generosity of coverage changes. Persons with employer-sponsored retiree coverage may or may not change their drug coverage, depending on the responses of employers to Medicare subsidies for maintaining drug benefits. For this source, it will be important to monitor the extent to which Part D creates new coverage opportunities rather than crowding people out of existing sources of coverage (e.g., the loss of retiree benefits).

Finally, and most important, measuring levels of drug coverage will still be necessary because a portion of the Medicare population is without prescription drug coverage after the initial enrollment in 2006. Some beneficiaries failed to enroll in a Part D plan out of confusion regarding their options while others made a reasoned choice based on their anticipated future use of prescribed medications. For those who enrolled, failure to pay

⁷ In the event that at least two risk-bearing stand-alone drug plans were not available in each region, fall-back plans would be provided.

the monthly premiums will lead to loss of benefits, and PDPs and MA-PD plans may also dismiss enrollees for “cause.”

How these scenarios play out across beneficiaries will not be evident until 2009, when the 2006 MCBS Cost and Use file is expected to be released. In the interim, researchers can best aid policymakers by tracking changes in beneficiaries’ drug coverage and drug spending following Part D implementation. Methodological decisions about how this is done will have a major bearing on how successful the MMA ultimately is considered to be in providing meaningful drug coverage to the Medicare population as a whole.

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APPENDIX A:
Description of the Medicare Current Beneficiary Survey

The MCBS is a national survey of the Medicare population sponsored by the Centers for Medicare and Medicaid Services (CMS). The annual MCBS sampling pool comes from the previous year's Medicare enrollment records and a small supplement of statistical additions, known as "ghosts." Ghosts are important to MCBS calculations because they represent the experiences of newly entitled Medicare beneficiaries (mostly those who turned 65 years old during the year); however, it is important to note that their data contain imputed information.

The majority of the sample consists of beneficiaries who agree to participate in interviews conducted in their homes by trained surveyors with laptop computers, and they grant access to their Medicare records for research purposes. If the beneficiary lives in an institution, such as a nursing home, the surveyor conducts a modified assessment with the beneficiary, if possible. Most often, the information is derived from abstractions from the facility medical record and interviews with proxies associated with the facility. Beneficiaries in the MCBS sample are assessed three times a year for up to four years and then retired from the sample so that the sampling pool continues to reflect the current Medicare population.

The MCBS is designed to accommodate multiple users and uses in both the government and the private sector. The dataset is released each year as two distinct files: Access to Care (ATC) and Cost and Use (CAU). The files share an overlap in data (e.g., both have variables related to insurance coverage), but they serve different purposes, so they contain different information and can produce dissimilar estimates in answer to the same research question, e.g., who has prescription drug coverage. The MCBS also contains special topic questions and samples that vary from year to year, but prescription drug coverage is part of the regular survey.

The ATC file contains data drawn from approximately 17,000 persons and provides information on the continuously enrolled Medicare population. Beneficiaries in the ATC sample are surveyed up to three times a year, but only the fall-round responses are contained in the ATC file. Estimates from this file provide single point-in-time estimates. In contrast, the CAU sample is designed to represent the entire Medicare population (persons who are continuously enrolled in the program, those who are newly enrolled, and those who died during the year); the sample includes around 12,000 people. Beneficiaries in the CAU sample are also surveyed three times a year, and this file includes cumulative information from all survey rounds. Estimates from the CAU file can generate estimates spanning the whole year or track mid-year changes. This ability, however, depends on the question, as some items are captured more often than others. Prescription drug coverage is measured in each interview.

In general, the MCBS contains data on prescription drug coverage through a combination of survey reports and Medicare's administrative data on Medicaid or Medicare+Choice enrollment. A goal of the survey is to capture information that is not already available to the federal government, such as whether beneficiaries receive financial assistance with medication costs through state programs or private health insurance plans. Questions on health insurance include the type of plan (e.g., HMO or self-purchased), dates of enrollment, main policyholder, number of people covered under the policy, premium contributions, source of the policy (e.g., self-purchased plan or employer-sponsored benefit), and whether the plan pays for prescription drugs.

Respondents in the CAU files are also asked to collect and present to the surveyor insurance statements, bills, and receipts for any medication purchases. The MCBS surveyor records the payment amounts and whether the payment came from a third party or from out-of-pocket funds. For Medicaid and public drug assistance programs, beneficiaries describe any assistance they received from those sources during each month. In the case of the CAU sample, each round of interviews is sent to the MCBS preparers, who link them together to create a calendar year's worth of information.

Survey responses from the ATC and the CAU are merged with CMS's administrative files and Medicare claims records, and reconciliation adjustments are made (Eppig and Chulis 1997). Some values are imputed and added to the dataset, e.g., in cases where beneficiary-reported data are missing. In some cases, reported data for services not covered by Medicare extend beyond a single calendar year. In these cases, the imputation procedure is to determine the number of days in the recall period (generally four months) and assign the purchase—such as that of a prescription drug—to one year or the other based on the probability that the service occurred in either year. The supplementary data sources provide other information too, such as state buy-in contributions for Medicaid participation and enrollment into Medicare managed care plans. Much of the supplemental information is available only in the CAU file. It is important to note that the supplemental information requires a longer lag time for data capture than the survey, so the CAU file is released about 1.5 years after the ATC file.

The payment information captured in the CAU survey is also used to create measures of prescription drug costs that approximate transaction costs. These measures include total costs, out-of-pocket costs, and third-party payments as allocated to the source. The MCBS applies a series of complex procedures to create a total cost for each prescription drug event (these steps are described in detail in the MCBS documentation). However, for issues related to drug coverage, three procedural steps are important to note. First, preference is given to the beneficiary-supplied reports of drug payments. This means that the beneficiary is the main source of information about any drug payments when this information is available. Approximately one-third of total drug payments come directly from the survey report. The remaining two-thirds are derived from a standardized drug-pricing compendium and statistical imputation. Second, the third-party payment information is often a derived estimate. Sometimes it is calculated simply as the residual from the total transaction costs after subtracting out-of-pocket payments, as in cases of single-source drug coverage. For people with multiple sources of drug coverage, the

allocation involves probability algorithms based on the distribution of payments for beneficiaries with similar insurance compositions. Third, the MCBS adjusts prescription drug costs by factors specific to the type of payer. For instance, in the 2000 MCBS, prescription drug prices were adjusted to reflect 85 percent of the average wholesale price if the payer was a managed care plan, compared with an 87 percent adjustment factor if the source was an employer-sponsored insurer.

In its final state, the ATC file contains information on prescription drug coverage as drawn from Medicare administrative information and a single interview with the beneficiary, while the CAU file contains information on prescription coverage as drawn from Medicare's records, three interviews during the year, and prescription drug payment information.

APPENDIX B:
**Analysis Using the Overlapping Sample from Access to Care and
Cost and Use Files of the Medicare Current Beneficiary Survey**

Table B1: Rates of Supplemental Drug Coverage for the Overlapping Sample in Access to Care and Cost and Use Files of MCBS, 2001

Type of Coverage	Access to Care (%)	Cost and Use	
		Survey Only (%)	Survey + Third-Party Payments (%)
Total N	32.7 M	32.7 M	32.7 M
<i>Any Coverage</i>	66.0	74.2	80.6
<i>Nonexclusive Coverage Categories</i>			
M+C	16.0	14.9	15.5
Full Medicaid ¹	11.7	12.1	13.8
Employer	28.1	33.1	34.0
Individually purchased	8.5	13.5	15.7
Other public	5.4	5.9	14.2
Unknown source	0.2	2.5	2.2
<i>Exclusive Coverage Categories</i>			
M+C	13.9	11.4	11.0
Full Medicaid ¹	9.8	9.8	10.6
Employer	26.8	29.1	26.5
Individually purchased	7.6	10.3	10.1
Other public	4.1	3.5	6.6
Multiple sources ²	3.8	7.5	13.7
Unknown source	0.2	2.5	2.2
<i>Hierarchy Coverage Categories</i>			
M+C	16.0	14.9	15.5
Full Medicaid ¹	10.7	11.1	12.7
Employer	27.4	31.6	32.3
Individually purchased	7.7	10.6	11.4
Other public	4.1	3.5	6.6
Unknown source	0.2	2.5	2.2

¹ Represents traditional Medicaid coverage and Qualified Medicare Beneficiary (QMB) plus coverage.

² Includes only known sources of coverage.

Table B2: Medicare Supplemental Drug Coverage Status by Beneficiary Characteristic for the Overlapping Sample in Access to Care and Cost and Use Files of MCBS, 2001

Characteristic	Cost and Use		
	Access to Care (%)	Survey Only (%)	Survey + Third-Party Payments (%)
Total N	32.7 M	32.7 M	32.7 M
<i>All</i>	66.0	74.2	80.6
<i>Age</i>			
<65	68.2	72.6	82.5
65–79	68.3	77.3	82.1
70–74	68.3	76.5	82.0
75–79	65.2	74.2	80.7
80+	61.5	70.3	77.0
<i>Gender</i>			
Male	64.2	72.3	80.8
Female	67.4	75.7	80.5
<i>Race</i>			
White	65.4	73.9	80.3
Black	66.6	73.5	80.9
Hispanic	76.3	81.5	86.7
Other	76.0	80.7	86.3
<i>Marital Status</i>			
Married	66.8	74.9	81.3
Not married	65.1	73.4	80.0
<i>Metro Residence</i>			
Yes	70.0	77.9	83.5
No	53.4	62.3	71.4
<i>Census Region</i>			
East	74.2	82.3	87.1
Midwest	60.0	66.8	74.3
South	60.9	70.5	78.3
West	74.5	81.7	86.1
<i>Income</i>			
< \$5,000	63.2	69.2	77.8
\$5,000–\$10,000	66.6	72.0	81.7
\$10,000–\$20,000	61.0	69.9	76.6
\$20,000–\$30,000	66.5	74.9	80.7
>\$30,000	71.0	80.1	84.6
<i>Self-Reported General Health</i>			
Excellent–good	65.8	74.5	79.9
Fair–poor	67.0	73.6	82.8
<i># of Chronic Conditions</i>			
None	56.2	66.9	70.8
One	63.9	72.3	76.9
Two	64.9	73.1	79.3
Three or more	68.7	76.2	83.6