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**Memorandum**

Updated March 30, 2005

**SUBJECT: Medicaid/SCHIP Enrollees: Comparison of Counts from Administrative Data and Survey Estimates****FROM:** Chris L. Peterson and April Grady  
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It is estimated that 40.5 million to 44.7 million noninstitutionalized people were enrolled in Medicaid or SCHIP at some time during fiscal year (FY) 2000, based on the Medicaid Statistical Information System (MSIS) and other administrative data.<sup>1</sup> Several population surveys also estimate the number of Medicaid/SCHIP enrollees, but these estimates historically have been substantially lower than those reported in the administrative data — a phenomenon often referred to as the “Medicaid undercount.” In this memorandum, we compare the estimated number of Medicaid/SCHIP enrollees in three federally sponsored surveys to numbers based on the administrative data. We also compare the results by enrollees’ age, to determine whether individuals of a certain age group are more (or less) likely to be undercounted.

The Medicaid undercount is of policy importance if the survey data on which policy analyses are based provide biased or inaccurate estimates of the number and characteristics of both Medicaid/SCHIP and non-Medicaid/SCHIP enrollees. For example, analyses of program take-up rates (that is, the number of eligible people who enroll) rely heavily on survey data to simulate potential eligibility and identify actual enrollees; if these data have

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<sup>1</sup> This estimate excludes individuals whose Medicaid coverage would not be considered “health insurance,” such as people receiving only family planning assistance. Although 40.5 million noninstitutionalized individuals are recorded as enrolled in Medicaid/SCHIP during the year, the data also have more than 4 million records for which there is no eligibility-related information, including age. Based on information obtained subsequent to completing an initial (January 2005) version of this memorandum, we now believe it is likely that many of the records with missing eligibility information represent individuals who had one or more claims paid on their behalf during the fiscal year, but were not actually enrolled during the fiscal year. However, since it is difficult to determine exactly how many of the records with missing eligibility information should be excluded from our enrollee count, all of the records (with the exception of those that have payments for institutional services) are included in the high estimate of 44.7 million Medicaid/SCHIP enrollees in FY2002. Readers should be aware that this figure is likely an overestimate. These issues are discussed in greater detail later in the memorandum.

problems, so do the analyses. Another important question raised by the undercount, and not resolved in this memorandum, is what impact it has on the number of uninsured. If surveys undercount Medicaid/SCHIP enrollment, does this lead to an overcount of the uninsured? Or, do enrollees who do not report their Medicaid/SCHIP coverage report some other type of coverage instead (for example, private health insurance), leading to a zero-sum impact on survey estimates of the uninsured?

Throughout this memorandum, we use enrollment figures from MSIS and other administrative data as a benchmark for measuring the extent to which Medicaid/SCHIP enrollment may be undercounted in survey data; however, we cannot assess the overall quality of this benchmark with certainty. The MSIS data are subjected to editing and validation testing before they are accepted by the Centers for Medicare & Medicaid Services (CMS), but the agency itself notes that because the data are state reported, they may contain some errors not identified in the review process. If unidentified errors result in duplication of enrollee records, age bias, or other problems, the comparisons we present may be skewed or invalid. As a result, we urge caution in the reading of our results and suggest that they be used as a starting point for discussion, rather than a final analysis of the undercount issue.

## Summary of Results

**Total Enrollment.** Compared to the administrative data, the Current Population Survey (CPS) undercounted total Medicaid/SCHIP enrollment. Using the CPS, an estimated 28.1 million to 29.5 million people<sup>2</sup> were covered by Medicaid/SCHIP in 2000, as shown in **Table 1** and **Figure 1**. The range of estimates reflects multiple ways of defining Medicaid/SCHIP coverage in the survey. The lower estimate is based on CPS questions specifically about Medicaid or SCHIP. The CPS also asks about “other public coverage,” which could also be a Medicaid or SCHIP program.<sup>3</sup> Counting other public coverage (excluding Medicare and military-related coverage) as Medicaid/SCHIP yields the higher estimate. The higher estimate is the one used by the Census Bureau when reporting their estimates of the number of people on Medicaid/SCHIP. Regardless of which estimate is used, the CPS undercounts Medicaid coverage by at least 10 million, compared to the administrative data.

Based specifically on questions about Medicaid and SCHIP coverage, the Medical Expenditure Panel Survey (MEPS) estimates the number of individuals ever covered by Medicaid/SCHIP in 2000 at 34.2 million. This is several million lower than the estimate from the administrative data. However, as in the CPS, MEPS asks about other public coverage, and it is possible that the other public coverage reported by individuals was Medicaid or SCHIP. In addition, there were cases (amounting to 1 million people) in which individuals did not report having Medicaid/SCHIP coverage but had Medicaid expenditures for their care. By counting all of these individuals as being covered by Medicaid/SCHIP, the number of individuals ever covered by Medicaid/SCHIP in 2000 would be 40.7 million, within the range of the administrative data. In the case of MEPS, however, the agency that

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<sup>2</sup> Throughout this memorandum, the numbers will refer to the noninstitutionalized unless otherwise noted. The population surveys do not obtain information on institutionalized individuals. The numbers from the administrative data reflect our attempt to remove institutionalized individuals from the count. This is discussed in greater detail later in the memorandum.

<sup>3</sup> For more detailed information about the content of the survey questions regarding other public coverage, see **Appendix 1** at the end of this memorandum.

administers the survey — the Agency for Healthcare Research and Quality (AHRQ) — uses the *lower* estimate when they publish results of Medicaid/SCHIP enrollment.

Using the Survey of Income and Program Participation (SIPP), the high estimate for the number of people ever enrolled in Medicaid/SCHIP in 2000 is estimated at 41.9 million. Like the MEPS high estimate, this is in the range of the administrative data. Like the CPS and MEPS high estimates, the SIPP high estimate includes those with “other public coverage.” However, it is not possible to obtain a lower estimate from SIPP because the necessary data are not available publicly.

**Table 1. Range of Estimated Number of Individuals Ever Enrolled in Medicaid/SCHIP from Various Sources, by Age, 2000**  
(in thousands)

	CPS		MEPS		SIPP	Administrative data	
	Low estimate	High estimate	Low estimate	High estimate	High estimate	Low estimate	High estimate
<6	5,816	5,887	7,671	8,200	6,740	9,521	10,497
6-12	5,915	6,017	7,263	7,677	8,170	8,682	9,544
13-18	3,624	3,697	4,294	4,612	5,730	5,341	5,873
19-24	1,862	1,997	2,858	3,177	3,316	3,164	3,502
25-34	2,269	2,480	3,043	3,928	4,018	3,750	4,152
35-54	4,052	4,386	4,456	6,019	6,710	5,280	5,865
55-64	1,542	1,731	1,577	2,305	2,263	1,542	1,710
65+	3,035	3,339	3,044	4,812	4,914	3,195	3,573
<b>Total</b>	<b>28,115</b>	<b>29,533</b>	<b>34,206</b>	<b>40,731</b>	<b>41,861</b>	<b>40,476</b>	<b>44,715</b>

**Source:** Preliminary Congressional Research Service (CRS) analysis of the March 2001 supplement of the Current Population Survey (CPS), the 2000 Medical Expenditure Panel Survey (MEPS), the 2001 panel of the Survey of Income and Program Participation (SIPP), and the Medicaid Statistical Information System (MSIS) and other administrative data.

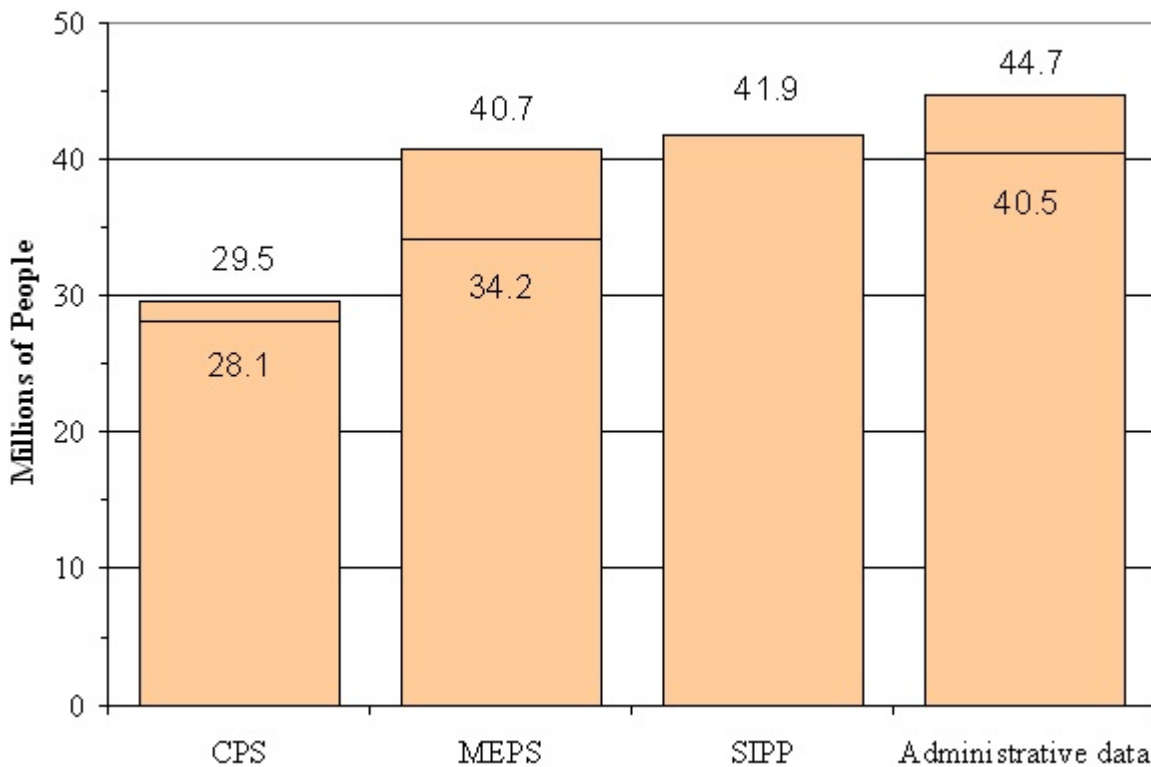
**Note:** Ages are as of the end of the calendar year for survey data (CPS, MEPS, SIPP) and as of the end of the fiscal year for administrative data. The CPS high estimate includes individuals enrolled in other public coverage for low-income individuals and is the estimate most commonly used in Census Bureau publications. The MEPS high estimate also includes other public coverage as well as individuals who were reported to have Medicaid health care expenditures. However, the MEPS estimates of Medicaid/SCHIP enrollees are usually published based on the lower estimate. The single SIPP estimate includes those with other public coverage; no low estimate is given because the data do not permit carving out those with only other public coverage. The ranges of the survey estimates do not reflect sampling error (e.g., confidence intervals, margin of error), which would cause the ranges to be larger. The range for the administrative data reflects several adjustments, which are discussed in the body of the memorandum.

**Age Distribution.** Although the SIPP and MEPS high estimates are in the range of the administrative data, the distribution of enrollees by age in the surveys differs substantially from the administrative data. For example, as shown in **Table 1**, the administrative data estimate of Medicaid/SCHIP enrollees under age 6 is 9.5 million to 10.5 million. The high estimate for MEPS and SIPP for this group is 8.2 million and 6.7 million, respectively. Of course, these surveys’ *low* estimates as well as the CPS estimates differ from the administrative data by an even greater number.

While the number of young Medicaid/SCHIP enrollees is lower in the surveys than the administrative data, the estimate of older enrollees is not lower and is even higher in the surveys than in the administrative data, in what might be called an overcount for certain age groups. For example, the administrative data show that there were 4.7 million to 5.3 million Medicaid/SCHIP enrollees aged 55 and older. CPS estimates of the number of these enrollees range from 4.6 to 5.1 million. The number of Medicaid/SCHIP enrollees aged 55 and older ranges from 4.6 to 7.1 million in MEPS and is 7.2 million in SIPP.

**Table 2** displays the *percentage* of Medicaid/SCHIP enrollees in each age group, based on the total number of enrollees reported in each source of data. The administrative data have a higher percentage of enrollees age 12 or under than all of the survey estimates. In addition, the administrative data have a lower percentage of enrollees age 35 and older compared to the survey estimates (with the exception of the MEPS low estimate) although, as with the other comparisons, some of these differences are very small and may not be statistically significant.

**Figure 1. Low and High Estimates of Number Ever Enrolled in Medicaid/SCHIP from Various Data Sources, 2000**



**Source:** Preliminary Congressional Research Service (CRS) analysis of the March 2001 supplement of the Current Population Survey (CPS), the 2000 Medical Expenditure Panel Survey (MEPS), the 2001 panel of the Survey of Income and Program Participation (SIPP), and the Medicaid Statistical Information System (MSIS) and other administrative data.

**Note:** No low estimate available for SIPP.

**Table 2. Estimated Age Distribution of Individuals Ever Enrolled in Medicaid/SCHIP from Various Data Sources, 2000**

	CPS		MEPS		SIPP	Administrative data	
	Low estimate	High estimate	Low estimate	High estimate	High estimate	Low estimate	High estimate
<6	20.7%	19.9%	22.4%	20.1%	16.1%	23.5%	23.5%
6-12	21.0%	20.4%	21.2%	18.8%	19.5%	21.4%	21.4%
13-18	12.9%	12.5%	12.6%	11.3%	13.7%	13.2%	13.2%
19-24	6.6%	6.8%	8.4%	7.8%	7.9%	7.8%	7.8%
25-34	8.1%	8.4%	8.9%	9.6%	9.6%	9.3%	9.3%
35-54	14.4%	14.9%	13.0%	14.8%	16.0%	13.0%	13.0%
55-64	5.5%	5.9%	4.6%	5.7%	5.4%	3.8%	3.8%
65+	10.8%	11.3%	8.9%	11.8%	11.7%	7.9%	7.9%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

**Source:** Preliminary Congressional Research Service (CRS) analysis of the March 2001 supplement of the Current Population Survey (CPS), the 2000 Medical Expenditure Panel Survey (MEPS), the 2001 panel of the Survey of Income and Program Participation (SIPP), and the Medicaid Statistical Information System (MSIS) and other administrative data.

## Survey Data Assumptions and Limitations

**CPS.** The Current Population Survey (CPS) is sponsored by the U.S. Census Bureau and is primarily a survey of income and employment. It is the source of the official government statistics on employment and unemployment. Of the federal surveys examined in this memorandum, the CPS surveys the greatest number of people, which enables state-by-state estimates of people's sources of health insurance. It is the only federal survey on health insurance able to provide annual estimates for all 50 states and the District of Columbia.

The CPS is a cross-sectional survey, which means that it does not have the ability to track the same individuals from year to year. Although CPS interviews take place every month, the questions regarding health insurance status are asked only in March, in the CPS's Annual Demographic Survey (often referred to as "the March supplement"), at which time individuals are asked to identify their sources of health insurance for the entire preceding year.

Respondents are asked a series of questions regarding coverage through Medicaid and SCHIP. In March 2001, respondents were asked, "Was anyone in this household covered by Medicaid?" with the state-specific name provided. If necessary, the interviewer would say that the program "is the government assistance program that pays for health care." If the respondent answered yes, then the interviewer would ask for the names of those enrolled. These questions were followed by similar ones asking about SCHIP.

Additionally, respondents could select the source(s) of coverage for each person in the household from a list of 15 different sources of health insurance. This list included separate entries for Medicaid, SCHIP, other government health care, and other.

Finally, at the end of the health insurance questions, if someone in the household had no source of coverage selected, a verification question was asked: “I have recorded that [the name of the person(s)] was not covered by a health insurance plan at any time during 2000. Is that correct?” If the respondent said no, the same list of 15 sources of coverage would be provided for the respondent to indicate the appropriate source of coverage for the person(s).

The final Medicaid/SCHIP variable provided in the CPS data includes those whose source of coverage was “other government health care” or “other.” However, that coverage could be some other form not related to Medicaid or SCHIP (for example, state programs for low-income individuals not enrolled in Medicaid or SCHIP). Because the proportion of those individuals whose “other” coverage was Medicaid or SCHIP is not known, we provide two estimates of Medicaid/SCHIP enrollees from the CPS. The lower amount (28.1 million nationally) is the number for whom Medicaid or SCHIP was specifically selected. The higher amount (29.5 million nationally) includes the “other” categories created by the Census Bureau and used by most researchers.

Even when including the “other” categories, the Medicaid undercount in the CPS is still substantial. The CPS undercount would be even greater if it were not for the statistical adjustments performed on the data. More than a quarter (26%) of those who had Medicaid/SCHIP coverage reported in the CPS did not, in fact, have that coverage selected during the survey interview. Instead, Medicaid coverage was assigned to them through statistical imputation and allocation. For those with no Medicaid information from the survey interview,<sup>4</sup> Medicaid coverage was allocated based on certain characteristics such as age, race, sex and income. The imputations changed the Medicaid coverage response in the survey from “no” to “yes” based on other factors, such as enrollment in cash welfare (Temporary Assistance to Needy Families (TANF)) or Supplement Security Income (SSI).

**MEPS.** The Medical Expenditure Panel Survey (MEPS) provides nationally representative estimates of health care use, expenditures, sources of payment, and insurance coverage for the U.S. civilian noninstitutionalized population.<sup>5</sup> MEPS is cosponsored by the Agency for Healthcare Research and Quality (AHRQ) and the National Center for Health Statistics (NCHS).<sup>6</sup>

Unlike the CPS, MEPS is a longitudinal survey, which means that individuals who are part of the sample are interviewed multiple times over the life of the survey, referred to as a “panel,” so that changes in various individual characteristics may be observed. However, MEPS does not support state-level estimates of the uninsured.

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<sup>4</sup> The health insurance questions are at the end of the CPS survey. Many respondents do not complete the entire survey. In these cases, sources of health insurance are assigned to these individuals based on other information in the survey.

<sup>5</sup> Because the MEPS surveys take place more than once during the year, it is possible that a person who was institutionalized at some point during the year is included in the survey. To make the MEPS estimates comparable to the administrative data estimates in this memorandum, we excluded individuals who were ever institutionalized during the year.

<sup>6</sup> Much of the background description of MEPS in this memorandum comes from the documentation for the 2000 MEPS full-year consolidated file, available at [<http://meps.ahrq.gov/PufFiles/H50/H50doc.pdf>].

Like the CPS, the MEPS questionnaire asks about Medicaid and SCHIP coverage by asking whether anyone in the household has such coverage and, if so, who. The difference between them is that MEPS has a single question for both Medicaid and SCHIP while the CPS asks a separate question for each. The lower number in the MEPS range of estimated Medicaid/SCHIP enrollees (34.2 million nationally) reflects the results from this question alone. This amount includes approximately 6% of cases for whom Medicaid coverage was imputed.

Like the CPS, the MEPS questionnaire also asks about “other public” coverage.<sup>7</sup> In addition, because MEPS obtains information on individuals’ health care expenditures by source of payment, the data indicate cases in which Medicaid apparently paid some amount for individuals’ health care services even though Medicaid coverage was not picked up in the portion of the questionnaire pertaining to sources of health insurance. All of these individuals are added to create the higher MEPS estimate for the number of people with Medicaid/SCHIP (40.7 million).

**SIPP.** In addition to the CPS, the Census Bureau also conducts the Survey of Income and Program Participation (SIPP), a survey with detailed information on respondents’ income as well as their participation in government programs. The SIPP is a longitudinal survey of the noninstitutionalized, with its most recent panel, the 2001 panel, beginning in late 2000.<sup>8</sup>

Because of the timing of the 2001 panel, information is available for only some SIPP respondents for only part of calendar year 2000. As a result, the results in this memorandum are based on estimates for calendar year 2001 scaled back by 7.74% to account for the growth in Medicaid/SCHIP enrollment from FY2000 to FY2001 based on administrative data published by CMS.<sup>9</sup>

SIPP respondents are also asked a series of questions regarding coverage through Medicaid and SCHIP. Respondents were asked, “At any time (during the month), were you covered by Medicaid?” The next question was whether the person was “covered by any other public program that pays for medical care,” with a state name provided. In addition, respondents were asked whether they were covered by the SCHIP program in that state, mentioned by name with the explanation that it is “the State Children’s Health Insurance Program that helps families get health insurance for children.” Parents were also asked whether their children were covered by “some other public program that pays for medical care, which you may also know as [state program name].”

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<sup>7</sup> Throughout this memorandum, “other public” coverage excludes Medicare and military-related health insurance; separate questions for these sources of coverage appear in all three of the surveys discussed in this memorandum.

<sup>8</sup> Because the SIPP surveys take place more than once during the year, it is possible that a person who was institutionalized at some point during the year is included in the survey. To make the SIPP estimates comparable to the administrative data estimates in this memorandum, we excluded individuals who were ever institutionalized during the year.

<sup>9</sup> An analysis was done to determine whether Medicaid/SCHIP enrollment changes in the administrative data differed substantially by age, thus meriting age-specific adjustments to the weights. However, the enrollment increase was fairly consistent across all ages, so the adjustment to SIPP was applied uniformly across all ages.

Unlike the CPS and MEPS, the SIPP does not permit separate estimates of the number of individuals with only “other public” coverage. As a result, no range can be given as was given for the CPS and MEPS. Because the SIPP estimate of Medicaid/SCHIP enrollees includes the results from multiple questions regarding other public coverage, the SIPP estimate (41.9 million) should be compared with the higher numbers estimated with the CPS and MEPS.

Approximately 12% of the 41.9 million Medicaid/SCHIP enrollees estimated in the SIPP were assigned that coverage through allocation or imputation.

**Other Limitations.** In addition to the limitations discussed above, the results from the surveys in this memorandum — the CPS, MEPS and SIPP — are subject to sampling and non-sampling error, as are all surveys. Since survey estimates come from only a sample of the population, the estimates could differ from the results from a complete census using the same questions. All other sources of error in survey estimates are collectively called nonsampling error. Sources of nonsampling error include the following:

- differences in individual respondents’ interpretation of questions;
- respondents’ inability to recall information; and
- errors made in data collection, such as recording and coding data.

Although it is not possible to measure the extent of nonsampling error, it is possible to calculate the sampling error, based on measurements like the survey’s sample size. This allows analysts to calculate a confidence interval around each estimate, an example of which is the “margin of error” commonly cited in polling results. Thus, in addition to the range of estimates supplied in this memorandum by varying the definition of Medicaid/SCHIP enrollees from the surveys, an even larger range would exist if sampling error were also accounted for.

## **Administrative Data Assumptions and Limitations**

As described below, the main source of administrative data used in this memorandum comes from person-level Medicaid Statistical Information System files. When necessary, the MSIS data are supplemented with SCHIP Enrollment Data System (SEDS) and Medicaid waiver enrollment totals published by CMS.

MSIS is an administrative data source compiled by CMS from eligibility and claims files submitted by the 50 states and the District of Columbia since 1999. Prior to 1999, states were only required to provide aggregate statistics on Medicaid enrollment, services, and payments in a single annual report. Currently, states must submit five MSIS files every quarter: one containing eligibility-related information on all individuals enrolled in the state Medicaid program and four containing information on adjudicated claims.

Each quarterly file submitted by a state undergoes editing and validation testing. If a file fails acceptance testing, the state must make corrections until it passes. Known issues that remain unresolved are detailed by CMS in a state-specific “data anomalies” document; however, the agency also notes that because the data are state reported, they may contain some errors not identified in the review process. Once accepted, CMS processes the MSIS files in a number of ways. It produces summary state-level statistics for months, quarters, and fiscal years; summary person-level data files for each fiscal year; and detailed person-level Medicaid Analytic eXtract (MAX) data files for each calendar year.

The FY2000 summary person-level files, which contain a limited number of variables from the detailed eligibility and claims data submitted by states on each Medicaid enrollee, were used for the analyses in this memorandum. Available variables include monthly indicators for Medicaid enrollment, basis of eligibility, restricted benefit status, and SCHIP enrollment; an indicator for Medicare enrollment; demographic variables (state of residence, age, sex, race); and the total dollar amount paid by Medicaid during the fiscal year (based on adjudicated claims), categorized by 30 types of service.

To obtain the low estimate of Medicaid/SCHIP enrollment from the FY2000 MSIS data, we first exclude records that represent lump sum claims adjustments rather than enrollees (52,000), records that have claims information but no eligibility information (4.5 million, most of which are included in the high estimate discussed later), records that are in the files but are shown as not eligible for Medicaid/SCHIP during the fiscal year (220,000), and records whose eligibility status was coded as “unknown” by the state (3,000). Second, because the surveys analyzed for this memorandum do not collect information on people who are institutionalized, we exclude individuals in the MSIS data who have any Medicaid payment for institutional services (1.6 million who had a Medicaid payment for nursing facility or intermediate care facility for the mentally retarded). Third, individuals who receive restricted Medicaid benefits only (family planning services only, emergency care only, or Medicare premium and cost-sharing assistance only) are excluded since they may be unlikely to know or identify themselves as Medicaid enrollees in a survey interview (3.3 million). Finally, since MSIS reporting of Medicaid-expansion SCHIP (M-SCHIP) enrollees is mandatory but reporting of separate state program SCHIP (S-SCHIP) enrollees is optional, we use another administrative data source (the SCHIP Enrollment Data System) to raise age-specific enrollment totals by a total of 1.1 million<sup>10</sup> in states that do not report S-SCHIP enrollees in MSIS. Altogether, these adjustments yield a low MSIS estimate of 40.5 million Medicaid/SCHIP enrollees.

As mentioned above, 4.5 million records in the person-level MSIS files contain claims information but are missing eligibility information. Subsequent to completing an initial (January 2005) version of this memorandum, CMS staff familiar with the data suggested that lagged claims (that is, claims that are processed after a person disenrolls from Medicaid or SCHIP, creating a situation where there is payment but no enrollment for an individual during a given period of time) are probably the primary source of records with missing eligibility information in the MSIS fiscal year files.<sup>11</sup> Eligibility corrections and retroactive determinations (which are not captured in an MSIS fiscal year file unless they show up in one of the four fiscal year quarters) create a secondary source of records with missing eligibility information. It is unclear to what extent remaining records may represent cases in which an individual has eligibility and claims information filed under different or multiple ID numbers or an individual’s eligibility information is simply missing.

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<sup>10</sup> This figure accounts for the fact that some individuals may be enrolled in both Medicaid and S-SCHIP during a fiscal year.

<sup>11</sup> For this reason, in most of their published estimates, CMS does not count MSIS records with missing eligibility information as enrollees (people who are eligible for and enrolled in Medicaid/M-SCHIP for at least one month, sometimes called eligibles by CMS). However, they do count most of them as recipients (enrollees who use services, sometimes called beneficiaries by CMS). As a result, some states that have large numbers of records with missing eligibility information show a higher number of recipients than enrollees.

As discussed above, we now believe that many of the records with missing eligibility information represent individuals who had one or more claims paid on their behalf during the fiscal year, but were not actually enrolled during the fiscal year. However, since it is difficult to determine exactly how many of the records with missing eligibility information should be excluded from our enrollee count, all of the records (with the exception of those that have payments for institutional services) are included in the high estimate of 44.7 million Medicaid/SCHIP enrollees in FY2002. Readers should be aware that this figure is likely an overestimate.

Since we have no eligibility-related information (including age) for these additional 4.2 million records, we use the distribution of enrollees whose age is known as a proxy for allocating them to our age-specific enrollment totals. This is why the age distribution of the high estimate for the administrative data, shown in **Table 2**, is identical to that of the low estimate. The age-specific enrollment totals for the high estimate may be biased if the true distribution of records with missing ages differs from that of records with known ages.

In theory, MSIS administrative data should provide a full and accurate accounting of the number of individuals who were ever enrolled in Medicaid or M-SCHIP (and in some states, S-SCHIP) during a given time period. However, even after making the adjustments described above, there are a number of reasons why the enrollment numbers obtained from MSIS may be higher than those obtained from survey data sources. First, although the summary person-level MSIS data are supposed to be unduplicated within states using unique identification numbers that remain the same even if a person disenrolls and re-enrolls at a later date, they are not unduplicated across states (meaning that a person may show up in two state files if they moved and were enrolled in more than one state Medicaid/SCHIP program during the fiscal year). In addition to the MSIS identification number, CMS requires states to report a Social Security number when possible, which would allow for some unduplication across states. However, this information is not available in the MSIS files analyzed by CRS.

Second, although we exclude from the MSIS figures individuals who receive only restricted Medicaid benefits because they may be unlikely to know or identify themselves as enrollees in a survey interview, the quality of the restricted benefit data varies by state. While we were able to identify most family planning waiver enrollees using MSIS data, we had to turn to an additional administrative data source in order to lower our age-specific enrollment totals in states where these enrollees are not clearly identified. In many states, we also were unable to identify (or were able to identify very few) enrollees who are entitled only to emergency care based on alien status. However, since there are no good estimates available from other sources on the size of this population, we are unable to say how low our count of 701,000 may be.

We also exclude 766,000 enrollees identified as individuals whose Medicaid coverage is limited to Medicare premium and cost-sharing assistance only; however, it is not clear how reliable this information is in the FY2000 MSIS files. Some states have difficulty reporting whether or not Medicaid enrollees are dually enrolled in Medicare, as well as what level of benefits dual enrollees are entitled to (that is, full Medicaid benefits plus Medicare premium and cost-sharing assistance, or Medicare premium and cost-sharing assistance only). In addition, there are two different variables that indicate restricted benefit status for dual eligibles; however, they do not always agree with each other.

A final issue with the restricted benefit enrollees is the fact that it may not be appropriate to drop them in all cases. Depending on the survey questionnaire design,

individuals with restricted benefits may be confused about whether or not to report themselves as being covered by Medicaid/SCHIP, especially if the state has issued them an enrollment card. Since most of the 3.3 million restricted benefit enrollees are adults, adding them back into our MSIS totals shifts the age distribution slightly, raising the percentage of individuals in all but one of the age 19 and up categories and lowering the percentage in the under age 19 categories. Despite the uncertainty, we assume that most individuals with restricted benefits are unlikely to show up in survey data enrollment totals, and we do not include them in the administrative figures cited throughout this memorandum.

## Conclusion

Depending on which estimates are used, the Medicaid undercount is at least 10 million in the CPS and nearly 6 million in MEPS, using the Medicaid/SCHIP variable used by the agency that administers the survey. The high estimates of MEPS and SIPP are in the range of the administrative data. Unfortunately, the SIPP data do not permit a low estimate, which would exclude “other public coverage” that may or may not in fact be Medicaid/SCHIP.

Even when the national estimates of Medicaid/SCHIP enrollment are similar to those from the administrative data, the distribution of enrollees by age differs substantially. Compared to the surveys, the administrative data show a higher proportion of young children and a lower proportion of older adults. In fact, the count of enrollees aged 55 and older in the high estimates from MEPS and SIPP could be considered a Medicaid overcount.

In those cases where an undercount appears to exist, that undercount would be larger if the surveys did not assign Medicaid/SCHIP coverage to individuals for whom that coverage had not been reported. These statistical techniques (allocation and imputation) had the largest impact on estimates in the CPS. In the CPS, 26% of those who had Medicaid/SCHIP coverage did not, in fact, have that coverage selected during the survey interview. Without the CPS adjustments, the Medicaid undercount would have been even greater.

The results in this memorandum also highlight the difficulty analysts face in presenting comparable Medicaid/SCHIP estimates from the surveys. The final Medicaid/SCHIP variables provided in the CPS and SIPP include other public coverage (not including Medicare and military-related coverage); the final Medicaid/SCHIP variable in MEPS does *not* include other public coverage. The difference can amount to several million. Some, but not all, of those reporting other public coverage are probably in fact Medicaid or SCHIP enrollees. It would be helpful if the agencies administering these surveys could provide clear documentation on the types and state-specific names of programs that constitute “other public” and on their rationale for including (or excluding) them in their final Medicaid/SCHIP variable, as well as guidance on analysts’ potential use (or misuse) of these variables.

Although we made numerous adjustments to make the survey data and the administrative data as comparable as possible, they are fundamentally different sources of data. In spite of our efforts to reconcile the differences among them, some remain. For example, the CPS, MEPS and SIPP are intended to cover the entire calendar year of 2000 while the administrative data are based on the federal FY2000 (October 1999 to September 2000). In addition, while we exclude individuals who receive only restricted benefits from our MSIS estimates because we believe that they are unlikely to know or identify themselves

as enrollees, it is unclear how many of these individuals may be actually report themselves as having Medicaid/SCHIP coverage in survey interviews.

Overall, the quality of the data are affected by how accurately respondents provide information — whether the respondents are individuals answering survey questions or states reporting administrative data. Just as individuals vary in how thorough they are in providing answers to surveys, states vary in the effort put into reporting administrative data. The MSIS data are subjected to editing and validation testing before they are accepted by the Centers for Medicare & Medicaid Services (CMS), but the agency itself notes that not all problems may be identified in the review process. Survey data may also be adjusted and “cleaned up” prior to its release, but some errors will inevitably remain. These factors, in addition to others discussed throughout this memorandum, can affect the estimates.

Efforts have been made by some analysts to take the survey data and assign Medicaid/SCHIP coverage to additional individuals in order to reduce or eliminate the Medicaid undercount. This is an especially difficult task for several reasons. First, as highlighted in this memorandum, the undercount is not easily quantified. Second, it requires overriding data that already reflect post-survey increases in Medicaid/SCHIP enrollment, particularly in the CPS. Moreover, because the undercount appears to vary by age, adjustments that do not take this (and other presently unknown factors) into account will bias the reported characteristics of Medicaid/SCHIP enrollees. For example, using MEPS, one can increase total Medicaid/SCHIP enrollment above the published numbers by counting other public coverage as Medicaid/SCHIP and by including those reporting Medicaid spending even if no Medicaid/SCHIP coverage was selected. Although this raises Medicaid/SCHIP enrollment (the MEPS high estimate) into the range of the administrative data, it makes the age distribution of enrollees look even less like that reported in the administrative data.

As discussed earlier in this memorandum, the Medicaid undercount is of policy importance if the survey data on which policy analyses are based provide biased or inaccurate estimates of the number and characteristics of both Medicaid/SCHIP and non-Medicaid/SCHIP enrollees. Our findings, which speak only to Medicaid and SCHIP, suggest that in addition to undercounting the total number of Medicaid/SCHIP enrollees, the three surveys we analyze provide enrollee age distributions that do not reflect the age distribution of enrollees in administrative data. Since these discrepancies may be an indicator of bias in the estimates of other characteristics (sex, race, income, etc.), additional work that focuses on reconciling the differences between survey and administrative Medicaid/SCHIP data estimates is needed.

## Appendix 1. State Programs Considered “Other Public Coverage” in the CPS, MEPS and SIPP

### CPS

In the CPS, after questions about Medicaid and SCHIP are asked, respondents are asked about other coverage. The following is a list that appears in the CPS of state-specific “other public” health insurance programs for low-income individuals. This list was obtained from the CPS documentation available on the Web.

Alaska	General Relief Medical
Arizona	Medically needy/Medically Indigent (MN/MI), Eligible Low Income Children (ELIC), Eligible Assistance Children (EAC)
California	Indigent Care Program
Colorado	Old Age Pension and Medical, Adult Foster Care
Connecticut	General Assistance Program
District of Columbia	Medical Charities Program
Idaho	Indigent Medical Program
Illinois	General Assistance
Indiana	Assistance to Residents in County Homes (ARCH)
Kansas	MediKan General Assistance
Maine	Foster Care
Maryland	Subsidized Adoption (SA), Primary Care for Medically Indigent
Massachusetts	Emerg Aid for Elderly, Disabled & Children
Michigan	State Medical Program Expenditures
Minnesota	General Assistance Medical Care
Missouri	State Medical Program
Nebraska	State Disability Program
Nevada	Medical General Assistance
New Hampshire	General Assistance
New Jersey	General Assistance Medical
New Mexico	Special Medical Needs Program
New York	Family Health Plus (FHPLUS)
North Dakota	General Assistance Medical
Ohio	Disability Assistance
Pennsylvania	State-Funded Medical Services
Rhode Island	General Public Assistance Program
South Dakota	Chronic Renal Program, County Poor Relief
Tennessee	State-Funded Medical Assistance Program, Children’s Case Mgmt
Texas	Indigent Health Care Program
Utah	FY98, Utah Medical Assistance Program (UMAP)
Vermont	General Assistance–Emergency Care
Virginia	State/Local Hospitalization
Washington	General Assistance Unemployable Program (GA-U), Medically Indigent (MI)
West Virginia	State Foster Care, Adult Protective Services
Wisconsin	General Relief Block Grant, WisconCare
Wyoming	Minimum Medical Program, Adult and child, State License Shelter Care, State Foster Care Children, Residential Treatment Centers-non-JACHO

In addition to this list, respondents may also select more general options in the survey (for example, “Other government health care”). These sources of coverage, including those from the table above, are included in the final, edited Medicaid/SCHIP variable in the CPS. For illustrative purposes, such coverage is excluded to create the low Medicaid/SCHIP estimate for the CPS in this memorandum.

## MEPS

MEPS has two variables for other public coverage — “othpubA” and “othpubB.” The questions for these two variables are asked after the Medicaid/SCHIP questions. For “othpubA,” it appears respondents are asked whether coverage was obtained from “any state or local government agency which provided hospital and physician benefits.” For “othpubB,” it appears (the documentation is not clear) that respondents are asked whether they “received health benefits from other state programs such as (see list) or other public programs that provide coverage for health care services.”

The following list appears in the MEPS. It was not found on the MEPS Web site but was obtained from our contacts at the Agency for Healthcare Research and Quality (AHRQ).

Alabama	Hypertension Program
Arizona	Teen Prenatal Express Program (TPE)
Arkansas	Arkansas Kidney Disease Commission
California	AIDS Drug Assistance Program (ADAP), HIV Children Program
Colorado	Colorado Child Health Plan, Assistance for AIDS Specific Drugs (AASD)
Connecticut	ConnPACE, Connecticut AIDS Drug Assistance Program (CADAP)
District of Columbia	Medical Charities Plan
Florida	Florida Statewide Kidney Disease, Program
Georgia	AIDS Drug Assistance Program
Hawaii	Hawaii Chronic Renal Disease Program, HIV Drug Assistance Program
Idaho	Catastrophic Fund
Illinois	Circuit Breaker Pharmaceutical Assistance Program
Indiana	Indiana State Department of Health-Renal Program
Iowa	Caring Program for Children Chronic Renal Disease Program
Kentucky	Kentucky AIDS Drug Assistance Program (KADAP)
Louisiana	HIV Formulary
Maine	Elderly Low Cost Drug Program, Maine AIDS Drug Assistance Program (ADAP)
Maryland	Kidney Disease Program, Maryland Pharmacy Assistance Program (MPAP), Maryland State Family Planning Program
Massachusetts	CenterCare Program, Children's Medical Security Plan, Healthy Start
Michigan	Caring Program for Children, Non-Medicaid MICH-Care Program
Missouri	Missouri Kidney Program (MoKP)
Montana	End-Stage Renal Disease Program
Nebraska	Chronic Renal Disease Program
New Hampshire	Catastrophic Illness Program
New Jersey	Pharmaceutical Assistance for the Aged and Disabled (PAAD), Chronic Renal Disease Services
New Mexico	Home Delivery Drug Program
New York	Child Health Plus (CHP), Elderly Pharmaceutical Insurance Program (EPIC)
North Carolina	State Kidney Program, HIV Medications Program, Caring Program for Children
Ohio	Ohio Disability Assistance Medical Program, Ohio AIDS Drug Assistance Program (ADAP), Senior Choice, Senior Health by Choice Care
Oklahoma	HIV Drug Assistance Programs
Pennsylvania	Special Pharmaceutical Benefits Program (SPBP), Pharmaceutical Assistance Contract for the Elderly (PACE)
Rhode Island	General Public Assistance (GPA) Medical Program, Rhode Island Pharmaceutical Assistance for the Elderly (RIPAE)
Tennessee	Tennessee Renal Disease Program
Texas	Division of Kidney Health Care Program, AIDS/STD Medication Program
Utah	HIV/AIDS Drug Therapy Program
Vermont	General Assistance Medical Program, Vscript Pharmaceutical Program
Washington	Washington State Kidney Disease Program
West Virginia	Special Pharmacy Program
Wyoming	Minimum Medical Program (MMP)

Neither othpubA nor othpubB is counted as Medicaid/SCHIP coverage in the final, edited MEPS variable for Medicaid/SCHIP. For illustrative purposes, this coverage is included to create the high Medicaid/SCHIP estimate for MEPS in this memorandum. In addition, as mentioned in the main body of this memorandum, the high estimate for MEPS also includes individuals who reportedly had health care expenditures paid by Medicaid, even if they did not appear to have Medicaid/SCHIP or other public coverage.

## SIPP

In the SIPP, after questions about Medicaid and SCHIP are asked, respondents are asked about other coverage. The following is a list that appears in the SIPP as examples of “other public” health insurance programs. This list was not found on the SIPP Web site but was obtained from our contacts at the U.S. Census Bureau.

Alaska	General Relief Medical (GRM)
Arizona	Medically Indigent Program
California	County Medical Services Program (CMSP), Children’s Services (CCS), AIM (Access for Infants and Mothers), California’s children’s health
Connecticut	Healthy Steps, General Assistance Program (GA)
District of Columbia	Healthy DC Kids
Delaware	Nemours Child Program
Florida	Florida Healthy Kids Program
Hawaii	Hawaii HealthQUEST
Illinois	General Assistance Program, State Child and Family Assistance or Transitional Assistance
Iowa	Caring Program for Children Iowa coverage for Unemployed workers
Kansas	MediKan, Caring Program for Kids, Kansas Caring Program for Kids
Maine	Maine Health Program
Maryland	AIDS Insurance Assistance Program, HealthChoice Program
Massachusetts	CommonHealth Program, Medical Security Plan (MSP), CenterCare Program, Children’s Medical Security Plan, Healthy Kids
Michigan	Wayne County Plus Care Program, Medical Assistance Program, Caring Program for Children
Minnesota	Minnesota General Assistance Medical Care Program
Mississippi	Mississippi subsidized insurance coverage
Missouri	General Relief Medical Assistance
Nebraska	State Disability Program
New Hampshire	Healthy Kids Corp
New Jersey	Health Access New Jersey, New Jersey’s coverage for pregnant women
New Mexico	New Mexico Title XXI Program
New York	Home Relief, New York’s subsidized insurance
North Carolina	Caring Program for Children
Ohio	Ohio Disability Assistance Medical Program
Oregon	Family Health Insurance Assistance Program
Pennsylvania	General Assistance Medical Program
Rhode Island	General Public Assistance (GPA) Medical Program
Utah	Utah Medical Assistance Program (UMAP), Rite Care
Virginia	State and Local Hospitalizations (SLH) Program, Caring Program for Children
Washington	Basic Health Plan, General Assistance Unemployable Program (GAU),
Wisconsin	General Relief Medical

This other public coverage was included in the final, edited Medicaid/SCHIP variable in SIPP, which appears in the main body of this memorandum as the SIPP high estimate. It is not possible to obtain a low estimate from SIPP because the results from the other public variables do not appear separately on the publicly available data.