

TRIM3's 2001 Baseline Simulation of  
Medicaid and SCHIP Eligibility and Enrollment:  
Methods and Results

TRIM3 Microsimulation Project Technical Paper

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## OVERVIEW

This technical paper presents the results of the TRIM3 model's 2001 baseline simulation of Medicaid and the State Children's Health Insurance Program (SCHIP). The simulation applies each state's actual Medicaid and SCHIP eligibility rules as of 2001 to the CY 2001 (March 2002) Current Population Survey (CPS) data.<sup>1</sup> The simulation determines whether each individual in the CPS was eligible for Medicaid or SCHIP during each month of 2001 and simulates which of the eligible individuals enrolled.<sup>2</sup> The simulation of program participation is done in such a way that the final simulated caseload comes acceptably close to the actual caseload by state and by user group. Baseline simulations are performed for three key reasons: to correct the CPS data for under-reporting (so the augmented data can be used for tabulations), to allow calculation of participation rates, and to provide a foundation for simulations of hypothetical or proposed rules.

This simulation estimates that 52.3 million people were eligible for either Medicaid or SCHIP in the average month of 2001—a 7.7 percent increase from the eligibility estimated for 2000. The increase in eligibility is due to a combination of improvements/corrections to methodology, changes in actual eligibility policies, and the differences in the population between 2000 and 2001 as captured by the CPS.

Comparing the simulated eligibility figures with administrative targets suggests that in the average month of 2001, 66 percent of individuals eligible for either Medicaid or SCHIP were enrolled. The estimated participation rate is highest for children (73 percent) and disabled individuals (74 percent), and lower for adults (60 percent) and the elderly (40 percent).

The Medicaid/SCHIP caseload produced by this simulation matches almost exactly the average monthly number of non-institutionalized persons enrolled in Medicaid or SCHIP. The simulated number is 34.54 million, only 0.1% lower than the target of 34.56 million. The simulated average monthly caseload is also very close to targets by user group and in the largest states. The annual Medicaid caseload produced by the simulation is 5.9 percent below the target; this is a substantial improvement compared to prior years, made possible by a methodological change discussed below. As in the 2000 baseline, we generated Medicaid targets from our own tabulations of the Medicaid administrative data, excluding institutionalized persons and individuals not fully eligible for Medicaid according to TRIM3's concepts (such as persons receiving only emergency aid and dual Medicaid-Medicare eligibles who are not fully eligible for Medicaid).

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<sup>1</sup> The March 2002 CPS has a much larger sample than earlier CPS files, with 58 percent more interviewed households than in the March 2001 public-use CPS. Additionally, the March 2002 CPS uses weights based on the 2000 Census, which may affect the results of cross-year comparisons. Note that all the standard summary tables produced by the simulation are available to authorized users on the project's website, [trim.urban.org](http://trim.urban.org), via the "Summary Tables" tool in the "Navigator."

<sup>2</sup> Unlike prior TRIM3 Medicaid simulations, this simulation does not include imputation of the insurance value of Medicaid enrollment.

One impact of producing a Medicaid/SCHIP caseload consistent with administrative data is a decline in the number of people apparently without health insurance for the entire simulation year. While the public-use March 2002 data show 41.2 million people without health insurance during all of 2001, the TRIM-adjusted data produce a count of 37.6 million.

There were five significant improvements in methodology between the 2000 and 2001 baselines, affecting both the simulation of eligibility and the simulation of enrollment. The improvements are:

- (1) An “earnings smoothing” procedure is used to prevent month-to-month fluctuations in eligibility due to more weekly and biweekly paydays falling in some months than others.
- (2) Child support income is now passed to the Medicaid module from the AFDC/TANF module to more accurately capture the results of child support retention by the state and “pass-through” payments to TANF families.<sup>3</sup>
- (3) In determining eligibility for Section 1931 Medicaid, participation is estimated for each month immediately after eligibility is determined for that month, allowing a person’s estimated status as a recipient or applicant to affect the following month’s eligibility calculation.<sup>4</sup>
- (4) Based on our current information on states’ treatment of children’s Medicaid eligibility under optional Section 1931 rules vs. SCHIP, we made two changes. We now test for optional Section 1931 eligibility before we test for SCHIP eligibility (instead of after SCHIP), and we count Section 1931 children with other Medicaid eligibility categories (not with SCHIP).
- (5) To reduce TRIM3’s underestimation of annual enrollment (when average monthly enrollment is on-target), TRIM3 now allows a “lag-time” between initial eligibility and actual enrollment in Medicaid or SCHIP.

Note that due to these changes, as well as other changes described in the 1999 and 2000 baseline memoranda, the results of TRIM3’s 2001 Medicaid/SCHIP simulation are not perfectly comparable to the results of prior simulations.

The remainder of this paper provides details on the methods and results of TRIM3’s 2001 simulation of the Medicaid and SCHIP programs. The first section describes the methods for estimating Medicaid and SCHIP eligibility and provides the estimated numbers of people eligible for the programs. This is followed by a discussion of the administrative data on enrollment, and the program participation rates implied by comparing those data with the simulated eligibility figures. The third section discusses the methods used to select Medicaid/SCHIP enrollees from

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<sup>3</sup> Starting with the 2001 TANF baseline, the AFDC/TANF module now calculates how much of the child support paid by the absent parent is retained by the state and how much is passed through to the family when a family receives TANF income.

<sup>4</sup> Section 1931 Medicaid eligibility is simulated with a special run of the AFDC/TANF module. This change to simulate participation after each month’s eligibility determination was instituted in the AFDC/TANF module starting with the 2001 baseline.

among those simulated as eligible for the programs, thus adjusting the CPS data for under-reporting. This section includes a brief discussion of the impact of the adjustment on the estimated number of people without health insurance. The final section describes areas for further analysis and/or development

## **MEDICAID AND SCHIP ELIGIBILITY: SIMULATION METHODS AND ESTIMATES**

TRIM3 examines each household in the CPS to determine if any of the individuals are eligible for Medicaid or SCHIP in each month of the calendar year. Simulating eligibility is the first step in correcting for under-reporting, which is discussed later. The eligibility estimates also allow the calculation of program participation rates.

### **Researching the Medicaid/SCHIP eligibility rules**

The 2001 baseline simulation applies, in as much detail as possible, the actual Medicaid and SCHIP eligibility rules that were in place during 2001. In recent years, there has been no single source of detailed Medicaid and SCHIP eligibility rules. For the 2001 rules (as well as the 2000 and 1999 rules) our primary sources of information were:

- Centers for Medicare and Medicaid Services (CMS) Fact Sheets on waiver programs and SCHIP
- State Medicaid websites
- Medicaid State Plans
- American Health Line ([www.ahl.org](http://www.ahl.org))

We also referenced publications such as:

- Kathleen Maloy, Kyle Kenney, and Julie Darnel. *Can Medicaid Work for Low Income Families*. Kaiser Commission on Medicaid and the Uninsured: April 2002.
- National Association of State Medicaid Directors, *Aged, Blind and Disabled Medicaid Eligibility Survey*, 2002.
- Ross, Donna and Laura Cox. *Enrolling Children and Families in Health Coverage: The Promise of Doing More*. Kaiser Commission on Medicaid and the Uninsured: June 2002.

In some cases, information from different sources was contradictory. In those cases, we relied on the opinions of staff in the Urban Institute's Health Policy Center to determine what rules to use in TRIM3.

TRIM3's Medicaid module simulates eligibility in such detail that published updates to many of our variables are not available for every simulated year. This year great effort went into updating variables that had been overlooked in previous years due to insufficient published data. In some cases, this required using data that did not explicitly cover 2001 but was collected early

in 2002. Even still, some variables such as states' ages for Ribicoff children and which categories of people are eligible for state medically needy programs were not updated. As is discussed in the section on future development, consulting state Medicaid manuals may be a necessary step in obtaining complete updates to the TRIM3 Medicaid program rules for future baselines.

## **Simulating Medicaid and SCHIP eligibility in TRIM3<sup>5</sup>**

### **Overview of Medicaid and SCHIP eligibility simulation**

TRIM3 tests all persons in each month of the year to determine if they are eligible for Medicaid or SCHIP under their state's rules. TRIM3 defines a person as "eligible" for Medicaid or SCHIP if that person passes all the eligibility tests, whether or not the person is actually enrolled to receive benefits. In other words, an eligible person is someone who, if he or she applied for benefits, would be able to receive those benefits. Note that this use of the term "eligible" differs from the way the term is used in some Medicaid administrative data. (In some administrative data, "eligible" means someone who holds a Medicaid card, whether or not he or she has ever used that card to obtain benefits. In TRIM3's terminology, this is a person who is "enrolled" in the program.)

The Medicaid/SCHIP module first determines whether a non-citizen is automatically ineligible based on immigrant status. This determination uses the CPS-reported information on years in the United States (to determine whether an immigrant arrived before or after the passage of PRWORA) combined with an imputed variable indicating if a non-citizen is a refugee, LPR, illegal, or non-immigrant. The model simulates the federal rules concerning refugees and veterans, the state option for eligibility of pre-PRWORA LPRs (eligible in all states except Wyoming), and the five-year bar on use of federal funds for post-PRWORA LPRs. The model does not capture the state-funded programs that provide benefits equivalent to Medicaid and/or SCHIP to some or all post-PRWORA LPRs during the five-year bar.<sup>6</sup>

The module then simulates four different groups of eligibility tests: mandatory, optional, SCHIP, and medically-needy. When a person or family fails all the tests in a particular category,

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<sup>5</sup> For a detailed description of Medicaid and SCHIP eligibility modeling, see the on-line documentation, located at: <http://trim.urban.org/documentation/MEDICAID.html>.

<sup>6</sup> According to a 2002 report from the Center on Budget and Policy Priorities (Chin, Dean, and Patchan, "How Have States Responded to the Eligibility Restrictions on Legal Immigrants in Medicaid and SCHIP?, June 26, 2002) 21 states have a replacement program for at least some of the LPRs ineligible for Medicaid during the five-year bar. Of those states, 14 are reported to cover all population groups, while the rest cover only children and/or pregnant women. The CBPP report also shows 12 states funding SCHIP benefits for LPRs during the five-year bar. Many states funding Medicaid and/or SCHIP-like benefits deem income from immigrants' sponsors, limiting eligibility. Our current understanding is that individuals enrolled in Medicaid totally at state expense are not included in the MSIS data, and thus would not be included in our targets. It is not clear whether or not immigrant children under the five-year bar are included in the SCHIP targets.

Medicaid applies the next category of tests. The module first checks for mandatory eligibility, then state optional, then SCHIP, and finally medically-needy eligibility. A person's monthly eligibility type is the first type under which that individual qualifies. Note that different members of the same family may be eligible under different rules.

TRIM3 simulates Medicaid and SCHIP eligibility on a month-by-month basis. Some individuals are simulated as eligible in some months of the year but not in other months due to changes in income over the year. (Later in this paper, we discuss how this relates to the modeling of "continuous coverage" of children in some states.) Other individuals may be simulated as eligible for different reasons in different months of the year. For example, a person may be eligible under mandatory rules in some months but only eligible as medically-needy in a part of the year when his family has higher income; or, a child might be eligible for Medicaid in part of the year but eligible for SCHIP in another part of the year.

### Simulating Medicaid eligibility

TRIM3 simulates mandatory, optional, and medically-needy Medicaid eligibility rules. "Mandatory" eligible individuals must be covered in all states by federal law. This group includes recipients of federal Supplemental Security Income (SSI) benefits<sup>7</sup>; families with children who would have been eligible under 1996 AFDC income thresholds (the mandatory portion of "Section 1931" rules); pregnant women, infants, and children under age six with family income under 133 percent of the poverty guidelines; and children under age 18 with family income under 100 percent of the poverty guidelines. In addition, TRIM3 treats all children who are unrelated to the head of the household and who are not in an unrelated subfamily as eligible for Medicaid, regardless of the income of the primary family.

"State optional" eligible individuals are covered due to expansionary options exercised by their states under guidelines established by the federal government. State options include: covering persons who are eligible for but not receiving federal SSI payments; covering individuals who are eligible for or who receive only SSI state supplements (but not federal SSI payments); covering children, pregnant women, or infants up to poverty levels higher than the federally-mandated percentages of poverty; covering elderly or disabled individuals with income up to a certain percentage of poverty; and covering families under "Section 1931" who would not have been eligible under the actual 1996 AFDC rules. TRIM3 also simulates eligibility for special state programs under 1115 waivers.

States with "medically-needy" programs cover persons whose family incomes, less any medical costs, fall below state-specified limits. States with medically needy programs establish which demographic groups may be aided as medically needy. Possible groups include pregnant women and infants, children categorically eligible for TANF, caretaker relatives (adults eligible to be aided along with their TANF children), aged individuals according to the SSI program's definition, and/or disabled individuals according to the SSI simulation. States also establish the

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<sup>7</sup> For states that have chosen to apply more restrictive eligibility standards for Medicaid than those for SSI ("Section 209(b)" states), TRIM3 applies the additional income and resource tests.

asset and income tests for medically-needy coverage. Because medical costs are not reported in the CPS data, an average per-person annual medical cost is used to calculate whether a person is eligible to “spend-down” to the medically-needy income limit. Each state has a different average annual medical cost for children, adults, the disabled, and the elderly.

TRIM3 does not simulate some aspects of Medicaid eligibility. The module does not simulate Medicaid eligibility for the institutionalized since they are not in the CPS universe. Further, children under age 15 *generally* cannot be simulated as eligible by disability, since they do not report their income and labor force information necessary to identify disability. However, the SSI module uses a special imputation process to identify certain children under 15 as receiving SSI. Only these children can be simulated by the Medicaid module as eligible due to disability. The module does not simulate transitional Medicaid benefits for those families no longer receiving cash Transitional Aid to Needy Families (AFDC/TANF) benefits due to increased income, increased employment, time limits, or other reasons.

Medicaid eligibility based on pregnancy is simulated by TRIM3, even though pregnancy information is not available on the CPS. For Medicaid eligibility purposes, TRIM3 initially treats as pregnant all female family heads/spouses who have an infant (i.e. 0-year old) in their family. In addition, any remaining women of child-bearing age (i.e. 13-44) who report receiving Medicaid<sup>8</sup> but who are not simulated to be eligible by any of the non-pregnancy rules are treated as potentially eligible due to pregnancy.

Beginning in 1997, the measures of income and assets used by the Medicaid module for poverty-related eligibility were “de-linked” from those used by the AFDC module. For all user groups, the TRIM3 Medicaid module calculates its own measures of assets and income. Income is calculated as the family’s gross cash income as reported on the CPS, less public assistance, plus TRIM-simulated SSI and AFDC, adjusted for various disregards in the Medicaid module. Assets are calculated from the interest, dividend, and rent income of their family divided by an assumed rate of return of six percent.

### Simulating Section 1931 eligibility

Under the family coverage category (Section 1931), states must at a minimum extend Medicaid to families with children if they meet the income, asset, and family composition rules used by the state in their AFDC programs on July 16, 1996. TRIM3 models each state’s actual rules under Section 1931, including detailed variations in earnings disregards and income tests. TRIM3 simulates both the mandatory Section 1931 rules (the minimum criteria) and the optional rules under which states can expand eligibility beyond the minimum criteria.<sup>9</sup>

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<sup>8</sup> For these purposes, TRIM3 does not consider persons whose Medicaid enrollment was the result of Census Bureau allocation procedures to be reporters.

<sup>9</sup> Some states had still not implemented Section 1931 programs in 2001. Texas extended 1931 Medicaid coverage to current TANF recipients but only allowed Medicaid-only coverage under its less generous medically needy program. Hawaii has not implemented a separate Section 1931 program, but covers all individuals up to 100 percent of the poverty guidelines under its 1115 waiver program. TRIM3 captures these complexities on a state-by-state

Because many of the detailed Section 1931 rules follow a state's current TANF rules or prior AFDC rules, we model Section 1931 eligibility using specially-parameterized versions of TRIM3's AFDC/TANF module. One special simulation is parameterized to capture the mandatory Section 1931 rules, and another is run to capture the optional Section 1931 rules. The results of these simulations are passed to the Medicaid/SCHIP module.

### Simulating SCHIP eligibility

TRIM3 simulates the state-specific variations in types of SCHIP programs and SCHIP eligibility rules. To cover children with SCHIP funds, states can either expand their Medicaid eligibility guidelines to include more children (a "Medicaid expansion" SCHIP program) or establish a "separate state" SCHIP program, or implement a combination of these two approaches. Thus, states can have one or two pathways through which children can become eligible for SCHIP coverage. Each type of SCHIP program can have separate disregard policies, age and income thresholds, and program characteristics, such as premiums, within a particular state.

A child is not eligible for SCHIP if he or she is eligible for Medicaid, covered by other public insurance, or covered by an employer-sponsored health insurance plan (except in the few states with "employer buy-in" programs).<sup>10</sup> To capture these rules, TRIM denies SCHIP eligibility to a child in a month in which he or she is simulated as eligible for regular Medicaid, with the exception that SCHIP eligibility is tested prior to testing for medically-needy eligibility. Further, TRIM denies SCHIP eligibility to children reported to be covered by employer-sponsored coverage during the year, in months in which one of the child's parents or guardians is employed. (This allows a child to be simulated as eligible for SCHIP in a part of the year when the parents are unemployed, on the assumption that for at least part of that time, the family might not be covered by ESI.) Finally, TRIM denies SCHIP eligibility to children reported to be covered by Medicare, Champus, or other military healthcare system. (However, note that the Indian Health Service is not considered public insurance, and children reported to be covered by the IHS are still simulated as eligible for SCHIP.) Note that in the 1999 baseline and earlier baselines, children covered by ESI or other public coverage were counted as eligible for SCHIP.

### **Changes in modeling of Medicaid and SCHIP eligibility since the 2000 baseline**

As mentioned in the beginning of this paper, there were several changes in eligibility modeling between the 2000 and 2001 baselines. Below, each change in methodology related to eligibility determination is fully outlined and its implications are discussed. (Changes related to the simulation of the enrollment decision are discussed later in the paper.)

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basis.

<sup>10</sup> Several states have federal approval to operate SCHIP "employer buy-in" programs, which provide premium assistance for employer-sponsored coverage using Title XXI funds.

## Earnings smoothing

The 2001 baseline simulation uses an “earnings smoothing” procedure to prevent month-to-month fluctuations in eligibility that are the product of more weekly and biweekly paydays falling in some months than others. Since the mid 1980s, TRIM3’s input data files have captured variations in earnings between “long” and “short” months by treating four months each year as five-week months and the other eight as four-week months. Since TRIM distributes annual earnings across the months in proportion to the weeks worked in each month, there is an opportunity for five weeks of earnings in long months but only four weeks of earnings in short months. If eligibility and benefits are based on those monthly earnings, a household may be eligible in the eight short months but ineligible in the four long months (creating a “spike” at eight months in the distribution of months of eligibility for ever-eligible units).

Because it appears that actual transfer program rules prevent fluctuations in eligibility or benefits due to earnings fluctuations that are due solely to the timing of paychecks, we instituted the “earnings smoothing” procedure for the 2001 baseline simulations of the key transfer programs (SSI, TANF, Food Stamps, and Medicaid). For persons working in all weeks of a month, earnings in four-week months are multiplied by an adjustment factor of 1.0833 (converting four weeks of earnings to 4.33 weeks of earnings) and earnings in five-week months are multiplied by an adjustment factor of .8667 (to convert five weeks of earnings to 4.33 weeks of earnings). The earnings smoothing procedure has the desired impact; in the 2001 baseline, the number of persons eligible for eight months of Medicaid or SCHIP is not markedly different from the number eligible for seven or nine months.

## More accurate child support and TANF income for TANF recipients

Prior to 2001, TRIM3’s TANF simulation did not accurately compute the allocation of a TANF family’s income between TANF and child support. The TANF module operated as if the family received all child support paid by the absent parent, and as if that income were counted (less a disregard) in determining the family’s TANF benefit. In reality, TANF families must assign rights to their child support income to the state and most only receive a small pass-through amount of child support from the TANF program; in return, their benefit is often computed as if they had not child support income. The prior TRIM3 methods usually produced the correct total amount of TANF and child support income for TANF families, but with the wrong allocation between the two. In some states with more complex benefit computation procedures, the prior methodology produced an incorrect total TANF and child support income for at least some families. These sometimes-incorrect amounts were used to determine Medicaid eligibility.

Starting in 2001, the TANF simulation correctly simulates the rules for treatment of child support income by the TANF program. In addition to simulating the correct TANF benefit for families with child support, the TANF module now also produces an adjusted child support variable, equal to the amount of child support the family would actually receive. These variables

are now used by the Medicaid simulation in determining a family's income for Medicaid eligibility purposes.

Note that the modeling of Section 1931 eligibility is a special case. Since the Section 1931 rules mimic AFDC rules, the modeling of Section 1931 eligibility continues to use the full child support amounts. Nevertheless, the methodological change may still have some impact on mandatory Section 1931 eligibility because these rules involve determining if a unit is eligible for a positive AFDC benefit that could be impacted by the improved modeling of treatment of child support in August 1996.

#### Applicant/recipient distinction for Section 1931 eligibility

The third change concerns the distinction between applicants and recipients under Section 1931 eligibility rules. Under a development task in the prior contract, we altered the structure of the AFDC/TANF module so that participation is decided for each month immediately after eligibility is determined for that month. This improves the eligibility determination process, because the following month's eligibility can be based on the prior month's participation status rather than the prior months' eligibility status (as had been done previously). As mentioned above, Section 1931 eligibility is modeled using specially-parameterized versions of TRIM3's AFDC/TANF module. Thus, this improvement to the AFDC/TANF module also benefits the modeling of Section 1931 eligibility.

In optional Section 1931 Medicaid rules, earned income disregards often differ significantly for applicants and recipients. If a family's earned income increases in a given month, the unit may remain eligible if it was a recipient the previous month but be ineligible as a new applicant. Prior to 2001, the Section 1931 model implicitly assumed a 100 percent participation rate, thereby overestimating eligibility.

One challenge in instituting this improved methodology was determining which eligible units should be estimated to enroll in Section 1931 Medicaid for purposes of determining the next month's eligibility. In the absence of exact targets for Section 1931 Medicaid, we tried to reach a national participation rate of approximately 75 percent in the Section 1931 simulations.<sup>11</sup> To achieve this national rate, we used the 2001 TANF baseline participation adjustment factors for each state and then uniformly increased them to reach the desired national rate. This procedure maintains state variation in participation rates. While inexact, this procedure does provide the desired ratio of applicants and recipients in determining optional and mandatory

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<sup>11</sup> The 75 percent rate was chosen for several reasons. First, it represents a midway point between TANF's national participation rate of 50 percent and the previously modeled rate of 100 percent participation. Based on the assumption that a significant number of families choose to receive Medicaid-only under the Section 1931 program, 75 percent seems to be an obvious compromise position. Second, in the 2000 baseline simulation, 75 percent of children eligible for regular Medicaid participated. The participation rate for non-elderly, non-disabled adults was 60 percent.

Section 1931 eligibility. The eligibility results are then passed to the Medicaid module, where the final participation decision is made.<sup>12</sup>

### Changes in treatment of optional Section 1931 Medicaid vs. SCHIP

In prior baselines, the code tested for optional Section 1931 eligibility *after* testing a child's eligibility for SCHIP. Thus, in past years, only children who were too well off for other routes to Medicaid but who already had some private insurance and were therefore ineligible for SCHIP were included in optional 1931 Medicaid. Further, in standard tables, children eligible for or enrolled in Section 1931 Medicaid were counted as SCHIP children. The prior approach was based on our previous understanding of state behavior due to differential matching rates for different categories of children. Children who are covered under Medicaid rules that have been expanded since April 1997 are eligible for the higher SCHIP matching rate. We previously assumed that optional Section 1931 children would fall in this category and that they would be counted in the SCHIP totals.

As part of our preparation for this baseline, we reviewed selected state Medicaid manuals to determine the actual ordering of Section 1931 vs. SCHIP eligibility. We did not find any indication that optional Section 1931 eligibility is tested after SCHIP. Further, based on review of data and discussions with other researchers, it seems that optional Section 1931 children are included in the Medicaid administrative data, and that they are not included in counts of SCHIP children.

Therefore, for this baseline, we test for optional Section 1931 eligibility before testing for SCHIP eligibility, and we count optional Section 1931 children in the Medicaid counts, not in the SCHIP counts. These changes in methodology will slightly impact the distribution of children between SCHIP and regular Medicaid. We have retained the capability to count optional Section 1931 children as SCHIP eligible (in order to allow analysis of which children are eligible for the higher SCHIP matching rate, if needed).

### Medicaid/SCHIP eligibility counts for 2001

TRIM3's Medicaid/SCHIP eligibility results for 2001 are shown in Table 1. The results are tabulated two ways: on an average monthly basis (counting the number of people eligible in the "average month" of the calendar year) and on an annual basis (the number ever eligible in at least one month of the calendar year). The simulation found 52.3 million people eligible for either Medicaid or SCHIP in the average month of 2001, and 58.4 million people eligible for Medicaid and/or SCHIP in at least one month of the calendar year.

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<sup>12</sup> Increasing the 2001 state TANF adjustment factors created a final average monthly participation rate of 77.2 percent among all optional Section 1931 eligible persons. The same adjustment factors were used in the mandatory Section 1931 run, resulting in a national participation rate of 71.5 percent among mandatory eligibles.

The first column of Table 1 shows average monthly eligibility results. Of the 52.3 million people eligible for either Medicaid or SCHIP in the average month of the year, 27.8 million are children.<sup>13</sup> Of those, 22.6 million are eligible for Medicaid and 5.2 million are eligible for SCHIP.<sup>14</sup> The simulation also finds 10.1 million non-disabled non-elderly adults, 7.5 million disabled individuals, and 6.9 million elderly people eligible for Medicaid in the average month of 2001.

On an annual basis, there are 30.7 million non-disabled children eligible for Medicaid and/or SCHIP in at least one month of the year. Of those, 25.8 million are eligible for at least one month of Medicaid and 6.9 million are eligible for at least one month of SCHIP. (The numbers add to more than the total because 2.1 million children are eligible for both Medicaid and SCHIP in different months of the year. The annual eligibility estimates for the other user groups are: 13.2 million ever-eligible adults, 7.6 million ever-eligible disabled people, and 7.0 million ever-eligible elderly people.

The relationship between the average monthly and annual eligibility figures indicates the degree of turnover in the eligible population from one month to the next. The figures suggest that on average, the people eligible for Medicaid and/or SCHIP in at least one month of the year are eligible for 10.7 months of the year. The most turnover is seen among the adult and SCHIP-eligible population. On average, children eligible for SCHIP in at least one month of the year are eligible for 9.1 months. (Note, however, that they might be eligible for regular Medicaid in other months.) Adults are eligible for Medicaid for an average of 9.2 months. Disabled and elderly individuals have the least turnover. Disabled people who are ever eligible for Medicaid are eligible for an average of 11.9 months, and elderly eligible individuals are eligible for an average of 11.8 months.

Table 2 counts the annual eligible population by reasons for eligibility. Of the total 58.4 million simulated as ever eligible for Medicaid or SCHIP during the year, 6.3 million are disabled and elderly people eligible for Medicaid due to SSI receipt, 23.0 million are eligible due to other mandatory federal rules (mostly affecting children and adults), 22.3 million are eligible through state options or SCHIP, and 6.8 million are simulated as eligible due to states' medically-needy programs. Medically-needy eligibility is most prevalent among the elderly, with almost half of the annual eligibility among the elderly due to the medically-needy provisions.

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<sup>13</sup> Throughout this memo, the Medicaid user groups are defined as follows: Medicaid children include only non-SCHIP, non-disabled children; adults include only non-disabled adults; the disabled group includes both children and non-elderly adults; the elderly group includes both disabled and non-disabled elderly. Disability status is determined in the SSI baseline simulation based on CPS-reported receipt of certain types of income that indicate disability (given a person's other characteristics) and CPS-reported reasons for not working.

<sup>14</sup> Some of the children counted as eligible for SCHIP in a particular month would have been considered eligible for regular Medicaid through medically-needy provisions in the absence of the SCHIP program.

## **Changes from 2000 to 2001 Medicaid/SCHIP eligibility estimates**

The overall estimate of 52.3 million people eligible for Medicaid or SCHIP in the average month of 2001 is 7.8 percent higher than the estimate of 48.5 million in the 2000 baseline. That change is the net result of changes in methods, rules, economic, and demographic changes in the population. We performed two special runs to help decompose the differences.

Table 3 shows the results of the 2000 baseline simulation (column A), two special simulations (columns B and C) and the 2001 baseline (column D). All the eligibility estimates are in average monthly terms. Column B shows the results of a simulation that applies the 2000 rules to the 2000 data, but using the same methodological improvements that are incorporated into the 2001 baseline. Specifically, Simulation B uses the earnings smoothing procedure, uses child support income amounts as adjusted by the TANF module, and does not assume full participation in modeling Section 1931 eligibility. The simulation shown in Column C also applies the new methodology to the 2000 data, but uses the 2001 Medicaid and SCHIP eligibility rules as well as making some corrections to 2000 rules.<sup>15</sup> Simulation D is the 2001 baseline, with the 2001 rules and new methods applied to the 2001 data. The final column shows the total percent change between the 2000 and the 2001 baselines for all categories of Medicaid and for all the states that have at least one million targeted enrollees for 2001.

Overall, the 7.8 percent increase in estimated eligibility from 2000 to 2001 is due to the changes to rules and the changes in the demographics and/or economic circumstances of the population, not to the changes in methods. Estimated 2000 eligibility declined by only 0.1 percent due to the changes to the methods. However, the changes to the rules (both actual changes from 2000 to 2001 and corrections) increased eligibility in the 2000 data by 4.9 percent (holding the methods constant). The move to the 2001 data increased eligibility by 2.9 percent (holding methods and rules constant).

In the case of children, the number simulated as eligible for either Medicaid or SCHIP in the average month of the year rose from 25.9 million in the 2000 baseline to 27.8 million in 2001, a 7.4 percent increase in eligibility. The methodological changes—especially the changes in treatment of optional Section 1931 vs. SCHIP—decrease the children counted as eligible for SCHIP by 5.4 percent and increase those eligible for regular Medicaid by 0.8 percent; overall, the methodological changes reduce children's eligibility (using 2000 rules on the 2000 data) by 0.4 percent. Column C—with 2001 rules and corrections—contains the biggest overall increase in eligibility for children, resulting both from increases in the poverty guidelines and the expansion of states' eligibility rules for children. The change to the 2001 data increases children's

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<sup>15</sup> Note that there is no deflation of 2001 rules that are expressed in dollars; they are applied to the 2000 data in nominal terms. The most significant correction in the 2001 baseline was an update of the poverty level guidelines, which had sometimes been omitted in previous years. In Table 3, the 2001 poverty guidelines are applied in column C, along with other rule updates. However, it should be noted that these are 2001 guidelines are applied to 2000 incomes levels in this case. Additional corrections included a more accurate way of modeling Texas' Section 1931 Medicaid program (which only covers current TANF recipients), corrections to complex earned income disregards, and corrections to the process by which TRIM models some optional Section 1931 programs that disregard all income up to a certain percent-of-poverty.

eligibility by 1.6 percent overall, with a large percentage increase for SCHIP (13.0 percent), combined with a small percentage reduction (0.8 percent) in the number of children estimated as eligible for regular Medicaid. The higher number of SCHIP-eligible children in the 2001 data probably results from the economic recession that began in early 2001; as many families lost jobs and/or income, they entered the higher SCHIP eligibility range.

In the case of non-elderly, non-disabled adults, average monthly Medicaid eligibility rose from 9.3 million in 2000 to 10.1 million in 2001, a 7.9 percent increase. The methodological improvement in the modeling of Section 1931 eligibility (not assuming full participation) reduced adult eligibility, but the reduction was offset by increases due to other methodological changes; thus, estimated 2000 average monthly adult eligibility in Simulation B is essentially the same as in the 2000 baseline. However, the move to the 2001 rules (and corrections to 2000 rules) cause a 5.4 percent increase in estimated adult eligibility on the 2000 data. For example, Connecticut increased its income disregards in the Section 1931 program from 100 percent to 150 percent of the FPL. South Carolina also increased its earned income disregards for both applicants and recipients. Improvements to our modeling of existing Section 1931 earnings disregards may also account for some of the increase in eligibility from Simulation B to Simulation C. As was the case with children, the change to the 2001 data increases the eligibility estimate. The estimated number of adults eligible for Medicaid is 2.5 percent higher in the 2001 data than in the 2000 data, when both simulations use the 2001 methodology and rules.

For disabled individuals, the estimated percentage increase in eligibility from 2000 to 2001 was 12.2 percent—a higher percentage increase than for any other user group. The decomposition results show that very little of the increase was due to either methodological changes or changes/corrections in 2001 rules. Instead, almost all of the increase was due to the move to the 2001 data. Substantially more individuals are identified as disabled in the 2001 CPS data than in the 2000 data—a phenomenon we observed when we performed the 2001 SSI simulation. This results at least in part from how TRIM3 identifies disabled people in the CPS. If not directly receiving SSI cash grants due to disability, the only way TRIM3 can identify disabled individuals is if they list disability as a reason for not working. In 2000, a higher percentage of individuals, disabled or not, were working and therefore never responding to this question. When the recession began in 2001, more people remained unemployed and therefore had the opportunity to reveal their disability during the CPS interview.

Among the elderly, the estimated increase in eligibility from 2000 to 2001 was 4.3 percent—a lower percentage increase than for children, adults, or the disabled. The methodological changes caused a 0.4 percent increase in estimated eligibility, and the changes/corrections to rules increased eligibility by 3.3 percent. However, the move to the 2001 data had a very small impact on elderly eligibility—an increase of 0.5 percent. This suggests a limited impact on the elderly population from economic changes between 2000 and 2001.

The lower rows of Table 3 show total SCHIP and Medicaid eligibility for the nine individual states that have actual average monthly Medicaid/SCHIP enrollment of at least one million, according to our targets. Comparing the 2001 baseline with the 2000 baseline, the

percentage changes at the state level range from an estimated 9.5 percent reduction in eligibility in Illinois to an estimated 21.1 percent increase in eligibility in Florida. The methodological changes had the largest impact in Ohio (causing a 5 percent increase in estimated 2000 eligibility) probably because Ohio is a state with a large difference between earnings disregards for Section 1931 applicants vs. recipients. The change to 2001 eligibility rules (and corrections to rules) had the largest impacts in Florida, Ohio, and Texas, with increases from 5 to 6 percent. Moving to the 2001 data had very different impacts in different states. In Michigan and New York, the simulation on 2001 data (Simulation D) changed eligibility by only 0.4 percent, relative to the simulation with 2001 rules and methods on 2000 data (Simulation C). In contrast, the change to the 2001 data increased eligibility by 17 percent in Florida, and decreased eligibility by 10 percent in Illinois and Ohio.

Some portion of the difference from Run C to Run D could be related to the methodological differences in the CPS between the public-use March 2001 CPS (used for TRIM3's 2000 simulations) and the March 2002 CPS. The March 2002 CPS has a much larger sample and is also weighted differently. The weights are based on the 2000 Census (instead of the 1990 Census) and there are changes in the matrix of control totals. To assess the impact of the CPS methodological changes, it would be necessary to analyze the "research version" of the March 2001 CPS—which used the same methodology as the March 2002 CPS. In the absence of such analysis, comparisons between 2000 and 2001 results – especially state-level comparisons – must be made with caution.

## **MEDICAID AND SCHIP ENROLLMENT NUMBERS AND IMPLIED PARTICIPATION RATES**

The simulated average monthly eligibility figures can be compared with the administrative data on the actual program caseload to produce estimates of the program participation rate. Note that despite our efforts to tabulate targets that are accurate and consistent with the TRIM3 eligibility simulation, some problems may remain. We will be exploring the targets further in an upcoming development task (as mentioned in the last section).

### **Administrative data on Medicaid enrollment**

As in the 2000 baseline, our information on actual Medicaid enrollment—both average monthly and annual—comes from our own tabulations of the Medicaid Statistical Information System, or MSIS data.<sup>16</sup> For almost all states and for DC, we tabulated the fiscal year 2001 MSIS data to obtain both average monthly and ever-enrolled targets by user group. For four states—Alabama, Hawaii, Oklahoma, and Wyoming—fiscal year 2001 MSIS data were unavailable; for those states, we continued to use the targets we tabulated from the fiscal year 2000 MSIS data.

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<sup>16</sup> The FY 2001 MSIS data used by Urban Institute staff are a version of the data prepared by CMS for use by researchers.

Tabulating the administrative data ourselves provides significant advantages over using published Medicaid enrollment counts for several reasons. First, with the microdata, we can specifically exclude institutionalized enrollees, rather than having to make percentage adjustments to published numbers based on relationships from prior data. Second, we can specifically count people who are both elderly and disabled as elderly, instead of having to adjust published numbers based on the percentage of disabled who were elderly in prior data. Third, and more importantly, we are able to exclude from our tabulations the individuals who are not eligible for a full range of Medicaid services. In the course of creating the 2000 targets, we discovered that the published data include individuals who receive some benefit from Medicaid funds, but who are not fully insured by Medicaid—including illegal aliens receiving emergency aid, elderly people for whom Medicaid pays a Medicare premium, and persons receiving just a single service, such as family planning benefits. For TRIM3 purposes, it is important that we exclude individuals who are not fully eligible for Medicaid services, because they would not be captured as eligible for Medicaid by the simulation. Finally, while the MSIS data include children covered by SCHIP-funded Medicaid expansions, we exclude those records from our tabulations of the MSIS data so that our Medicaid and SCHIP targets are mutually exclusive.

### **Administrative data on SCHIP enrollment**

For the 2001 simulation, our information on actual SCHIP enrollment continues to come from published data sources. Administrative data on SCHIP enrollment were obtained from two publications for the Kaiser Commission on Medicaid and the Uninsured, “SCHIP Program Enrollment: June 2003 Update” and “SCHIP Program Enrollment: December 2003 Update” (both authored by Vernon Smith and David Rousseau). The reports include children enrolled in either an SCHIP-funded Medicaid expansion program or a separate state SCHIP program. Monthly enrollment figures were available for three months in or adjacent to 2001--December 2000, June 2001, and December 2001. We averaged those three months to obtain our average monthly targets. As monthly enrollment appears to have increased linearly during 2001, the data from these three months should accurately reflect average monthly enrollment. On a national level, the average between December 2000 and December 2001 was almost identical to enrollment in June 2001.

While CMS does publish annual SCHIP enrollment (for the fiscal year), this total presumably includes some children who are also covered by Medicaid in other months of the year, and therefore captured in the MSIS data. Thus, we are not able to add up Medicaid and SCHIP annual targets to obtain a total annual Medicaid and SCHIP target.

## **Medicaid participation rates**

### **Results for 2001**

The average monthly participation rates obtained by combining the simulated eligibility data and the actual caseload data are shown in Table 4. The data suggest that in the average month, the participation rate among those eligible for Medicaid is 76.1 percent for children, 59.6 percent for adults, 74.2 percent for the disabled, and 40.0 percent for the elderly. Overall, the average monthly Medicaid participation rate is 67.0 percent. For SCHIP, the participation rate is estimated at 58.4 percent. Combining both Medicaid and SCHIP, approximately 66.1 percent of the people eligible to enroll in the average month are actually enrolled.

Note that the “continuous enrollment” of children in Medicaid and/or SCHIP in some states has implications for the comparison of enrollment and eligibility figures. Continuous enrollment (discussed further in the next section) has the effect that a child may be enrolled in some months when he or she is not technically eligible according to monthly income. In contrast, TRIM3’s eligibility estimates count only those months when the child’s family’s income falls under the applicable income threshold. Thus, some child-months of Medicaid or SCHIP enrollment may be in the numerator but not in the denominator, thereby overestimating the participation rate of children. Resources permitting, we could produce alternative eligibility counts that include the estimated months that a child would be eligible for continuous enrollment.

Among the nine states with the largest non-institutionalized Medicaid/SCHIP caseloads, the lowest combined Medicaid/SCHIP participation rates are seen in Michigan (45.3 percent) and Texas (56.5 percent) and the highest plausible rate is computed in California (77.9 percent). TRIM did not find enough Medicaid children and adults to meet the targets in Illinois, which may contribute to the high implied participation rate in that state. In Tennessee the number of simulated eligible people is less than the target, leading to a “participation rate” of 119.7 percent. This could be due to problems in the administrative data or our processing of it, problems in the eligibility simulation, or some sort of definitional mismatch between the two.

All of these figures should be interpreted with some caution. As discussed later in this memo, the fact that our simulated number of eligible individuals is less than the target for some user groups in some states (including some large states) suggests problems with the administrative data, the eligibility simulation, or the comparability between the two.

### **Comparison to 2000 participation rates**

Between 2000 and 2001, Medicaid participation rates appear to have been very stable for children, adults, and the elderly. However, the participation rate for Medicaid-eligible disabled people fell from 2000 and 2001, and the rate for SCHIP-eligible children increased from 2000 to 2001.

The estimated Medicaid participation rate among the disabled was 82 percent in 2000, much higher than the estimated rate of 74 percent for 2001. The participation rate increase is due to the 12 percent increase in estimated eligibility for the disabled combined with an increase in actual Medicaid enrollment among the disabled of only 1.5 percent.

The estimated SCHIP participation rate rose from 47 percent in 2000 to 58 percent in 2001. This appears to reflect actual increases in participation rate, possibly resulting from increased outreach by the program coupled with the economic changes in 2001. While simulated average monthly eligibility rose 11 percent between 2000 and 2001, the actual average monthly SCHIP caseload rose by 37 percent.

Note that the 2001 Medicaid simulation is not perfectly comparable with any prior simulation (including the 2000 baseline) due to changes in methods and correction of errors in program rules. (A consistent series of Medicaid participation rates could be produced by rerunning past simulations using the current methodology.)

## **CORRECTING THE CPS FOR UNDER-REPORTING**

One of the key purposes of the TRIM3 Medicaid simulation is to correct for the underreporting of Medicaid coverage in the CPS. The TRIM3-simulated Medicaid enrollment variable can then be used in place of the CPS-reported Medicaid enrollment variable when the under-reporting of Medicaid in the CPS would be problematic for a particular analysis.

### **Extent of Medicaid under-reporting in the CPS**

Table 5 shows the extent of under-reporting of Medicaid and SCHIP in the March 2002 (CY 2001) CPS. For an average month in 2001, no more than 28.0 million people are reported to have been enrolled in Medicaid or SCHIP—a figure that is only 80.9 percent of the actual average monthly enrollment according to administrative data and our tabulations. The estimate of 28.0 million average monthly reported Medicaid/SCHIP enrollment is a high estimate<sup>17</sup>; a more exact estimate would probably suggest a lower percentage of actual enrollment captured in the CPS.

For the categories in which ever-enrolled targets are available, the problem of under-reporting appears to be worse on an annual basis than on an average monthly basis. That may suggest that people enrolled in Medicaid or SCHIP for more months of the year are more likely

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<sup>17</sup> This tabulation uses the CPS-reported data on the number of months that a person is reported to have been enrolled in Medicaid, weighting each reported annual enrollee by the fraction of the total year in which he or she was enrolled. However, that number of months is not available for SCHIP reporters, individuals who were “allocated” as reporters by the Census Bureau, and individuals whose Medicaid report is the result of Census Bureau editing procedures. This table counts these individuals as reporters for the full year even though they may have only been enrolled for a fraction of that time.

to report their enrollment than people enrolled for fewer months. Alternatively, it may be that people over-report their months of enrollment, forgetting that they were not enrolled in the first few months of the calendar year. Or, the average monthly percent-reported rates may be sufficiently inflated that the ever-enrolled numbers reflect a truer reporting rate.<sup>18</sup>

The portion of the actual caseload captured in the CPS varies by user group. The shortfall from our targets is greatest for children; the CPS appears to capture 72.6 percent of the average monthly children's caseload. Reporting appears somewhat better for adults and the disabled, with the percentage of average monthly caseload captured in the CPS at 91.9 percent for the adults and 88.7 percent for the disabled. The percentage of the annual Medicaid caseload that appears to be captured in the CPS is 69.8 percent for adults and 81.8 percent for the disabled.

For the elderly, reported annual Medicaid enrollment is 93 percent of the target, and it exceeds the target by 2.7 percent in average monthly terms. This could be due to a combination of almost-perfect reporting plus sampling error. However, it is more likely, as is discussed later, that some confusion between Medicaid and Medicare is causing some over-reporting of Medicaid among the elderly.

Among the largest states, the percentage of the average monthly caseload that appears to be captured in the CPS data ranges from a low of 71.2 percent in Pennsylvania to a high of 88.9 percent in Texas. These differences could be due to a combination of factors: sampling variation, differences in reporting behavior due to different demographic characteristics across the states, and state-specific issues with administrative data.

As mentioned above, our tabulations of "CPS-reported" Medicaid/SCHIP enrollees include individuals who did not answer the questions about Medicaid/SCHIP enrollment in the CPS interview, but whose missing responses were "allocated" (imputed) by Census Bureau procedures to be "yes" responses. Approximately 23 percent of the annual Medicaid/SCHIP reporters in the March 2002 (CY 2001) CPS data were "allocated reporters" rather than actual reporters. The Medicaid/SCHIP module found 41 percent of those allocated reporters to be ineligible--compared to 11 percent of actual reporters--indicating that the allocation procedures may not take into account a full range of detailed state-specific Medicaid/SCHIP eligibility rules.

As described below, the TRIM3 simulation corrects for the much of the under-reporting of Medicaid/SCHIP enrollment in the public-use CPS data. In the process, it also "moves" some enrollment from individuals whose enrollment was actually imputed (and who do not seem eligible) to other individuals who do appear eligible.

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<sup>18</sup> We do not show the percent of ever-eligible children who reported due to issues in both the CPS data and the targets. Because it does not appear that respondents reliably distinguish between Medicaid and SCHIP in replying to CPS questions, we do not have separate estimates of children reported to be enrolled in Medicaid vs. SCHIP, only a single estimate of children reported to be enrolled in either program. However, we have no corresponding combined target for Medicaid and SCHIP annual enrollment, because our available SCHIP annual target includes some children also enrolled in Medicaid during the year.

## **Selecting Medicaid/SCHIP participants from among the eligibles**

### General procedures

TRIM3 selects which of the people simulated as eligible for Medicaid will participate in the program. The goal is to create a simulated caseload that comes as close as possible to the actual average monthly caseload in terms of overall size, program (SCHIP vs. Medicaid), type of person, and state of residence. For SCHIP, there is just one target for each state (rather than separate targets for Medicaid-expansion vs. separate state SCHIP programs). For Medicaid, there are four targets per state, covering children, adults, disabled, and elderly enrollees. For both Medicaid and SCHIP, the targets used for alignment are average monthly enrollment targets. Those are the only targets available for SCHIP, but for Medicaid, annual targets are also available. Since the 1997 baseline, we have aligned to the average monthly caseload targets based on judgments by researchers in the Urban Institute's Health Policy group that the average monthly targets were more reliable. Alignment to average monthly targets is also consistent with the alignment of the SSI, TANF and Food Stamp modules, which also use monthly targets. The 2001 baseline is the first to use the lag-time variable to help align the number of simulated ever-enrollees to the annual targets.

The methodology for creating the simulated caseload has a few key characteristics, as follows:

- Treatment of ineligible reporters: With the exception of continuous enrollment (discussed below) only individuals simulated as eligible for Medicaid or SCHIP are included in the simulated caseload. In other words, individuals who report being enrolled in Medicaid or SCHIP in the CPS but who do not seem eligible according to TRIM3 are never included in the simulated caseload. Note that the simulation makes every effort to find reported-enrollees eligible. For instance, reporters whose income initially appears too high for eligibility are assumed to have high medical expenses if they live in a state with medically-needy eligibility.
- Treatment of simulated cash recipients: Eligible individuals who were simulated as receiving SSI or TANF in those TRIM3 simulations (which precede the Medicaid simulation) are always simulated to enroll in Medicaid or SCHIP. Cash recipients would be the most likely to know about their eligibility; and if they are willing to take cash, they are probably unlikely to turn down health insurance.
- Treatment of eligible reporters: Eligible individuals who report being enrolled in Medicaid or SCHIP (considering only actual reports, not allocated reports) are generally included in the simulated caseload. In some cases (discussed further below) a portion of eligible reporters who are not cash recipients may be excluded from the simulated caseload to avoid greatly exceeding the target for a particular state and user group.

- Treatment of eligible non-reporters: Persons who are simulated as eligible, but who do not report coverage are simulated to enroll in sufficient numbers to come close to targets by state and user group. For instance, if the sum of eligible cash recipients and eligible reporters is 10,000 short of the target for a particular state and user group, and there are 50,000 eligible individuals in that “cell” who are neither cash recipients nor reporters, 20 percent will be randomly chosen to enroll.
- Possibility of enrollment in some but not all months of eligibility: Beginning with the 1999 baseline, it is possible for an individual to be simulated to enroll in some but not all of his or her months of eligibility. This may occur if a person reports a number of months of enrollment that is less than his or her total months of eligibility, if he or she is a cash recipient for some but not all months of eligibility, or if a child is eligible for Medicaid in some months and SCHIP in other months. In those instances, the different types of eligible-months may wind up with different participation decisions. For instance, an individual who is eligible for 12 months but who reports being enrolled for six months may be simulated to enroll in only the six “eligible reporter” months but not the six “eligible non-reporter” months.
- Possibility of delay in starting a spell of enrollment: Starting with this baseline, it is possible to simulate a lag of from 1 to 11 months in reaching the eventual participation percentage for a particular state and user group. This new aspect of the simulation is discussed further below.

The percentages of eligible non-reporters to be included in the caseload (or percentages of eligible non-cash reporters to be excluded) are iteratively adjusted for each cell in the target matrix until the overall results are acceptably close to targets. It is usually necessary to balance various goals. For example, when there are insufficient eligible individuals to reach the target for a certain user group in some states (as discussed further below) the target must be exceeded in other states in order to hit the national target.

Note that while the participation decision is generally made on an individual basis, adjustments are made so that individuals in the same family with the same reason for Medicaid eligibility usually have the same enrollment decision.

Also note that currently, if a child is eligible for regular Medicaid in some months but SCHIP in other months, those pools of eligible months are treated separately. For instance, a child might be modeled to enroll in his or her Medicaid months but not the SCHIP months. We would like to more closely examine the enrollment results for these dual-eligible children, and consider whether any code should be added to increase consistency between Medicaid and SCHIP enrollment decisions.

## Continuous enrollment of children

As mentioned earlier, starting with this 2000 baseline, we now simulate continuous enrollment of children in Medicaid and SCHIP in the states that have adopted those policies. Continuous enrollment allows a child to remain enrolled in Medicaid or SCHIP for a certain number of months without requiring the parents to report changes in income or other circumstances. Thus, under continuous enrollment rules, a child might be covered by Medicaid or SCHIP in a month when he or she is technically ineligible based on the family's income in that particular month. In 2001, 19 states provided 12 months of continuous coverage for Medicaid (except medically-needy), 16 states provided continuous coverage for SCHIP-funded Medicaid expansions, and 23 provided 12 months of continuous coverage for state-separate SCHIP programs. A total of 31 states provided some sort of continuous enrollment for children in 2001.

If a state provides continuous coverage for a certain category of enrollees, then a child in that category who is initially simulated to enroll is automatically simulated to enroll for the full continuous-coverage period. For example, if the rules indicate 12 months of continuous coverage for non-medically-needy Medicaid children, a child first simulated to enroll in March will be automatically simulated as enrolled through the end of the year. A child may not be able to “use” all of his or her months of continuous coverage during the simulation year, if the simulation year ends before the months are used. Since we do not model the opposite case when a child is eligible in January due to a spell of continuous coverage that began in the prior year, the effects of continuous coverage are slightly under-stated.<sup>19</sup>

Note that the simulation of continuous enrollment is not affected by the monthly eligibility information simulated by TRIM3. Once a child covered by continuous enrollment is simulated to enroll in a particular month, he or she is simulated to enroll for the rest of the continuous enrollment period, even if he or she is technically ineligible in some or all of the remaining months in the period. Further, the simulation of continuous enrollment does not affect the simulated eligibility, as currently programmed. A child might be simulated to enroll in a month when he or she is coded as ineligible. Or, a child might be simulated as enrolled in Medicaid in a month when he or she is coded as eligible for SCHIP, but not Medicaid.

The current simulation of continuous enrollment does not capture all the nuances of the rules. In particular, we do not capture the fact that, in at least some states (and possibly all states) a child's continuous SCHIP enrollment ends if he or she becomes enrolled in ESI and/or if he or she becomes eligible for Medicaid. We can consider refining the simulation of continuous enrollment in future simulations, depending on ASPE's priorities and time/resource constraints.

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<sup>19</sup> Alternatively, we could modify the programming so that months of continuous coverage would “wrap around” the year as necessary. For example, if the child is first eligible in October, with 12 months of continuous coverage, he or she could be simulated as enrolled in October through December as well as in January through the following October; that would be incorrect from a micro-level perspective. More complex approaches could also be explored.

### **Change in methods: Potential for a lag in starting Medicaid/SCHIP enrollment**

As mentioned at the start of this paper, one of the key changes in the 2001 baseline is the simulation of a “lag” in the start of some Medicaid and SCHIP enrollment spells. In past years, TRIM has consistently fallen short of annual Medicaid targets when average monthly targets are reached. In 2000, for example, total Medicaid and SCHIP ever-on enrollment was only 91.8% of the national target, even though the average monthly target was reached almost exactly. The shortfall in annual caseload could be due to inaccuracies in the eligibility modeling leading us to model eligibility spells that are too long; problems in the targets; and/or the failure to model the real-world dynamics of enrollment.

The lag-time approach addresses one possible reason for the shortfall in annual enrollment: the possibility that the likelihood of enrollment increases in the first few months after initial eligibility, leading to enrollment spells that are shorter than eligibility spells. Prior to this change, some individuals were modeled as enrolling for fewer months than they were eligible when they were eligible for Medicaid in different months for different reasons, or when they reported eligibility for fewer than 12 months. However, the modeling of an explicit participation lag leads to more individuals who are enrolled for fewer months than they are eligible. With shorter spell lengths, the same average monthly enrollment results in higher annual enrollment.

In the 2001 baseline, we used a lag of three months before applying the full participation percentage for an eligible non-reporter’s state and user group. The lag is progressive so that a person becomes more likely to enroll over the course of the lag-period. For example, with a lag of 3 months, if the full percentage is 40 percent, the individual will have a 10 percent chance of enrolling in the first month, a 20 percent chance in the second month, a 30 percent chance in the third month, and a 40 percent chance in the fourth and subsequent months of the eligibility spell. Because the random numbers used for the participation decision are constant throughout the year, once the lag time is passed individuals will either enroll or not for the remainder of their eligibility period (assuming no change in reporter status or cash reciprocity status).

Two technical points are important to the effect of the lag. First, the lag does not effect the simulated participation of eligible reporters or eligible cash recipients. Eligible cash recipients are always simulated to enroll in all of their eligible months regardless of the setting of the lag; eligible reporters are always simulated to enroll in all of their reporter months unless the participation factor has been set to a negative value. Second, for eligible individuals who are neither cash recipients nor Medicaid/SCHIP reporters, the simulated lag in reaching the eventual participation probability is implemented in a way that no enrollment spell is completely ended that would have otherwise been simulated. Without this feature, the lag would cause many individuals eligible for short spells to completely stop participating, thus working against the goal of the method.

## **Simulated Medicaid and SCHIP caseloads compared to targets**

Tables 6 through 12 compare the simulated Medicaid/SCHIP caseload for 2001 to the targeted caseload. Table 6 gives overall average monthly results, Table 7 gives overall ever-on results, and Tables 8 through 12 give detailed results for subgroups: children enrolled in Medicaid, adults, disabled people, elderly people, and children enrolled in SCHIP. The simulated average monthly caseload is only 0.1 percent lower than the overall average monthly target. Alignment to the average monthly caseload is very good for the various user groups, and reasonably good at the state level. There are a number of states and user groups for which we found insufficient eligible individuals to hit the target. These states and their corresponding targets deserve closer examination as time and resources allow. The simulated annual caseload is six percent below the target; however, this is closer to the annual target than in past years.

Table 6 shows the average monthly alignment results by user group and for the largest states.<sup>20</sup> Overall, the average monthly number of people simulated as enrolled in Medicaid or SCHIP in the average month of 2001 is less than 0.1 percent short of the target. Additionally, the combined enrollment of children in both Medicaid and SCHIP is within 0.1 percent of the target. The total average monthly enrollment for Medicaid, excluding SCHIP, is within 0.1 percent of the target. Simulated enrollment is 0.2 percent below the target for children's Medicaid, 0.3 percent above the target for SCHIP, 0.6 percent below target for non-elderly non-disabled adults receiving Medicaid, 0.6 percent above the target for disabled individuals, and 0.5 percent above the target for elderly individuals. Among the nine largest states, average monthly combined Medicaid/SCHIP caseload is within five percent of target in five states, and within 10 percent of target in two states. In two large states—Illinois and Tennessee—the simulation is significantly below target (14.7 and 20.5 percent respectively) because for both children and adults the number of eligibles found by the simulation was significantly below the target. This under simulation of eligibles is discussed further below.

Table 7 shows the annual simulated eligibility compared to the targets for children, adults, the disabled, and the elderly in Medicaid. SCHIP children are not included as we do not have reliable annual targets. Ideally, hitting the average monthly targets would also result in hitting the annual targets. However, since we began comparing both average monthly and annual targets for Medicaid in 1997, we have always been below the annual targets when we hit the average monthly targets because TRIM generally models “spells of enrollment” that are, on average, longer than implied by the MSIS data. The change in participation methodology that was implemented for the 1999 baseline—allowing individuals to participate in some but not all months of eligibility in some cases—brought us closer to the annual targets. This year's lag-time variable continues the process of shortening individuals' enrollment spells.

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<sup>20</sup> In addition to aligning to targets by state and by unit type, the SSI, TANF, and Food Stamp modules also align to targets by immigrant status. However, such targets are not available for Medicaid and SCHIP.

We were somewhat conservative in applying the lag-time this year, as 2001 is the first baseline to use it. The lag-time variable theoretically affects all user groups equally by applying a reduced probability of enrollment to all non-reporter, non-cash eligibles during the first several months of their eligibility period. However, in testing it in the 2001 baseline, it quickly became clear that some groups of people are far more affected than others by the lag-time. Since the number of elderly cash recipients and reporters already exceeds the national target, the lag-time had very little effect on the elderly. Children and non-disabled adults were the groups whose average enrollment spells were most affected by the lag.

For the final 2001 baseline, a lag-time of three-months was used. This brought the simulated annual enrollment to 94.1 percent of the target, up from 91.8 percent in 2000. Adults' simulated annual enrollment grew from 89.7 percent in 2000 to 96.8 percent in 2001, and children's simulated annual enrollment grew from 93.4 percent in 2000 to 95.7 percent in 2001. The effect was smallest for the elderly; the simulated annual enrollment among the elderly went from 89.6 percent of the target in 2000 to 89.8 percent in the 2001 baseline. While using a longer lag could have brought the annual adult and children's caseloads closer to the annual targets for those user groups, it would have had almost no effect on the annual caseloads of disabled and elderly individuals. Thus, to reach the total annual target for all user groups combined would have required exceeding the annual targets for adults and children.<sup>21</sup>

Tables 8 through 12 each present state-specific average monthly simulation results and targets for a particular user group. Table 8 shows the Medicaid simulation results and targets for children (excluding SCHIP), for the nine largest states and the balance of the U.S. The simulated results are within 10 percent of target for six of the nine largest states. In Pennsylvania and Tennessee the targets could not be reached because the simulation identified fewer children as eligible for Medicaid than apparently were enrolled according to our tabulations of the administrative data. That problem of "insufficient eligibles" also occurred in six smaller states (not shown separately). On average, the shortfall of the eligible number from the target was 12 percent. Several of these states were very small, such as Delaware and Wyoming. In these cases, simulation of an insufficient number of eligibles probably results more from sampling error than inherent problems with the modeling process or the enrollment targets.

In several states, such as New York and Pennsylvania, there are a sufficient number of eligible children to meet the targets, but complications in the model do not allow full enrollment. For example, even when all children are given a 100 percent change of enrolling, the lag-time variable will reduce their enrollment during the first three months. Additionally, if they are being enrolled with their family and their parents are not enrolled in an effort to meet adult targets, the children may not be enrolled either.

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<sup>21</sup> The effect of the three-month lag-time may be greater than the difference between 91.8 and 94.1, as the 2000 baseline memo probably over-stated percent-of-target-simulated for annual enrollment. The tabulation of ever-enrolled children used for the 2000 memo slightly overstated the true figure, a problem we have corrected for this year's analysis. Further, the total annual target may have been under-stated by using average monthly SCHIP eligibility as a proxy for annual SCHIP eligibility; although this effect may have been offset by not adjusting the figure for double-counting of children enrolled in both Medicaid and SCHIP 2001.

For adults (Table 9) simulated average monthly enrollment is within 10 percent of target in eight of the nine largest states. It was necessary to somewhat exceed the targets in many states due to insufficient eligibles in Illinois, Tennessee, and four smaller states. The average shortfall of the eligible number from the target in these six states was 13 percent.

For the disabled (Table 10) the simulated average monthly enrollment is within five percent of target in seven of the nine largest states, and within 10 percent of target in the remaining large states. Tennessee did not have enough eligibles to meet its target, as was also the case in eight smaller states. Among the states that had insufficient eligibles to meet their targets, the average shortfall was seven percent.

Among the elderly (Table 11), simulated average monthly enrollment was within 10 percent of target in eight of the nine largest states. Ohio and Texas, along with four smaller states had insufficient eligibles to meet the targets. Among these six states, the average shortfall was thirteen percent.<sup>22</sup>

Table 12 shows results for the SCHIP program. For four of the nine largest states, simulated average monthly enrollment was within 10 percent of the target. California was significantly above target (123 percent) but this was driven entirely by eligible reporters. As discussed above, SCHIP and children's Medicaid reporters are treated the same by TRIM. It appears that TRIM is modeling more children as eligible for SCHIP in California but fewer eligible for Medicaid than are actually being enrolled. Rather than remove reporters for California's SCHIP pool, we allow California to overshoot its SCHIP target and while remaining slightly under its children's Medicaid target. Because there are so many more children in Medicaid than SCHIP, the total number of children enrolled in California in either Medicaid or SCHIP is ultimately with two percent of the state target. Simulated SCHIP enrollment is 60 percent below target in Michigan due to insufficient eligibles. In Tennessee, the SCHIP target was very low—10,000—and TRIM found 1,000 children in Tennessee eligible for SCHIP. The simulated number of SCHIP-eligible children was also below the target in New York and in eight smaller states.

Note that children's Medicaid and SCHIP are the two programs where we have the most states with insufficient eligibles. This may result from inconsistency between the Medicaid and SCHIP targets rather than an overall lack of eligible children. In 2001, 11 states had insufficient children to meet SCHIP targets. Nine states had insufficient children to meet children's Medicaid targets. However, only five states actually had less eligible children than the combined Medicaid and SCHIP target. Discrepancies in how states report enrolled children may account for some of these targeting challenges.

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<sup>22</sup> The elderly category was the only category where a significant number of reporters had to be "disenrolled" in order to meet the targets. It is possible that elderly individuals mis-report Medicare as Medicaid due to confusion between the names of the programs. We would like to consider the possibility of only disenrolling those elderly Medicaid reporters who did not report Medicare enrollment but who were simulated as enrolled in Medicare by the TRIM3 Medicare module.

## **Effect of under-reporting correction on estimated number of people uninsured**

One impact of TRIM3's adjustments for under-reporting is a reduction in the number of people who appear to be uninsured in the CPS data. According to the public-use March CPS data, 41.2 million people were without any kind of health insurance for all of calendar year 2001. The TRIM3 simulation results in some people being assigned Medicaid or SCHIP coverage who were not reported to have any kind of health insurance; thus, those individuals no longer appear to be uninsured. The TRIM3 simulation also adds some individuals to the count of the uninsured, by "taking away" CPS-reported Medicaid or SCHIP from individuals who appear to be ineligible, and by not simulating as Medicaid/SCHIP enrollees some of the individuals who did not actually report such coverage but who were imputed to have that coverage by the Census Bureau allocation procedures. The net result of the TRIM3 model's adjustments to the Medicaid/SCHIP enrollment data in the public-use CPS is a decline in the number of people uninsured for the entire year of 3.6 million, to 37.6 million.

It is important to note that TRIM3's current methods for correcting for under-reporting do not take into account whether or not an eligible individual reported some other type of health insurance. Assuming that Medicaid-eligible individuals with other health insurance sometime during the year are either more or less likely to enroll in Medicaid than otherwise-identical individuals without other coverage would produce different results. As research becomes available that suggests what assumptions are most appropriate, we will work with ASPE staff to incorporate them into TRIM3's methods.

## **AREAS FOR FURTHER ANALYSIS AND/OR DEVELOPMENT**

As discussed elsewhere in this paper, several aspects of our Medicaid/SCHIP modeling could benefit from further analysis and/or development. Several developments are already planned under the current TRIM contract. There are also other possible improvements to pursue as resources permit.

### **Tasks scheduled for the current contract year**

- Updated Medicaid participation function: The current method for selecting the enrolled caseload from among the eligible individuals does not take into account any factors other than state and user group. As part of this task, which began in the first year of this contract and continues this year, we will consider improvements and implement those agreed-upon with ASPE. One key area for improvement is to come closer to annual targets; to do so, we need to better understand the spell lengths and dynamics in the MSIS data vs. the TRIM-simulated eligibility data. Another important area for consideration is the relationship between Medicaid participation and other insurance coverage, among Medicaid-eligible individuals.

- Medicaid spend-down: The current method of modeling Medicaid “spend down” for purposes of medically-needy eligibility is simplistic, using the same expenditures for every person of the same user group and state. Under this task, we will explore and implement improvements.
- Ineligible reporters: TRIM3 finds 11 percent of actual (non-allocated) reporters to be ineligible for Medicaid or SCHIP. Under Subtask 4.9, we will examine “ineligible reporters” in all the transfer program modules, including Medicaid, to determine whether changes need to be made in our modeling procedures.

### **Tasks scheduled for the next contract year (starting September 2005)**

- SCHIP for parents: In option year 2 of the contract, we will review actual rules being used to provide SCHIP for parents and make changes in the model to capture those rules.
- Assessing Medicaid targets: Also in option year 2 of the contract, we will review our procedures for developing Medicaid targets, paying particular attention to the relationship between average monthly and ever-on targets. We will also review the methods for obtaining the SCHIP targets.

### **Other areas for improvement**

In addition to the issues that will be explored in these development tasks, there are other areas that could also benefit from further analysis and/or development, including:

- Possible over-reporting by elderly individuals: We would like to better understand the apparent over-reporting of Medicaid by elderly individuals. In particular, we would like to explore the possibility that Medicare coverage is being mis-reported as Medicaid. We would like to avoid “disenrolling” eligible individuals who reported Medicaid enrollment without additional justification.
- SCHIP/Medicaid Differentiation: We would like to consider our current methods for differentiating between SCHIP and Medicaid for both eligibility and targeting purposes. For example, we would like to review more state Medicaid manuals to determine whether they test for optional Section 1931 Medicaid eligibility for children before or after SCHIP eligibility.
- Insufficient eligibles: In certain user groups and states (including some large states) we find insufficient eligible people to meet the target. This could be due to problems with targets (which will be considered as part of the development task examining Medicaid targets) but could also be due to problems with the eligibility simulation. As time and resources allow, we would like to examine selected cases in more detail.

- Detailed eligibility rules: Some Medicaid eligibility rules are needed for detailed microsimulation work but are not available on a state-by-state basis (or not available regularly) from any published source. We would like to consider the feasibility of reviewing state Medicaid manuals for a subset of states, on a periodic basis, to improve our modeling of these rules. One notable example is the discovery from some Medicaid manuals that at least several states are removing their asset tests for children. Capturing these detailed rules may help us explain the discrepancy in some states between the number of simulated eligibles and targeted enrollees.

We look forward to continuing to improve TRIM3's Medicaid/SCHIP simulation.